QUICK REFERENCE FOR PROGRAMMING U.S. AMADA CNC TURRET PUNCH PRESSES

══ G** FUNCTIONS ══

)/21	Inch/metric selection
..92	Establishes co-ordinate system. load position
G90	Absolute
G91	Incremental
G70	Punch off
G74	Octo punch off with offset
G72	Pattern origin
G28	Line at angle
	I = spacing
	J = angle: + or −
	K = no. spaces
G29	Arc
	I = radius
	J = starting angle; + or −
	P = angle increment; + or −
	K = no. holes
G26	Bolt hole circle
	I = radius
	J = starting angle: + or −
	K = no. holes
G36/G37	Grid X/Grid Y
	I = X spacing; + or −
	P = na spaces X
	J = Y spacing; + or −
	K = no. spaces Y
G66	Shear proof slotting
	I = slot length
	J = angle;
	P = punch length; + or − ⎫ Must be
	Q = punch width; + or − ⎬ same Sign
	D = tab: + or −
G66	No slug window using K
	I = Window length in J direction measured. from G72 point Positive value only.
	J = Angle measured from 0 degrees, positive angle only measured CCW from 0 degrees.
	P = Tool length, positive or negative value (the tool dimension in the "I" direction).
	Q = Tool width. Positive or negative value (the tool dimension in the "K" direction).
	K = Window length perpendicular to "I".
	C = Angle of auto index tool, if applicable.
	T = Tool station number
G67	Rectangular cut-out
	I = hole length X axis; + or −
	J = hole length Y axis; + or −
	P = punch width X axis
	Q = punch width Y axis - optional
G68	Nibbling arc
	I = radius
	J = starting angle; + or −
	K = moving angle; + or −
	P = punch; +, −, or zero
	Q = nibbling pitch
G69	Nibbling line
	I = length
	J = angle
	P = punch, +, −, or zero
	Q = nibbling pitch

══ G** FUNCTIONS ══

G78	Punching arc
	I = radius
	J = starting angle; + or −
	K = mbving angle; + or −
	P = punch; +, −, or zero
	Q = pitch
	D = material thickness
G79	Punching line
	I = length
	J = angle; + or −
	P = punch, +, −, or zero
	Q = pitch
	D = material thickness
G73	Mirror image X . . . Y . . . W . . . Q . . .
G27	Auto repositioning
G25	Auto repositioning with offset
G93	Origin offset
G04	Dwell function
G50	Return home, program end

══ MISCELLANEOUS FUNCTIONS ══

M00	Program stop	M15	Tapping rear
M01	Optional stop	M80	Work chute open
M02	Program end	M61	Work chute closed
M06	Punch delay effective	M62	Slug selector left
M09	Punch delay finish	M63	Slug selector right
M12	Nibbling start	M96	P-subprogram call
M13	Nibbling stop	M97	Subprogram end
M14	Tapping front	M99	"Coma" - punch speed chan
A1	Single block storage	F*	Feed rate control
B1	Single block recall	/	Block delete

══ MULTIPLE PART PROGRAMMING ══

G98	Multiple part layout
	X . . Y . . . I . . . J . . . P . . . K . . .
	X = reference point for lower left hand part in X axis
	Y = reference point for lower left hand part in Y axis
	I = distance between reference points in X direction (note: add slotting tool width)
	J = distance between reference points in Y direction (note: add slotting tool width)
	P = number of parts in the X axis- excluding the bottom left part
	K = number of parts in the Y axis- excluding the bottom left part
	Example: G98X1000Y300018000J5000P3K2

══ PUNCHING EXECUTION OF G98 MULTIPLE PARTS ══

G75	Execution of punching in horizontal direction (X direction).
G76	Execution of punching in vertical direction (Y dire&ion).

