

Z E R O T U R N

FANUC OT MODEL C

Complete with all standard features.

1. Simultaneously controlled axes X and Z.
2. Full Circular interpolation.
3. Combined use of Absolute and Incremental in same block.
4. Internal/External Screwcutting.
5. Inch/mm programming/conversion.
6. Rapid traverse rate 10 m/min.
7. Feedrate override 0-150%, speed override 50-120%.
8. Constant surface speed control.
9. X Axis diameter or radius programming.
10. Program search.
11. Subprogram - 2 holds nested.
12. Multiple repetitive canned cycles.
13. Tool Offsets for up to 16 pairs.
14. Backlash compensation.
15. Dry run facility.
16. Single Block and Auto Execution.
17. Part program storage and editing.
18. 10 m tape storage length.
19. Self diagnostics.
20. All axes interlocked - hardware and software.
21. Manual pulse generator.
22. Overtravel limit and emergency stop.
23. Chamfer/corner rounding.
24. Tool nose radius compensation.
25. Run hour and parts number display.
26. Operator messages (low lube, coolant etc.).
27. RS232C serial interface.

FANUC OT MODEL C CONTROL OPTIONS

Graphic Display - Toolpath can be checked prior to machining without moving the machine axes. In addition toolpath can be plotted during machine cycle.

Conversational Programming (with graphic function) - Assists manual programming at the control in identifying block format by word and graphics.

N.B. - Requires graphic display

Tool Geometry and Tool Wear Offset - Divides tool length and tool wear into separate registers.

Background Edit - Editing of stored programs and load/unload of programs (whilst machine is in operation).

Direct Drawing Dimension Programming - Simplifies programming on complex contours by calculating intermediate co-ordinates.

Simplified Tool Life Management - Counts end of program code (M02 or M30) to identify number of cycles run.

Custom Macro A - Creation of subprograms using variables, arithmetic functions and conditional branching.

Custom Macro B - Enhanced version of Macro A including local common and system variables.

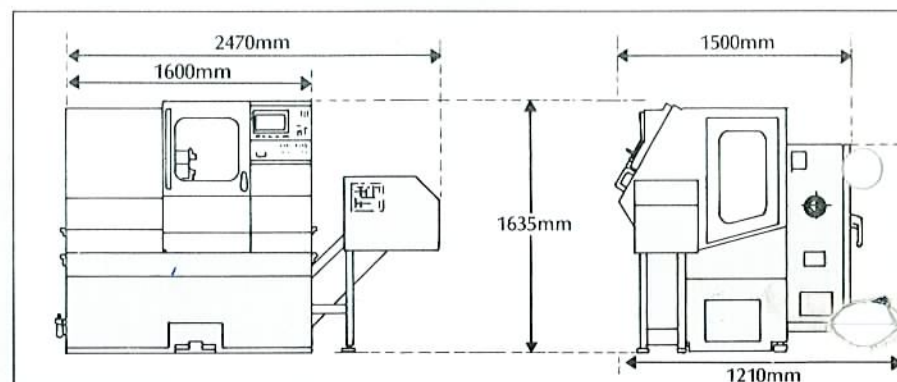
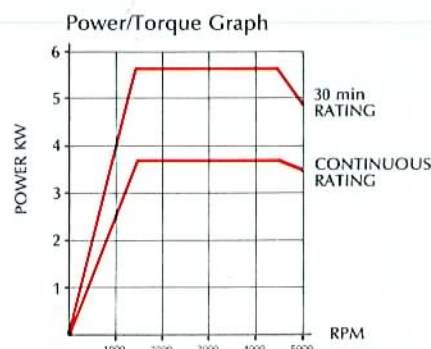
Continuous Thread Cutting - Eliminates time delay between blocks when consecutive threading moves are programmed.

Thread Cutting Cycle Retract - Allows threading tool to be retracted in pitch returning to cycle start point when feedhold is pressed.



Fanuc OT Model C
Computer
Numerical Control

The GE Fanuc Series O-T MODEL C (referred to as OT-C) is a CNC for high speed, high accuracy and high efficiency machining especially designed as numerical control for small, all-purpose lathes, automatic lathes, and lathes controlled by programmable controllers.



Additional Part Program Storage:

- Total length - 20M
- Total length - 40M
- Total length - 80M
- Total length - 120M
- Total length - 320M

Other Control Options

- Spindle Orientation
- Multi-Language Display
- Variable Lead Threadcutting
- CF Axis Control
- CX Axis Control
- Macro Executor
- Input of Offsets by Programming
- Remote Buffer
- External Data Input
- Portable Tape Reader
- Fanuc Papertape Punch Reader
- Software
- CAD CAM/Software
- Off Line Programming (Industrial Text Editor)
- For IBM P.C. - 100% Compatibles and RM
- Nimbus P.C.
- AutoCad, AutoCam.



DENFORD MACHINE TOOLS LTD,
BIRDS ROYD, BRIGHOUSE
WEST YORKSHIRE, HD6 1NB
TELEPHONE: 0484 712264
TELEX: 517478 FAX: 0484 722160

DENFORD

COMPUTERISED MACHINES AND SYSTEMS

HAS BEEN

DESIGNED

AS BOTH A

POWERFUL

PRODUCTION

MACHINE AS WELL

AS BEING

IDEALLY

SUITED FOR

ADVANCE

TRAINING

Z E R O T U R N

Powerful Production Machine
and
Versatile Advanced Training Aid

A
C.N.C. SLANT

BED LATHE

FITTED WITH

FANUC

OT CONTROL



DENFORD

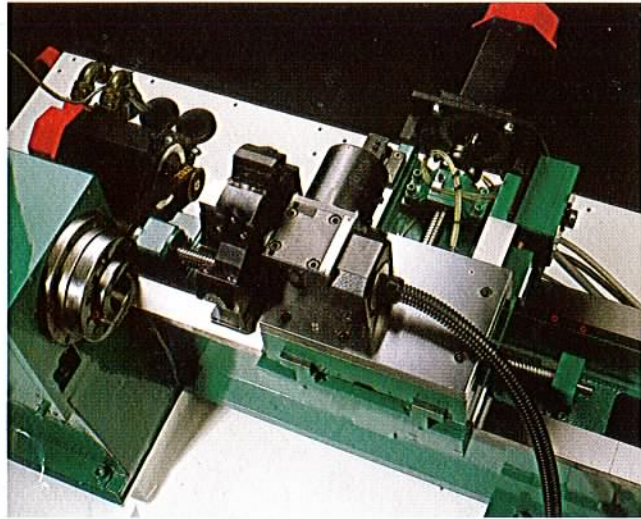
COMPUTERISED MACHINES AND SYSTEMS

PRECISION BUILT FOR PRECISION ENGINEERING

RIGID BED & BASE FOR SAFETY AND ACCESSIBILITY

The single piece cast iron bed is mounted on to a fabricated base. This provides an ideal rigid foundation, allowing for excellent swarf removal. Operators will also find it provides greater accessibility when the machine is in use.

The rectangular hardened and ground cast iron slideways are protected within the machinery area by steel guards.



