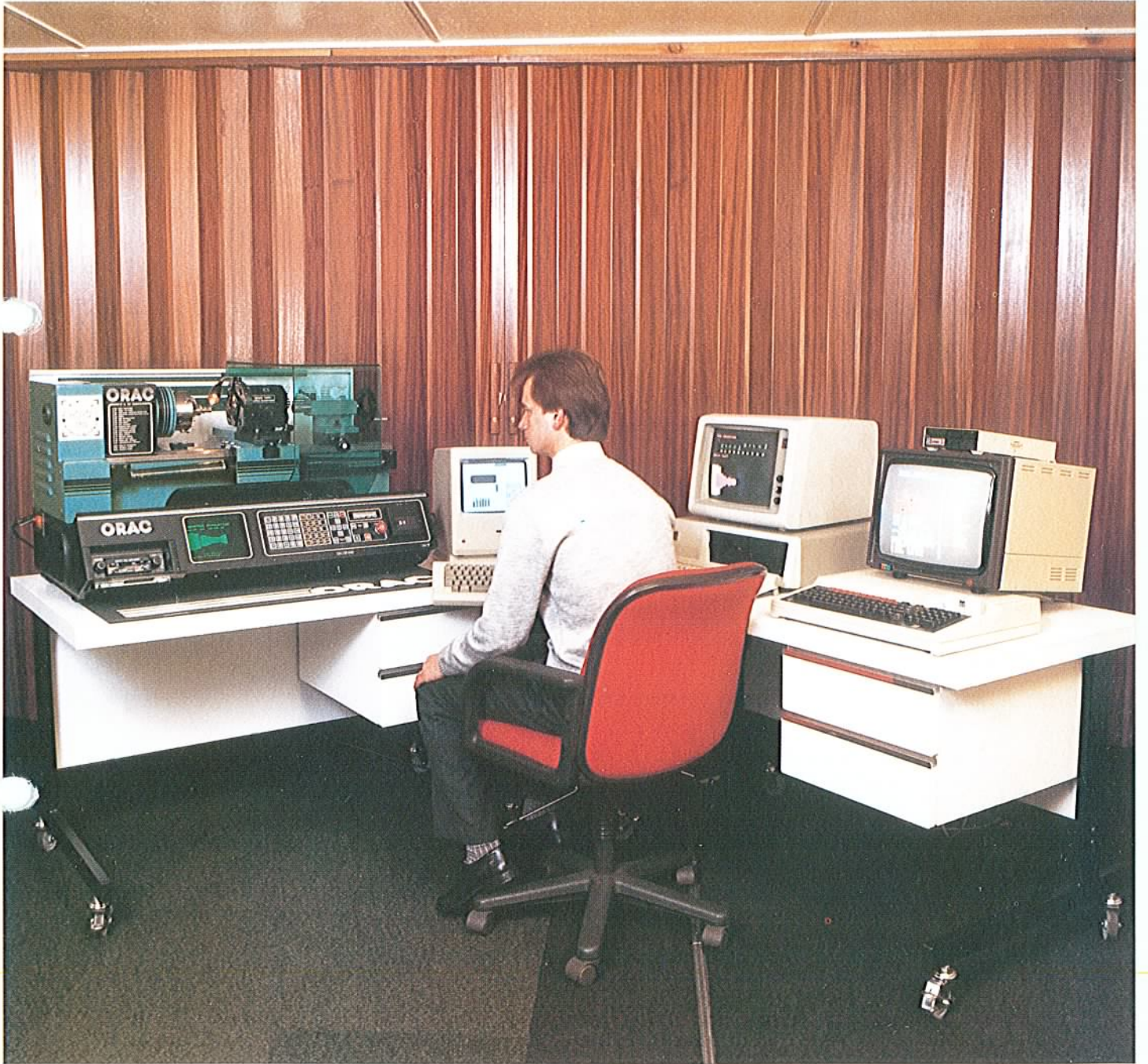


DENTIFORD ORAC



DENTIFORD

MACHINE TOOLS

DENFORD

ORAC

Computer Numerically Controlled (CNC) British built Bench Training Lathe.

