

PERIPHERALS AND ACCESSORIES.

1. TOOL HOLDERS
2. THE ROTARY TABLE --- U AXIS.
3. THE INTERFACE CONSOLE
 - 1) THE PRINTER
4. SOFTWARE PACKAGES FOR PC BASED SYSTEMS
 - 1) COMMUNICATION PACKAGE
 - 2) SIMULATION PACKAGE & EDITOR
 - 3) CAD / CAM PACKAGES.
5. TAPPING
6. HIGH SPEED SPINDLE ATTACHMENTS
7. TOOLING
8. PUBLICATIONS
9. COMPLAINTS ON THIS OPERATION MANUAL

PERIPHERALS AND ACCESSORIES

1. TOOL HOLDERS

There are a wide variety of tool holders available on the market for face mills, end mills, drill chuck, arbors, saw arbors etc.

Dyna offers collet chucks and 1/4", 3/8", 1/2" end mill tool holders from Command corporation. (800 328 2197) that allow the tools to be locked closer to the spindle nose. These are called "Short Gage Length". They are listed below.

Each tool holder requires a pull stud.

* DR16	BT-30 Short gage length (2.3") Collet chuck.
* DR16 - 9	Set of (9) collects for above Range of sizes from 0.39 - .393
* CC2 - 0016	Wrench for above
* DR20	BT-30 Short gage length (2.3") Collet chuck.
* DR20 - 1200	Set of (12) collects for above Range of sizes from .039 - .511
* XCCW - 0200	Wrench for above
*	BT-30 short gage length (1.25") 1/4" Endmill Toolholder.
*	BT-30 Short gage length (1.31") 3/8" Endmill Toolholder.
*	BT-30 Short gage length (1.4") 1/2" Endmill Toolholder.

Other toolholder are available upon request.

2. The ROTARY TABLE — the U axis.

This is the optional rotary table that plugs into the right side of the power pack. The U axis driver board must also be plugged into the power pack at the back next to the Z axis driver board.

MECHANICAL

The rotary table has a 6 inch diameter face and can be mounted horizontally or vertically. It has a maximum cyclic variation in absolute positioning of 1 minute 20 seconds (.02 degrees). Each stepper step corresponds to .004 degrees so the circular resolution is 1 part in 90,000. The maximum rotation speed is 40 degrees per second or 9 rpm.

BACKLASH

This is almost negligible. The worm, worm gear spacing is controlled by a cam action on the worm and is locked by a T screw on the input shaft. Maximum engagement is set internally by a set screw. Do not over engage or the table can lock up or cause excessive wear. If there is concern with this error, all moves should be made in one direction, any back moves should swing past the desired value then forward again. There is no electronic measurement of the backlash.

DIRECTION

The table moves clockwise for a positive U move, so the tool appears to move counter-clockwise.