FAST, ACCURATE SPINDLE OPERATION

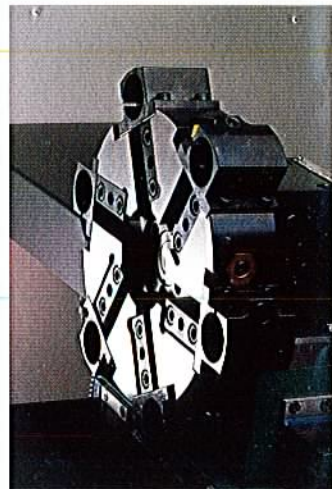
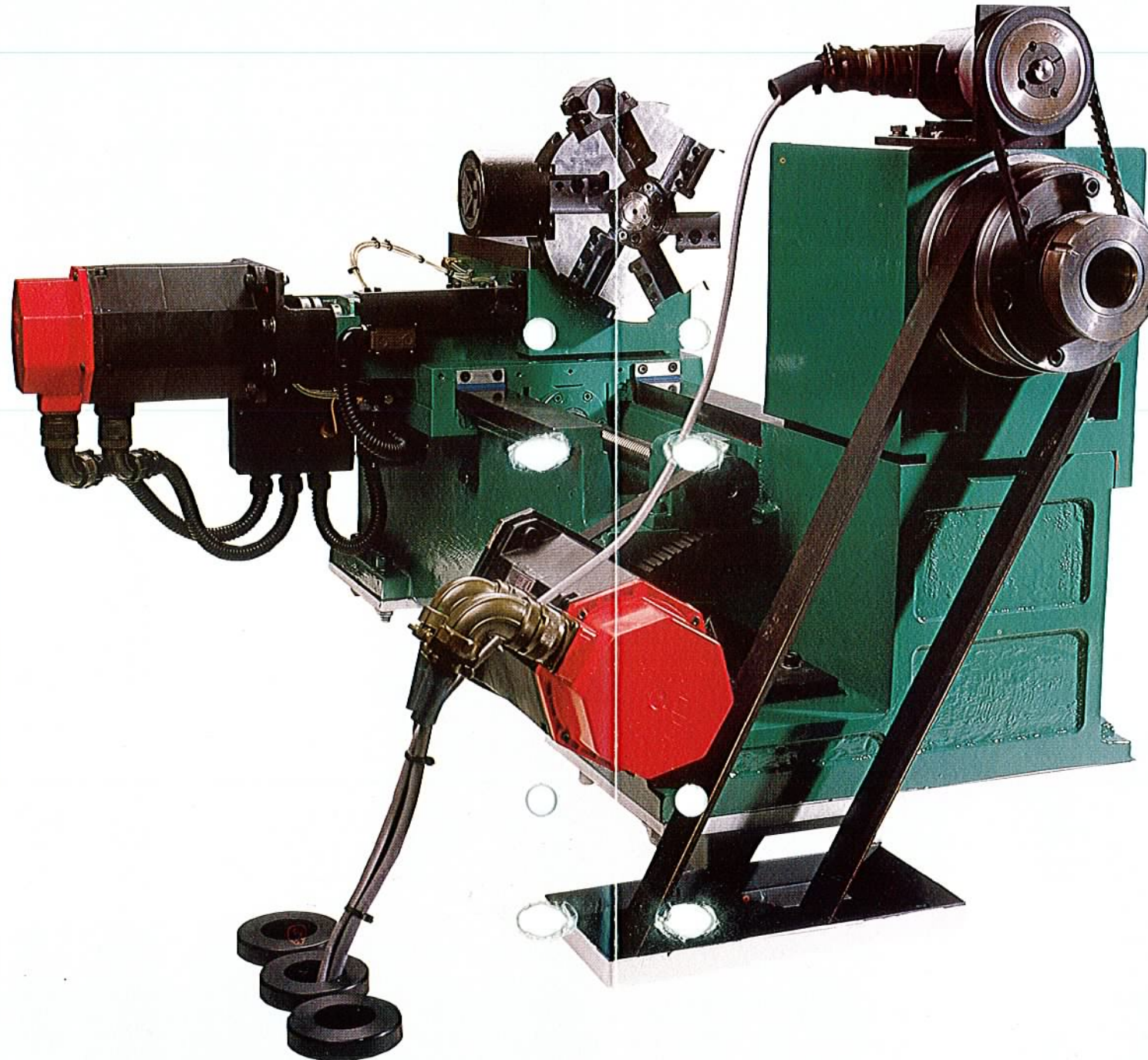
A 3.7/5.5 KW AC motor is used to drive the A2.5 Spindle via a Poly-Vee belt. The maximum torque output is 23.5 Nm and the spindle can reach an impressive maximum speed of 5000 Rev/min.

To minimise the effects of temperature change and maintain the high level of accuracy, the 65mm diameter spindle is supported by a set of 3 angular contact bearings.

These bearings are set within a one piece cast iron cartridge which is bolted and aligned to the bed.

MOTOR-DRIVEN AXES

All the axes are driven by FANUC brushless AC servo motors and precision ball screws.

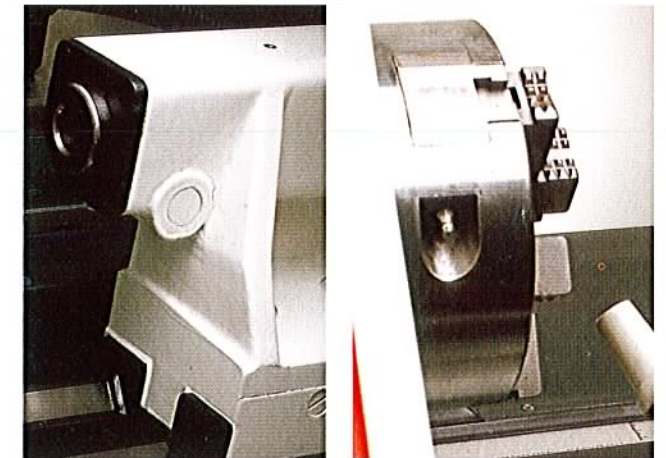


ADVANCED TURRET CONFIGURATIONS

Operators can select from a six or eight position indexing turret mounted onto the crossslide. The turret index is continuous and has a station to station time of 0.6 seconds. Each turret station can accommodate either turning tools up to ISO Tool Shank 1616, or turret adaptor blocks having bore size of 32mm for internal tooling (6 STN turret) or 25mm bore (8 STN turret).

OPTIONAL TAILSTOCK WITH PROGRAMMABLE QUILL

For shaft type components and slender base work Zereturn offers an optional tailstock complete with pneumatically operated quill. The tailstock is mounted on a separate cast iron base and is bolted on to the main bed structure. The quill stroke can operate to 80mm.



OPTIONAL POWER CHUCKING EQUIPMENT

Our optional power chucking equipment can be utilised in two ways. Operators can choose either the front operated self contained chucks. Or alternatively they can use the drawbar actuated chucking system which is operated by a rear mounted pneumatic cylinder.

Collet chuck systems utilising 5c, multisize or multibore collets are available for use with proprietary bar feed units. i.e. Acrovu, LNS, Sameca.

ELECTRICAL EQUIPMENT

Mains Supply: 50/60 HZ, 380/415V, 3PH
Spindle Motor: Fanuc AC 3.75/5.5 KW (30 mins).
Axes Motors: Fanuc AC Digital Servo. Output Power 0.55 KW Max. Torque 26 Nm.

ADDITIONAL MACHINE OPTIONS

Parts Catcher.
Automatic Swarf Conveyor.
Tool Setting Probe.
High Pressure Coolant System.
Pneumatic Tailstock Chucking.
Bar Feed Units.

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
ZT.1/601	CABINET BASE	1
602	HEADSTOCK HOUSING	1
603A	SPLASH GUARD	1
604A	CONTROL PANEL HOUSING	1
605	SLIDING DOOR	1
*606A	FRONT PANEL	1
607	INSPECTION COVER & WINDOW	1
608	END DRIVE COVER	1
*609	SWARF DRAWER	1
*610	COOLANT RETURN TRAY	1
*611A	SIDE SUPPORT RH	1
612	SIDE SUPPORT LH	1
613A	COOLANT TANK	1
614	INTERNAL SUPPORT PLATE	1
615	FOOT SUPPORT	1
616	DOOR WINDOW	4
617	INSPECTION WINDOW	1
618	BOTTOM DOOR SLIDE	1
619	TOP DOOR SLIDE	2
620	SLIDING DOOR WHEEL	2
622	DOOR SWITCH TRIP	4
623	PANEL MOUNTING BRACKET	1
624	MOTOR COVER	3
625	SIDE PLATE	1
626	HEADSTOCK RING	2
631A	BED SLIDEWAY EXTENSION	1
631B	BEDWAY COVER	1
631C	" "	1
631D	" "	1
632E	HEAD BEDWAY COVER	1
632F	SADDLE BEDWAY COVER	1
632G	SLIDING BEDWAY COVER	1
632H	" " "	1
632I	" " "	1
633	FRONT BED FILLER PLATE	1
634	BACK BED FILLER PLATE	1
*635	SWARF DRAWER BRACKET	1
637	END GUARD COVER	2
638	END GUARD COVER PLATE	1
639	DOOR RAIL	1
640	DOOR RAIL BLOCK	2
641	LEFT SIDE SAREL BOX CUTOUTS	8
642	RIGHT SIDE SAREL BOX CUTOUTS	1
643	FLEXIBLE CONDUIT SPACER	1
644	COOLANT TRAY SPACER	2
645	HEADSTOCK HOUSING SUPPORT	1
647	ISOLATOR SUPPORT	1
648	DOOR GUARD RAIL	1
649	DOOR GUARD ROD	2
650	DOOR GUARD SUPPORT	2

