HAAS C.N.C. MILL
PREPARATORY FUNCTIONS

MODAL
NON-MODAL
DEFAULT *
OPTIONAL **

G00* **RAPID POSITIONING MOTION (X,Y,Z,A,B)** (SETTING 10, 56, 101)
G01 **LINEAR INTERPOLATION MOTION** (X,Y,Z,A,B,F)
G02 **CIRCULAR INTERPOLATION MOTION CW** (X,Y,Z,A,I,J,K,R,F)
G03 **CIRCULAR INTERPOLATION MOTION CCW** (X,Y,Z,A,I,J,K,R,F)
G04 DWELL (P) (P=seconds"."milliseconds)
G09 EXACT STOP, NON-MODAL
G10 PROGRAMMABLE OFFSET SETTING (X,Y,Z,A,L,P,R)
G12 CW CIRCULAR POCKET MILLING (Z,I,K,Q,D,L,F)
G13 CCW CIRCULAR POCKET MILLING (Z,I,K,Q,D,L,F)
G17* **CIRCULAR MOTION XY PLANE SELECTION (G02 or G03)** (SETTING 56)
G18 **CIRCULAR MOTION ZX PLANE SELECTION (G02 or G03)**
G19 **CIRCULAR MOTION YZ PLANE SELECTION (G02 or G03)**
G20* **VERIFY INCH COORDINATE POSITIONING** (SETTING 9, set to INCH)
G21 **VERIFY METRIC COORDINATE POSITIONING** (SETTING 9 set to METRIC)
G28 MACHINE ZERO RETURN THRU REF. POINT (X,Y,Z,A,B) (SETTING 108)
G29 MOVE TO LOCATION THROUGH G28 REF. POINT (X,Y,Z,A,B)
G31** FEED UNTIL SKIP FUNCTION (X,Y,Z,A,B,F)
G35** AUTOMATIC TOOL DIAMETER MEASUREMENT (D,H,Z,F)
G36** AUTOMATIC WORK OFFSET MEASUREMENT (X,Y,Z,A,B,I,J,K,F)
G37** AUTOMATIC TOOL LENGTH MEASUREMENT (D,H,Z,F)
G40* **CUTTER COMP CANCEL G41/G42/G141 (X,Y)**
G41 **2D CUTTER COMPENSATION, LEFT (X,Y,D)** (SETTING 40, 43, 44, 58)
G42 **2D CUTTER COMPENSATION, RIGHT (X,Y,D)** (SETTING 40, 43, 44, 58)
G43 **TOOL LENGTH COMPENSATION+ (H,Z)** (SETTING 15)
G44 **TOOL LENGTH COMPENSATION- (H,Z)** (SETTING 15)
G47 TEXT ENGRAVING (X,Y,Z,R,I,J,P,E,F,) (Macro Variable 599 Change Serial #)
G49* **TOOL LENGTH COMPENSATION CANCEL G43/G44/G143** (SETTING 56)
G50* **SCALING G51 CANCEL** (SETTING 56)
G51** **SCALING (X,Y,Z,P)** (SETTING 71)
G52 **WORK OFFSET POSITIONING COORDINATE** (SETTING 33, **YASNAC**)
G52 **GLOBAL WORK COORDINATE OFFSET SHIFT** (SETTING 33, **FANUC**)
G52 **GLOBAL WORK COORDINATE OFFSET SHIFT** (SETTING 33, **HAAS**)
G53 MACHINE ZERO XYZ POSITIONING, NON-MODAL (X,Y,Z,A,B)
G54* **WORK OFFSET POSITIONING COORDINATE #1** (SETTING 56)
G55 **WORK OFFSET POSITIONING COORDINATE #2**
G56 **WORK OFFSET POSITIONING COORDINATE #3**
G57 **WORK OFFSET POSITIONING COORDINATE #4**
G58 **WORK OFFSET POSITIONING COORDINATE #5**
G59 **WORK OFFSET POSITIONING COORDINATE #6**
G60 UNI-DIRECTIONAL POSITIONING (X,Y,Z,A,B) (SETTING 35)
G61 **EXACT STOP, MODAL (X,Y,Z,A,B)**
G64* **EXACT STOP G61 CANCEL** (SETTING 56)
G65** MACRO SUB-ROUTINE CALL
G68** **ROTATION (G17,G18,G19,X,Y,Z,R) (OPTION) (SETTING 72, 73)**
G69* **ROTATION G68 CANCEL** (SETTING 56)
G70 BOLT HOLE CIRCLE with a CANNED CYCLE (I,J,L)
G71 BOLT HOLE ARC with a CANNED CYCLE (I,J,K,L)
G72 BOLT HOLES ALONG AN ANGLE with a CANNED CYCLE (I,J,L)
G73 **HIGH SPEED PECK DRILL CANNED CYCLE** (X,Y,A,B,Z,I,J,K,Q,P,R,L,F) (SETTING 22, 52)
