

## HAAS C.N.C. LATHE PREPARATORY FUNCTIONS

MODAL  
NON-MODAL  
DEFAULT \*  
OPTION\*\*

G00*	RAPID POSITIONING MOTION (X,Z,U,W,B) (SETTING 10, 101)	G73	IRREGULAR PATH STOCK REMOVAL CYCLE (P,Q,U,W,I,K,D,S,T,F)
G01	LINEAR INTERPOLATION MOTION (X,Z,U,W,B,F)	G74	FACE GROOVING, or <i>HIGH SPEED PECK DRILL CYCLE</i> (X,Z,U,W,I,K,D,F) (SETTING 22)
G01	CHAMFERING AND CORNER ROUNDING (X,Z,U,W,B,I,K,R,A,F)	G75	O.D. / I.D. PECK GROOVING CYCLE, (X,Z,U,W,I,K,D,F) (SETTING 22)
G02	CW CIRCULAR INTERPOLATION MOTION (X,Z,U,W,I,K,R,F)	G76	THREAD CUTTING CYCLE, MULTIPLE PASS (X,Z,U,W,I,K,A,D,F) (SETTING 86, 95, 96, 99)
G03	CCW CIRCULAR INTERPOLATION MOTION (X,Z,U,W,I,K,R,F)	G77**	FLATTING CYCLE (I,J,L,R,S,K) (LIVE TOOLING)
G04	DWELL (P) (P=seconds" "milliseconds)	G80*	CANCEL CANNED CYCLE (SETTING 56)
G05**	FINE SPINDLE CONTROL MOTION (X,Z,U,W,R,F) (LIVE TOOLING)	G81	DRILL CANNED CYCLE (X,Z,W,R,F)
G09	EXACT STOP, NON-MODAL	G82	SPOT DRILL / COUNTERBORE CANNED CYCLE (X,Z,W,P,R,F)
G10	PROGRAMMABLE OFFSET SETTING (X,Z,U,W,L,P,Q,R)	G83	PECK DRILLING CANNED CYCLE (X,Z,W,I,J,K,Q,P,R,F) (SETTING 22, 52)
G14**	MAIN-SPINDLE SHIFT TO SUB-SPINDLE	G84	TAPPING CANNED CYCLE (X,Z,W,R,F)
G15**	MAIN-SPINDLE SHIFT TO SUB-SPINDLE CANCEL	G85	BORE IN, BORE OUT CANNED CYCLE (X,Z,U,W,R,L,F)
G17**	CIRCULAR MOTION XY PLANE SELECTION (G02,G03) (LIVE TOOLING)	G86	BORE IN, STOP, RAPID OUT CANNED CYCLE (X,Z,U,W,R,L,F)
G18*	CIRCULAR MOTION ZX PLANE SELECTION (G02,G03) (SETTING 56)	G87	BORE IN, STOP, MANUAL RETRACT CANNED CYCLE (X,Z,U,W,R,L,F)
G19**	CIRCULAR MOTION YZ PLANE SELECTION (G02,G03) (LIVE TOOLING)	G88	BORE IN, DWELL, MANUAL RETRACT CANNED CYCLE (X,Z,U,W,P,R,L,F)
G20*	VERIFY INCH COORDINATE POSITIONING (SETTING 9 needs to be INCH)	G89	BORE IN, DWELL, BORE OUT CANNED CYCLE (X,Z,U,W,P,R,L,F)
G21	VERIFY METRIC COORDINATE POSITIONING (SETTING 9 needs to be METRIC)	G90	O.D. / I.D. TURNING CYCLE, MODAL (X,Z,U,W,I,F)
G28	MACHINE ZERO RETURN THRU REF. POINT (X,Z,U,W,B) (Fanuc)	G92	THREADING CYCLE, MODAL (X,Z,U,W,I,F) (SETTING 95, 96)
G29	MOVE TO LOCATION THROUGH G29 REF. POINT (X,Z) (Fanuc)	G94	END FACING CYCLE, MODAL (X,Z,U,W,K,F)