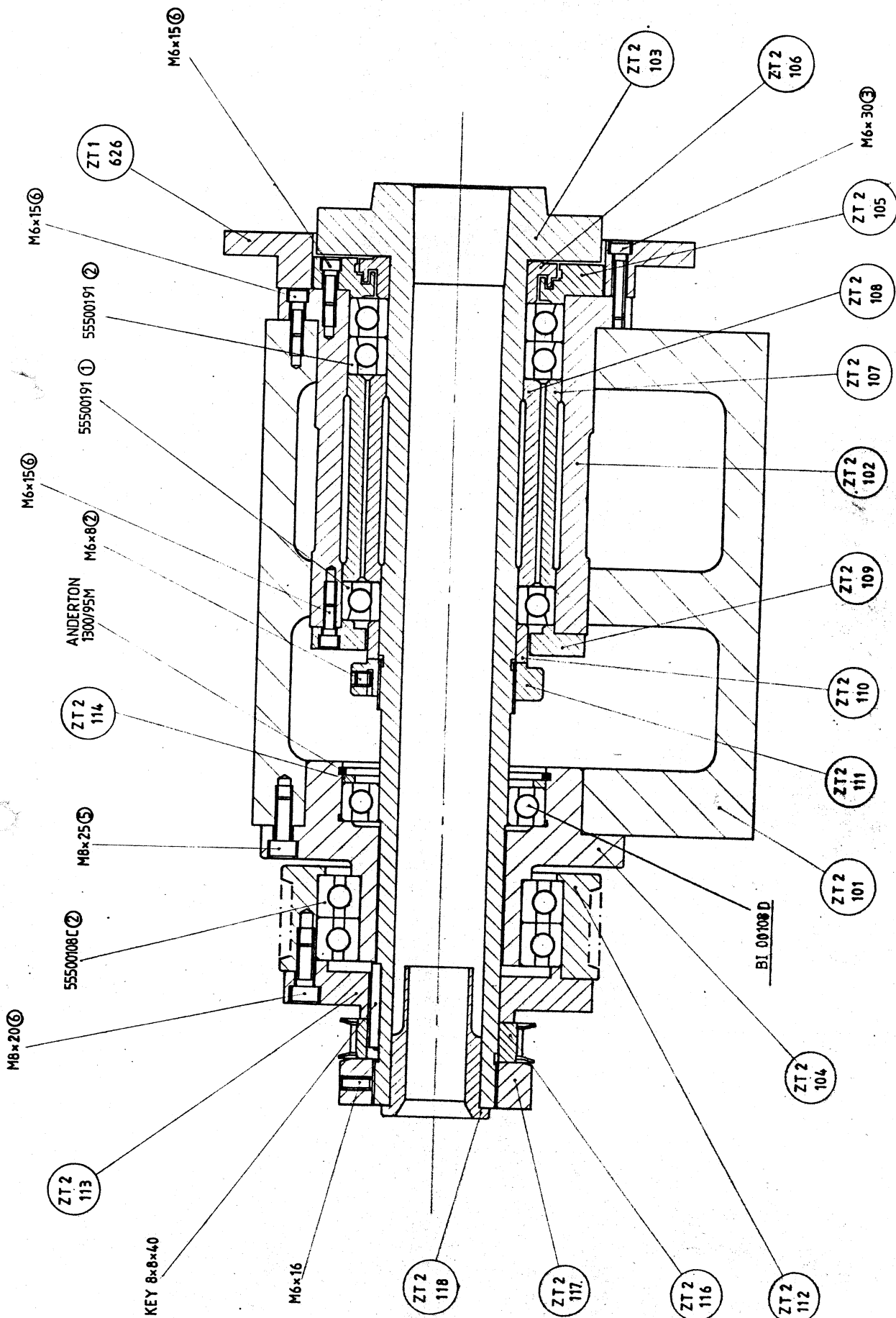
* THESE PARTS OMITTED WHEN SWARF CONVEYOR FITTED

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
TR1/210	HINGE PLATE	5
BVS.160/80	LIFTING BRACKET	4
S.P.201B	HANDLE	1
201D	HANDLE	1
202	HANDLE SCREW	4
203	FIXING BLOCK	4

DESCRIPTION	MANUFACTURER & REF	COMPUTER No.	QTY
DOOR HANDLE	ELESA : M443/110	55501224B	2
FAN	RS.508-071 160mm 240v	508-071	2
FINGER GUARD	RS.507-961 160mm	507-961	2
FILTER UNIT	RS.507-898 160mm	507-898	2
CIRCUIT BREAKER	KLOCKNER-MOELLER: NZMH 4-40		1
EXTENSION SHAFT	" " : ANZM6		1
HANDLE	" " : H6		1
FLEXIBLE CONDUIT	HENNIG STABIFLEX: TYPE 2.0(46")	B1 01443B	1
WORKLIGHT	THORN : PP220.LV.HPF/LL.2ft		1
COOLANT PUMP	GRUNDFOS : SPK 4.1.3 3ph	55500400	1
COOLANT PIPE	SNAP LOCK $\frac{1}{2}$ "	55501102C	1
LEVEL SIGHT	ELESA : HCV 76	55501118	1
COOLANT TUBE	$\frac{1}{2}$ " I.D.	55501110	1
TAP	$\frac{3}{8}$ " BALL VALVE (LONG HANDLE)	55501116E E	1
REDUCER	$\frac{3}{4}$ " - $\frac{3}{8}$ "		
ELECTRIC CABINET	SAREL : 18.12.08.4	55501130B	1
ELECTRIC CABINET PLATE	SAREL : 18GPA1208	55500420J	2
WINDOW SEAL	C.O.H.BAINES : I.R.S.736 WS (& CHROME INSERT)	55500420K	2
COVER WIPER	HYDRAQUIP : A6	55501425A	5
BEARING	FAG : 6000 ZZ	55500106	8
CIRCLIP	ANDERTON : 1400-10M		4
SUPPORT STAY	PARKES : 7/25122	55501230	1
HINGES	SOUTHCO : E6-10-301-20	55501229A	10
MICRO SWITCH	MULTISWITCH STEUTE E12R	55500	1
TRACK	WIDNEY : 2012 FN	55501431	2
TAILPIECE ADDAPTOR	$\frac{3}{8}$ " BSP. ENOTS 34-0321-27	55501451Z	1

IF IN DOUBT ASK

DRG. No.



DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

ZEROTURN HEADSTOCK ARRANGEMENT

LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.

ANGULAR $\pm 1/2^\circ$ 3 PLACE DECIMAL $\pm .005^\circ$

FRACTIONAL $\pm .010$ 4 PLACE DECIMAL $\pm .0005$

MATL.

MATL. SIZE

No. REQD.

MACHINE AT 90°

GRIND AT 12°

DRAWN

G.A.

TRACED

CHECKED

APPROVED

DATE

SCALE

1:1

12-11-87

1:1

DRAWING No. ZT 2 / 100

ALTERATIONS

DATE

DATE

ZEROTURNHEADSTOCKZT,2/100

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
ZT,2/101	HEADSTOCK	1
102	SPINDLE SLEEVE	1
103	A2-5 MAIN SPINDLE	1
104	REAR BEARING HOUSING	1
105	FRONT BEARING CAP	1
106	GREASE RETAINING COLLAR	1
107	OUTER BEARING SLEEVE	1
108	INNER BEARING SLEEVE	1
109	INNER BEARING CAP	1
110	LOCKNUT COLLAR	1
111	SPINDLE LOCKNUT	1
112	SPINDLE PULLEY	1
113	PULLEY DRIVING FLANGE	1
114	BEARING SHIM	1
115	HEADSTOCK COVER PLATE	1
116	SPINDLE ENCODER PULLEY	1
117	SPINDLE LOCKNUT	1
118	COOLANT RETURN PLUG	1

DESCRIPTION

BEARING
BEARING
BEARING
TIMING PULLEY
CIRCLIP

MANUFACTURER & REF

FAFNIR : 2MM9113 WI
FAG : 6012 2RS
FAG : 6015 2Z
FENNER : 28L050 (ZT.2/116)
ANDERTON : 1300/95M

COMPUTER No.

