

# HAAS C.N.C. LATHE PREPARATORY FUNCTIONS

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

G00*	RAPID POSITIONING MOTION (X,Z,U,W,B) (SETTING 10, 56, 101)	G74	FACE GROOVING, or <i>HIGH SPEED PECK DRILL CYCLE</i> (X,Z,U,W,I,K,D,F) (SETTING 22)
G01	LINEAR INTERPOLATION MOTION (X,Z,U,W,B,F)	G75	PECK GROOVING CYCLE O.D. or I.D. (X,Z,U,W,I,K,D,F) (SETTING 22)
G01	LINEAR MOTION, CHAMFER AND CORNER ROUNDING (X,Z,U,W,B,I,K,R,A,F)	G76	THREADING CYCLE, MULTIPLE PASS O.D./I.D. (X,Z,U,W,I,K,D,A,P,F) (SETTING 86,95,96,99)
G02	CW CIRCULAR INTERPOLATION MOTION (X,Z,U,W,I,K,R,F)	G77**	LIVE TOOLING FLATTING CYCLE (I,J,L,R,S,K)
G03	CCW CIRCULAR INTERPOLATION MOTION (X,Z,U,W,I,K,R,F)	G80*	CANCEL CANNED CYCLE (SETTING 56)
G04	DWELL (P) (P=seconds", "milliseconds)	G81	DRILL CANNED CYCLE (X,Z,W,R,F)
G05**	FINE SPINDLE CONTROL MOTION (X,Z,U,W,R,F) (LIVE TOOLING)	G82	SPOT DRILL / COUNTERBORE CANNED CYCLE (X,Z,W,P,R,F)
G09	EXACT STOP, NON-MODAL	G83	PECK DRILL DEEP HOLE CANNED CYCLE (X,Z,W,I,J,K,Q,P,R,F) (SETTING 22, 52)
G10	PROGRAMMABLE OFFSET SETTING (X,Z,U,W,L,P,Q,R)	G84	TAPPING CANNED CYCLE (X,Z,W,R,F)
G14**	MAIN-SPINDLE / SUB-SPINDLE SWAP	G85	BORE IN-BORE OUT CANNED CYCLE (X,Z,U,W,R,L,F)
G15**	MAIN-SPINDLE / SUB-SPINDLE SWAP CANCEL	G86	BORE IN-STOP-RAPID OUT CANNED CYCLE (X,Z,U,W,R,L,F)
G17**	CIRCULAR MOTION XY PLANE SELECTION LIVE TOOLING (G02,G03)	G87	BORE IN-STOP-MANUAL RETRACT CANNED CYCLE (X,Z,U,W,R,L,F)
G18*	CIRCULAR MOTION ZX PLANE SELECTION (G02,G03) (SETTING 56)	G88	BORE IN-DWELL-MANUAL RETRACT CANNED CYCLE (X,Z,U,W,P,R,L,F)
G19**	CIRCULAR MOTION YZ PLANE SELECTION LIVE TOOLING (G02,G03)	G89	BORE IN-DWELL-BORE OUT CANNED CYCLE (X,Z,U,W,P,R,L,F)
G20*	VERIFY INCH COORDINATE POSITIONING (SETTING 9 needs to be INCH)	G90	O.D. / I.D. TURNING CYCLE, MODAL (X,Z,U,W,I,F)
G21	VERIFY METRIC COORDINATE POSITIONING (SETTING 9 needs to be METRIC)	G92	THREADING CYCLE, MODAL (X,Z,U,W,I,F) (SETTING 95, 96)
G28	RAPID TO MACHINE ZERO RETURN THRU REF. POINT (X,Z,U,W,B) (Fanuc)	G94	END FACING CYCLE, MODAL (X,Z,U,W,K,F)
G29	MOVE TO LOCATION THROUGH G29 REF. POINT (X,Z) (Fanuc)	G95**	LIVE TOOLING END FACE RIGID TAP (X,Z,W,R,F)
G31**	FEED UNTIL SKIP FUNCTION (X,Z,U,W,F)	G96	CONSTANT SURFACE SPEED, CSS ON (S)