ORAC manufactured by Denford Machine Tools is a CNC Lathe designed specifically for technical training. ORAC incorporates the latest micro-processor using a visual display unit ALLOWING FOR VERIFICATION OF PROGRAMS USING TOOL PATH GRAPHICS, with an audio cassette deck instructing step by step programming. An RS232C link will interface ORAC to printers, paper tape punch units and computers.

GENERAL SPECIFICATIONS

CNC CONTROL SYSTEM

1. Self contained Console.
2. Green on Black 5" V.D.U. with outlets to external T.V. and Monitor with facility for Tool Path Graphics.
3. Touch Tone Alpha Numeric Keyboard allowing full manual data input.
4. Mini Magnetic Cassette Unit for multi-program and tool offset storage.
5. RS232C Interface, for connection with computers, paper tape punch units and printers, etc.
6. Axis Jog on both axes with fast, slow and 0.01 mm increments.
7. Programmable Feedrate 0-1200 mm/min (48 inch/min).
8. Programmable Spindle Speed 0-2000 rpm.
9. Feedrate and Spindle Speed Override.
10. Linear Interpolation with vectorially correcting Feedrates.
11. Circular Interpolation.
12. Absolute/Incremental, Inch/mm programming throughout program.
13. Manual Program Stop.
14. Do-Loop facility allowing canned cycles for turning, facing, pecking and grooving.
15. Sub-routine facility.
16. Screwcutting from 0.35-3.5 mm Pitch 8.70 TPI.
17. Floating Program Datum.
18. 160 Block Memory.
19. Tool Offsets for up to 10 tools with tool wear compensation.
20. Edit with search facility.
21. Single step execution.
22. Programmable Dwell 0-99 secs.
23. 4 Auxiliary Outputs.
24. 4 Programmable Inputs.
25. System Resolution 0.01 mm (0.0004").

SAFETY FEATURES

Key Operated Isolator Switch, Membrane Keyboard, Chuck Guard, Axes Limit Switches - (adjustable on Z Axis), Electronic Shear Key built into spindle Controller, Diagnostic Fault Finder.

MECHANICAL

Swing Over Bed	200 mm (8")
Swing Over Cross-slide	115 mm (4 $\frac{1}{2}$ ")
Distance between Centres	400 mm (15 $\frac{3}{4}$ ")
Spindle Speed (Stepless)	0-2000 rpm
Spindle Bore	20 mm ($\frac{13}{16}$ ")
Spindle Taper	No. 3
Tailstock Taper	No. 2
Tapers	20:1 - 1:20
Radii	2 mm to 3000 mm
Bed	Hardened and Ground Ways
X Axis Ballscrew	8 mm dia. 2.5 mm Pitch
Z Axis Ballscrew	16 mm dia. 5 mm Pitch
Toolpost - Quick Change with repeatability 0.0001", 40 different locations.	
Mechanical Resolution	0.01 mm (0.0004")
Machine Dimensions:-	
Length 920 mm (36")	Width 560 mm (22")
Height 540 mm (21")	Weight 140 Kilos (310 lbs)

ELECTRICAL

50 Hz - 1 phase 240 volts
 60 Hz - 1 phase 220 volts
Spindle Motor
 $\frac{1}{2}$ H.P. A.C. 0.37 kw 380-420 V 1.3 A incorporating A.C. Frequency Changer.
Axes Motors
 Stepper Motors - 200 steps/Rev D.C. 2.9 V 3.1 A.

STANDARD EQUIPMENT

RS232C Link, Quick Change Toolpost and Holder, Self Centring 3 Jaw Chuck, Set of Outside Jaws, Installation, Maintenance and Instruction Manual, Spare Parts List, Map Light, Audio Cassette Deck and Headphone Outlet, Audio Instruction Tape, Video Instruction Film, Co-Axial T.V. Socket for V.D.U., Lathe Maintenance Tools, Mini Magnetic Cassette for Program Storage, Test Program with Component, Operator Training.

EXTRA EQUIPMENT

A Full Range of Optional Equipment and Accessories are available including: Printers, Plotters, Computers, Software for Apple IIe, BBC Acorn and IBM Micro Computers, Paper Tape Punch Readers and Porta Progs.