INSTRUCTION for U

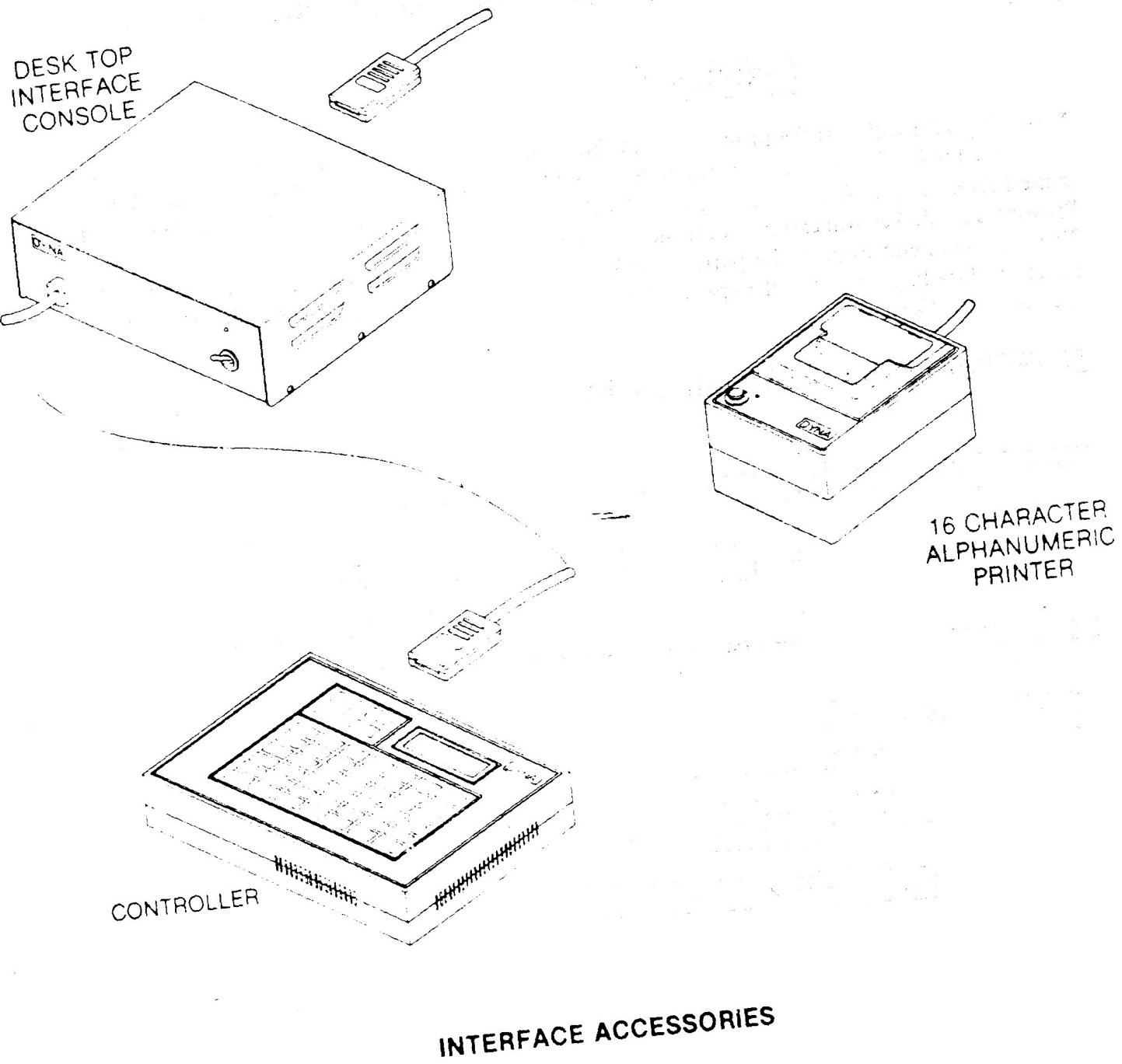
1)	GO	(f) (c)	u	0 to +/- 999.999 degrees (MOD 360)
2)	GR	(f) (c)	u	0 to +/- 999.999 degrees (MOD 360)
3)	ZERO		u	Zero U at this current value.
4)	SETUP		u	Set up the reference point for U.
5)	DISPLAY		u	Display U values.
6)	C - SIGN		u	Change sign on U and go there.
7)	FEEDRATE		u	Set U feedrate.
8)	END			Rotate U back to set up point on any END statement.

3. INTERFACE CONSOLE

The user may have an optional desktop interface console. It is shown on the next page. The basic unit without the printer allows the user to enter programs at his desk directly into the CMOS memory of the controller. He can then unplug the controller and replug it into the machine to run his program. He may also run his program at the desk for time estimation.

After entering the program, press the program run key, answer YES to NONSTOP?. It will halt at SET UP. The user will have to go through this set up procedure to position the SET UP COODS correctly. Pressing the NEXT will restart the program run.

With the interface console, the user may add a 16 column alphanumeric printer.



3-1. 16 CHARACTER ALPHANUMERIC PRINTER

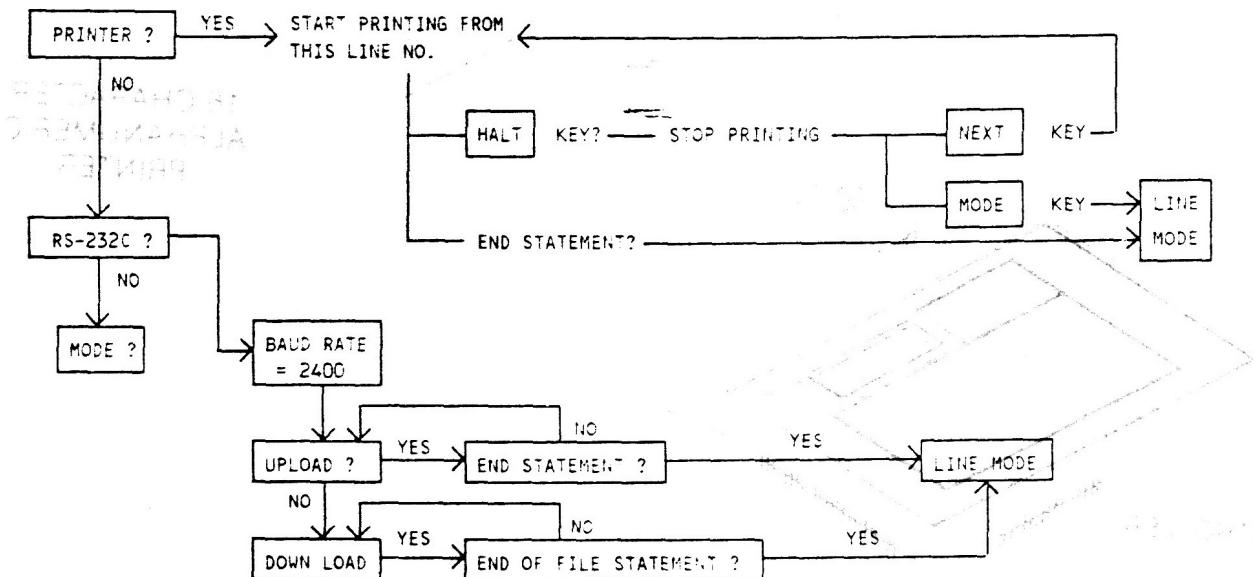
Simply plug the unit into the back of the interface console, push the paper feed switch, and the paper will feed through the printer. To print out a program, go to LINE MODE and position the display at the program START line then press the shift and READ / WRITE keys. The display will ask.

