OPERATOR'S

MMC i-TECH CUTTER MANUAL

Manual Date August 2010 for build 12-F or later

http://www.allendatagraph.com/

Limited Warranty Agreement

ALLEN DATAGRAPH i-TECH cutters are warranted to be free of defects in both materials and workmanship. Should any part of this equipment be defective, it will be repaired or replaced, at the option of the manufacturer, at no charge for parts or factory labor for a period of two (2) years from the date of installation. All warranty services are performed at the Allen Datagraph factory. Replacement parts not installed at the factory will be billed to the customer at regular prices and credit will be issued when the defective parts are returned. The customer is responsible for freight on warranty parts and repairs.

This warranty is void if:

1.   The equipment has been damaged by negligence, accident or mishandling, or has not been operated in accordance with the procedures described in the operating instructions;

or:

2.   The equipment has been altered or repaired by other than an approved service station or factory service center, or adaptations or accessories have been attached to the equipment that shall have adversely affected the performance, safety, or reliability of the equipment.

NO OTHER WARRANTY, EXPRESSED OR IMPLIED, APPLIES to the equipment. Allen Datagraph does not assume any responsibility for consequential damages occasioned by the equipment, or inconvenience or interruption in operation.

In case of unsatisfactory operation, Allen Datagraph or its Dealer should be notified immediately.

Service Policy

When making your decision as to which way to proceed with the repair of your ADSI equipment, please bear in mind that troubleshooting of complex electronic equipment can sometimes take multiple attempts to repair an issue. It is always best from a manufacturer's point of view to have the complete system in-house to insure that the machine is in perfect working order when you receive it back from us. Please consider all aspects before making your decision as to which option to utilize. We make every attempt to minimize downtime for our customers, and sometimes the best way is to have the machine in our facility.

WARRANTY SERVICE:

Option 1)   **ATTEMPT TO REPAIR OVER THE PHONE:** We do not normally encourage customers to repair ADSI equipment on their own. Sometimes, in the interest of minimizing downtime, and under the guidance of ADSI service personnel, we will try and repair an issue over the phone. This may require that you ship us parts from your machine as per the warranty statement found in the front of your ADSI user's manual, or for ADSI to ship parts to you for installation.

NOTE: Any replacement parts shipped to you require that you ship the old parts back to ADSI unless previously approved. Failure to do so will result in the parts being charged to you. All returned parts require a Return Material Authorization Number (RMA), which must be obtained from an ADSI representative prior to return shipment.

All phone-supported repairs are handled on a per-case basis, and at the discretion of ADSI Service personnel.

Option 2) **SERVICE AT OUR FACILITY:** Ship the machine to ADSI for repair under the terms of the written warranty statement found in the user's manual. Parts and labor are provided at no charge to the customer, but the customer is responsible for freight to and from Allen Datagraph.

**Option 3)** **ON-SITE SERVICE:** ADSI will, on occasion, for the cost of all airfare and travel expenses, send an ADSI technician to your facility to repair in-warranty equipment. Parts and labor are provided at no cost to the customer. Bear in mind that on-site service is sometimes not the most cost or time-effective way to resolve issues and may result in longer down time due to scheduling of airfare, etc.

NON-WARRANTY SERVICE:

 In most out of warranty repair scenarios, we require customers to send the machine to us for repair. This is the best way to insure that the machine you get back will be fully functional upon arrival at your facility.

In some cases we may determine that the problem is a simple one, such as a belt, and decide the issue may be resolved without shipping the machine in. In this case, you can decide to repair the machine yourself. This will require us to ship parts to you for installation. Parts will be charged at retail pricing prior to shipping. Bear in mind that this method may ultimately increase downtime and/or may take more than one attempt to resolve the issue. If the issue cannot be resolved in a timely manner, the machine will be required to be shipped to ADSI for service.

 **NOTE:A credit card number is required at the time of shipment of any parts. In a warranty situation, the card will not be charged with the exception of shipping charges, as long as parts are returned to ADSI in a timely manner. Non-warranty parts are required to be paid in full prior to shipment.**

Technical Support

Up to 4 hours of call in technical support is available at no charge during the warranty period. Technical support is available during business hours based on Eastern Time Monday thru Friday. Technical support outside the limits stated will be billed at current rates.

For Technical support call: 603-216-6344

There are many online documents available to help you to use the Cutter at our technical support page at http://www.allendatagraph.com.

Installation
SET-UP

Some Allen Datagraph products require specialized installation in order for the limited warranty to remain in effect, ask your dealer or contact technical support at Allen Datagraph for details.

Unpack all accessories and the unit. See installation and assembly instructions in Appendix A.

Power Connection

Important Note: Use of a HIGH QUALITY surge protector or uninterruptible power supply is REQUIRED by Allen Datagraph Systems. Failure to do so could affect your warranty coverage if a problem arises due to improper power connection.

CAUTION: The power cord is a three-conductor cable that incorporates a safety (earth) ground connection. For the machine to operate safely and correctly, the power cord _must_ be plugged into an outlet that has an earth ground contact. _Never_ plug the power cord into a two-prong outlet by using a 3=2 cord adapter.

100-240 VAC / 47-63 Hz 250 watts

Hot tip is: 100-132 VAC / 47-63 Hz or 180-240 VAC / 47-63 Hz 300 watts

i-TECH Cutter Stand

The i-TECH CUTTER comes equipped with a deluxe stand. Assembly instructions for the stand are packaged inside the stand box that arrived with your cutter.

Note: The material rollers and associated brackets are packaged inside the cutter box, under the packaging foam. It is necessary to remove the foam in order remove the parts.

Computer Connection

System Interfacing

All Allen Datagraph products utilize either USB (universal serial bus) interface or Ethernet connection. Connection from PC to cutter is either by USB or Ethernet. If you want to read about using the Ethernet port for the cutter see the document Website Copy / CD Copy.

The Cutter comes with a software installation CD that walks you through the installation of the software on the computer you are using. Do not plug any cables or power cord until asked to do so by the installation cd.

If you plug in the usb before the driver is installed the usb driver may not be installed correctly. See "usb driver repair" if you did this before you read the instructions. http://adsi-usa.com/techsupport/cutterdriver.html / CD Copy.

If you do not have the CD you may download the cutter driver and install it from this page. Choose latest version. http://adsi-usa.com/techsupport/cutterdriver.html. Then download and install the remote panel program from this page: http://adsi-usa.com/techsupport/i-TECHfirmware.html. If you are using AllenCAD you may download latest version from: http://adsi-usa.com/techsupport/AllenCAD.html. To download other Technical support bulletins go to http://adsi-usa.com/ click on tech support, then online documents, Find your cutter, cutter driver, or AllenCAD on the list shown and click on it.

Loading Allen i-TECH Software

The Firmware Utility CD installs:

1. The Remote Panel Utility program for managing machine settings.
2. A current revision of firmware.

   "Firmware" is software that controls the machine functions. ***The firmware on this disk is provided for update purposes only and should not be installed on new machines.***

3. Manual and sample jobs.
4. Cutter driver for Windows 7, Vista, or Window XP.

Windows 7, Vista, or Windows XP DirectCUT Driver

This printer driver has been tested with CorelDRAW (version 10-x5), Adobe Illustrator (version 10-cs5), Flexisign, Inkscape, and PowerCAD. It should work with any program that sends vectors rather than bitmaps to the printer. Allows cutting directly from windows graphics programs without requiring additional software purchases. **Note:** Driver requires ownership of Allen Datagraph Equipment to use. Requires: Windows 7, Vista or Windows XP.

Software Updates

Software updates after the product ships will be available on the tech support section of the http://allendatagraph.com web site.

To update to a later version of software when recommended to do so by the tech support department, go to the web site. Click on tech support, then online documents.

Select your cutter type, AllenCAD or Cutter driver from list of selections.

Find the software update and click on it to download the setup program from the web site.

Installation instructions for the software are on the same page as the software.

Using Cutter

Install knife Blade in Holder

Remove knife blade from packaging. Remove plastic cap. Drop it point out into hole in black plastic cap of knife holder. The knife holder looks like a silver bullet.

Install Blade Holder in Machine

Place the knife holder into carriage so that ring sits flush with holder top and blade almost touches media. Tighten thumb screw.

Load Media

Load media using procedures described in Appendix C.

Setting Force / Velocity

The cutter is shipped with power up setting suitable for the type of material expected based on the model ordered. You should slower speeds/accelerations for heavier material. Start with force = 20 (use force up/down buttons) and velocity = 66% (use velocity up/down buttons). Press test cut button. This draws the test cut. Use joy stick arrows to move carriage away from cut area. If you cut through backer, reduce force. If you cannot weed media increase force. If material slips between grit roller and pinch wheels use slower accelerations. Spring pressure can also be changed by using alternate springs shipped in the accessories. See Web Site Copy or CD Copy.
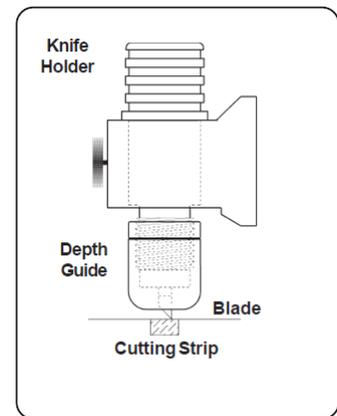
Sending Job

Summary

1. Insure plastic groove filler is in for cutting and removed for pouncing.
2. Install knife blade in knife holder.
3. Insure blade is out from depth guide.
4. Load material (Appendix C Loading).
5. Install knife assembly.
6. Set machine to CUT MODE.
7. Perform cut test pattern.
8. Adjust force, offset and depth guide.
9. Joy stick to where you what lower left corner of job to be using arrow buttons around select button.

CAUTION: To avoid personal injury, keep hands, hair, clothing and jewelry away from the cutter's moving parts at all times.

Illustrator / CorelDraw

Select on layer in layer menu or object manager that contains information you want to cut.

From Illustrator or CorelDraw click on File -> Allen DirectCut.

Select cutter driver in drop down between Properties and Cut button.

Click on Cut.

AllenCAD

Click Tile and print. Select objects and press enter key.

Click ok on options page

Select cutter driver in drop down between Properties and Cut button.

Click on Cut.

Omega Composer

See [Web Site Copy](#) / [CD Copy](#)

Signlab

For cutters using built in drivers you need to know the com port cutter is attached to:

Click on start -> right click on my computer -> properties

Click on hardware/device manager or device manager

Click on icon in front of ports com and lpt and find com port for Allen Datagraph equipment.

Close device manager.

Click on file -> install cutting device

Select Allen Datagraph and click on next

Click on scissors on left hand control bar, click on (dot, dot, dot) ... next device window, select port tab, select port number found above, click ok, then click scissors to send plot.

Flexisign

For cutters using built in drivers you need to know the com port cutter is attached to:

Click on start -> right click on my computer -> properties

click on hardware/device manager or device manager

click on icon in front of ports com and lpt and find com port for Allen Datagraph equipment.

Click on (cut / plot) set up port using [Web Site Copy](#) / [CD Copy](#). Click send.

Operation of the i-TECH SmartMark™ System
Optional SmartMark™ Sensor

The SmartMark™ option that is available for Allen i-TECH cutters is an optical registration system that allows cutting of pre-printed graphics. The SmatMark system has the capability of recognizing up to three registration marks, and adjusting for scale and skew discrepancies the may occur.

The SmartMark™ option consists of a eye sensor that is mounted to the cutting head.

The SmartMark™ sensor recognizes changes in contrast from the background media to the printed mark. The "sensitivity" of the sensor must be set in order for the system to recognize the contrast reliably and be able to cut accurately.

Setting Up Your Label Job

The target should be a black rectangle on white media or a contrasting color to background. See colors in [Web Site Copy](#) or [CD Copy](#). The recommended Mark Size is 0.5 inch (12 mm). When using the Smartmark™ on a cutter you normally need at least two marks as it is difficult to get media loaded straight and printers to print the correct size printed in the x axis of the printer. The sensor relies on reading the change in intensity of the reflection of the red LED pointer. When print-ing process colors on white media the best color for a target is usually black. Certain spot colors are difficult. For example

5
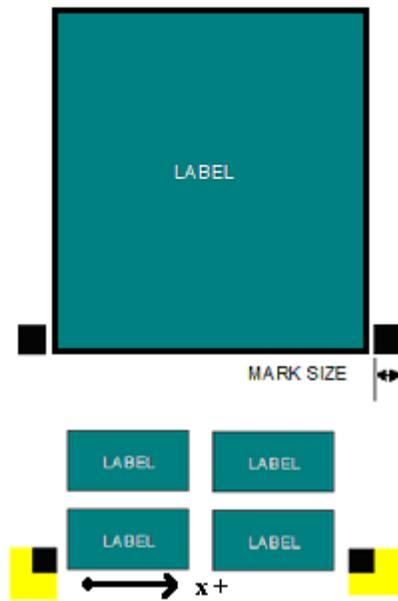
silver spot on white, while to the eye there is contrast the reflectivity of the two is sometimes nearly the same. If there is trouble with certain materials detecting the target you can print the target in a yellow or white field. The size of the yellow field should be larger than the scan length. (**Note:** in order to get an accurate scan no other printed marks may appear in the yellow scan area. The printer color alignment marks can appear on the inside edge of the target or the other side of the media.)