O R A C

A
C.N.C. BENCH
TRAINING
LATHE



DENFORD

COMPUTERISED MACHINES AND SYSTEMS

ORAC

ORAC incorporates the latest micro-processor using a visual display unit ALLOWING FOR VERIFICATION OF PROGRAMS USING TOOL PATH GRAPHICS, with an audio cassette deck instructing step by step programming. An RS.232C link will interface ORAC to printers, paper tape punch units and computers.

GENERAL SPECIFICATIONS

C.N.C. CONTROL SYSTEM

1. Self contained Console.
2. Green on Black 7" V.D.U. with outlets to external T.V. and Monitor with facility for Tool Path Graphics.
3. Touch Tone Alpha Numeric Keyboard allowing full manual data input.
4. Mini Magnetic Cassette Unit for multi-program and tool offset storage.
5. RS.232C Interface, for connection with computers, paper tape punch units and printers, etc.
6. Axis Jog on both axes with fast, slow and 0.01 mm increments.
7. Programmable Feedrate 0-1200mm/min (48inch/min).
8. Programmable Spindle Speed 0-2000r.p.m.
9. Feedrate and Spindle Speed Override.
10. Linear Interpolation with vectorially correcting Feedrates.
11. Circular Interpolation.
12. Absolute/Incremental, inch/mm programming throughout program.
13. Manual Program Stop and re-start facility.
14. Do-Loop facility allowing canned cycles for turning, facing, pecking and grooving.
15. Sub-routine facility.
16. Screwwcutting from 0.35-3.5mm Pitch 8-70 TPI.
17. Floating Program Datum.
18. 160 Block Memory.
19. Tool Offsets for up to 10 tools with tool wear compensation.
20. Edit with search facility.
21. Block search facility allowing a program to be executed from a specified block.
22. Programmable Dwell 0-99 secs.
23. 4 Programmable Auxiliary Outputs.
24. 4 Programmable Inputs.
25. System Resolution 0.01 mm (0.0004").

MECHANICAL

Swing Over Bed	200mm (8")
Swing Over Cross-slide	115mm (4½")
Distance between Centres	400mm (15¾")
Spindle Speed (Stepless)	0-2000 r.p.m.
Spindle Bore	20mm (13/16")
Spindle Taper	No. 3
Tailstock Taper	No. 2
Tapers	20:1 - 1:20
Radii	2mm to 3000mm
Bed	Hardened and Ground Ways
X Axis Ballscrew	8mm dia. 2.5mm Pitch
Z Axis Ballscrew	16mm dia. 5mm Pitch
Toolpost - Quick Change with repeatability 0.0001",	
40 different locations.	
Mechanical Resolution	0.01 mm (0.0004")

Machine Dimensions:-
Length 920mm (36"), Width 560mm (22"), Height 540mm (21"), Weight 140kgs (310lbs).

ELECTRICAL

50Hz - 1 phase 240 volts.
60Hz - 1 phase 220 volts.
Spindle Motor:
½H.P. A.C. incorporating
A.C. Frequency Changer.
Axes Motors:
Stepper Motors - 200 steps/Rev D.C.

STANDARD EQUIPMENT

RS.232C Link, Quick Change Toolpost and Holder, Self Centering 3 Jaw Chuck, Set of Outside Jaws, Installation, Maintenance and Instruction Manual, Spare Parts List, Map Light, Audio Cassette Deck and Headphone Outlet, Audio Instruction Tape, Video Instruction Film, Co-Axial T.V. Socket for V.D.U., Lathe Maintenance Tools, Mini Magnetic Cassette for Program Storage, Test Program with Component, Operator Training.

EXTRA EQUIPMENT

A full range of optional equipment and accessories are available including: Printers, Plotters, Computers, off line programming Software for Apple IIe, BBC Acorn and IBM P.C. and 100% compatibles, Paper Tape Punch Readers, CAD CAM packages for BBC, IBM and Nimbus and interface with Denford FMS.

SAFETY FEATURES

Key Operated Isolator Switch, Membrane Keyboard, Chuck Guard, Axes Limit Switches - (adjustable on Z Axis), Electronic Shear Key built into spindle Controller, Diagnostic Fault Finder. Toolpath Graphics Facility for check programs prior to machining.