0191
00108D
00108C
55500642

QTY

3
1
2
1
1

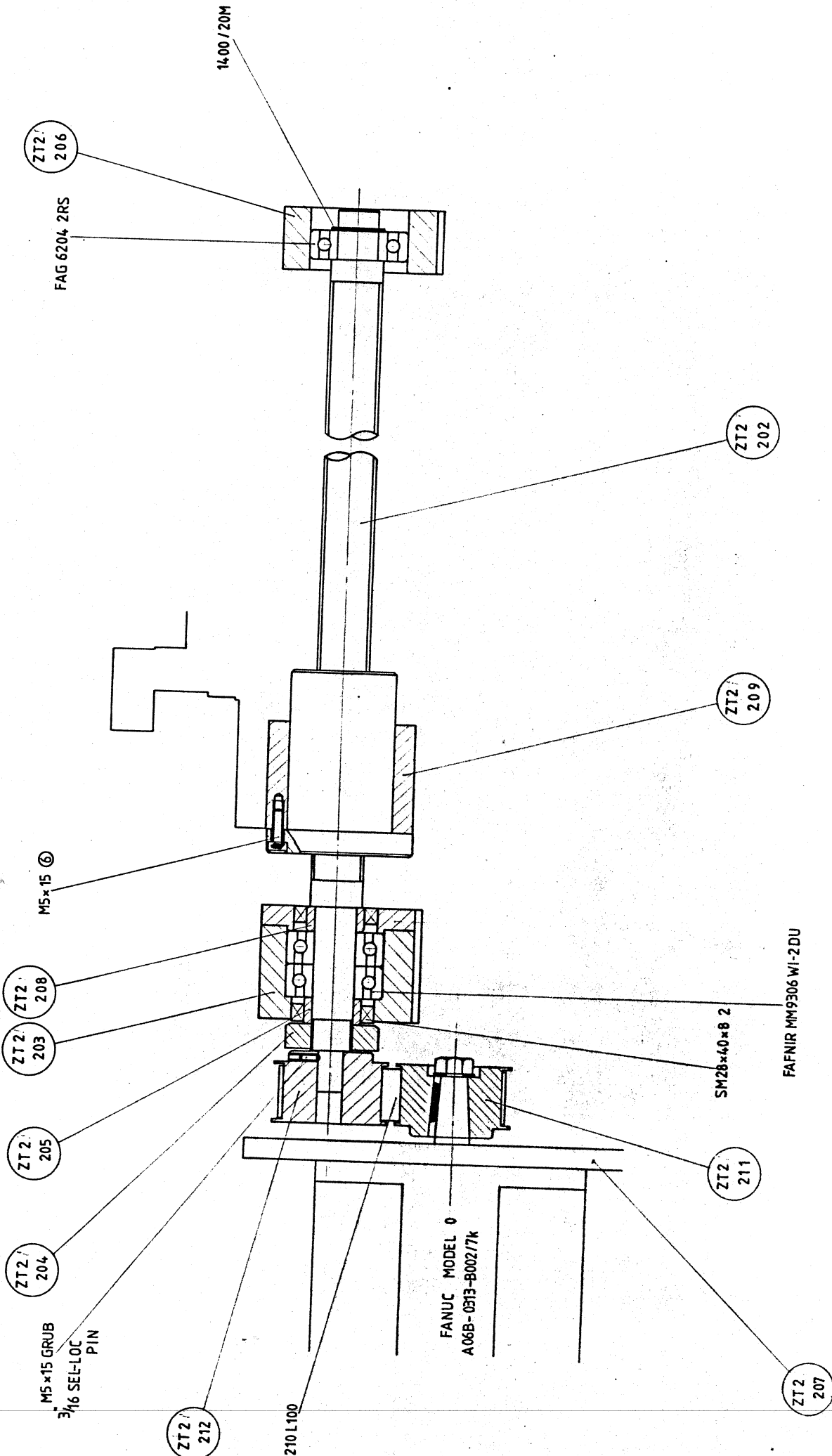
ZEROTURNHEADSTOCKZT.2/100A

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
ZT.2/101	HEADSTOCK	1
102	SPINDLE SLEEVE	1
103A	A2-5 MAIN SPINDLE	1
104	REAR BEARING HOUSING	1
105	FRONT BEARING CAP	1
106	GREASE RETAINING COLLAR	1
107	OUTER BEARING SLEEVE	1
108	INNER BEARING SLEEVE	1
109	INNER BEARING CAP	1
110	LOCKNUT COLLAR	1
111	SPINDLE LOCKNUT	1
112	SPINDLE PULLEY	1
113A	PULLEY DRIVE FLANGE	1
114	BEARING SHIM	1
115	HEADSTOCK COVER PLATE	1
116A	SPINDLE ENCODER PULLEY	1
117A	SPINDLE LOCKNUT	1
118	COOLANT RETURN PLUG	1

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
BEARING	FAFNIR : 2MM9113 WI	BI 00191	3
BEARING	FAG : 6012 2RS	BI 00108D	1
BEARING	FAG : 6015 2Z	BI 00108C	2
TIMING PULLEY	FENNER : 40L050 (ZT2/116A)		1
SPINDLE MOTOR	FANUC : MODLE 3S	A06B-0753-	
		B100/3k	1
ENCODER	FANUC : 2500 PPR.	A86L-0027-	
		001/002	1
CIRCLIP	ANDERTON : 1300/95M		1

DRG. No.

IF IN DOUBT ASK



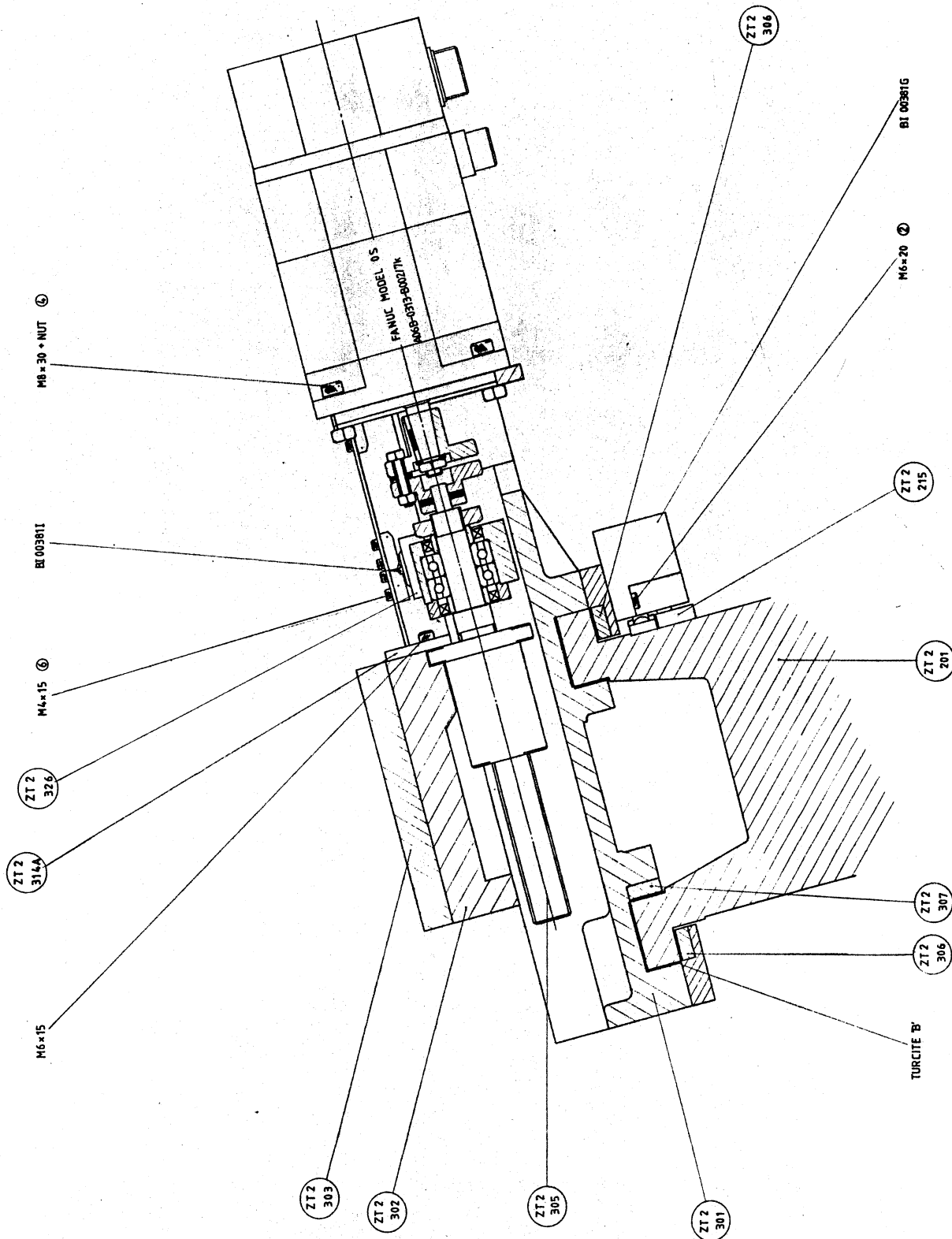
DESCRIPTION		CHG	APPROVED	DATE	APPROVED	DATE	SCALE
ALTERATIONS							
ZEROTURN		Z AXIS DRIVE ASSEMBLY		DRAFTING No. ZT2/200			
LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.		ANGULAR ± 1/2° 3 PLACE DECIMAL ± .005°		FRACTIONAL ± .010" 4 PLACE DECIMAL ± .0005"		GRIND AT 1/2"	
MATERIAL		MATERIAL SIZE		NO. REQD.		MACHINE AT 1/2"	
DRAWN		G. A.		CHECKED		DATE	
19-9-88							