The mark should be placed at least 0.5 inches (12 mm) from the edge of the media and the spacing between frames should be at least 0.5 inch (12 mm). (Advanced usage: You can place the target closer to the edge of the material if you use inside out scanning. See Web Site Copy or CD Copy)

Explanation of SmartMark™

The theory of operation relies on the SmartMark™ sensor sending an analog signal to the embedded computer during a scan. The data is analyzed after the scan to automatically create a threshold, find the edge of the target and eliminate noise. The i-TECH scans the mark in both x and y directions and calculates the intersection of the 2 scans. The i-TECH computer then assigns that intersection as the 0,0 point of the i-TECH coordinate system and matches that to the origin point (minimum x, minimum y) of the HPGL cut file.
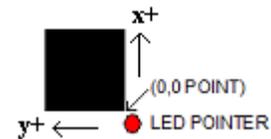
The i-TECH uses a special HPGL command, FO, to start the registration mark sensing function. It automatically re-registers the coordinate each time the FO HPGL command is received. As part of the setup a "x move between jobs" is input via the printer driver options which moves the sensor to the approximate position of the next copy's or next frame's registration mark. The i-TECH expects the target for the next frame to be within ½ the scan distance of the end of the frame.

The Red LED pointer must be manually positioned with the joystick buttons at the approximate 0,0 coordinate position prior to sending the first job. The SmartMark™ system automatically repositions the sensor for subsequent copies.

The positioning process must be repeated if the joystick buttons are used. This is helpful because it allows the system to be reinitialized when needed.

Once the LED pointer is positioned as shown, the SmartMark™ is ready to operate and will scan the registration mark when it receives a FO command in the job stream whether on the first copy or on subsequent copies. Since the FO command is embedded in the beginning of the cut file the scan of the registration mark is performed at the beginning of each copy or frame of labels and on subsequent copies.

Types of SmartMark™ Scanning

There are five types of SmartMark™ scanning available. They are shown in the image to the right. The scan type is selected in the printer driver preferences.

Origin Skew, Origin Skew Scale, and Origin Scale are the only types normally used on the cutter.

Origin Skew is used if the media is not necessarily loaded straight. This scans the origin and the skew mark and rotates the cut image to match the cut location at the two scanned locations. No scaling of the cut image is performed with Origin Skew scanning. If you cuts do not match in size from the print you either have to calibrate to printer or use a different find origin type.

Origin Skew Scale does alignment at the origin, rotation and scaling in both x and y axes are preformed. This scan type requires that the sensor size parameter be correct so that cut image is same size as printed image.

Origin Scale does alignment at the origin, rotation and x-axis only scaling at the scale point. It assumes that the scaling in the y-axis is correct. If the printer you are using has a x axis scaling error
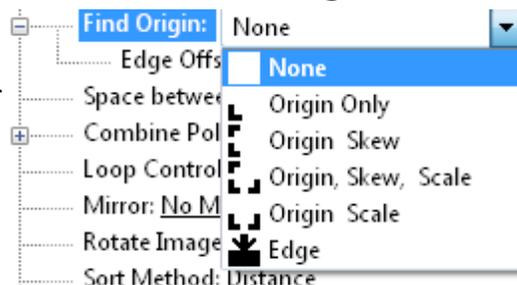
you can normally correct this either in the printer or you can use calibrate to printer to get the cutter to cut the same size as the printer.

Origin Only is not normally used on cutter because its is hard to load media straight. Origin only does a alignment with the visual sensor at the origin only.

Edge is not normally used on cutters. By selecting EDGE in the driver's printing preferences menu, the SmartMark sensor will detect the edge of the media instead of a registration mark, then offset into the media by that amount and cut your blank labels.

Designing Labels

Planning Label

This tutorial will design a large contour cut of a photo of a duck 26 x 10 inches (66 x 25 cm) label for a printer and an i-TECH cutter with SmartMark™ with CorelDraw and Illustrator.

Now that we have work space planned choose program to design your artwork. The image I used was found on the internet at http://twilightearth.com/environment-archive-2/there-is-this-duck-that-i-have-lunch-with/. Right click on the image and save it.

Using Adobe Suite Tools

Open photoshop and crop, magic wand and trim using laso tool to erase water near duck. No need to be real accurate as we will create a cut line that trims the duck the way we want it to appear.

save image as duck no water.jpg

Use image -> size change height of image to 10. This makes the width about 22 inches.

save image as duck bigger image.jpg

Open Illustrator and create a new document.

Change units to inches

Change width to 28 and height to 11

Click ok

Click on view -> rulers if rulers missing

Click on window -> layers if layer menu missing

Click on window -> color if color menu missing

Now create two layers. One called "dielines" and one called "print". This is done from the layer window. Click on new layer button. Then rename the layers as dielines and print by double click-ing on layer name, changing name and clicking on ok.

Next create the die lines. Click on the dielines layer on the layer window.

Create the die line for the target

Select dielines layer

Click on file place. select duck bigger image.

Click on drop down arrow next to live trace button. select tracing options,

Select threshold of 254 and blur of 2 px, click on ok. Wait for trace to complete. then click on expand to move outline to dielines layer.

Click on object, path, simplify. Set curve precision to 10 and angle threshold to 10

Next click on the print layer

Click on file -> place and select duck bigger image.

From the ruler drag a guide line for left, right and bottom and place the guide line close to the printed image.

Set fill to black and outline to null.

Note: if you have a stroke on the edge of the printed target the print and cut will not line up.

Select rectangle tool

Click near lower left intersection of the guide lines.

Select size 0.5, 0.5 for size, click ok

Zoom in to target only

Move target so that left and bottom of target are touching guide lines.

Repeat for lower right intersection placing target so that right and bottom of target are touching guide lines.

Lock the print layer so you don't accidentally move it during editing of path.

Clean up the path using path edit tools.

Add 1/2 inch rectangles for origin and scale on the dielines layer. The targets must be in same place on print and dielines layers. These rectangles should have strokes and not filled.

This completed label file is at this link Web Site Copy / CD Copy.

Use File -> save to save the file on your hard drive as big duck.ai. Using a color printer print image..

To send dielines to cutter, click on dielines layer to select it and then click on

 File -> Allen DirectCut.

Using Corel Suite Tools

Open Corel photo paint and crop and trim using magic wand, freehand mask tool to erase water near duck. No need to be real accurate as we will create a cut line that trims the duck the way we want it to appear.

Save image as duck no water corel.jpg

Use image -> size change height of image to 10. This makes the width about 22 inches.

Save image as duck bigger image corel.jpg

Open Corel Trace

Open duck bigger image corel.jpg

Select advanced trace

Select max colors = 2, node type = smooth, minimum object size = 100, click on do trace

Save as duck bigger image corel.cmx

Open coreldraw and create a new document.

Open CorelDraw, Select -> tools -> options -> work space. Place a checkbox in front of Allen Datagraph.

Next turn on 2 dockers: Select Window -> Dockers -> Properties

and

Window -> Dockers -> Object Manager

Verify snap to guide lines is checked from the view menu.

This adds two control windows on the right side of the program

Change units to inches

Change width to 28 and height to 11

Click ok

Now create two layers. One called "dielines" and one called "print". This is done from the layer window. Click on new layer button. Then rename the layers as dielines and print by double clicking on layer name, changing name and clicking on ok.

Next create the die lines. Click on the dielines layer on the layer window.

Create the die line for the target

Select dielines layer

Click on file import. select duck bigger image.cmx.

Next click on the print layer

Click on file -> import and select duck bigger image.jpg

From the ruler drag a guide line for left, right and bottom and place the guide line close to the printed image.

Set Paint bucket = solid fill black and pen nib outline to none.

Note: if not have a pen nib outline on the edge of the printed target the print and cut will not line up.

Select rectangle tool

Draw small rectangle of any size near where you want it.

Change size of rectangle to 0.5, 0.5 while rectangle is selected.

Zoom in to target only

Move target so that left and bottom of target are touching guide lines.

Repeat for lower right intersection placing target so that right and bottom of target are touching guide lines.

Lock the print layer so you don't accidentally move it during editing of path.

Set Paint bucket = no fill and outline to hairline and color black.

Add 1/2 rectangles for origin and scale on the dielines layer. They must be in same place on print and dielines layers.

Clean up the path using path edit tools.

This completed label file is at this link [Web Site Copy](#) / [CD Copy](#).

Use File -> save to save the file on your hard drive as duck coutour.cdr.

To send dielines to cutter, click on dielines layer to select it and then click on

   File -> Allen DirectCut.

Lining up SmartMark™

Use the buttons around the select key to move the carriage left, right, forward, backward until the led pointer is within 1/8 inch (3 mm) of right front of the target.

(0,0 POINT)

LED POINTER

## Sending file with Illustrator

Load the file you want to cut with Adobe Illustrator. If the layer window is not visible you can make it visible by clicking on
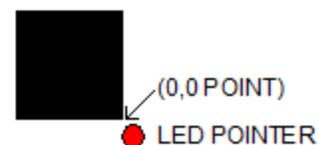
Window -> Layers. Select the dielines layer on the layer menu. Click on File -> Allen DirectCut to open the DirectCut for Illustrator.

Sending file with CorelDraw

Load the file you want to cut with CorelDraw. If the object manager is not visible you can make it visible by clicking on Window -> Dockers -> Object Manger. Select the dielines layer on the object manager tab. If the Allen DirectCut tools does not appear near the view button, select Tools -> Options -> WorkSpace. Then check Allen Datagraph. Click on the Allen DirectCut button to open the DirectCut for CorelDraw preview window.

Find Origin Type

Verify the cutter you want to send the die lines to appears in the drop down box between the Cut and Properties button. Click on the properties button and select find origin type you want to use. Select origin scale, or origin skew scale for Find Origin type.

Rotation

In the preview window select Cutter origin. This moves the origin to the lower right on the screen. This matches the view you see when you look at the front of the cutter. Use the rotate selection in the properties until the origin of the preview is in the upper right. Select rotation from (none, 90°, 180°, or 270°).

Cutting label

After you have set the properties click OK to close property window. Then click on the Cut button to send the job to the cutter.

Smart Mark Setup

See calibration procedure at Web Site Copy / CD Copy available on the technical support page of the Allen Datagraph web site at http://www.allendatagraph.com -> tech support -> smart mark cutter -> SmartMark Sensor Page.
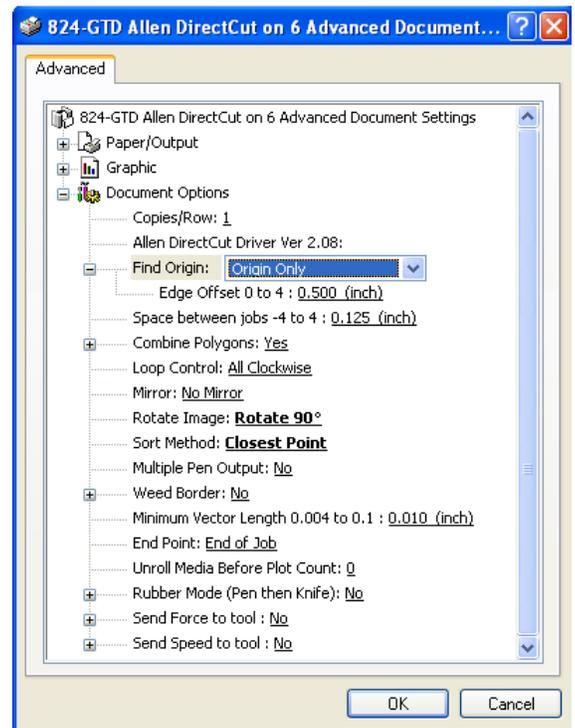
Control Panel

The front control panel is the primary user interface for the i-TECH cutter. It is used for input of speed and force as well as several other functions. The cutter has a 4 digit display and a 16 button panel. The display is used to interact with the operator showing current status. If the menu is not active the first digit is C for cut, 2nd digit is speed (0 = 0-4%, 1= 5-14%, 2= 15-24% ...), and last 2 digits are force.

LOAD The load key is used to initialize the system and to load the media. You only need to press load if load LED is off.   Once the material is fed thru the media path and the nip rollers are engaged (see Appendix C Loading), press the load. If the media height sensor is off, the load light will then come on to indicate the system is ready to operate. If the media height sensor is turned on, the system will scan the cutter station pinch rollers to determine the media width.

PAUSE The pause key will halt the operation of the system at any point. It is used to pause the system for inspection, media jams or to pause the machine for any other reason. Press the pause key to resume the system. The system can be jogged while paused and will remember where it was and resume from where it was stopped regardless of where it was jogged. This is very helpful for inspecting the cut. You can pause the system and joystick the media or cut head away from its position to inspect the cutting or registration. After inspecting the media, simply press the pause key again and the i-TECH will return to the point where it was paused and resume cutting. The pause light will flash while the system is paused. You can also use the pause button to enter the unload state (press Pause followed by Load).
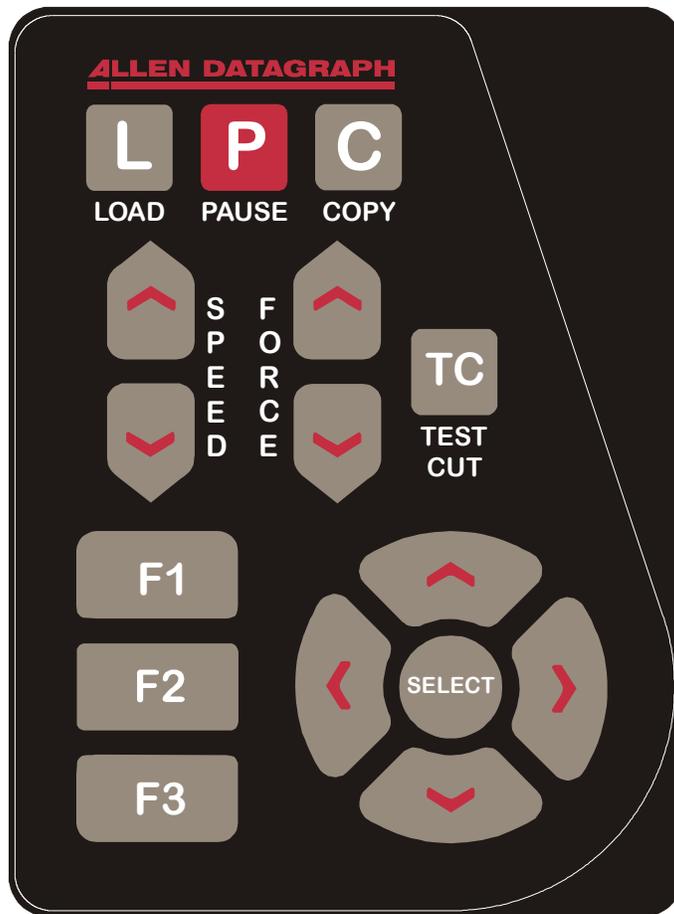
COPY The copy key is used to input the quantity of copies the i-TECH will cut. It is used after the first copy of the job is cut. Once the first copy is cut and you are happy with the results, press the copy key. The display will read `0001.` The number represents the total number of copies including the first one run. Increase the number of copies by pressing the up arrow key of the joystick or the force up button. Hold the key down and the numbers will start moving slowing then more quickly. Press the down arrow key to lower the number. Alternatively the force keys will increment the single digits and the speed keys will increment the 10's digits. If you enter 0 the copy will stop at end of next job. If you enter -001 then it will count up forever. Remember the number displayed includes the first copy run before the copy key was pressed. Input the copy quantity and start the cutting by pressing the **SELECT KEY**. On the 230/315 front panel only one copy at a time can be made.