══ MACROS − U-V ══

U*-V*	Multiple block store	1-59	Processes while stori
W*	Multiple block recall	60-89	Stores only
	Parameter '435 setting	90-99	Multiple macro store

0:	Programs which do not use software for multiple product punching.
1:	Trial punching with programs using software for multiple product punching.
2:	Remaining punch work after trial punching.
3:	Entire punch work of multiple product punching.

10-1-86

QUICK REFERENCE FOR ALARM MESSAGES
U.S. AMADA CNC TURRET PUNCH PRESSES

009   Prohibited address characters are input.

010. A prohibited G code is used.

070   The data input exceeds the memory capacity.

072   The number of registered programs exceeds the maximum value.

073   The program number to be registered already exists in memory.

144   A T code or M code is instructed in the nibbling command (between MI2 and M13).

146   An illegal T code is instructed

147   The incremental value of X-axis and Y-axis movement in the nibbling operation is. greater than the specification.

150   In the G26 command (BHC), no value is specified for I, J, or K In the G26 command, the value of I is zero or negative, or the value of K is zero.

151   In the G28 command (LAA). *no* value is specified for I, J. or K In the G26 command the value of K is zero or negative.

152   In the G29 command (ARC), no value is specified for I, J. P. or K In-the G29 command, the value of I is zero or negative, or the value of K is zero or negative.

153   In the G36 command (GAD-X) orG37 command (GRD-Y), no value is specified for I, J, P, or K In the G36 command or G37 command, the value of P or K is zero or negative.

154   In the G66 command(SHP), no value is specified for I, J. or P. In the G66 command, the value of P or Q is zero, or the value of I is less than 1.5 times as large as that of P.

155   In the G67 command (SQR), no value is specified for I, J, or P. In the G67 command, the value of P iszeroor negative,. or the value of I or J is less than 3 times as large as that of P.

156   In the G66 command (NBL-A), no value is specified for I, J. K P, or Q. In the G66 command the value of Q is zero or negative, or the value of Q exceeds the specified range. In the G68 command, the value of I is zero or negative.

157   In the G69 command (NBL-L), no value is specified for I, J, P, or K In the G69 command, the value of Q is zero or negative, or the value of Q exceeds the specified range.

156   In the G76 command (PNC-A), no value is specified for I, J, K P, Q or D. In the G78 command the value of Q is zero or negative, or the value of Q is less than the value of D. In the G76 command, the value of I is zero or negative.

159   In the G79 command (PNC-L), no value is specified for I, J, P, Q, or D. In the G79 command, the value of D is zero or negative.

160   X-axis movement instruction exceeds its travel end [positive (+) direction].   .

161   X-axis movement instruction exceeds its travel end [negative (−) direction].

162   Y-axis movement instruction exceeds its travel end [positive (+) direction).

163   Y-axis movement instruction exceeds its travel end [negative (-) direction].

164   The Pattern Memory/Recall number is other than 1 to 5.

165   An attempt is made to input another macro where one macro is already stored. Although a macro is not being input, the V code is instructed There is no correlation between macro numbers U and V.

166   Illegal macro number is used

167   An attempt is made to store macros exceeding the memory capacity.

188   A macro not stored in the memory is called

169   Macros are caked more than three-fold
        In storing the 90 series macros, an attempt is made to store more than 15 macros

190   In the G75 command (Multiple Punching Execution-X) or G76 command (Multiple Punching Execution-Y), no value is specified for W or Q.

191   In the G75 or G76 block, the value of Q is wrong

192   Macro data called by the G75 or G76 block is not in memory.

193   G75 or G76 is instructed when the Multiple Part Punching Program Setting is 0.

194   G75 or G76 is instructed between the Uo and Vo commands   —

196   G75 is instructed although PO is specified in the G96 block
        G76 is instructed although KO is specified in the G96 block

197   The value of Q in the G76 block is neither 1 nor 3, although PO is specified in the G96 block
        The value of Q in the G75 block is neither 1 nor 2, although KO is specified in the G96 block