G74 **REVERSE TAPPING CANNED CYCLE** (X,Y,A,B,Z,J,R,L,F) (SETTING 130, 133)
G76 **FINE BORING CANNED CYCLE** (X,Y,A,B,Z,I,J,P,Q,R,L,F) (SETTING 27)
G77 **BACK BORE CANNED CYCLE** (X,Y,A,B,Z,I,J,Q,R,L,F) (SETTING 27)
G80* **CANCEL CANNED CYCLE** (SETTING 56)
G81 **DRILL CANNED CYCLE** (X,Y,A,B,Z,R,L,F)
G82 **SPOT DRILL / COUNTERBORE CANNED CYCLE** (X,Y,A,B,Z,P,R,L,F)
G83 **PECK DRILL DEEP HOLE CANNED CYCLE** (X,Y,A,B,Z,I,J,K,Q,P,R,L,F) (SETTING 22, 52)
G84 **TAPPING CANNED CYCLE** (X,Y,A,B,Z,J,R,L,F) (SETTING 130, 133)
G85 **BORE IN~BORE OUT CANNED CYCLE** (X,Y,A,B,Z,R,L,F)
G86 **BORE IN~STOP~RAPID OUT CANNED CYCLE** (X,Y,A,B,Z,R,L,F)
G87 **BORE IN~MANUAL RETRACT CANNED CYCLE** (X,Y,A,B,Z,R,L,F)
G88 **BORE IN~DWELL~MANUAL RETRACT CANNED CYCLE** (X,Y,A,B,Z,P,R,L,F)
G89 **BORE IN~DWELL~BORE OUT** (X,Y,A,B,Z,P,R,L,F)
G90* **ABSOLUTE POSITIONING COMMAND**
G91 **INCREMENTAL POSITIONING COMMAND** (SETTING 29)
G92 GLOBAL WORK COORDINATE SYSTEM SHIFT (FANUC) (HAAS) (SETTING 33)
G92 SET WORK COORDINATE VALUE (YASNAC) (SETTING 33)
G93 **INVERSE TIME FEED MODE ON**
G94* **INVERSE TIME FEED MODE OFF / FEED PER MINUTE ON** (SETTING 56)
G95 **FEED PER REVOLUTION** (SETTING 9, 56)
G98* **CANNED CYCLE INITIAL POINT RETURN** (SETTING 56)
G99 **CANNED CYCLE "R" PLANE RETURN**
G100 MIRROR IMAGE G101 CANCEL
G101 MIRROR IMAGE (X,Y,Z,A,B) (SETTING 45, 46, 47, 48, 80)
G102 PROGRAMMABLE OUTPUT TO RS-232 (X,Y,Z,A,B)
G103 LIMIT BLOCK LOOKAHEAD (P0-P15 for number control looks ahead)
G107 CYLINDRICAL MAPPING (X,Y,Z,A,Q,R,)
G110-G129 WORK OFFSET POSITIONING COORDINATE #7-26
G136** AUTOMATIC WORK OFFSET CENTER MEASUREMENT
G141 **3D+ CUTTER COMPENSATION (X,Y,Z,I,J,K,D,F)**
G143** **5-AXIS TOOL LENGTH COMPENSATION+ (X,Y,Z,A,B,H)** (SETTING 15, 117)
G150 GENERAL PURPOSE POCKET MILLING (X,Y,P,Z,I,J,K,Q,D,R,L,S,F)
G153** **5-AXIS HIGH SPEED PECK DRILL CANNED CYCLE** (X,Y,A,B,Z,I,J,K,Q,P,E,L,F) (SETTING 22)
G154** **SELECT WORK OFFSET POSITIONING COORDINATE P1-99 (P)**
G155** **5-AXIS REVERSE TAPPING CANNED CYCLE** (X,Y,A,B,Z,J,E,L,F)
G161** **5-AXIS DRILL CANNED CYCLE** (X,Y,A,B,Z,E,L,F)
G162** **5-AXIS SPOT DRILL / COUNTERBORE CANNED CYCLE** (X,Y,A,B,Z,P,E,L,F)
G163** **5-AXIS PECK DRILL CANNED CYCLE** (X,Y,A,B,Z,I,J,K,Q,P,E,L,F) (SETTING 22)
G164** **5-AXIS TAPPING CANNED CYCLE** (X,Y,A,B,Z,J,E,L,F)
G165** **5-AXIS BORE IN, BORE OUT CANNED CYCLE** (X,Y,A,B,Z,E,L,F)
G166** **5-AXIS BORE IN, STOP, RAPID OUT CANNED CYCLE** (X,Y,A,B,Z,E,L,F)
G169** **5-AXIS BORE IN, DWELL, BORE OUT** (X,Y,A,B,Z,P,E,L,F)
G174 NON-VERTICAL RIGID TAPPING CCW (X,Y,Z,F)
G184 NON-VERTICAL RIGID TAPPING CW (X,Y,Z,F)
G187 ACCURACY CONTROL FOR HIGH SPEED MACHINING (E) (SETTING 85)
G188 G188 GET PROGRAM FROM PST (Program Schedule Table)