PART No.	DESCRIPTION	QTY
ZT.2/201	BED	
202	'Z' AXIS BALLSCREW	1
203	BALLSCREW BEARING HOUSING	1
204	BEARING LOCKNUT	1
205	BEARING SPACER	1
206	BEARING HOUSING	1
207	'Z' DRIVE MOTOR BRACKET	1
208	BEARING SPACER	1
209	HOUSING FLANGE	1
210	BEARING SPACER	1
211	'Z' AXIS DRIVE MOTOR PULLEY	1
212	'Z' AXIS BALLSCREW PULLEY	1
213	BALLSCREW COVER GUIDE	1
214	BALLSCREW COVER GUIDE	1
215	MICRO SWITCH KNOCK OFF	1
216	BED ALIGNMENT PLATE	2
217	BED ALIGNMENT BLOCK	2
218	SLIDEWAY COVER EXTENSION BLOCK	2
219	COOLANT RETURN BUSH	2
220	COOLANT RETURN PIPE	1

DESCRIPTION	MANUFACTURER & REF	COMPUTER No.	QTY
BEARING	FAFNIR : MM9306 WI -2DU	55500190	2
BEARING	FAG ; 6204 2RS	55500111	1
CIRCLIP	ANDERTON ; 1400/20M	C/CLIP 1400/20	1
BALLNUT	H.B.C : FDW 25x5(2.5x1)		
TIMING PULLEY	FENNER : 16L100 (ZT.2/211 ZT.2/212)		1
TIMING BELT	FENNER : 210L100		2
OIL SEAL	ANGUS SM 28x40x8		1
WIPERS			2
MICRO SWITCH	BALLUFF BNS 543-d16-61-16-11	55500381G	1

IF IN DOUBT ASK.

DRG. No.



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3

QTY

ZEROTURN

CONTROL AND DRIVES

ZT2/400

PART No.

DESCRIPTION

QTY

ZT2/401 A&B

TRANSFORMER FIXINGS

1 each

ZEROTURNCONTROL & DRIVES (FANUC)

<u>DESCRIPTION</u>	<u>MODEL & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
SPINDLE MOTOR	MODEL 3 A06B-1003-B100		1
SPINDLE AMPLIFIER	MODEL 3 A06B-6055-H103		1
TRANSFORMER	7 KVA A06B-6025-J001		1
FUSE SET	A06B-6055-K006		1
CONNECTORS	A06B-6044-K009		1
SERVO MOTOR(2500 PPR)	MODEL 0 A06B-0513-B002		2
2-AXIS SERVO UNIT	MODEL 0/5 A06B-6050-H203		1
INPUT CONNECTOR SET	A06B-6050-K200		1
CONNECTOR(ELBOW)power	MS3108B18-105		2
CLAMP	MS3057-10A		2
CONNECTOR(ELBOW)signal	MS3108B20-29SW		2
CLAMP	MS3057-12A		2
TRANSFORMER	ABE A06B-6050-H022		1
<u>SYSTEM ZERO-T CONTROL</u>			
BASIC UNIT	A02B-0083-B501		1
ACCESSORY (CABLE CLAMPS)	A02B-0083-K301		1
MASTER BOARD	A02B-0083-H001		1
POWER SUPPLY UNIT A	A02B-0083-H011		1
BATTERY UNIT	A02B-0083-H021		1
GRAPHIC DISPLAY 9"CRT/MDI	A02B-0083-H102		1
BASIC SOFTWARE FUNCTIONS	A02B-0083-H501/0600		1
POWER INPUT UNIT,EXTERNAL	A14B-0076-B001		1
PMC-MODEL L(3000steps,DI=40,DO=40)	A02B-0083-J890		1
DEBUGGING EPROMS (QTY.2 2764)	A02B-0081-J191		
FUSES,CONTROL UNIT SPARES	A02B-0083-K101		
FUSES,POWER INPUT UNIT SPARES	A02B-0072-K107		
CONNECTORS,M3/M7/M9/M11/CCX/CN1	A02B-0029-K890		6
" M5/M6/M8/KM1	A02B-0029-K898		4
" M1/M2	A02B-0029-K891		2
" CP2/CP11	A02B-0072-K891		2
" CP15/CN2	A02B-0061-K203		2
MANUAL PULSE GENERATOR	A860-0201-T001		1
CONNECTOR M12 OR M21	A02B-0029-K890		
FIRST MANUAL PULSE CONTROL	A02B-0083-J824		1
SOFTWARE OPERATORS PANEL	A02B-0083-J804		1
SOFTWARE PANEL SWITCHES	A02B-0083-J805		
INPUT/DRAWING DIMENSIONS	A02B-0083-J845		
INCH/METRIC CONVERSION	A02B-0083-J801		
S4/S5 RPM ANALOG OUTPUT	A02B-0083-J843		
CONNECTOR M10 & RPM OVER RIDE	A02B-0083-K898		
CONSTANT SURFACE SPEED CONTROL	A02B-0083-J844		
ACTUAL RPM OUTPUT	A02B-0083-J848		
REPETITIVE CYCLES (G70-G76)	A02B-0083-J840		

ZEROTURN

CONTROL & DRIVES (FANUC)

<u>DESCRIPTION</u>	<u>REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
CHAMFERING/CORNER ROUNDING	A02B-0083-J853		
CONVERSATIONAL PROGRAMMING	A02B-0083-J807		
GRAPHIC DISPLAY CARD	A02B-0083-J080		
GRAPHIC DISPLAY FUNCTION	A02B-0083-J823		
MENU PROGRAMMING	A02B-0083-J806		
TOOL OFFSET GEOMETRY & WEAR	A02B-0083-J813		
TOOL NOSE RADIUS COMP: (G42, G40)	A02B-0083-J812		
RUN HR/PARTS COUNT DISPLAY	A02B-0083-J802		
POSITION CODER B (6000 RPM MAX)	A86L-0027-0001/002		
TRANSFORMER-CONTROL UNIT	A80L-0001-0176		

OPERATORS PANEL

PUSHBUTTONS	RS.338-945	338-945	13
LENS (GREEN)	RS.338-989	338-989	5
LENS (RED)	RS.339-005	339-005	5
LENS (ORANGE)	RS.339-011	339-011	3
SHIELDS	RS.339-027	339-027	3
BULBS, WEDGE TYPE 24v	RS.586-655	586-655	4
ROTARY SWITCH (T/P)	RS.327-658	327-658	1
ROTARY SWITCH (F/H)	23 WAY 101-737	FEC 101-737	1
KNOB (T/P)	70-28- $\frac{1}{4}$ BLACK		1
KNOB (F/H)	70-28-6 BLACK		1
CAP	1450-28-GRAY		2
POINTER	1451-28-RED		2
EMERGENCY STOP	CUTLER-HAMMER: E22MKRJ & E22C1	55500365D	1
PLUG 24 way	RS.466-753	466-753	2
SOCKET 24 way	RS.466-961	466-961	2