SPEED The speed keys are used for controlling the cut speed (the speed the knife travels around the periphery of the items being cut). Increase the speed by pressing the up arrow key. Decrease the speed by pressing the down arrow key. Hold the key down and the numbers will start moving slowing then more quickly. The range for speed is 1 to 100%. On the 315/230 front panel rotate the speed knob to change the speed. In the cas position the computer settings control the speed.
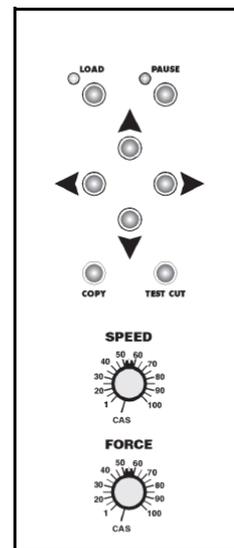
**FORCE** The force key is used in conjunction with the test cut key to set the depth of cut. The factory default for cutting is set by the value saved in setting #1. The range of force is 1 to 100 when the system is in the normal force range and 1 to 1000 when in the high resolution force. For

230/315 Control Panel

most applications the normal force range is adequate (see Dynamic Force Adjust (Advanced Option) and high resolution force mode in the Remote Panel section). In the normal force range mode, the force is adjustable between 10 and 550 grams of force in 100 steps. On the 315/230 front panel rotate the force knob to change the force. In the cas position the computer settings control the force.

The force is set by test cutting the media to be cut using the test cut function. Using the joystick, position the knife in an unused portion of the media and press the **TEST CUT** key. The system will cut a test cut pattern similar to the diagram to the right. With a sharp knife or tweezers you should be able to individually remove each part of the test cut pattern working from the ring to the triangle without affecting the remaining parts. A properly set force will leave a very slight scratch or mark on the liner.
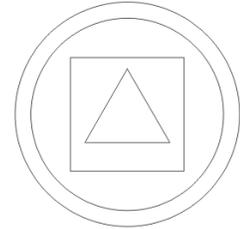
The force may need to be adjusted due to blade wear during use if problems with weeding occur. Simply increase the force setting by one until satisfactory weeding occurs. If the knife blade is changed, revert back to the original setting or perform the test cut procedure again. The blade may need to be replaced if the force is increased by more than 20 percent from when the blade was new.

The remainder of this section does not apply to 230/315 models.

F1 This key puts the pen up or down during digitizing mode.

F2 activates the F2 -> copy function. This is used to perform Smartmark™ operations on identical sheets. Web Size Copy / CD Copy.

F3 This key is a short cut to the OPER mode. It is equivalent to pressing select, left/right until OPEr is displayed and pressing select.

RESET the cutter by pressing the F1, F2 and F3 keys in order.

JOYSTICK The joystick is used for positioning the knife and media in the die cutting station and for several other functions.

The four **ARROW KEYS** are used to jog the material or cutter carriage that holds the knife blade and the SmartMark™ sensor. Press the key once to move the material or carriage slowly and press it a second time within ½ second to move at a faster speed. Tap the key to jog the cutter a fixed distance. The distance is adjustable (see Joy section below or joystick in the Remote Panel section).
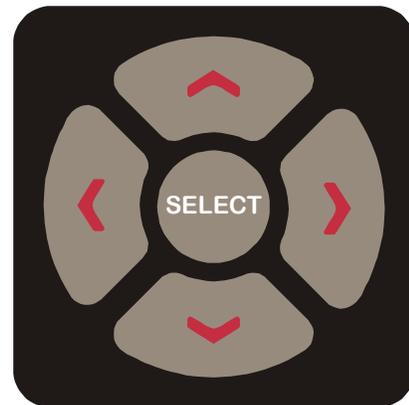
SELECT The select key is used to invoke the menu system. Press the select key and the display will change to indicate the last used menu item. To select a menu item press the select key and then press the right or left arrow key to scroll thru the various menu items. With the desired menu item displayed, press the up or down arrow key to select the state. When the desired state is displayed press the select key to input the menu item and state. The menu items are: ACCL, CAd, diA, indE, JOY, OPEr, and Set.

Menu Items:

ACCL allows setting the acceleration in ¼ G increments. Acceleration is the rate of increase/decrease of speed of the motors along a vector. Higher G values increase throughput however higher G values also increase the likelihood of experiencing repeatability problems. Recommended values are (1-8) for standard media. Use lower values for heavy media.

CAd override menu function enables or disables the CAD override function. With the function `On` the cutter will ignore some HPGL control commands sent from the cutting software. With the function `Off` the CAD software can control these HPGL commands.

The commands affected by CAd override are:

AS   set acceleration
FS   set force
KA   set minimum angle
KN   set knife offset
IP   input P1/P2
RO   rotate
SC   set scale
SP   select pen
ST   select tool
UV   up velocity (move speed)
VS   down velocity (cut speed)

Press the select key to initiate the menu function. Press the left or right arrow key to display `CAd`, then press the up or down key to toggle between `off` and `on`. Press the select key to change the setting.

diA is used for entering into the diagnostic mode. Press the select key to initiate the menu function, then press the left or right arrow key to display `diA`. Press the up or down key to scroll thru the diagnostic numbers (0002 – 0099). Press the select key to start the diagnostic. (see diagnostics section) . To exit from a diagnostic mode select 0099 and press select.

IndE indexes the x-axis. One of the uses for this function is for metering material. Press the select key to initiate the menu function, then press the left or right arrow key to display `IndE`. Press the select key. Press the up or down arrow to toggle between inches (`InCH`) or centimeters (`cEnt`). When the desired unit of measure is displayed press the select key. The display will read `0001.` The number represents the number of inches or centimeters to be metered in the x-axis. Increase the number by pressing the up arrow key of the joystick. Hold the key down and the numbers will start moving slowing then more quickly. Press the down arrow key to lower the number. Alternatively the force keys will increment the single digits and the speed keys will increment the 10's digits. Input the length and start by pressing the select key.

JOy allows changing the joystick parameters: of jog distance or slew speed. Press the select key to enter the menu system. Press the left or right joystick buttons until `JOy` is displayed. Press up or down on the joystick to select (Sped or Jog). Press select. Press up or down on the joystick to select a value for joystick speed (1-100%) or jog distance (0.01 inch increments). Press select to save the displayed value.

This menu item has 2 sub-menus:

> **Sped-** Allows the user to set the maximum speed that the joystick will move the material or head when pressed twice. Range 1-100.

> **Jog-** Allows the user to set the distance that the head or material will move when a joystick button is pressed and released. Range is 1-100 in 1/1000th inch increments. i.e., 1=.001", 100=.100"

OPEr is used to select the operation mode between cutting (`CUt`), pen plotting/drawing (`drA`) or pouncing (`POUn`). Press the select key to initiate the menu function, then press the left or right arrow key to display `OPEr`. Press the up or down key to select the desired function. Press the select key to lock the desired menu setting.

SEt loads or saves a custom set-up or power up default. Press the select key to initiate the menu function. Press the left or right arrow key to display `SEt`. Press the up or down key to scroll thru (LOAd, Save), press select, press the up or down key to scroll thru the settings (1 – 6). Press the select key to load or are save the setting. Setting #1 is loaded when the machine is powered up. (see also factory and custom set-up section)

The **set** menu item has 2 sub-menus:

Load- loads a setup.

<u>*To load a setting*</u>:

Press select

Press left or right arrow until **SET** menu is displayed.

Press up or down arrow to display **Load**.

Press select

Press up or down arrow to display the number of the setting you want to

load (1-6)

Press select.

Save- saves a customized setting.

<u>*To save a setting:*</u>

Adjust force, speed, acceleration as needed.

Press select

Press left or right arrow until SET menu is displayed.

Press up or down arrow to display Save.

Press select

Press up or down arrow to display the number of the setting you want to

customize (1-6) (# 1 is the setting that is loaded on power up.)

Press select.

The display will blink FFFF, and then return back to your setting.

Remote Panel

The Remote Panel program is used to address all i-TECH CUTTER functions. It is loaded onto the computer that is directly connected to the i-TECH CUTTER by the installation cd. The installation program places a shortcut on the Windows Desktop so that you can easily start the program when needed. It can be run in the background with most cad programs.
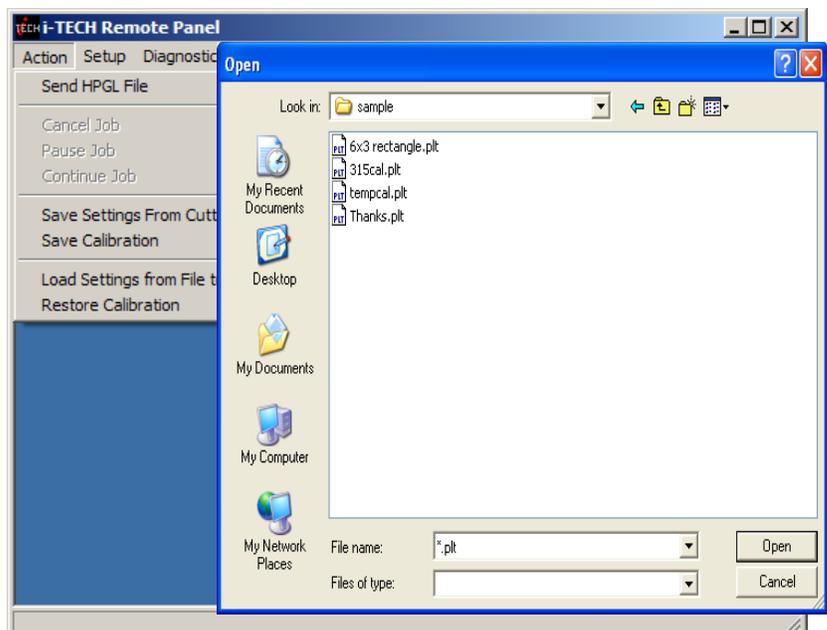
Remote Panel Functions
Action menu
Send HPGL File

Send HPGL File will send a HPGL cutter file directly to the Cutter. Typical origins of HPGL files include the Allen Driver, CorelDraw or some other design software. To send a HPGL cutter file from the remote panel program click the Send HPGL File menu item to open the select file window. Select the files desired and click the Open button. This will send the file directly to the Cutter.

Save Settings from Cutter to File, Load Settings from File To Cutter

These commands save the settings (see setup settings menu) and some line sensor parameters that are in the i-TECH to a disk file or loads settings saved by this command from a file and sends them to the i-TECH. This allows you to have more than 6 setups for different materials and it allows backing up your settings to your hard drive in case of failure of the CPU board.

Save Calibration/Restore Calibration

This command saves line sensor parameters that depend on the calibration and calibration of the cutter or allows loading the calibration parameters from a file. This command also allows calibration of the i-TECH to multiple printers.

Upload Firmware

Should your firmware ever need to be updated, this command will locate the firmware file and send it to the i-TECH. Turn off your equipment. Press the load button on your front panel and then, turn on the Allen Datagraph equipment to be upgraded. Start the Remote Panel by clicking on start, program, Allen Datagraph, Remote Panel. Click on Setup, Com Port and verify that the correct port has a check next to its name. Click on **Action, Upload Firmware**. If asked, select pic32rel.hex file and click **Open**. If the upload fails, you will be given a backup procedure to follow on the computer screen.

Action Menu (Advanced Options)

(These menu items appear if you select the advanced menu on the Setup Option menu)

Open Com Port

Will initialize the communications port. Port will stay open for 30 minutes or until you manually close the port.

Close Com Port

Closes the communications port so that other programs can use the port. The remote panel program will automatically close the port in most instances when it is not actively communicating with the i-TECH.

Cancel, Continue, Pause

These commands will cancel, continue, or pause a job being sent by the Send HPGL command. For jobs sent by other programs you can use the Pause button on the cutter and the (F1, F2, F3) combo to cancel the currently cutting job

Save NVROM and Restore NVROM

These commands are used to save custom settings and factory settings to the computer when certain electronic components need to be replaced.