CAD/CAM SOFTWARE

For IBM P.C. and 100% compatibles.
- Auto CAD, Auto CAM.
For BBC computers.
- EASICAD, EASICAM - Compas Starter/Cam.
For Nimbus Computers.
- Compas Designer, Auto CAM.
- Auto CAD, Auto CAM.

HAS BEEN
DESIGNED
SPECIFICALLY
FOR TECHNICAL
TRAINING



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

DENFORD

COMPUTERISED MACHINES AND SYSTEMS

ORAC

PARTS ILLUSTRATIONS

HEADSTOCK & SPINDLE	AC 100/100
BED & SADDLE DRIVE	AC 100/200
SADDLE & CROSS SLIDE DRIVE	AC 100/300
TOP & SWIVEL SLIDE	AC 100/400
SPINDLE DRIVE	AC 100/500
CABINET & SLIDING GUARD	AC 100/600
TAILSTOCK	AC 100/700
TRANSFORMER BOX	AC 101
POWER CHUCK	AC 103
ROBOT ATTACHMENT	AC 104
INTERLOCKING GUARD	AC 105
COLLET ATTACHMENT	AC 107
NAMEPLATES	AC 100/2000
QUICK CHANGE TOOLPOST	TP 100
INDEXING TOOLPOST	TP 110

DENFORD MACHINE TOOLS LIMITED.

<u>'ORAC'</u>	<u>HEADSTOCK & SPINDLE AC. 100/100.</u>	<u>No. OFF.</u>
AC. 100/101	HEADSTOCK	1
102	MAIN SPINDLE	1
103	GREASE RETAINING PLATE	2
104 A	SPINDLE END TUBE	1.
105	GREASE CAP	2
106	SPINDLE END TUBE NUT	1.
107	Chuck Guard Spigot	1.
108 A	Chuck Guard	1
109	HEADSTOCK PLATE	1

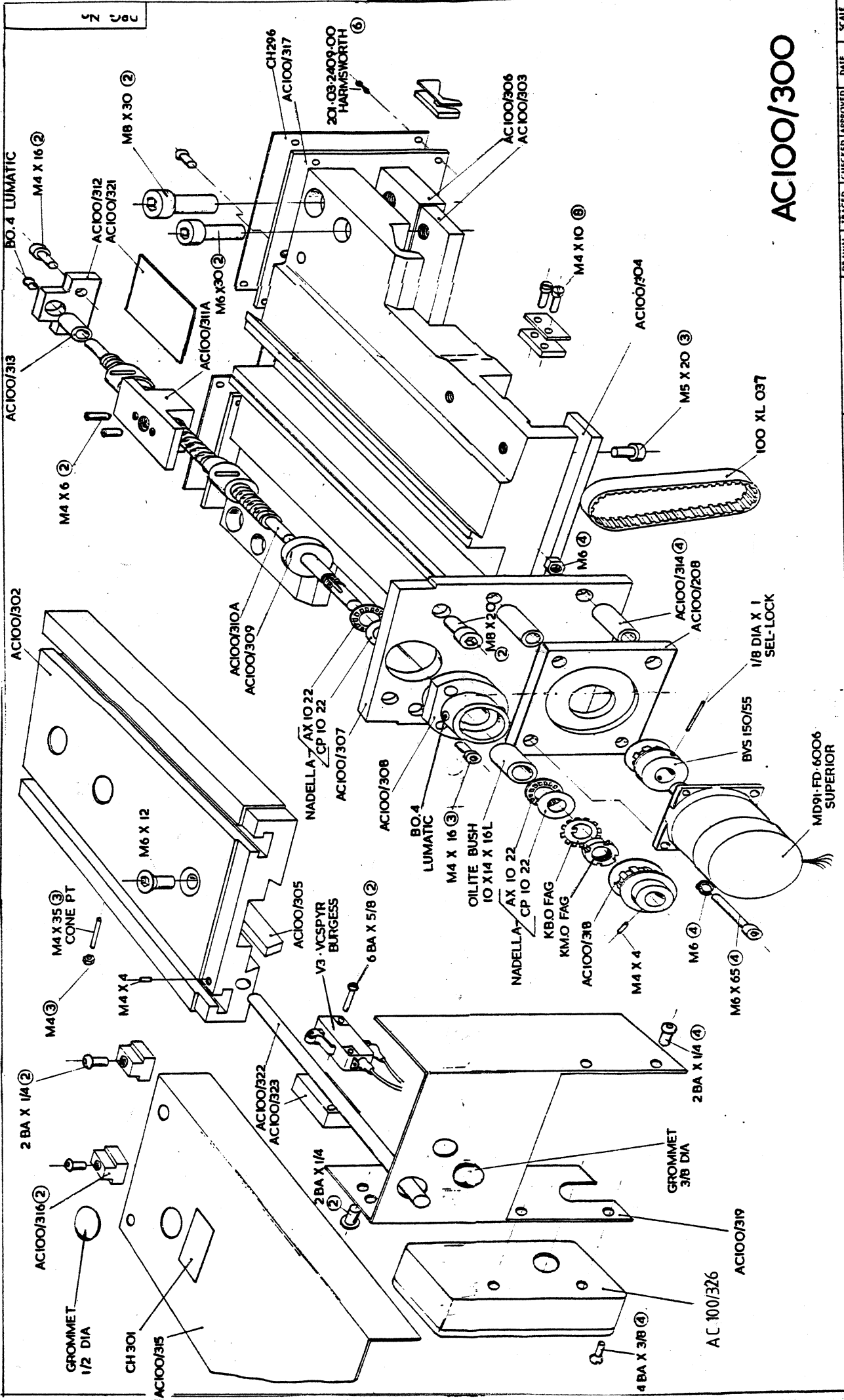
<u>DESCRIPTION</u>	<u>MANUFACTURER</u>	<u>REF.</u>	<u>NO. OFF</u>
TAPER ROLLER BEARINGS	FAG	320 07X	2
LOCKNUT	FAG	KM 7	1 .
TAB	FAG	MB. 7	1 .
GREASE NIPPLES	LUMATIC	HDFY4/45	2 .
BUTTON HEADS		M4x6	4 .
HEX NUT		M8	4 .
WASHER		M8	4 .
GRUB SCREW		2BA x $\frac{1}{4}$ Dog PT	4 .
SPRING WASHER		M8	4 .