Note: These G and M codes are useful reference information, on a desk, or at the machine. They're great to have laminated with G codes on one side and M codes on the other. As a suggestion; get 90lb. white cardstock and print G-codes on one side and M-codes on the other. Cut out the square section and go to your local printer to get them laminated.

HAAS C.N.C. MILL
MISCELLANEOUS FUNCTIONS

OPTION**

M00 **PROGRAM STOP** (SETTING 39, 42)
M01 **OPTIONAL PROGRAM STOP** (SETTING 17, 39)
M02 **PROGRAM END** (SETTING 39)
M03 **SPINDLE ON CLOCKWISE (S)** (SETTING 144)
M04 **SPINDLE ON COUNTERCLOCKWISE (S)** (SETTING 144)
M05 **SPINDLE STOP**
M06 **TOOL CHANGE (T)** (SETTING 42, 87, 155)
M08 **COOLANT ON** (SETTING 32)
M09 **COOLANT OFF**
M10** **4th AXIS BRAKE ON**
M11** **4th AXIS BRAKE RELEASE**
M12** **5th AXIS BRAKE ON**
M13** **5th AXIS BRAKE RELEASE**
M16 **TOOL CHANGE (T)** (same as M06)
M17** **APC PALLET UNCLAMP and OPEN APC DOOR**
M18** **APC PALLET CLAMP and CLOSE DOOR**
M19 **ORIENT SPINDLE** (P,R values optional)
M21-M28 **OPTIONAL USER M CODE INTERFACE WITH M-FIN SIGNAL**
M30 **PROGRAM END AND RESET** (SETTING 2, 39, 56, 83)
M31 **CHIP AUGER FORWARD** (SETTING 114, 115)
M33 **CHIP AUGER STOP**
M34 **COOLANT SPIGOT POSITION DOWN, INCREMENT** (+1)
M35 **COOLANT SPIGOT POSITION UP, DECREMENT** (-1)
M36** **PALLET PART READY (P)**
M39 **ROTATE TOOL TURRET (T#)** (SETTING 86)
M41 **SPINDLE LOW GEAR OVERRIDE**
M42 **SPINDLE HIGH GEAR OVERRIDE**
M50** **EXECUTE PALLET CHANGE (P)** (SETTING 121 thru 129)
M51-M58 **OPTIONAL USER M CODE SET**
M59 **OUTPUT RELAY SET (N)**
M61-M68 **OPTIONAL USER M CODE CLEAR**
M69 **OUTPUT RELAY CLEAR (N)**
M75 **SET G35 OR G136 REFERENCE POINT**
M76 **CONTROL DISPLAY INACTIVE**
M77 **CONTROL DISPLAY ACTIVE**
M78 **ALARM IF SKIP SIGNAL FOUND**
M79 **ALARM IF SKIP SIGNAL NOT FOUND**
M80** **AUTOMATIC DOOR OPEN** (SETTING 131)
M81** **AUTOMATIC DOOR CLOSE** (SETTING 131)
M82 **TOOL UNCLAMP**
M83** **AUTO AIR JET ON**
M84** **AUTO AIR JET OFF**
M86 **TOOL CLAMP**
M88** **COOLANT THROUGH SPINDLE ON** (SETTING 32)
M89** **COOLANT THROUGH SPINDLE OFF** (SETTING 32)
M95 **SLEEP MODE**
M96 **JUMP IF NO INPUT (P,Q)**
M97 **LOCAL SUB-PROGRAM CALL (P,L)**
M98 **SUB-PROGRAM CALL (P,L)**
M99 **SUB/LOCALSUB-PROGRAM / RETURN OR LOOP (P)** (SETTING 118)
M101 **MOM (Minimum Oil Machining) CANNED CYCLE MODE (I)**
M102 **MOM MODE (I,J)**
M103 **MOM MODE CANEL**
M109** **INTERACTIVE USER INPUT (P)**

All **M** codes are effective or cause an action at the end of the block and only one **M** code is allowed in each block.

Haas Automation Inc.

Updated on 1-01-06

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