Setup Menu
Main Menu

The Main menu opens the main menu window. The top window shows the model number and firmware version. The media height window shows the maximum dimension the i-TECH is set to cut. With the media height sensors enabled, the i-TECH will scan the pinch wheel magnets to determine the loaded media size and will calculate the maximum cut size. The i-TECH will send this dimension (called the clip limits) to the software program so that the software program can determine if the specified cut file will fit. If a file with dimensions larger than the clip limit is sent to the i-TECH, the cut will be truncated. If the media height sensor is disabled, the default clip limits will be used and it is possible to cut off the edge of the media. The position window shows the current location of the knife in the cutter coordinate system. The Last Saved Error Message window displays the last error. Errors displayed here may be old. The error may have occurred earlier in the cutters life. The **Clear Error** button clears the memory of the saved error notification. Some features are advanced and only appear if menus = advances is selected in setup → options.

State Tab

The **State** radio buttons allow the user to set the condition of the cutter. **Unload** means the cutter is not loaded and is not ready to receive a cut file. The **Pause** radio button means the cutter is currently paused and the **Ready** button means the cutter is loaded and ready to receive the cut file and proceed with cutting. This set of buttons duplicates the Load and Pause buttons on the front panel.

The Mode radio butons sets the operation. Select cutting, pen plotting/drawing or pouncing. The i-TECH will normally only use the Cut function.

State Tab (Advance Options)

The **CAd Override** radio buttons enables or disables the CAD override function. With the function **On,** the cutter will ignore some of the HPGL control commands sent from the cutting software. With the function **Off,** the software can control these HPGL functions. Some CAD systems will work correctly only when this feature is set to on.

These commands include:

AS	set acceleration
FS	set force
KA	set minimum angle
KN	set knife offset
IP	input P1/P2
RO	rotate
SC	set scale
SP	select pen
ST	select tool
UV	up velocity (move speed)
VS	down velocity (cut speed)

The Dynamic Force radio butons (an advanced option) engages the dynamic force function, which instantaneously adjusts the force on the fly based on the actual velocity of the knife blade. All cutters must accelerate and decelerate as they cut around corners. Some medias require different force settings for different speeds. This parameter allows for building a database for these materials and when enabled will greatly improve the cutting on these materials. (See the Dynamic Force Adjust (Advanced Option) for more details).

Pen Control Tab

Draw Speed displays and sets the velocity of the knife when it is actually drawing or cutting. The draw speed is the speed the knife travels around the periphery of the items being cut.

Force displays and sets the cutting force. The default force for cutting is set at 12. The range of force is 1 to 100%.

Knife Offset is the distance between the center of the knife blade and the knife tip. Standard blades have a 0.012 inch (.030 cm) offset. If you have objects that do not close correctly, you might have to adjust the knife offset to correct the problem. If the corners of the test pattern (or lettering) have mis-shaped corners when knife cutting, adjust the knife offset using the Allen Remote Panel Program.

If the blade offset is **too high**, the corners will be extended and the circles will have bumps. In that case, reduce the knife offset. For example, if the original offset is 0.012 and the output shows signs of too much offset, try an offset of 0.010 (or less).

If the blade offset is **too low**, the corners will be rounded and the circles will have nicks. In that case, try an offset of 0.014 (or more).

If a good test pattern cannot be achieved in this manor, inspect the knife blade

and replace as necessary.

Hole Distance and **Tear Size** are used when the cutter is in the Pounce Mode. The hole distance setting is the distance between holes and the tear size is the distance the cutter moves with the pounce tool down to tear the media and enlarge the pounced hole.
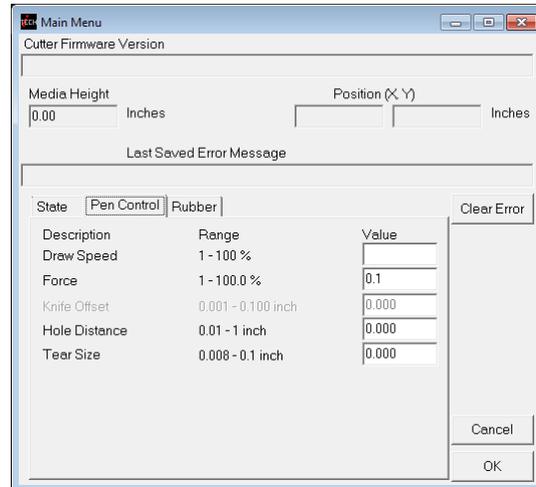
Rubber Tab

Rubber Minimum Angle displays and sets the angle between consecutive vectors that when exceeded will invoke the tangential emulation mode. At angles less than the value set in this parameter the cutter will move between vectors without evoking the tangential emulation mode. Default 19°

Stencil Force is the force separation between drag knife mode and tangential emulation cut mode. Tangential emulation cut mode is normally used for rubber or very heavy material. If the set force is above the stencil force stencil mode is used else drag mode is used. (Default 20 for 3536 and 315 and 85 for other cutters)

Rubber Tab - (Advanced Options)

(These menu items appear if you select the advanced menu on the Setup Option menu)

17
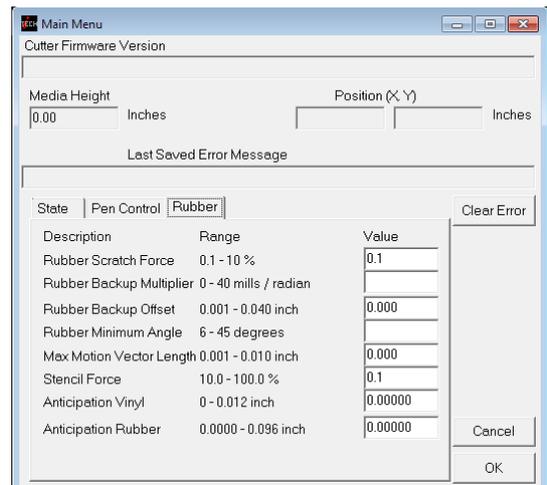
Rubber Scratch Force displays and sets the down force used during tangential emulation. This is primarily used when cutting thick materials such as sandblast rubber. Tangential emulation simulates a tangential or servo controlled rotating knife by moving to a position short of the vector to be cut and putting the knife blade down with a very light force while moving toward the direction of cut to align the knife before applying the full cutting force. This improves the cut quality in thick materials. (default 0.1%).

Rubber Backup Multiplier (default 20) displays and sets the distance the knife will be dragged at the light force used to align it. This parameter is used with and is additive to the **Rubber Backup Offset** (default 0.001). The Rubber Backup Multiplier is based on the change of angle between vectors and the Rubber Backup Offset is a constant added to the distance calculated based on angle. Amount of backup to align knife is angle between vectors in radians * multiplier + offset.

Max Motion Vector Length (default 0.001) (Named after the driver that outputs very small vectors) Allen Cutters very accurately replicate the vectors in the HPGL plot file. Some design programs output vectors that are very short. It is sometimes desirable to combine some of these vectors into a longer vector to eliminate jagged edges or slow cutting. This parameter works like a curve-smoothing algorithm and is used to improve poor HPGL files.

Anticipation Rubber (default 0.001) **and Anticipation Vinyl** (default 0.0004) is a parameter that adjusts the backlash compensation in the cutter. The Anticipation Rubber is the parameter used when the cutter is in tangential emulation mode and the Anticipation Vinyl is the parameter used when not in tangential emulation mode. Heavier materials require more backlash compensation. These numbers are individually set at the factory and should not require adjustment except when cutting heavy materials. If you are experiencing thick and thin lines or misshaped letters, adjust the anticipation parameter to obtain satisfactory results.

Line Sensor

Clicking on Setup Line Sensor menu opens the SmartMark™ Menu.

Sensor Offsets - The SmartMark™ sensor is offset from the center of the knife. The sensor offset distance is preset at the factory or during installation, but may need to be adjusted on occasion. The i-TECH can automatically calculate and set the SmartMark™ offset and sensor size parameters. See drawing for definition of sensor offsets. Title: Calibration Website Copy / CD Copy.

Sensor size is the offset from the exact center of the red dot of the SmartMark™ sensor to the sense radius and may change based on sensor sensitivity or media reflectivity. This parameter is best set using the procedure in the above TSB. The Sensor Size parameter is only useful in origin scale and three target scanning. If you are not,
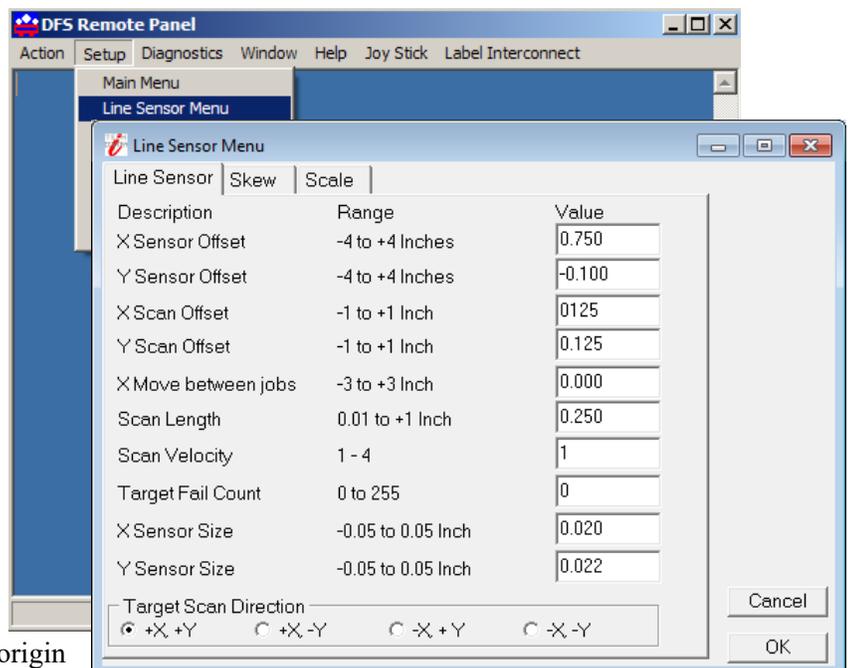
these methods you can set the size to 0.02 and the sensor size is included in the sensor-offset parameter.

Scanning Parameters

The i-TECH SmartMark™ system has adjustable scanning parameters to allow for different size and style of registration marks.   The primary parameters are the scan offset and length. The ideal X and Y offsets are one-half the mark size and the ideal scan length is the mark size. If you place your mouse over a parameter value a hint will appear on the screen to describe usage.

To set the parameters type in the desired numbers in the **X Scan Offset, Y Scan Offset** and **Scan Length**. When you have entered the desired values click on **OK.** (see also Explanation of SmartMarkTM)

Scan Velocity (default 2) sets the speed of the scanning. Depending on the media and registration mark contrast, this parameter may need to be adjusted. The better the contrast in reflectivity the faster the scan velocity can be set. If you are experiencing missed registration marks, you may need to reduce the scan velocity.

X move between jobs is the distance after the farthest excursion of the x-axis during a frame that the i-TECH should advance to find the target in the next frame of labels. This item is duplicated in the DirectCut printer driver as the space between jobs. These two parameters are added together so if the printer driver is normally used. Set this parameter to 0.

Line Sensor (Advanced Options)

(This menu item appears if you select the advanced menu on the Setup Option menu)

Target Scan Direction sets the direction of the scanning operation. For single mark origin scanning the default target scan direction is **+X, +Y**. There may be circumstances where it might be desirable to reverse the scan direction. For instance, the mark might be printed to close to the trailing edge of the preceding labels limiting the distance available for scanning. In this instance, it might be desirable to reverse the scan direction in this axis. Consideration must be given in the cut file because the inside edge of the mark will be considered as the 0,0 point for the cutter coordinate system. See also Website Copy / CD Copy.

Skew Tab

The SmartMark™ system can use one, two or three registration marks.   In standard operation the i-TECH normally
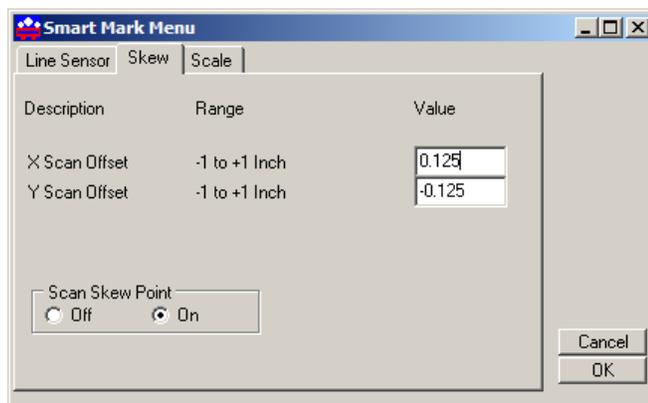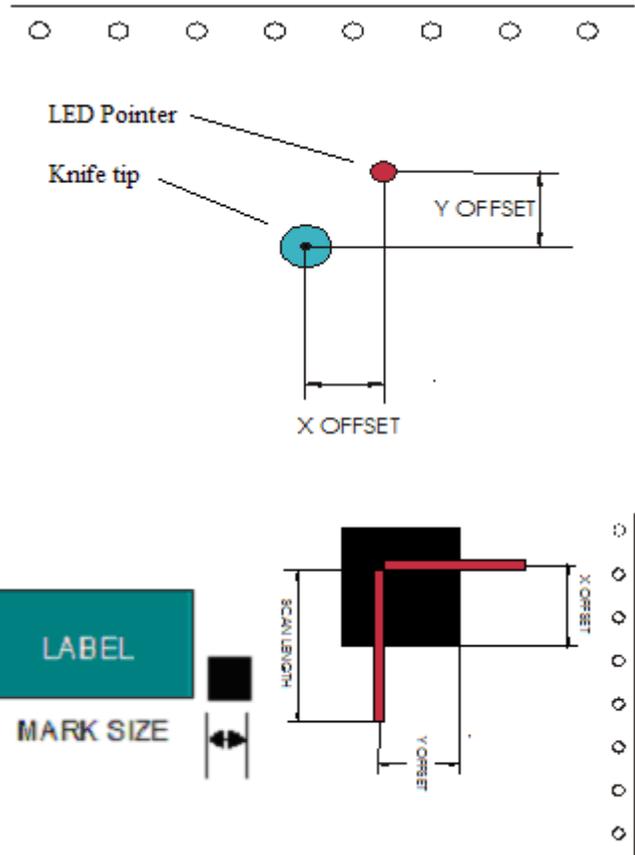
requires two (origin and scale) registration marks to accurately cut the die lines of most labels. If, however, there is a problem with the printing it may become desirable to use three registration marks. (see also discussion about marks in Tutorial Using Adobe Illustrator section)

When using two registration marks the embedded computer in the i-TECH will automatically scan both the Origin Point and the Scale Point. This is helpful if the printing is skewed in relationship to the carriage and or the x print size is not consistent or not absolutely correct.