ZEROTURN OT-BELECTRICAL COMPONENTS

DESCRIPTION	MANUFACTURER AND REFERENCE	COMPUTER NO.	QUANTITY
CABINET	SAREL 18.12.08.4	55500420J	2
BACKPLATE	SAREL 18.CPA.12.08	55500420K	2
CONTROL TRANS (1)	CARROL & MEYNELL 1.1 KVA	55500374E	1
CONTROL TRANS (2)	CARROL & MEYNELL CMS/200/B	55500374A	1
TOOLPOST TRANS	CARROL & MEYNELL 300VA	55500374	1
TOOLPOST PCB	BARRUFALDI	55500968A	1
24V DC POWER SUPPLY	LAMBDA	55500375	1
MAINS ISOLATOR	STROMBERG OETL 40D1	55500366A	1
ISOLATOR KNOB	STROMBERG ZX 45/150	55500366B	1
CONTACTORS	BBC B16-30-10-240V	B16-30-10-240V	1
	BBC B9-30-10-110V	B9-30-10-110V	1
	BBC B9-30-01-110V	B9-30-01-110V	2
OVERLOAD RELAYS	BBC T25 0.28-0.42	T25 0.28/0.42A	1
	BBC T25 2.1-3.2	T25 2.1/3.2A	1
CIRCUIT BREAKERS	BBC S273 20A	55500366N	1
	BBC S273 10A	55500366I	1
	BBC S273 4A	55500366J	1
	BBC S273 ² 10A	55500366H	1
CONNECTORS	R.S. 425-415	425-415	110
END STOPS	R.S. 425-437	425-437	6
FUSE HOLDER	PHONIX USIS	55500402E	1
FUSE BRIDGE	PHONIX STSI	55500402F	1
DIN RAIL END STOPS		55500402D	4
CONTACT SUPPRESSORS	MURRELEKTRONIK RC21011	55500430B	4
3 PHASE SUPPRESSORS	PLASTIC TECHNOLOGY	55500430	2
8 PIN 24V DC RELAY		55500362E	1

218/400

ZEROTURN OT-B
ELECTRICAL COMPONENTS

DESCRIPTION	MANUFACTURER AND REFERENCE	COMPUTER NO.	QUANTITY
8 WAY QM SOCKET	R.S. 467-194	467-194	2
DUST CAP	R.S. 468-513	468-513	1
FOOTSWITCH	MULTISWITCH GFS-10/1S-726	55500384C	1
PUSHBUTTONS	HIGHLAND 801-0000	55500365I	5
CONTACT BLOCKS	HIGHLAND 200-6900	55500365J	5
LENS (RED)	HIGHLAND 200-5201	55500365K	1
LENS (GREEN)	HIGHLAND 200-5401	55500365L	2
LENS (ORANGE)	HIGHLAND 200-5101	55500365N	1
LENS (WHITE)	HIGHLAND 200-5601	55500365M	1
SHIELDS	R.S. 339-027	339-027	2
24V BULB	HIGHLAND 40.15.090		1
ROTARY SWITCH	R.S. 327-628 <i>FEC</i>	327-628	1
KNOB	70-28-6 BLACK		1
CAP	FEC 1405-28 GREY		1
POINTER	FEC 1415-28 RED		1
DIODES	R.S. 261-176	261-176	69

8 PIN RELAY BASE		55500362A	1
DIODE	R.S. 261-176	261-176	1
RELAY MODULE	MURRELEKTRONIK 51551 RMM 11/24	55500362H	4
CABINET FAN	HIGHLAND 109S304 R.S.	55500365V	2
FINGER GUARD	HIGHLAND 109-319 R.S.	55500365W	2
FILTER	R.S. 507/898	507-898	2

ZEROTURN ELECTRICAL COMPONENTS

ZT, 2/400 (3)

DESCRIPTION	MANUFACTURER AND REFERENCE	COMPUTER NUMBER	QUANTITY
60 X 60 SLOT TRUNKING	HELADUCT	55500440B	2 LENGTH
40 X 60 SLOT TRUNKING	HELADUCT	C	1 LENGTH
TOP HAT DIN RAIL	T535F		1 LENGTH
TERMINAL CONNECTORS	R.S. 425-415	425-415	20
3PH CIRCUIT BREAKERS	B.B.C. S163-K10	55500366I	2
CONTACTORS	B.B.C. B9-30-10-24V	B9-30-10-24V	2
24V D.C. RELAYS	R.S. 345-965	345-965	2
RELAY BASES	R.S. 402-153	402-153	2
DIODES	R.S. 261-176	261-176	2
SUPPRESSOR	R.S. 238-463	238-463	2
3PH SUPPRESSOR	PLASTIC TECHNOLOGY	55500430	1
FUSE BRIDGE	PHONIX STS1	55500402E	2
FUSE FITTING	PHONIX US1S	55500402F	2
MAIN ISOLATOR	STROMBERG OETL-4001	55500366A	1
HANDLE MECH.	STROMBERG OETL-ZX45	55500366B	1
	STROMBERG OETL 2S37	55500366	1
OVERLOAD RELAY	B.B.C. T25DM2.1-3.2	T25-2.1-3.2	1
COOLING FAN	R.S. 508-071	508-071	2
FAN FILTERS	R.S. 507-898	507-898	2
FAN FINGER GUARDS	R.S. 507-961	507-961	4 ?
24V D.C. POWER SUPPLY	GREENDALE	55500375	1
END STOPS	PHONIX U-UK	55500402D	4
TRANSFORMER 240V TO 24V		55500378	1
<u>FOR AIR CHUCK</u>			
24V D.C. RELAYS 11 PIN	RELECO	55500362C	2
RELAY BASES 11 PIN		55500362D	2
DIODES	R.S. 261-176	261-176	2

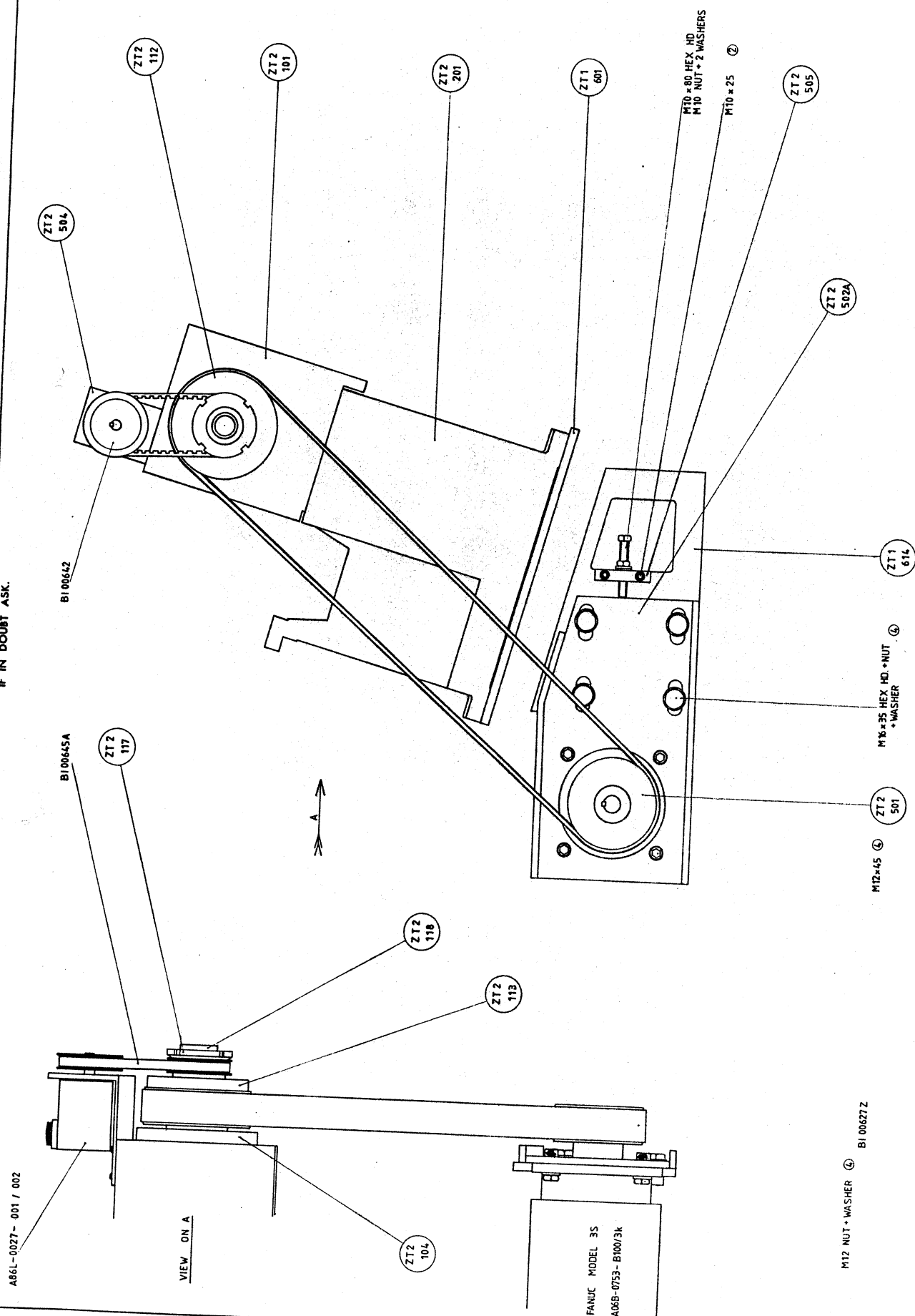
ZEROTURN ELECTRICAL COMPONENTS (Continued)FOR SWARF CONVEYOR