'ORAC'	BED & SADDLE DRIVE.	AC. 100/200	No. OFF.
	BED		1
AC.100/201	SADDLE BALLSCREW		1
202	BALLNUT HOUSING		1
203 B	BEARING HOUSING		1
204	END SUPPORT BLOCK		1
205	CENTERING FLANGE		1
206	CENTERING FLANGE		1
207	MOTOR PLATE		1
208	MOTOR PLATE SPACER		4
209			
210			2
211 A	BED WASHER		
212	30T PULLEY		1
213 A	ADJUSTABLE SADDLE STOP		1
214	SADDLE STOP PLUNGER		1
215	SADDLE STOP CLAMP PLATE		1
216	PLUNGER HEAD		
CH. 267	SPECIFICATION PLATE		1
BVS150/55	12T PULLEY		1
BVS160/68	BED END STOP		1

DESCRIPTION	MANUFACTURER	REF.	NO. OFF.
STEPPING MOTOR	ELECTRONIC DYNAMICS LTD	MHY 200 3424 310 A8	1
			1
BALL NUT "	HBC	1605 FS	2
BEARING	FAG	7201 B	2
BEARING	FAG	6200 2RS	1
LOCKNUT	FAG	KM 1	1
TABWASHER	FAG	MB 1	1
TIMING BELT UNIROYAL	UNIROYAL	100 XL 037	1
SPRING COVERS	CROMAR	SF 25/500/40	2
SKT CAP HEAD		M8 x 50	5
" " "		M8 x 30	2
" " "		M8 x 10	1
" " "		M6 x 40	4
" " "		M6 x 20	3
" " "		M8 x 45	2
SET SCREW		M5 x 5 CONE POINT	2
GRUB SCREW		M8	2
WASHER		3 x 3 x 15	1
KEY		201-03-2409-80	4
RIVETS (BLACK)	HARMSWORTH	AL3010	1
DISC SPRING	ANDERTON		