When using multiple registration points it is helpful to understand the FO command and its parameters.

X, Y Scan offset. This is the distance from the skew point to perform the Y and X scans to find the skew point. With the targets defined as above, the +X, -Y is the correct signs for the scan offset for the skew mark.
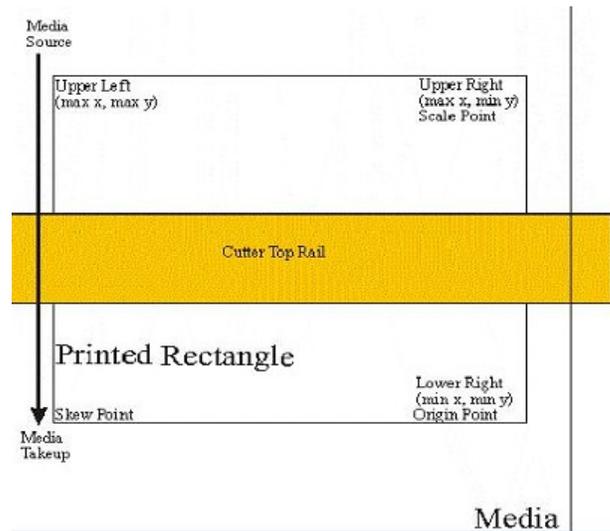

Skew Tab (Advanced Options)

(These menu items appear if you select the advanced menu on the Setup Option menu)

Y Target Location. This is the distance between the origin target and the skew target when the 2nd parameter of the FO command is –1. This command is used on CAD systems that do not emit the FO HPGL command. You set up the initialization string to have

BJ1;FO-1,-1;   <for origin skew and scale processing>

<div align="center">or</div>

BJ1;FO0,-1;   <for origin and skew processing>

This causes the cutter to look at the Y Target Location parameter from this menu item.

Scan Skew Point - A fourth scanning mode is implemented that performs scaling and skewing by scanning only two marks (origin and scale). This method assumes there is no scaling error in the Y-axis. (Specify the Origin, Skew, and Scale mode in your artwork software). By checking the scan skew mark off, the i-TECH will only scan the Scale and Origin mark and perform X-axis scaling and skew correction. This parameter should always be on unless your printer driver does not support origin scale processing and you want to use origin scale processing.

Target Scan Direction sets the direction of the scanning operation. The skew mark is normally scanned **+X,-Y**. See Website Copy / CD Copy.

Scale Tab

X, Y Scan Offset. This is the distance from the scale point to perform the Y and X scans to find the scale point. With the targets defined as above, the -X, +Y are the correct signs of scan offset for the scale target.
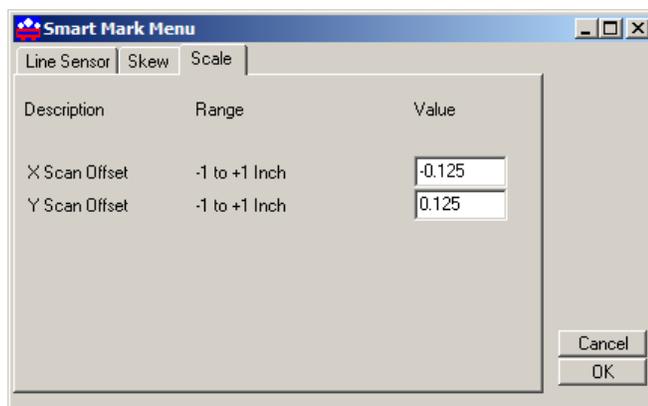
(These menu items appear if you select the advanced menu on the Setup Option menu)

X Target Location. This is the distance between the origin target and the scale target when the 1ˢᵗ parameter of the FO command is –1. This command is used on CAD systems that do not emit the FO hpgl command. You set up the initialization string to have:

BJ1;FO-1,-1;   <for origin skew and scale processing>

This causes the cutter to look at the X target location parameter from this menu item.

Target Scan Direction sets the direction of the scanning operation. The scale mark is normally scanned **-X,+Y**. There may be circumstances where it might be desirable to reverse the scan direction. See [Website Copy] / [CD Copy].

Settings Menu

The i-TECH allows six factory or custom set-ups.

Set-Up 1, whether standard or modified, is automatically loaded at power up. A user may modify the speed, force, (or any feature) on the control panel. See key command summary. Changes to a Set-Up, *unless saved*, will be in effect only until changed from the control panel, CAS software, the unit is turned off or reloaded.

Any of the features shown in the Setup Form may be saved to one of the systems 6 memory locations.

To save a custom set-up simply fill in the desired value(s) in the appropriate window, including the Setup Number, click on the **Save Setup** button.

To load the edit boxes with the current system parameters, input the setup number in the **Setup Number** window and then click the **Load Setup** button.

Setup Number sets the memory position.

Draw Speed is the velocity of the knife when cutting (e.g. while the knife is down).

Move Speed is the velocity of the knife when in the up position (not cutting).

Force controls the down force or pressure on the knife.

Knife Offset All drag knife cutters use a knife blade with the tip offset from the center of rotation. As the cutter moves the knife trails behind it, just like a caster on an office chair. In order to accurately cut the outlines, the computer embedded in the cutter compensates for

CUTTER PATH

OUTLINE
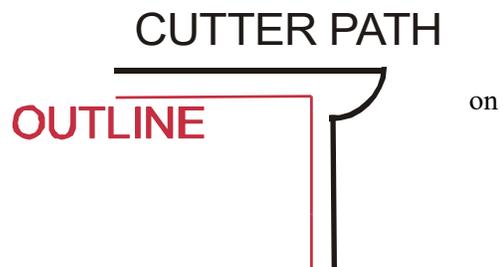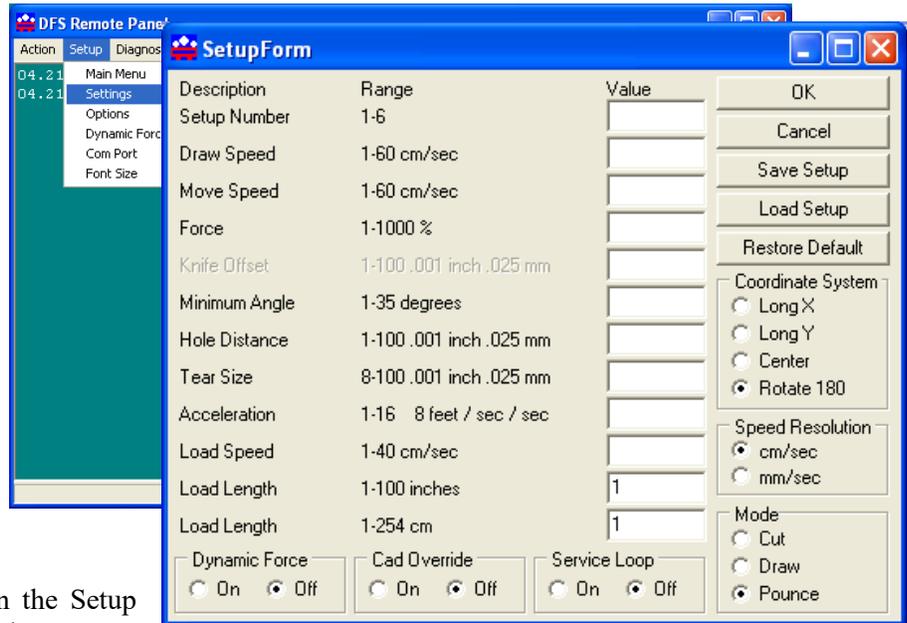
the offset of the knife. This parameter sets the offset for those calculations. The figure to the right shows the path the knife follows; the radius move at the corner allows for the knife offset. There are three blades available from our online store our online store at http://www.allendatagraph.com.

H20-017 30° Allen Datagraph i-TECH, DFS, Centra, Axxis cutting blade. Ideal for label stock. Angle of blade at 30 degrees to have exact control on depth of cut. This blade has a 0.012 inch (0.0305 cm) offset. It can be identified by its blue plastic cap.

H20-007 45° Allen Datagraph i-TECH, DFS, Centra, Axxis cutting blade. Ideal for general purpose cutting of vinyl and other thin materials. Angle of blade at 45 degrees to balance depth of cutting and pivot angle. This blade has a 0.012 inch (0.0305 cm) offset. It can be identified by its red plastic cap.

H20-008 60° Allen Datagraph i-TECH, DFS, Centra, Axxis cutting blade. Ideal for cutting thick materials. Angle of blade at 60 degrees to optimize cut angle. This blade has a 0.012 inch (0.0305 cm) offset. It can be identified by its green plastic cap.

Minimum Angle The cutter must stop and then accelerate whenever it makes a sharp turn. At shallow angles the cutter can continue at the cut velocity without decelerating then accelerating. This parameter sets the angle where below which the cutter can continue without stopping. High values increase throughput and lower value increase quality. Good quality can be obtained at reasonable speed at the default value of 12°.

Hole Distance displays and sets the distance between holes when the cutter is used in the pounce mode.

Tear Size displays and sets the hole size created when the cutter is in the pounce mode.

Acceleration displays and sets the servo acceleration. The unit of measurement is 1/4 g's or 8 feet per second per second. This parameter is more important in small graphics than in large labels or text.   Use a setting of 1 for heavy material and 2 to 8 is generally the best for most other material. This parameter does affect throughput speed on graphics with short vectors. As the graphics get larger the effect of higher acceleration diminishes. Higher acceleration can degrade cut quality.

Load Speed displays and sets the speed of the material loading and the speed of the material pull off in the service loop mode.

Load Length displays and sets the length of the material that is pulled during the load cycle and service loop if the cutter service loop mode is on.

Mode sets the operation mode. Select the operation mode cutting, pen plotting/drawing or pouncing.

To restore the factory default to all setups click the **Restore Default** button.

To load a setting enter setting number desired and click on **Load Setup.**

To save a setting enter setting number desired and click on **Save Setup**.

Settings Menu (Advanced Options)

Service Loop This feature should be turned off. It was designed to allow pulling media off the roll. Since the cutter cannot pull media off the roll and cut correctly it is not useful.

Dynamic Force (an advanced feature) engages the dynamic force function that instantaneously adjusts the force on the fly based on the actual velocity of the knife blade.   All cutters must accelerate and decelerate as they cut around corners. Some medias require different force settings

for different speeds. This parameter allows for building a database for these materials and when enabled will greatly improve the cutting on these materials. (See the Dynamic Force Adjust (Advanced Option) for more details)

CAd Override On or **OFF** enables or disables the CAD function. With the function **On (disabled),** the cutter will ignore some of the HPGL control commands sent from the cutting software. With the function **Off,** the software can control these HPGL functions.

These commands include:

AS   set acceleration
FS   set force
KA   set minimum angle
KN   set knife offset
IP   input P1/P2
RO   rotate
SC   set scale
SP   select pen
ST   select tool
UV   up velocity (move speed)
VS   down velocity (cut speed)
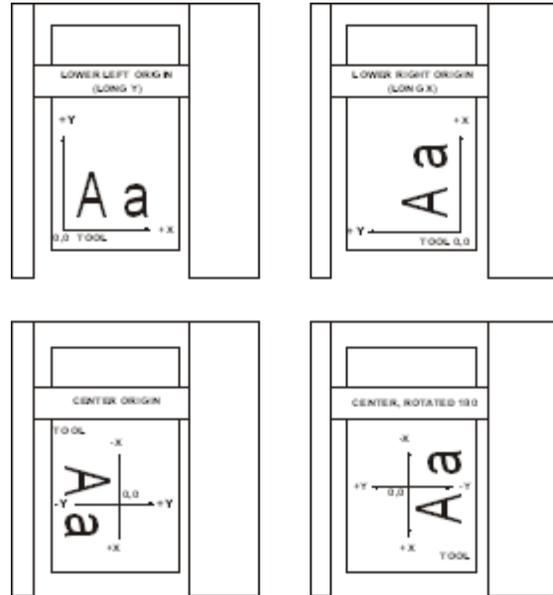
Coordinate System Allen Systems have four origins to allow for flexibility when using various CAD/CAS systems. The i-TECH is shipped with the Long X coordinate system in all factory set-ups and is compatible with most cutter or printer drivers. The choice of coordinate systems other than Long X is beyond the scope of this document.

COORDINATE SYSTEMS

Options Menu

The options menu displays and sets the following parameters:

Auto Origin Offset determines whether moving the joystick automatically sets the origin to (0,0). Most CAD systems and the Allen DirectCut printer driver require this option to be set On. Set to Off when cutting from a CAD system that does not use the SmartMark™ sensor such as the Gerber Omega software. Pressing load key after joystick when set to off will set origin manually to (0,0).