DESCRIPTION	MANUFACTURER AND REFERENCE	COMPUTER NUMBER	QUANTITY
24V D.C. RELAYS 11 PIN	RELECO	55500362C	2
RELAY BASES 11 PIN		55500362D	2
CONTACTORS 24V AC	B.B.C. B9-30-01-24	B9-30-01-24	2
DIODES	R.S. 261-176	261-176	2
OVERLOAD RELAY	B.B.C. TD25 2.1 TO 3.2	TD25 2.1 TO 3.2	1
SUPPRESSORS	R.S. 238-463	238-463	2
3PH SUPPRESSOR	PLASTIC TECHNOLOGY	55500430	1

FOR 6 STATION TOOLPOST

CONTACTORS 24V A.C.	B.B.C. B9-30-01-24	B9-30-01-24	2
OVERLOAD RELAY	B.B.C. TD25 2.1 TO 3.2	TD25 2.1 TO 3.2	1
SUPPRESSORS	R.S. 238-463	238-463	2
3PH SUPPRESSOR	PLASTIC TECHNOLOGY	55500430	1
1K Ω RESISTOR	R.S. 149-694	149-694	1
3PH TRANSFORMER 415V TO 110V		55500374	1

IF IN DOUBT ASK.



DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

ZEROTURN

SPINDLE DRIVE ASSEMBLY

MATERIAL	DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
MATERIAL SIZE	G.A.				3-2-89	
NO. 8000						

DRAWING No. 773

MACHINE AT W
GROUND AT C

DRAWING No. ZT2 / 500

ZEROTURNSPINDLE DRIVEZT,2/500

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
ZT,2/501	MOTOR PULLEY	1
502	MOTOR BRACKET	1
503	MOTOR REAR SUPPORT	1
504	ENCODER BRACKET	1
505	ADJUSTING BLOCK	1
506	MOTOR WASHER	4

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
POLY 'V' BELT	TBA : 725 L 8	55500627 2	1
TIMING PULLEY	FENNER : 28L050	55500642	1
TIMING BELT	FENNER : 225L050	55500645A	1
TAPER LOCK BUSH	FENNER : 1108-14	55500647D	1

21/4/89

ZEROTURNSPINDLE DRIVEZT.2/500A

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
ZT.2/501	MOTOR PULLEY	1
502A	MOTOR BRACKET	1
504	ENCODER BRACKET	1
505	ADJUSTING BLOCK	1
506	MOTOR WASHER	4
507	ENCODER PULLEY	1

DESCRIPTIONMANUFACTURER & REFCOMPUTER No.QTY

POLY 'V' BELT
TIMING BELT
CIRCLIP

TBA : 725 L 8
FENNER : 270 L050
ANDERTON : 1400-15M

BI 00627Z
BI 00646C

1
1
1

ZERO TURN
POWER TAIL STOCK

ZT 2/700

ZT 2/701 CYLINDER MOUNTING
702 BUSH
703 VALVE BLOCK

* NOTE ALTERNATIVE
MARTONAIR
ROS-200 NNLA
Pg 4-41 in catalogue.

CYLINDER ENOTS K2 310 55 0100
OR
RM 18040/100

PRESSURE SWITCH	KM PR 1/3H	55501131A	1off
SUB BASE	KMBPR 4P	55501131C	1off
FLOW VALVE	04 0361 00 000	55501128E	2off
SILENCER	5152 1/4 BSP	55501129X	2off
'T' CONNECTOR (6)	97-1514-04	55501451L	2off
NON RETURN VALVE	04-0355 00 000	55501128W	2off
SOLENOID VALVE	X4 2181 00 000		1off
6 DIA TUBE	NYLON	55501110C	
6 DIA ARMED TUBE	42 0040 00 750	55501130U	2off
4 DIA TUBE	NYLON	55501126F	
1/4 - 8 ADAPTOR	97-1530-11	55501129P	1off
1/4 - 1/4 CONNECTOR	36-0633-02	55501130D	1off
1/4 - 6 ADAPTOR	97-1530-10	55501451F	2off
6φ BULK HEAD CONNECTOR	97-1508-04	55501451I	4off
1" LOCK NUT	36-0502-03	55501451J	4off
1/8 BSP COUPLING		55501130C	1off
1/8 - 6 ADAPTOR	97-1505-04	55501451E	4off
1/8 - 4 ADAPTOR	97-1530-02	55501128N	2off

ZEROTURN

TOOLING (8 STATION)

ZT2/800-8

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
ZT2/802	TOOL CLAMP	
803B	TOOLSLEEVE HOLDER	8
805	BORING BAR HOLDER 6mm DIA	4
806	" " " 8mm DIA	1
807	" " " 10mm DIA	1
808	" " " 12mm DIA	1
809	" " " 16mm DIA	1
810	" " " 20mm DIA	1
811	CENTRE DRILL HOLDER	1
812A	AXIAL TOOL HOLDER	1
814A	AXIAL TOOL HOLDER PLATE	1
816	TOOLPOST BASE	1
818A	TOOL TURRET (8 STATION)	1
821	TOOLPOST COVER	1
CH 468	OPERATORS PANEL (8 STATION)	1

ZEROTURNTOOLING (6 STATION)ZT2/800

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
ZT2/801A	TOOL TURRET	1
802	TOOL CLAMP	6
803B	TOOLSLEEVE HOLDER	3
805	BORING BAR HOLDER 6mm DIA	1
806	" " " 8mm DIA	1
807	" " " 10mm DIA	1
808	" " " 12mm DIA	1
809	" " " 16mm DIA	1
810	" " " 20mm DIA	1
811	CENTRE DRILL HOLDER	1
812A	AXIAL TOOLHOLDER	1
814A	AXIAL TOOLHOLDER PLATE	1
816	TOOLPOST BASE	1
821	TOOLPOST COVER	1

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
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ZEROTURNSWARF CONVEYORZT.2/900

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
ZT.2/901	BODY	1
902	TRAY	60
903	DRIVEN GEAR BRACKET	2
904	ROLLER CHAIN GEAR	4
905	LOCATING BUSH	4
906	DRIVEN SHAFT	1
907	DRIVING SHAFT	1
908	END PLATE	1
909	DRIVE COVER	1
910	INSPECTION COVER	1
911	PIVOT PIN	60
912	ROLLER CHAIN LINK	240
913	ROLLER CHAIN ROLLER	120
914	TORQUE LIMITER	1
915	TORQUE LIMITER SLEEVE	1
916	DRIVE PINION	1
917	BIN	1
918	FRONT PANEL (ZT.1/606	1
919	SIDE PANEL (ZT.1/611A)	1
920	TOP PANEL	1
921	CONVEYOR SPLASH GUARD	1
ST.1/625	CABINET BACK STOP	4