AC. 100/301	SADDLE	1
302	CROSS SLIDE	1
303	SADDLE FRONT GIB STRIP	1.
304	SADDLE REAR GIB STRIP	1.
305	CROSS SLIDE GIB STRIP	1
306	ADJUSTING STRIP	1.
307	REAR DRIVE BRACKET	1.
308	BEARING HOUSING	1.
309	SPINDLE ADAPTOR	1.
310A	CROSS SLIDE BALLSCREW	1.
311A	BALL SCREW HOUSING	1.
312	FRONT SUPPORT PLATE	1.
313	BUSH	1.
314	MOTOR PLATE SPACER	4.
315	CROSS SLIDE COVER	1.
316	TEE NUT	2.
317	APRON PLATE	1.
318	15T PULLEY	1.
319	DRIVE GUARD	1.
320		
321	SADDLE FILL IN PLATE	1.
322	TRIP ROD	1.
323	MICRO SWITCHSPACER	1.
324	APRON END CAPS (LH & RH)	1 SET.
325	MICRO-SWITCH BEZEL	1.
326	JUNCTION BOX	1.
208	MOTOR PLATE	1.
CH. 296	APRON COVER PLATE	1.
CH. 301	LUBRICATION PLATE	1.

DESCRIPTION	MANUFACTURER	REF.	NO. OFF
STEPPING MOTOR	CETRONIC DYNAMICS LTD	MHY 200 3424 310A8	1.
TIMING BELT	UNIROYAL	100 XL 037	1.
THRUST BEARING	NADELLA	AX 10 22	2.
THRUST PLATE	NADELLA	CP 10 22	2.
OILITE BUSH	MANGANESE BRONZE	10 x 10 x 16L	1.
LOCKNUT	FAG	KM. 0	1.
TAB WASHER	FAG	MB. 0	1.
OILER	UNIMATIC	B 0 4	2.
MICRO SWITCH	BURGESS	V3 SERIES VCSPYR	1.
TERMINAL BOX	RADIO SPARES (AC.100/326)	509-939	1.
GRUMET	PRESTIGE	1/2 DIA	1.
SKT CAP HEAD		M6 x 65	4.
" " "		M6 x 30	2.
" " "		M5 x 20	3.
" " "		M4 x 16	2.
" " "		M4 x 10	5.
SKT C/SUNK		M4 x 12	1.
" "		M4 x 6	4.
" CAP HEAD		M8 x 20	2.
BUTTON HEAD		2BA x 1/4	12.
GRUB SCREW		M4 x 35 CONE POINT	3.
" "		M4 x 4 DOG POINT	4.
HEX NUT		M4	3.
" "		M6	4.
RIVETS	HARMSWORTH	201-03-2409-00	6.
SPRING WASHER		M6	4.
MICRO SWITCH	BURGESS	V3 SERIES QVCF9D	1