Media Height Sensor turns on or off the load function that senses the width of the media based on the set up of the pinch wheels. With this function enabled, the cutter head will scan a magnet on the pinch wheels to establish the height of the media. With the function off, the cutter is loaded with the maximum width. This option is normally set to Off.
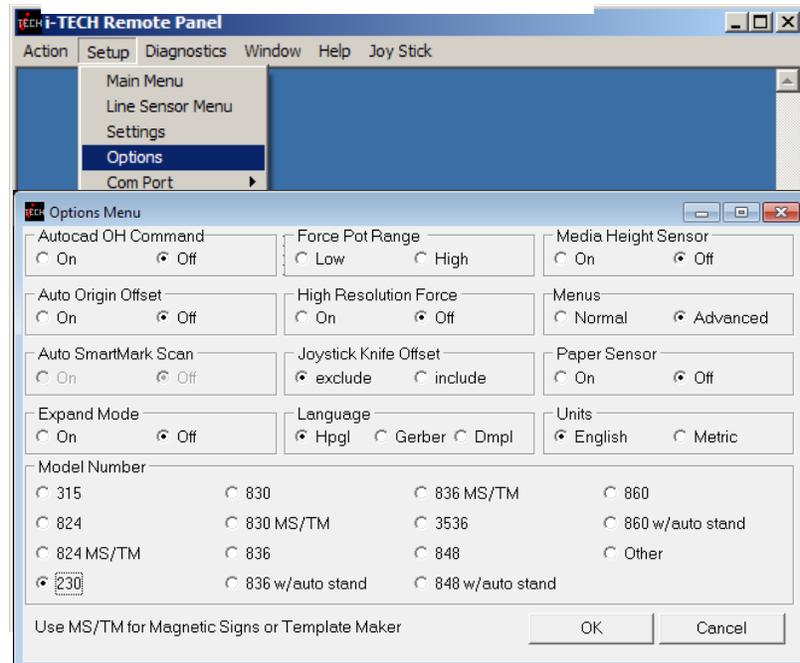
Menus option offers the more advanced features of the software. It is recommended this be set to Normal until a more advance feature is understood or is required by your operation. The menu items below are displayed when the menus is set to Advanced.

Paper Sensor Some units come with paper sensors. This option allows turning the sensors on and off. If off the cutter will assume there is always media in the cutter.

Units sets the units of measure to English or Metric units.

Model sets the model number. Password for model number change is 23. Do not change the model number unless you know what you are doing.

Options menu (Advance Options)

Autocad OH Command determines how the system will respond to the HPGL OH command. Set to off unless you are using a very old Autocad system that communicates directly to the cutter.

Auto SmartMark Scan if off no action is taken. This option was created for Gerber language output direct from composer. It changes the IN hpgl command at beginning of job to include an FO command. Set language to Gerber so the page advance at end of job works correctly.

Expand Mode allows the cutter to cut past the normal clip limits in the Y-axis. This function allows cutting and extra 1/2 inch (12 mm) wider.

Force Pot Range is used only on model 315 and 230. If set to low force pot range is 0-50%. This allows higher resolution for low forces. If set to high force pot range is 0-100%. This must be set to high if you need more than 250 grams of force.

High Resolution Force sets the force resolution to 1 to 1000 steps instead of 1 to 100 steps. It is useful when cutting very hard to cut medias. It allow setting the force between two of the standard force settings. A force of 112 is equivalent to 11.2 % force. (also see the Dynamic Force Adjust (Advanced Option)).

Joystick Knife Offset this option controls whether the cutting data point includes or excludes the knife offset. The normal setting is exclude. Include is used for CadLink's SignCad program when digitizing only.

Language determines which language the cutter uses. Select Hpgl for most cad systems and the DirectCUT™ Printer Driver. If you are using Gerber Omega select Gerber. If your cad system only output dmpl you can select this language.

Dynamic Force Adjust (Advanced Option)

This feature is considered an advanced feature and does not appear on the Setup menu unless the menu is set to advanced on the option page. Dynamic Force allows different forces to be applied at different velocities. Adjust sets up the dynamic force parameters and database. To establish a new material database type in the name of the new material in the **Material Selection** box and click **Add**. In the Force and Velocity Window, type in the desired force vs. velocity that you have established for the

24
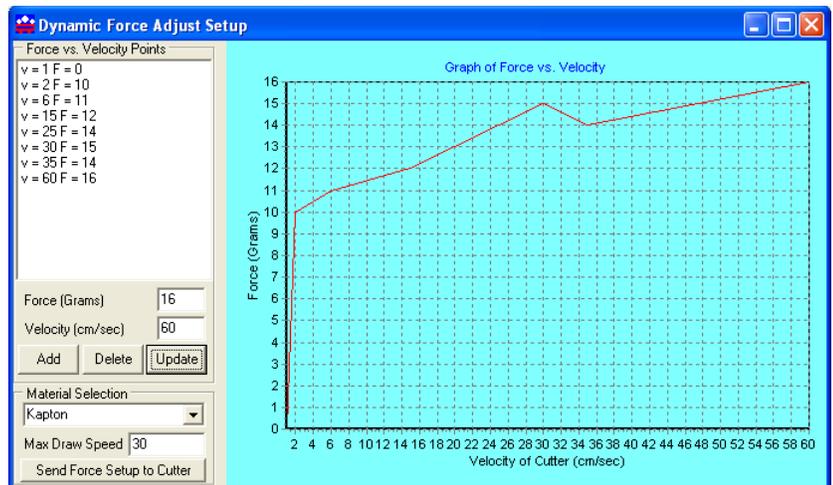
material.   The recommended method for establishing the various force vs. velocity numbers is to run the test cut at various velocities and record the results for entry here.

Enter the Maximum cut speed for the media in the **Max Draw Speed** window.

Before using Dynamic Force Adjust, it is necessary to send the force setup to the cutter memory by clicking the **Send Force to Cutter** button.

Com Port menu is used to set the communications port to the Remote Panel only. It does not set the communications port for the design software or Allen DirectCut Driver. The **Local Echo** mode is used in communicating directly from the remote panel while in **Terminal Mode**. Select Lan if connected via Ethernet.

Font Size sets the font size for the Remote Panel Program.
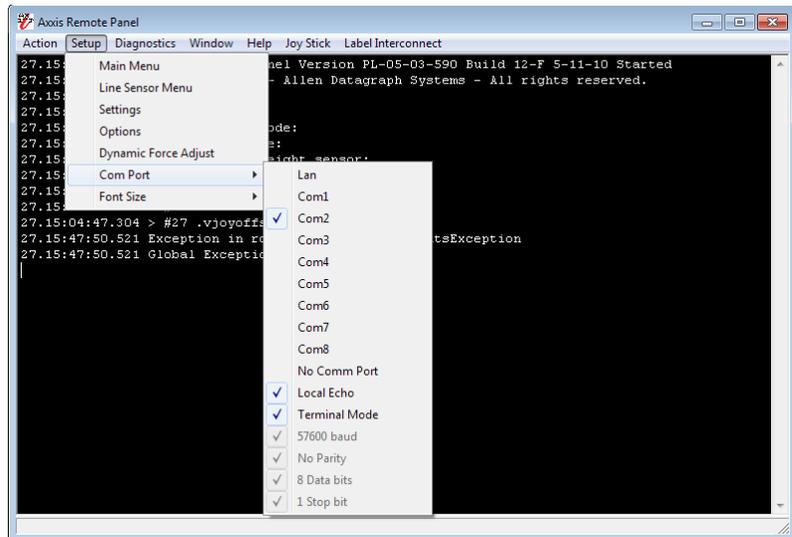
Diagnostics

See the diagnostics section of this manual. Additional diagnostics are available if advanced menus are used.

Window

In user operation only terminal mode is useful.

Some advance diagnostics use a chart to display data. This menu allows changing between chart and terminal data.

Help

About display software version of remote panel. The firmware version of the cutter is displayed on the main menu.

Putting a check next to **enable debug log** displays the communication lines between the cutter and the remote panel. (This is an advanced option)

Putting a check next to **enable character log** display each character as it is sent / received to / from the cutter and its direction. (This is an advanced option)

Clear log clears communication messages from the screen.

Joy Stick

JOYSTICK The joystick is used for positioning the knife and media in the die cutting station.

The four **ARROW KEYS** are used to jog the material or cutter carriage that holds the knife blade and the SmartMark™ sensor.   With the Jog/Slew box unchecked so that Jog/Slew = Slew, the joystick speed will be the
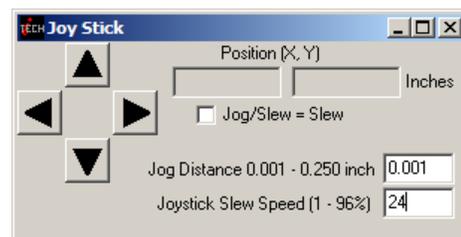
speed set in the Joystick Speed Window. Left Click and hold the arrow button to move the material or carriage. With the Jog/Slew box checked so that Jog/Slew = Jog, the arrow buttons will jog the cutter that fixed distance each time the button is clicked.

The setting in the Jog Distance Window also sets the jog distance for the Front Panel Joystick buttons.

Installing Knife Blades

Installing replacement blades

The knife blade should be replaced when the force has been increased by more than 20 percent or the cut quality has degraded. The first sign of blade degradation usually occurs in the corners of the cut and may lead to poor weeding.

New blades slide into the holder to a preset height and are held in magnetically. No tools or adjustments are required. To replace the blade, first remove the blade holder from the tool holder by loosening the brass thumbscrew and pulling up on the silver knife holder. Remove the black plastic cap. To remove the used blade, grasp it with a pair of tweezers and pull it out of the knife holder (discard the blade safely). Remove the new blade from the plastic case and remove the protective cap. Insert the blade into the holder and let the magnet pull it into the preset position. Put black cap back on knife holder. Reinsert the knife holder into the tool holder and tighten the brass thumbscrew.

Replacement blades are available from Allen Datagraph Systems, LLC. They can be purchased online @ http://www.allendatagraph.com/ or by calling 603-216-6344.

H20-017 30° Allen Datagraph i-TECH, DFS, Centra, Axxis cutting blade. Ideal for label stock. Angle of blade at 30 degrees to have exact control on depth of cut. This blade has a 0.012 inch (0.0305 cm) offset. It can be identified by its blue plastic cap.

H20-007 45° Allen Datagraph i-TECH, DFS, Centra, Axxis cutting blade. Ideal for general purpose cutting of vinyl and other thin materials. Angle of blade at 45 degrees to balance depth of cutting and pivot angle. This blade has a 0.012 inch (0.0305 cm) offset. It can be identified by its red plastic cap.

H20-008 60° Allen Datagraph i-TECH, DFS, Centra, Axxis cutting blade. Ideal for cutting thick materials. Angle of blade at 60 degrees to optimize cut angle. This blade has a 0.012 inch (0.0305 cm) offset. It can be identified by its green plastic cap.

Tool Holder Block

The knife blade holder is installed in the tool holder block with a thumbscrew. The tool holder block is held to the cutting head by two hex drive screws.

Knife blade holder Assembly

The blade holder is designed for use with Allen Datagraph's 30°, 45° and 60° blades. Solvents and lubricants should **not** be used, as they will diminish cutting accuracy.

Knife Blades

Knifes blades for the Allen Datagraph i-TECH Unit are made with tungsten carbide and are designed specifically for digital die cutting. The tip is offset from the center of the shaft so that the blade has a caster action when pulled. Blades are available in 30, 45 and 60-degree tip angles. The 60-degree is intended only for thick materials such as sandblast mask or thick over-laminates. For best cutting results, protect the knife tip from damage when not in use.

Knife Blades Depth Guide

Allen Datagraph's controlled depth knife holder has a depth guide that is adjustable to control the depth of cut the cutter makes. Correct adjustments allow the blade to cut the material and lightly mark the backer (carrier) material. Too much cut depth can cause cut through and premature blade wear. Not enough cut depth will make "weeding" of media difficult.

Use the cut test, force and depth adjustment to establish good cutting (see setting cut force – cut depth section)

Use the cut test and force to establish good cutting (see setting cut force – cut depth section)

Cut Strip

Clean any debris from the groove before installing a new cut strip. The strip simply snaps into and out of place with no special tools required. **It is important that the cut strip be installed fully and evenly, otherwise material cut through may occur in some sections across the cutter.** *The cut strip should be installed for knives and pen plotting, but **must** be removed for Pouncing.* Replacement cut strips are available at online store http://adsi-usa.com/.   Select store and cutter supplies to see available cut strips.

Calibration

Cutter calibration for SmartMark™ is beyond the scope of this document. Please read calibration procedure Website Copy / CD Copy available on the technical support page of the Allen Datagraph web site at http://www.allendatagraph.com.   Standard cutter calibration is described in Appendix I or Website Copy / CD Copy

Maintenance
Cleaning

The regularity with which the cutter needs to be cleaned is dependent on the usage, as well as the climate and contaminants in the cutter's environment. It is recommended that the following cleaning steps be done at least as often as indicated for each procedure:

1. **Biweekly**. Clean the three grit wheel surfaces with a stiff bristled e.g. tooth (not wire) brush to remove any media particles that may have built up during cutting. Brush the surface of the grit wheel while turning the grit wheel by hand so the entire surface of the grit wheel is cleaned. CAUTION: Be sure to disconnect the cutter from the power source while cleaning the unit. Keeping the grit wheel clean is important so the cutter will hold the media accurately.

2. **Biweekly**. Wipe media-related dust from the set of polyurethane pinch wheels by using a soft cloth.

3. **Monthly**. The outer surfaces should also be kept clean. If necessary, a mild cleaning solution on a damp cloth can be used to gently wipe the surfaces clean. It is suggested that a mild soap and water be used with a soft cloth. This solution works well on all painted surfaces. CAUTION: Do not use any abrasive cleaners, as they will cause the paint to blister.