G32	THREAD CUTTING PATH, MODAL (X,Z,U,W,F)	G97*	CONSTANT NON-VARYING SPINDLE SPEED, CSS OFF (S) (SETTING 56)
G40*	TOOL NOSE COMPENSATION CANCEL G41/G42 (X,Z,U,W,I,K) (SETTING 56)	G98	FEED PER MINUTE (F)
G41	TOOL NOSE COMPENSATION, LEFT (X,Z,U,W) (SETTING 43, 44, 58)	G99*	FEED PER REVOLUTION (F) (SETTING 56)
G42	TOOL NOSE COMPENSATION, RIGHT (X,Z,U,W) (SETTING 43, 44, 58)	G100	MIRROR IMAGE CANCEL G101
G50	SPINDLE SPEED MAXIMUM RPM LIMIT (S)	G101	MIRROR IMAGE (X,Z) (SETTING 45, 47)
G51	RAPID TO MACHINE ZERO, CANCEL OFFSET (Yasnac)	G102	PROGRAMMABLE OUTPUT TO RS-232 (X,Z)
G52	WORK OFFSET POSITIONING COORDINATE (SETTING 33, YASNAC)	G103	LIMIT BLOCK LOOKAHEAD (P0 - P15 max. for number control looks ahead)
G52	GLOBAL WORK OFFSET COORDINATE SYSTEM SHIFT (SETTING 33, FANUC)	G105**	SERVO BAR COMMAND
G53	MACHINE ZERO POSITIONING COORDINATE, NON-MODAL (X,Z,B)	G110-G111	WORK OFFSET POSITIONING COORDINATE #7- #8
G54*	WORK OFFSET POSITIONING COORDINATE #1 (SETTING 56)	G112**	CARTESIAN TO POLAR TRANSFORMATION
G55	WORK OFFSET POSITIONING COORDINATE #2	G113**	CARTESIAN TO POLAR TRANSFORMATION CANCEL
G56	WORK OFFSET POSITIONING COORDINATE #3	G114-G129	WORK OFFSET POSITIONING COORDINATE #9 - #24
G57	WORK OFFSET POSITIONING COORDINATE #4	G154	SELECT WORK OFFSET POSITIONING COORDINATE P1-99 (P)
G58	WORK OFFSET POSITIONING COORDINATE #5	G159**	BACKGROUND PICKUP / PART RETURN
G59	WORK OFFSET POSITIONING COORDINATE #6	G160**	APL AXIS COMMAND ON
G61	EXACT STOP, MODAL (X,Z)	G161**	APL AXIS COMMAND OFF
G64*	EXACT STOP G61 CANCEL (SETTING 56)	G184	REVERSE TAPPING CANNED CYCLE (X,Z,W,R,F)
G65**	MACRO SUB-ROUTINE CALL	G186**	LIVE TOOLING REVERSE RIGID TAP
G70	FINISHING CYCLE (P,Q)	G187	ACCURACY CONTROL FOR HIGH SPEED MACHINING (E) (SETTING 85)
G71	O.D. / I.D. STOCK REMOVAL CYCLE (P,Q,U,W,I,K,D,S,T,R1,F) (SETTING 72, 73)	G194	SUB-SPINDLE / TAPPING CANNED CYCLE
G72	END FACE STOCK REMOVAL CYCLE (P,Q,U,W,I,K,D,S,T,R1,F) (SETTING 72, 73)	G195**	LIVE TOOLING RADIAL TAPPING (X,F)
G73	IRREGULAR PATH STOCK REMOVAL CYCLE (P,Q,U,W,I,K,D,S,T,F)	G196**	LIVE TOOLING RADIAL 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)	M61-M68	OPTIONAL USER M CODE CLEAR
M01	OPTIONAL PROGRAM STOP (SETTING 17)	M69	OUTPUT RELAY CLEAR (N)
M02	PROGRAM END	M76	PROGRAM DISPLAYS INACTIVE