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No</u>	<u>QTY</u>
TAKE UP BEARING	RHP-ST,1020G $\frac{3}{4}$ "BORE		2
GEARED MOTOR	NORD SK015-71S/6		1
TORQUE LIMITER	MORSE 500 M-2 (ZT.2/914)		1
ROUND WHEEL	" " 500-G4SR 38		1
PINION	" " 4 SR 13 (ZT.2/916)		1
CHAIN	" " 4 SR x 38" Long		1
OILITE BUSH	MAG. BRONZE CT.15 x $\frac{3}{8}$ "		2
CIRCLIP	ANDERTON 1400- $\frac{3}{8}$ "		240

ZEROTURN

BAR FEEDER

ZT2/1000

ZT2/1001

SPINDLE EXTENSION

1

ZEROTURNCHUCKINGZT.2/1100

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
ZT.2/1101 A	A2-5 SPINDLE PNEUMATIC CHUCK BACK PLATE	1
ZT.2/1102	A2-5 SPINDLE DRIVE STUD	1
ZT.2/1103	CHUCK BACKPLATE A2-5(160)	1
ZT.2/1104	A2-5 BACKPLATE (R.Leader 150-40)	1
ZT.2/1105 A	CHUCK AIR CYLINDER ADAPTOR (GAMET AX33-1)	1
ZT.2/1106	CHUCK AIR CYLINDER ADAPTOR (FORICARDT PZRA 200)	1
ZT.2/1107	DRAWBAR (FORICARDT/AUTOBLOK)	1
ZT.2/1108	COLLET BACKPLATE (SMW 32)	1
1109	LOCKNUT (FORICARDT PZRA 200)	
1110	DRAWTUBE GAMET AX33.1 - GAMET TYPEA 100	
ZT2/1111	A2-5 BACKPLATE (R.LEADER LPC-40/2032)	
ZT2/1112	PNEUMATIC BACKPLATE	
ZT2/1113	CHUCK BACKPLATE (PRATT 1871-31710)	1
ZT2/1114	CHUCK BACKPLATE (KITAGAWA B-206A5)	1
ZT2/1116	ADJUSTING RING	1

DESCRIPTIONMANUFACTURER & REFCOMPUTER No.QTY.

FILTER REGULATOR
LUBRICATER
POWER CHUCK

NORGREN B11-200-M3MD
NORGREN L01-200-OPRD
PRATT 1740-01710
OR

BI 01130J
BI 01130I
BI 00014F

SOLENOID 3/2
ADAPTOR $\frac{1}{4}$ -8mm
TEE 8mm
ELBOW $\frac{1}{4}$ -8mm
SILENCER $\frac{1}{4}$ BSP
ADAPTOR $\frac{1}{4}$ - $\frac{1}{4}$
TUBE 8mm dia
BRA CKET
GAUGE
AIR LINE ADAPTOR
PRESSURE SWITCH

R.LEADER (150-40)
ENOTS 14-2135-50-110
" " 97-1530-11
" " 97-1514-05
" " 97-1114-11
S/S2
ENOTS 36-0633-02
8mm NYLON TUBE
NORGREN 18-001-990
" " " 18-013-013
SCHRADER 8050-11
ENOTS 04-0140-02-000
or R.S. 317-134

BI 01130H
BI 01129P
BI 01129Q
BI 01129T
BI 01129X
BI 01130D
BI 01130K
BI 01130L
BI 01451A
BI 01451R
BI 01451Y
317-134

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF.</u>	<u>COMPUTER NO.</u>	<u>QTY.</u>
OIL PUMP	INTERLUBE LF 1510-6840	55501120	1
ELBOW ADAPTOR	INTERLUBE LE 90587	55501123G	7
8 WAY JUNCTION	INTERLUBE 114819	55501123V	1
METER UNIT	INTERLUBE 1M 23	55501124	4
BLANKING PLUG	INTERLUBE LE.405	55501123N	3
BULKHEAD ADAPTOR	ENOTS 36 0508 02	55501123P	1
BULKHEAD LOCKNUT	ENOTS 36 0520 01	55501123Q	1
PIPE CLIP	ENOTS 34 0218 02	55501125	3
DOUBLE PIPE CLIP	ENOTS 34 0220 02	55501125A	3
NYLON PIPE	ENOTS 135131	55501126F	4M
COPPER PIPE (4mm X 0.6)	YORKSHIRE IMPERIAL	55501123J	0.25M

ZEROTURN

TURRET COOLANT.

ZT2/1300.

ZT2/1301
1302A

TURRET COOLANT BODY
TOOL SLEEVE HOLDER

AC2/1302
1303

TURRET COOLANT PISTON
PISTON SEAL HOUSING

SEAL

GACO MI 062100 $\frac{3}{16}$ "

O RING

ANGUS: ~~R2037/BS 012~~ R 3037 BS 110

SPRING

L3795A

B1 01416A

ZEROTURN

PARTS CATCHER
(DOOR FLAP TYPE)

ZT2/1400

ZT2/1401	DROP PLATE	
1402	RH SIDE PLATE	
1403	LH SIDE PLATE	
1404	DOOR CONTAINER	
1405	PIVOT PIN	
1406	DRIVE BUSH	

DESCRIPTION.

90° ACTUATOR.

MANUFACTURER & REF.

KINETROL : 020-100

COMPTEN:

QTY
1

ZEROTURNPARTS CATCHER (BUCKET TYPE)ZT2/1450

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
ZT2/1451	BEARING HOUSING	2
1452	DRIVE SHAFT	1
1453	SUPPORT BUSH	1
1454	ARM SUPPORT	1
1455	SPIGOT	1
1456	ARM	1
1457	SLEEVE	1
1458	BUCKET ARMS	2
1459	BUCKET	1
1460	ROD SUPPORT	1
1461	ROD	1
1462	DRIVE ARM	1
1463	COLLECTION BIN	1
1464	COLLECTION BIN LID	1
1465	COLLAR	2

AC2/1505	PIVOT BUSH	2
1506	SPIGOT	1
1513	LINK	1
1514	WASHER	2

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF.</u>	<u>COMPUTER No.</u>	<u>QTY</u>
AIR CYLINDER	ENOTS 60-2020-00-100	BI 01128J	1
SPRING		BI 01415C	2
STEEL BALL	3/16" DIA.		2

ZT2/1501
1502
1503

PROBE MOUNTING BKKT
PROBE MOUNT.
GUARD RING.

SK. 990

MODIFICATION TO LATHE BED.

RENISHAW PARTS

A/2048/0503	REAR EXIT BASE
A/2048/0616	ARM
A/2048/0500	TS 20 PROBE
A/2048/0521	PROBE HOLDER
A/2048/0513	WRIST JOINT,

6/10/89.

ZERO TURN

TURRET PROBE

ZT2/1550

ZT2/1551

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TURRET PROBE SLEEVE

INTERFACE COVER

INTERFACE PLINTH

RENISHAW PARTS

A - 2030-0576

A - 2033-0830-01

A - 2063-6098

A - 2033-0146

A - 2033-6634

A - 2030-0121

A - 2063-7600

A - 5000-7577

A - 4012-0486

M - 5000-7587

OMM

MAINTING BRACKET

LP2 PROBE

INTERFACE (M14/SSR)

PROTECTION KIT

LT02 OMP

RIGHT ANGLE ADAPTOR

CRANKED STYLUS

PAPER TAPE SOFTWARE

STYLUS SCREW

See

ZT 2/1550 OMM SETTING DIAGRAM.

ZERO TURNNAMEPLATES

ZT 2/2000

CH 267D -	SPECIFICATION PLATE	1
CH 357 -	LUBRICATION PLATE	1
CH 269 -	ELECTRICAL WARNING	4
CH 363 -	AIR SUPPLY	1
CH 407B -	OPERATORS PANEL	1
CH 438 -	'DENFORD' NAMEPLATE	1
CH 441 -	TOOL NUMBERS	1 set
CH 444 -	CHUCK FOOT SWITCH	1
CH 445 -	AUXILIARIES	1
CH 446 -	AXIS LIMIT SWITCH OVERRIDE	1
CH 450 -	"ZERO TURN" LETTERS	1 set