4. **Yearly**. Inspect the internal circuit board assemblies and clean accumulated dust as necessary. Be certain that the cutter power is off. Observe static discharge safety procedures that may damage sensitive electronic components. Wear a grounding strap connected to earth ground. Wear safety glasses to protect eyes. Remove front and side covers and use compressed air to remove dust and debris. Replace cover to original location and make certain that that any connectors are well seated.

Pinch Wheel Maintenance

Pinch wheels are critical to the i-TECH unit's material handling performance. They should be inspected for wear regularly and cleaned as needed. To clean adhesive off the pinch wheels, simply use a soft cloth and denatured alcohol.

In normal use, the pinch wheels will need to be replaced in time. Also, trying to move them when they are in the down position can damage them. If material does not track well and guide alignment has been verified, the pinch wheels may need to be replaced. For best tracking results, replacement pinch wheels should be replaced as a SET.

To check condition of pinch wheels:

1) **Inspect condition of rubber** The rubber wheel should not have any cracks and should be securely adhered to the aluminum hub of the wheel. The transition from the flat surface of the wheel to the "sidewall" edges of the wheel should be sharp and not rounded.

2) **Inspect integrity of pinch wheel bearing** This is done by having the pinch wheels in the up position. Spin wheel with finger and observe whether the bearing has a dry sound or not. If it appears to be dry, the wheels should be replaced.

Mechanical Adjustments

Belt Tension

The i-TECH servomotors use timing belts to control the material (X axis) and tool (Y axis) positions. The belt tension and wear should be inspected if cut quality deteriorates. To inspect the belts, remove the pods at either end of the i-TECH. This can be done by removing about 16 screws along the edge of the pod covers. You can operate the cutter with pods installed in the extended position by reinstalling the pods using two screws. (see also TSB: Mechanical Adjustments to Restore Cut Quality Website Copy / CD Copy)

Y-Axis

The Y-axis short belt runs between the Y-axis servomotor and a gear assembly under the left hand pod. To adjust the tension of this belt, it is necessary to reposition the motor bracket.

1. Loosen the three Phillips head motor bracket screws and apply hand pressure to tighten the belt so that the belt will deflect 0.050 inches at the center when 23 ounces are applied. (1.3 mm when 660 grams are applied).
2. When the belt is tight and the motor shaft is **parallel** to the bearing shaft, tighten the three Phillips head motor bracket screws. *Premature belt failure will occur if these two shafts are not parallel.*
3. Verify tension.

The long belt is adjusted using a lead screw located behind the control panel. To set the long belt's tension:

1. Position the carriage to about 24 inches from one end.
2. Remove the control panel housing as follows
    a. Install the right pod at extended position as described above.
    b. Remove the top rail cover over the carriage by removing the two screws at each end of the cover.
3. Loosen locking nut. Adjust the lead screw so that the 24" of belt when plucked like a guitar string vibrates at a low base note. It should not flop around and stop oscillating immediately.
4. Set the lead screw lock nut.

5. Verify belt path and tension.
6. Replace the control panel housing, top rail cover and rear cover.

X-Axis

The belt inside the rear cover drives the grit wheel (X axis). To adjust the tension of this belt, it is necessary to reposition the motor.

1. Loosen the two motor bracket screws and apply hand pressure to tighten the belt so that the belt will deflect 1/16 inch at the center when 23 ounces are applied. (2 mm when 660 grams are applied). (Replace belt if damaged or worn).
2. When the belt is correctly tensioned, tighten the two motor bracket screws.
3. Verify belt path and tension. Check that the large gear turns freely.

Diagnostics

The i-TECH CUTTER firmware contains a set of resident diagnostics. When the i-TECH CUTTER is powered up, it automatically performs a self-test program to check all operating parameters. If a malfunction is detected, the letter "E" and a three-digit error number will be displayed in the display window. The error numbers and the corresponding malfunction descriptions are given in the Error Codes section. When an error is displayed and no obvious damage was done to the cutter, power off the cutter and repeat the procedure that caused the error display. If the error reoccurs, the user may push any key on the control panel to enter the diagnostic mode. Many errors automatically place the cutter in the diagnostic mode when a key is pressed.

The fail-safe system is designed to detect failures in the operation of the electromechanical system in the cutter and to prevent such failures from causing other damage. The cutter monitors motor currents and will generate an error if motor current too high or unmeasureable. It also generates an error for impossible or dangerous conditions. The appropriate error code will appear, as mentioned above, in the display window on the control panel.

Diagnostic Operation

The diagnostics in the i-TECH Cutter exist at several levels:

a. POWER-ON
b. CONTINUOUS HARDWARE AND SOFTWARE MONITORING
c. OFF-LINE

The POWER-ON diagnostics are performed at power-on or reset of the microprocessor and test the microprocessor, memory, servo analog and digital hardware, and some of the testable sensors.

After initialization, continuous hardware and software check the sensors and fail-safe monitors for machine malfunctions. If a malfunction is detected, an error code is displayed on the control panel display, the protection relay is opened, and the cutter ceases operation.

Control panel operation

Starting the diagnostics from Control Panel

Turn unit on and allow initialization to complete. If the i-TECH Cutter is displaying a flashing error code on the front panel display, press any key to enter the diagnostic mode.

Press the select key to initiate the menu function, Press the left or right arrow key to display diA. Press the up or down key to scroll thru the diagnostic numbers (0002 – 0099). Press the select key to start the diagnostic.

To Stop a Diagnostic

Press the reset key sequence F1, F2, F3 or power off and on unit.

To Exit the Diagnostic Mode

To return to normal operation, run diagnostic 99 or cycle the cutter power off and on.

Remote panel operation

Certain diagnostics are easier to run from the remote panel. To run the customer diagnostics from the remote panel program:

Open the remote panel

Open the Diagnostics Menu
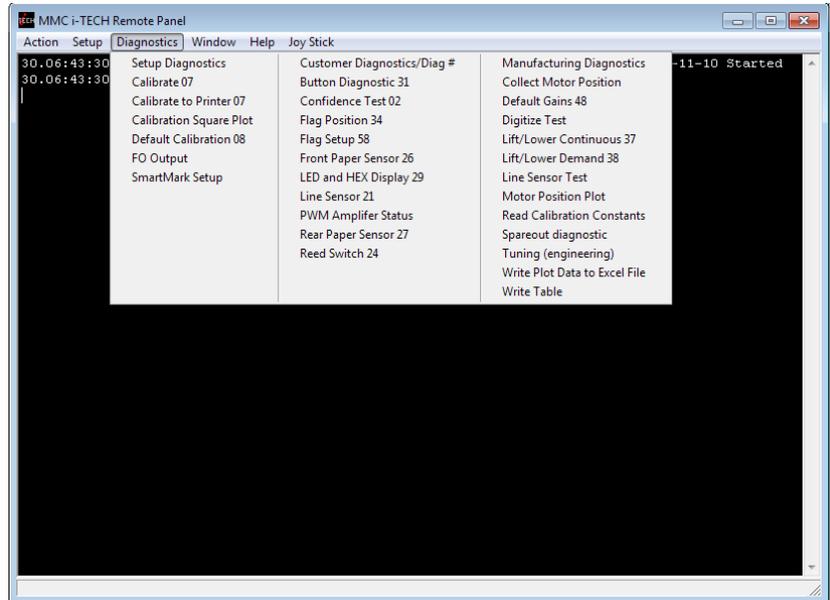
IMPORTANT!! DO NOT run Manufacturing Diagnostics unless specifically instructed by direct contact with Allen Datagraph Technical support. Damage to the system is possible if not run correctly.

Setup Diagnostics

Calibrate 07, Calibrate To Printer and SmartMark™ Setup

have been described in other sections of this document or the SmartMark™ Setup Document or the template maker supplement Appendix I or Website Copy / CD Copy

Calibration Square Plot

prompts for a square size and sends an HPGL command to output the square. This is useful when calibrating the cutter to a ruler rather than a printer and is normally not required. Specifying 10 inches for the size will send the HPGL commands to draw a 10 inch square.

Default Calibration 08

diagnostic sets the calibration constants back to the factory defaults prior to initial calibration. After running this diagnostic you will have to either restore the calibration constants or rerun the calibration procedure described in Website Copy / CD Copy available on the technical support page of the Allen Datagraph web site at http://www.allendatagraph.com.   As this is a rather involved procedure Diagnostic 08 should be avoided unless you have received an E37 error, which automatically runs this diagnostic.

FO Output

command sends the <esc>.vfooutput;1: command which displays software debug information about the last FO command. The first line output indicates the location of the three targets and whether they were found. The last two lines indicate the amount of scaling and rotation calculated that need to be applied to the HPGL commands to cut the image.

It normally is not useful for customers to run this diagnostic. Information displayed is recorded in the serial.log file.

Customer Diagnostics

The rest of the diagnostics do not appear on the menu until advanced menus are selected from the setup -> options menu. The "Customer Diagnostics" are designed for use by the customer to aid in trouble shooting the i-TECH cutter..

To run a customer diagnostic, click on the menu item and the diagnostic will automatically start. Some require intervention after starting and you will be given instructions on the screen. The number pad on your computer keyboard is mapped to simulate buttons on the front panel of the cutter. The mapping is displayed on the screen. Make sure window is wide enough so the wrapping of text is not done by the software or it will be hard to read.

Button Diagnostic 31

Test the operation of each of the buttons on the front panel. Buttons must be pressed in the following order: Load, Pause, Copy, Speed Up, Speed Down, Force Up, Force Down, Test Cut, F3, F2, F1, Select, Left, Right, Up, Down. If the wrong code is received the error code E036 is displayed otherwise the requested button is requested with the button name prompt.

Confidence Test 02

The confidence test is used to verify the operation of the cutting station of the i-TECH. It fully tests the capability of the cutting CPU and Servo control system.

To run the confidence test the cutter must be unloaded. If the load led is on press pause and load in sequence of the front panel to unload machine. Install a piece of paper (designed for d size but will work on any size by scaling the test to size of media). Left and right pinch wheels should be on the edge of the media. The media should hang out the back of the machine with the front edge near the cut strip. Install a pen in the cutter. Start diagnostic. The media width will be measured and the size of the media will be assumed to be proportional to the width measured. A test pattern will then be plotted.

With 230/315 front panel press copy, copy, test cut to start confidence test.

With membrane panel: from the front panel scroll to `0002` press the Select Key. The i-TECH will start by sensing the media width and then will draw a sample file.

From the remote panel click on **Confidence Test 02.** The i-TECH will start by sensing the media width and then will draw a sample file.

Flag Adjust 34

This diagnostic is used to verify the correct flag position on the cutting head. It displays the knife height on the display. The flag is a small, flat, angled piece of metal which moves up and down between a pair of circuit board mounted sensors. The flag is held on to the knife holder by 2 Allen screws, which are loosened slightly if adjustment is necessary. There are 3 locations the knife holder can be in. They are:

Bottom (remove the knife from the holder and press the holder down to the bottom) The display should read between 000 and 006.

Down (press the knife down with a knife in the holder) The display should read 020 to 030 pressing down with a knife in the holder (no media present). Adjust flag position if necessary.

Top (hold the knife up) The display should read 0100 or more.

The display should change immediately as you move the knife up or down away from top or bottom positions.

Slightly move the flag to obtain the above reading at each of the three locations.

Check that the flag screws are tight and recheck Bottom and Down.

To start the diagnostic

From the front panel scroll to `0034` and press the Select Key.

From the remote panel click on **Flag Position 34.**

Flag Setup - Z Axis 58

It is necessary to run Diagnostic 34 to verify carriage flag setting before performing this diagnostic. This diagnostic configures the carriage to the cutter. It measures the up, down, and bottom position of the knife so that it can properly raise and lower the knife without punching a hole in the media.

From the Front Panel scroll to 0058 then press the Select Key.

From the Remote Panel click on **Flag Setup 58.**

After starting a phase is display on the display of the cutter or under the word DISPLAY on the remote panel.

Phase 4: Set Tool Bottom - Remove the tool from the holder and press the Select Key.

Phase 5: Set Tool Down - Adjust knife depth guide to equal the blade length. Place knife tool in holder. Press the Select Key.

Phase 6 and 7 displayed on models 315 and 230 align the printing for the numbers on the force and velocity pots to values received.

Phase 6: set force and velocity pots to 1 then press select key (5 key on computer keyboard)

Phase 7: set force and velocity pots to 100 then press select key (5 key on computer keyboard)

Power Down Cutter to continue.

Front Paper Sensor 26 / Rear Paper Sensor 27

Some units are configured with media present sensors. They detect the presence of media. If they detect media a 1111 is displayed on the front panel. If they do not detect media 0000 is display. If your cutter has paper sensors they will be mounted just below the oval holes in the platen on the right side of the cutter. The paper dust must be removed from windows of sensors in order for sensor to work correctly.

LED and Hex Display 29

Exercises the LEDS and the 4-character display.

Line Sensor 21

Continuously displays the result of the SmartMark™ Line sensor. When you place a white piece of material under sensor a number > 100 should be displayed. When you place a printer black target under sensor the reading should be < 20.

Lift/Lower Continuous 37

Exercises the z axis lift lower at different forces. Continuously raises and lowers the knife.

Lift/Lower Demand 38

Exercises the z axis lift lower at different forces. Raises and lowers the knife on each select key press. While knife is down at a force the cutter displays the current through the voice coil and the width of the pwm pulse to the z axis driver.

PWM Amplifier Status

This displays the power amplifier temperatures if the PWM power amplifier.

Read Calibration Constants

Reads and displays the scaling constants for the x and y axes. Safe to run. X and Y encoder counts are dependent on model number.

Reed Switch 24

This diagnostic continuously displays the result of the media height sensor. As the reed switch passes in front of a pinch wheel with a magnet installed, the output will change from 1111 to 0000.