M03	SPINDLE ON FORWARD (S) (SETTING 144)	M77	PROGRAM DISPLAYS ACTIVE
M04	SPINDLE ON REVERSE (S) (SETTING 144)	M78	ALARM IF SKIP SIGNAL FOUND
M05	SPINDLE STOP	M79	ALARM IF SKIP SIGNAL NOT FOUND
M08	COOLANT ON (SETTING 32)	M85**	AUTOMATIC DOOR OPEN (SETTING 51, 131)
M09	COOLANT OFF	M86**	AUTOMATIC DOOR CLOSE (SETTING 51, 131)
M10	CHUCK CLAMP (SETTING 92)	M88**	HIGH PRESSURE COOLANT ON (SETTING 32)
M11	CHUCK UNCLAMP (SETTING 92)	M89**	HIGH PRESSURE COOLANT OFF
M12**	AUTO AIR JET ON (P)	M93**	AXIS POSITION CAPTURE START (P,Q)
M13**	AUTO AIR JET OFF	M94**	AXIS POSITION CAPTURE STOP
M14**	MAIN SPINDLE CLAMP	M95	SLEEP MODE (hh:mm)
M15**	MAIN SPINDLE UNCLAMP	M96	JUMP IF NO SIGNAL (P,Q)
M17	ROTATE TURRET FORWARD (T) (SETTING 97)	M97	LOCAL SUB-ROUTINE CALL (P,L)
M18	ROTATE TURRET REVERSE (T) (SETTING 97)	M98	SUB-PROGRAM CALL (P,L)
M19**	ORIENT SPINDLE (Optional P,R)	M99	SUB-PROGRAM/ROUTINE RETURN OR LOOP (P) (SETTING 118)
M21**	TAILSTOCK ADVANCE (SETTING 93, 94, 106, 107, 121, 145)	M109**	INTERACTIVE USER INPUT (P)
M22**	TAILSTOCK RETRACT (SETTING 105)	M110**	TAILSTOCK CHUCK CLAMP (SETTING 122)
M23	ANGLE OUT OF THREAD ON (SETTING 95, 96)	M111**	TAILSTOCK CHUCK UNCLAMP (SETTING 122)
M24	ANGLE OUT OF THREAD OFF	M119**	SUB-SPINDLE ORIENT (P,R)
M25-M28	OPTIONAL USER M CODE INTERFACE WITH M-FIN SIGNAL	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)
M33	CHIP AUGER STOP	M135**	LIVE TOOL DRIVE STOP
M36**	PARTS CATCHER ON	M143**	SUB-SPINDLE FORWARD (P)
M37**	PARTS CATCHER OFF	M144**	SUB-SPINDLE REVERSE (P)
M38	SPECIFY SPINDLE VARIATION ON (SETTING 165, 166)	M145**	SUB-SPINDLE STOP
M39	SPECIFY SPINDLE VARIATION OFF (SETTING 165, 166)	M154**	C AXIS ENGAGE (SETTING 102)
M41	SPINDLE LOW GEAR OVERRIDE	M155**	C AXIS DISENGAGE
M42	SPINDLE HIGH GEAR OVERRIDE	M164**	ROTATE APL GRIPPERS TO "n" POSITION (Pn)
M43	TURRET UNLOCK (FOR SERVICE USE ONLY)	M165**	OPEN APL GRIPPER 1 (RAW MATERIAL)
M44	TURRET LOCK (FOR SERVICE USE ONLY)	M166**	CLOSE APL GRIPPER 1 (RAW MATERIAL)
M51-M58	OPTIONAL USER M CODE SET	M167**	OPEN APL GRIPPER 2 (FINISHED MATERIAL)
M59	OUTPUT RELAY SET (N)	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.



Haas Automation Inc.

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