G31**	FEED UNTIL SKIP FUNCTION (X,Z,U,W,F)	G95**	END FACE LIVE TOOLING RIGID TAP (X,Z,W,R,F)
G32	THREAD CUTTING PATH, MODAL (X,Z,U,W,F)	G96	CONSTANT SURFACE SPEED, CSS ON (S)
G40*	TOOL NOSE COMPENSATION CANCEL G41/G42 (X,Z,U,W,I,K) (SETTING 56)	G97*	CONSTANT NON-VARYING SPINDLE SPEED, CSS OFF (S) (SETTING 56)
G41	TOOL NOSE COMPENSATION, LEFT (X,Z,U,W) (SETTING 43, 44, 58)	G98	FEED PER MINUTE (F)
G42	TOOL NOSE COMPENSATION, RIGHT (X,Z,U,W) (SETTING 43, 44, 58)	G99*	FEED PER REVOLUTION (F) (SETTING 56)
G50	SPINDLE SPEED MAXIMUM RPM LIMIT (S)	G100	MIRROR IMAGE CANCEL G101
G51	RETURN TO MACHINE ZERO, CANCEL OFFSET (Yasnac)	G101	MIRROR IMAGE (X,Z) (SETTING 45, 47)
G52	WORK OFFSET COORDINATE POSITIONING (Yasnac)	G102	PROGRAMMABLE OUTPUT TO RS-232 (X,Z)
G52	GLOBAL WORK COORDINATE SYSTEM SHIFT (Fanuc)	G103	LIMIT BLOCK LOOKAHEAD (P0 - P15 max. for number control looks ahead)
G53	MACHINE COORDINATE POSITIONING, NON-MODAL (X,Z,B)	G105	SERVO BAR COMMAND
G54*	WORK OFFSET COORDINATE POSITIONING #1 (SETTING 56)	G110-G111	WORK OFFSET COORDINATE POSITIONING #7- #8
G55	WORK OFFSET COORDINATE POSITIONING #2	G112**	CARTESIAN TO POLAR TRANSFORMATION
G56	WORK OFFSET COORDINATE POSITIONING #3	G113**	CARTESIAN TO POLAR TRANSFORMATION CANCEL
G57	WORK OFFSET COORDINATE POSITIONING #4	G114-G129	WORK OFFSET COORDINATE POSITIONING #9 - #24
G58	WORK OFFSET COORDINATE POSITIONING #5	G159**	BACKGROUND PICKUP / PART RETURN
G59	WORK OFFSET COORDINATE POSITIONING #6	G160**	APL AXIS COMMAND MODE ON
G61	EXACT STOP, MODAL (X,Z)	G161**	APL AXIS COMMAND MODE OFF
G64*	EXACT STOP G61 CANCEL (SETTING 56)	G184	REVERSE TAPPING CANNED CYCLE (X,Z,W,R,F) (SETTING 130)
G65**	MACRO SUB-ROUTINE CALL	G187	ACCURACY CONTROL FOR HIGH SPEED MACHINING (E) (SETTING 85)
G70	FINISHING CYCLE (P,Q)	G194	SUB-SPINDLE / TAPPING CANNED CYCLE
G71	O.D. / I.D. STOCK REMOVAL CYCLE (P,Q,U,W,I,K,D,S,T,R1,F) (SETTING 72,73)	G195	LIVE TOOLING VECTOR TAPPING (X,F)
G72	END FACE STOCK REMOVAL CYCLE (P,Q,U,W,I,K,D,S,T,R1,F) (SETTING 72,73)	G196	LIVE TOOLING VECTOR TAPPING REVERSE (X,F)
		G200	INDEX ON THE FLY (X,Z,U,W,T)