PRINTER ?

Answering YES will start the printer to print line by line, automatically. It will halt by itself when it comes to the END statement. It may be restarted by pressing the shift and READ / WRITE keys in the LINE MODE again. Pressing HALT will stop the printer, pressing NEXT will restart it. Pressing a mode key will exit the controller from the printer.

The user will need to push the paper feed key manually if he wishes blank space beneath his program. Loading a new roll of paper is done by feeding the paper through the roller and pushing the paper feed key.

FLOWCHART FOR THE PRINTER AND RS232C



4. SOFTWARE PACKAGES FOR PC BASED SYSTEMS

1) COMMUNICATION

On the right side of the power pack there is an RS232-C communication port. This is for interfacing the machine to a PC (XT, AT, AT clone). The user can upload programs from the controller to the PC or download programs. If the programs are generated by a CAD/CAM package they can easily exceed 900 lines so there is also a block execution mode that will continually download blocks of program, 900 lines at a time. 999 lines for 4000 series.

The program is transmitted or received in lines of 16 characters of ASCII exactly as shown in the display. Each line is delimited by a CR, LF, and the program is terminated by a Control Z.

Dyna has put together a communication package on a floppy disk that contains all the user options together with a utility that will correctly format break points at 900 lines and re-number the lines downloading. A users manual also comes with this package. For more information please contact Dyna.

The minimum hardware configuration required is

1. An IBM PC, XT, AT or 386 machine with monitor, or a 100% IBM compatible computer with monitor.
2. 256k memory
3. 5 1/4" floppy disc drive
4. One serial I/O port
5. One RS232-C cable with 25 pins (female connector) at Dyna's end and 25 or 9 pins compatible with the computer at the other end.

2) Simulation Package & Editor

This comes floppy disk. It is intended to simulate the tool path of a given program. It allows the user to build up his program with GO / GR commands and function calls and then run it graphically at the computer.

3) CAD / CAM PACKAGES

There exists a wide variety of CAD / CAM packages on the market that can handle almost any shape. They output tool moves that have to be re-translated through a post (processor) for a specific machine. Make sure they have a DYNA POST.

Dyna offers several CAD / CAM packages - and for further information, please contact us.

5. TAPPING

The spindle on the 2800 is not reversible. In order to tap use a Tapmatic mounted in a 3/4" collet. It may be necessary to modify the stop arm by bending it flat as it will interfere with the spindle housing. Get the reversing NC type. The company is TAPMATIC CORP., 1851 KETTERING ST., IRVINE, CALIFORNIA 92714-5673 PHONE (714) 261-9392 for their general catalog.

6. HIGH SPEED SPINDLE ATTACHMENTS

For high speed jig boring (and drilling) obtain the NSK catalog from NSK-AMERICA CORP., 101 W.LIONS DRIVE, SUITE 111, BARRINGTON, ILLINOIS 60010 PHONE (312) 382-6688.

They offer 3 air driven attachments with rpm upto 200,000.

7. TOOLING

There is a huge variety of supply houses for end mills, drills, saws, vises, clamps, fixtures etc. Send or ask for catalogs from

1. J and L INDUSTRIAL SUPPLY 19339 GLENMORE
DETROIT, MICHIGAN 48240 PHONE 1-800-521-9520
2. ENCO MFG. CO. 1546 TRIMBLE RD, SAN JOSE
CALIF. 95131-9836 PHONE 1-800-621-4145

For microdrills :-

1. TITEX TOOLS 180 LAUREL ST.
GREENFIELD, MA. 01301
PHONE 1-800-262-2436

For micromills :-

1. INTERNATIONAL CARBIDE 1348 PLAINFIELD AVE.,
P.O.BOX 1426 JANEVILLE, WI. 53547
PHONE (608) 757 - 0177

8. PUBLICATIONS (MONTHLY) FOR ADDITIONAL SOURCES OF TOOLS & TOOLING

MODERN MACHINE SHOP	(513) 231 - 8020
MACHINE AND TOOL BLUE BOOK	(312) 665 - 1000
DESIGN NEWS	(303) 388 - 4511
AMERICAN MACHINIST	(212) 512 - 2000
CUTTING TOOL ENGINEERING	(312) 441 - 7520

9. COMPLAINTS ON THIS OPERATION MANUAL

If some parts of this manual are unclear or badly explained please let us know. We shall endeavour to incorporate any suggestions for improvements in the next edition.