Front Panel Only Diagnostics

Some diagnostics can only be run from the front panel

Display Last Error 15

Running diagnostic 15 will display the last error number saved in NVM.

Factory Defaults 43

You can select factory defaults for settings by running diagnostic 43.

Set Model Number 03

From the control panel scroll to 0003 and press the select key. Enter password of 23 and then select. Enter model press the Select Key. Do not change the model number unless you know what you are doing.

From the remote panel open the **Set-up** menu then the **Options** Menu. Click on the desired Model Radio Button. When you click on OK the remote panel will ask for the password to change the model number. Enter password 23 and click on ok.

Set Static/DHCP IP Address 04

Normally you do not need to run this diagnostic. If you are using a cross over cable the default address is 192.168.4.10 and you have set your computers ip address to 192.168.4.2. If you are using a dhcp server, most algorithms normally try to assign same ip address to mac address everytime the device requests an ip address. If you have trouble with your dhcp server giving you a different ip address everytime you turn on your machine you can set a static ip address.

To run diagnostic on 230 or 315 you type esc.z (e.g. press esc key, then period key then z key) to open simulated front panel, start diagnostic by pressing keys on numeric pad as if you were pressing them on front panel of cutter.

To change the default IP address for mmc you run diagnostic 4 on the mmc.

Select -> right arrow to dia -> up arrow to 0004 -> select

if dhcp is desired select dhcp and press select.

Otherwise if you want to set your cutter to use ip address 192.168.4.10 and mask to 255.255.255.0 and gateway of 192.168.4.1 use up/down to select IP then press select key

Change first part of address with force/speed up/down key to 192 then press select

change 2nd part of ip address to 168 then press select

change 3rd part of ip address to 4 then press select

change 4th part of ip address to 10 then press select

MAS will then appear. Press select

First part of mask is 255 -> press select

2nd part of mask is 255 -> press select

change 3rd part of mask to 255 then press select

4th part of mask is 0 -> press select

gAtE will appear. Press select

change 1st part of gateway to 192 then press select
change 2nd part of gateway to 168 then press select
change 3rd part of gateway to 4 then press select
change 4th part of gateway to 1 then press select.

Trouble Shooting

Problem	Solutions
Cutter does nothing	• Panel lights off, no fan noise : plugged in, power on, cycle power • On Hot tip units check fuse in power entry module. Replace with one 5A fuse for 115 vac or two 2.5A fuses for 220 vac.
Cut through/poor weeding	• Is your knife blade sharp? You can check condition of blade by examining the blade tip under a 30x microscope. The blade tip must be present. • For very thin (less than 0.002 inch, (0.05 mm)) or liner less than 20 lb. media you might need to use the controlled depth adjustment on the end of the knife holder. Partially unscrew the black cap until just enough knife blade is exposed to cut through the media but not the backer. Test by drawing knife across media by hand. You can then use a higher force with no cut through. • It is important that the groove filler be installed fully and evenly, otherwise material cut through may occur in some sections across the cutter. • Insufficient backer weight. • Check mechanical adjustments Website Copy / CD Copy • Increase / Decrease force. Increase decrease knife offset. • Check cut strip condition. Replace or reverse if damaged. • Decrease acceleration or speed. • Increase resolution in printer driver. • Do not allow cutter motors to pull media off of roll. • Using wrong angle of blade for material.
Images are incorrect size	• If error is small (< 1/2 inch (12 mm)) make sure grit wheel is clean. Dirt build up in grit will change the size of the grit wheel making it cut the wrong size. Run diagnostic 07 to calibrate the cutter to a ruler. • If error is large (10% or more) then you probably have wrong model number in cutter or mismatched AllenCad and printer

	driver versions. Model numbers for template maker and Magnetic sign cutters are in the 2000 range. GT cutters do not have 2000 added to model number. Check the model number displayed on the remote panel setup -> main menu. • Template cuts off by small amounts or different amounts each time. <u>Website Copy</u> / <u>CD Copy</u>
Contour cuts are wrong size.	• If you are using origin only or origin skew no scaling is done to image received. In this case you must calibrate the cutter to your printer rather than a ruler. You do this by printing a large rectangle on your printer. Then cut the same size rectangle. For x and y drawn use printed size rather than a ruler as drawn or desired size. • If you are using origin scale, or origin skew scale then the size of the cut is change by the x or y sensor size parameter in the line sensor menu. See Smart Mark Setup section.
Labels or contour cuts are cutting in the wrong spot	• Verify you created job correctly. • Origin target is at minimum x and maximum y of drawing. • The scan area contains only target and background with no stray marks that could be seen as targets. • Verify printer properties are correct • Rotation is set correctly. Target cut should be in same corner on preview as selected origin corner. • Find origin property is set to Origin only or other advanced option. • Verify sensor settings have not been lost in the remote panel select setup -> line sensor menu. • Verify x sensor offset is about 0.75 inch and y sensor offset is about –0.1 inch • If your job is off by only a little bit (less than 1/8 inch (3mm)) and is same for every frame you can measure this error and correct your x and y sensor offset by the amount of the error you measure. • Verify scan length is the same as the length of the side of the target • Verify the scan offsets = ½ of the length of the side of the target • Verify the Scan Velocity is either 1 or 2. • Verify the space between jobs in the line sensor menu is zero. • Verify Skew target is at minimum x, maximum y of artwork. • Verify Scale target is at maximum x, minimum y of artwork.
Target errors tar1, tar2, tar3, tar4	• These errors indicate that the target scanner did not find the target. • If tar1 on first frame: o Verify that you positioned red led pointer to right rear corner of target

|	
	○ Verify red led is lit. ○ Check that distance led is from media is 3.4 to 4.6 mm. ○ Run line sensor diagnostic (21) to verify operation of sensor. - If tar1 on 2nd or subsequent frame ○ Verify space between jobs in printer driver is set correctly. If it is set correctly after cutting first frame the knife blade should be on the right rear corner of target of next frame. - Tar2 – 4. ○ Verify job you are sending matches job you printed ○ Verify rotation is correct in printer driver ○ Verify job is built correctly in that scale and skew target print is in same location is die lines for scale and skew target. ○ Verify scale and skew targets are at extents of image. Skew should be a minimum x and maximum y. Scale target should be at maximum x and minimum y.
Composer spools out lots of material before cutting image	When using direct cut driver and sending from Gerber software, if the cutter spools out lots of material instead of cutting where it is, go to file, print, select Allen device, click options tab, uncheck HEADER box, click preferences button.
No action when you send data to cutter	- Allen Spooler: If plot is sent from computer and cutter doesn't cut, check for Allen spooler in the task bar (Lower right of monitor, green box with red arrow, near time). If it is not there, go to start button, programs (all programs), startup, allen spooler and click on allen spooler. If you get message saying allen spooler starting with one job left in queue, cancel it and send job again after checking to see that cutter is ready. - Click on red arrow in green field icon in service icon area. If you are getting unable to open port displayed - See if remote panel still has port open. It should auto close the port after 5 seconds. - Reboot computer and cutter. - Verify port selected is correct. You can find the correct port from the device manager. - Plug usb cable into same usb port as you normally do. Different usb holes are normally configured as different com ports. - Rerun enable printer driver to find cutter. Start > All Programs > Allen Datagraph > Cutter Driver > Enable printer driver - Try different usb cable or different computer. - From spooler cancel all jobs, turn cutter off/on and resend job. - No usb driver installed for equipment <u>Website Copy</u> / <u>CD Copy</u>

	• Cutter in pause state.
Job does not complete	• Verify minimum cutter driver level of 2.08g. New software can be downloaded from Web Site Copy • If you have less the firmware revision 12 as usb version in your cutter turn off polyline encoded output in printer properties, device settings. Web Site Copy / CD Copy • Try a different cable or computer
When I turn my cutter on, the head reaches the side plate and makes a loud noise	• Loose long Y belt if carriage is getting to the right side and making a ratcheting noise, it's could be the long y axis belt, or the y axis motor belt located under the left control panel. To determine which belt it is, turn the machine on while holding out on the long belt that attaches to the cutting head. What this does is put more tension on the belt. If the head gets to the side and they don't hear the noise, proceed to below: Remove the control panel and locate the belt tensioner. This is a wedge-shaped device with a long Phillips head screw protruding toward the rear of the machine. Loosen the 3/8" locking nut holding the tensioner screw in place. Turn the phillips screw a couple turns clockwise, then turn the cutter on before attaching the control panel. If the cutter initializes, there is no need to look further. If this does not solve the problem, proceed to the next step: Open rear cover, turn cutter on and observe the belt attached to the motor. If the motor pulley continues to turn, then the short motor belt is most likely either loose or worn out. Carefully inspect the teeth on the belt for wear with the machine off. The pulley can be rotated to allow inspection of teeth. • If the teeth are not worn or stripped off the belt, loosen the three mounting screws holding the motor bracket to the sideplate. Apply tension to the motor bracket BY HAND, and tighten the screws. The belt should have less than 1/8" of free play when properly tightened.
Media sensors can't see black EC film or vinyl with clear backer.	• Turn off paper sensors using setup -> options in remote panel. • Cover 1/2 the sensor hole with masking tape.
Router keeps changing my ip address	• Some routers do not keep a table of mac addresses so that the same computer will be assigned same ip address each time you power up. In this case run diagnostic 4 and assign a static ip address to the cutter. See also Website Copy / CD Copy
Material Does not track straight	• Tracking video Website Copy / CD Copy • Instructions for adjusting donuts on tracking guides Website Copy / CD Copy • Move pinch wheels out of punched area. • Do not allow cutter to pull media off of roll.

	- Inspect pinch wheels - Clean grit wheel and pinch wheels. - Reduce acceleration and / or velocity. - Change springs [Web Site Copy](#) or [CD Copy](#).

Error Codes

If the internal microprocessor detects an error condition, the letter E0 and a 2 digit code will be displayed on the control panel. Any key pressed after the error is displayed will place the machine in the diagnostic mode, indicated by a flashing "D" on the control panel. Recommended diagnostic procedures (D##) are listed in the error description.

The mmc software error codes are in the following linked document. Web Site Copy / CD Copy. You can recognize the mmc machines by looking at the communication port. If your port looks like this use this link to error codes.
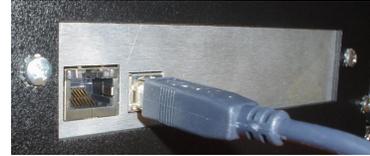
Appendix A Installation And Assembly Instructions

Website Copy / CD Copy

Appendix B SmartMark™ Setup

Website Copy / CD Copy

Appendix C Loading

Model 230

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Model 315

Website Copy / CD Copy

Model 536

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Model 824, 824 ms, 824 tm, 830, 830ms, 830tm, 836, 836ms, 836tm, 848, 860

Website Copy / CD Copy
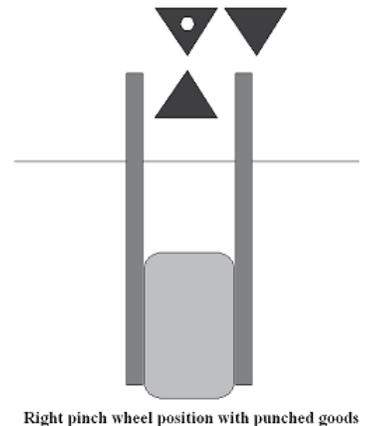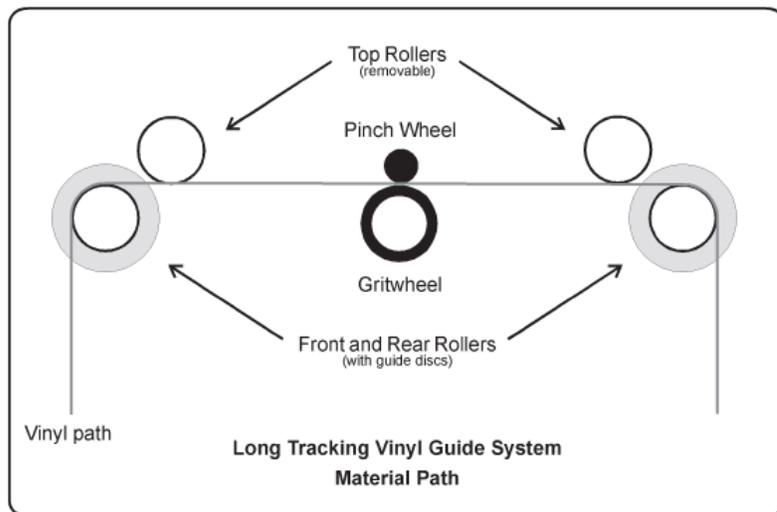
Right pinch wheel position with punched goods

Top Rollers (removable)

Pinch Wheel

Gritwheel

Front and Rear Rollers (with guide discs)

Vinyl path

Long Tracking Vinyl Guide System
Material Path
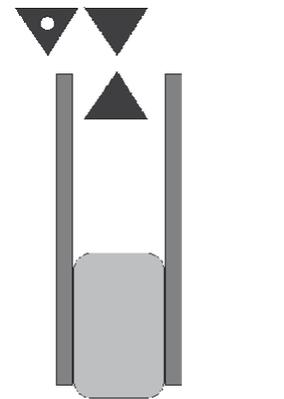
Right pinch wheel position with unpunched goods

Appendix D Cart Assembly Instructions

Website Copy / CD Copy

Appendix E Radio and Television Interference

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

In order to maintain compliance with FCC regulations shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio & television reception.

This device complies with part 15 of FCC Rules. Operation is subject to the following two conditions; (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Appendix F Model i-536 Addendum

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Appendix G Model i-536 Adjustable Parameters

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Appendix H Hot Tip Instructions

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Appendix I Template Maker Supplement

Website Copy / CD Copy