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 some white 90lb. cardstock and print G-codes on one side and M-codes on the other. Cut out the square section and go to Kinko's copies or local printer to get them laminated.

## HAAS C.N.C. LATHE MISCELLANEOUS FUNCTIONS

OPTION\*\*

M00	PROGRAM STOP (SETTING 42, 101)	M69	OUTPUT RELAY CLEAR (N)
M01	OPTIONAL PROGRAM STOP (SETTING 17)	M76	PROGRAM DISPLAYS INACTIVE
M02	PROGRAM END	M77	PROGRAM DISPLAYS ACTIVE
M03	SPINDLE ON FORWARD (S) (SETTING 144)	M78	ALARM IF SKIP SIGNAL FOUND
M04	SPINDLE ON REVERSE (S) (SETTING 144)	M79	ALARM IF SKIP SIGNAL NOT FOUND
M05	SPINDLE STOP	M85**	AUTOMATIC DOOR OPEN (SETTING 51, 131)
M08	COOLANT ON (SETTING 32)	M86**	AUTOMATIC DOOR CLOSE (SETTING 51, 131)
M09	COOLANT OFF	M88**	HIGH PRESSURE COOLANT ON (SETTING 32)
M10	CHUCK CLAMP (SETTING 92)	M89**	HIGH PRESSURE COOLANT OFF
M11	CHUCK UNCLAMP (SETTING 92)	M93**	AXIS POSITION CAPTURE START (P,Q)
M12**	AUTO AIR JET ON (P)	M94**	AXIS POSITION CAPTURE STOP
M13**	AUTO AIR JET OFF	M95	SLEEP MODE (hh:mm)
M14**	MAIN SPINDLE CLAMP	M96	JUMP IF NO SIGNAL (P,Q)
M15**	MAIN SPINDLE UNCLAMP	M97	LOCAL SUB-ROUTINE CALL (P,L)
M17	ROTATE TURRET FORWARD (T) (SETTING 97)	M98	SUB-PROGRAM CALL (P,L)
M18	ROTATE TURRET REVERSE (T) (SETTING 97)	M99	SUB-PROGRAM/ROUTINE RETURN OR LOOP (P) (SETTING 118)
M19**	ORIENT SPINDLE (P,R)	M109**	INTERACTIVE USER INPUT (P)
M21**	TAILSTOCK ADVANCE (SETTING 93, 94, 106, 107, 121, 145)	M110**	TAILSTOCK CHUCK CLAMP (SETTING 122)
M22**	TAILSTOCK RETRACT (SETTING 105)	M111**	TAILSTOCK CHUCK UNCLAMP (SETTING 122)
M23	ANGLE OUT OF THREAD ON (SETTING 95, 96)	M119**	SUB-SPINDLE ORIENT (P,R)
M24	ANGLE OUT OF THREAD OFF	M121-M128	OPTIONAL USER M CODE INTERFACE WITH M-FIN SIGNAL
M30	PROGRAM END AND RESET (SETTING 2, 39, 56, 83)	M133**	LIVE TOOL DRIVE FORWARD (P)
M31	CHIP AUGER FORWARD (SETTING 114, 115)	M134**	LIVE TOOL DRIVE REVERSE (P)
M32	CHIP AUGER REVERSE (SETTING 114, 115)	M135**	LIVE TOOL DRIVE STOP
M33	CHIP AUGER STOP	M143**	SUB-SPINDLE FORWARD (P)
M36**	PARTS CATCHER ON	M144**	SUB-SPINDLE REVERSE (P)
M37**	PARTS CATCHER OFF	M145**	SUB-SPINDLE STOP
M41	SPINDLE LOW GEAR OVERRIDE	M154**	C AXIS ENGAGE (SETTING 102)
M42	SPINDLE HIGH GEAR OVERRIDE	M155**	C AXIS DISENGAGE
M43	TURRET UNLOCK (FOR SERVICE USE ONLY)	M164**	ROTATE APL GRIPPERS TO "n" POSITION (Pn)
M44	TURRET LOCK (FOR SERVICE USE ONLY)	M165**	OPEN APL GRIPPER 1 (RAW MATERIAL)
M51-M58	OPTIONAL USER M CODE SET	M166**	CLOSE APL GRIPPER 1 (RAW MATERIAL)
M59	OUTPUT RELAY SET (N)	M167**	OPEN APL GRIPPER 2 (FINISHED MATERIAL)
M61-M68	OPTIONAL USER M CODE CLEAR	M168**	CLOSE APL GRIPPER 2 (FINISHED MATERIAL)

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.



*Revised on 04-09-02*

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