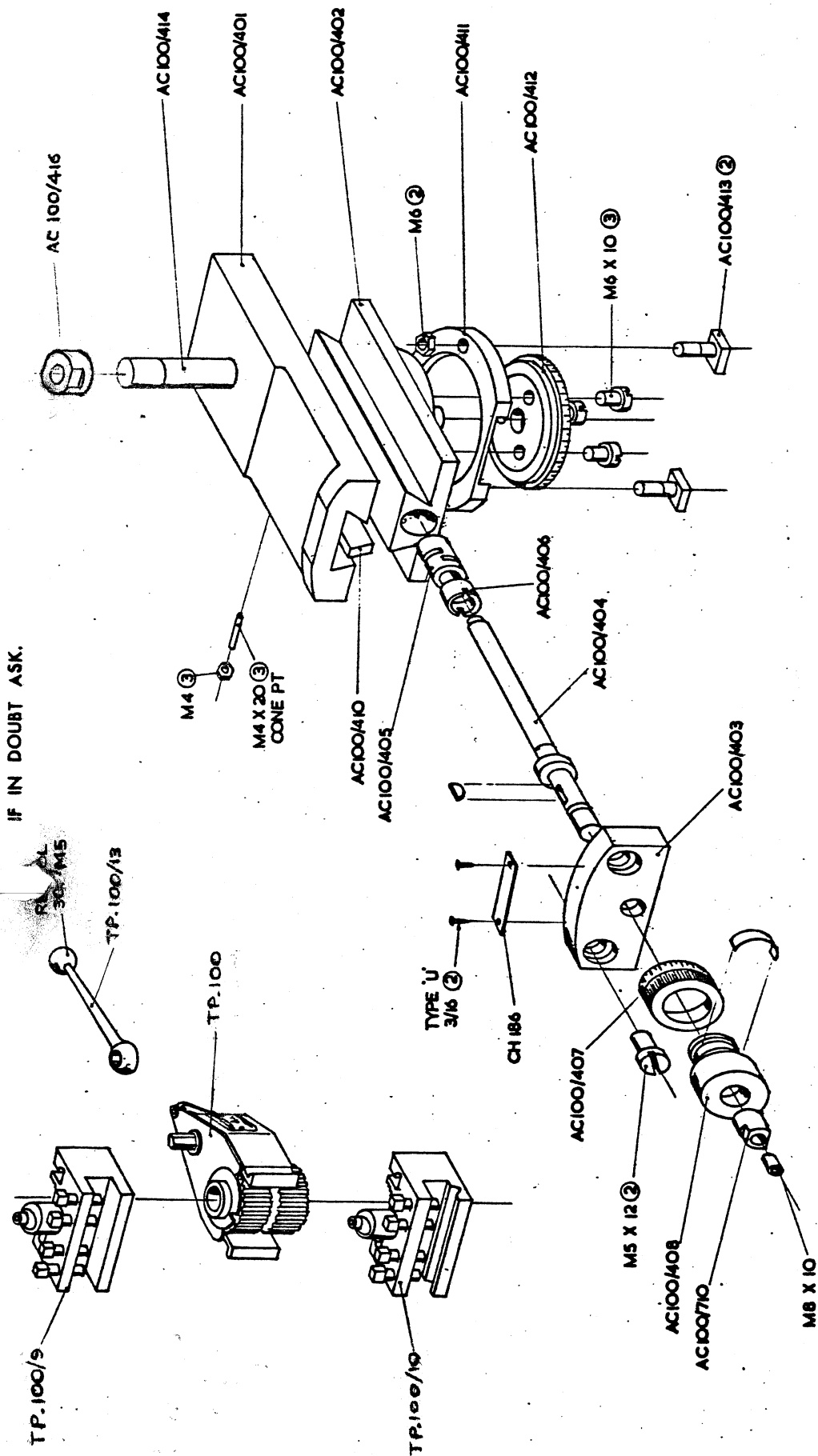


AC100/300

ALTER 30518 16/12/83 DESCRIPTION ALTERATIONS		DRAWN #1	TRACED	CHECKED	APPROVED	DATE 23/12/82	SCALE
MATL. SPEC. No. REQ. MACHINE AT 10 GRID AT 10		LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED. ALL DIMENSIONS IN MILLIMETERS. FRACTIONAL: 1/16" 3 PLACE DECIMAL + 005 DECIMAL: 0.001" 4 PLACE DECIMAL + 0001					
DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.							

<u>'ORAC' TOP SLIDE, SWIVEL & TOOLPOST</u>		<u>AC. 100/400</u>	<u>NO. OFF</u>
AC.100/401	TOP SLIDE		1
402	SWIVEL SLIDE		1
403	TOP SLIDE END PLATE		1
404	TOP SLIDE SCREW		1
405	FEED NUT		1
406	FEED NUT RETAINING SCREW		1
407	FEED DIAL		1
408	TOP SLIDE HANDWHEEL		1
409			
410	GIB STRIP		1
411	CLAMPING COLLAR		1
412	GRADUATION PLATE		2
413	TEE BOLT		1
414	TOOLPOST STUD		1
415	NO. 2 MT SOCKET ADAPTOR		1
416	TOOLPOST CLAMP NUT		1
710	ADJUSTMENT SLEEVE		

<u>DESCRIPTION</u>	<u>MANUFACTURER</u>	<u>REF.</u>	<u>NO. OFF</u>
TOOLPOST	HAHN & KOLB	TYPE 'AA'	1
TOOLHOLDER	HAHN & KOLB	TYPE AAD 1250	1
HEX LOCKNUT		M10	1
HEX NUT		M6	2
" "		M4	3
CHEESE HEAD SCREW		M6 x 10	3
GRUB SCREWS		M4 x 20 CONE POINT	3
RIVETS (BRASS)	G.K.N.	TYPE 'U' - 3/16	2



AC100/400

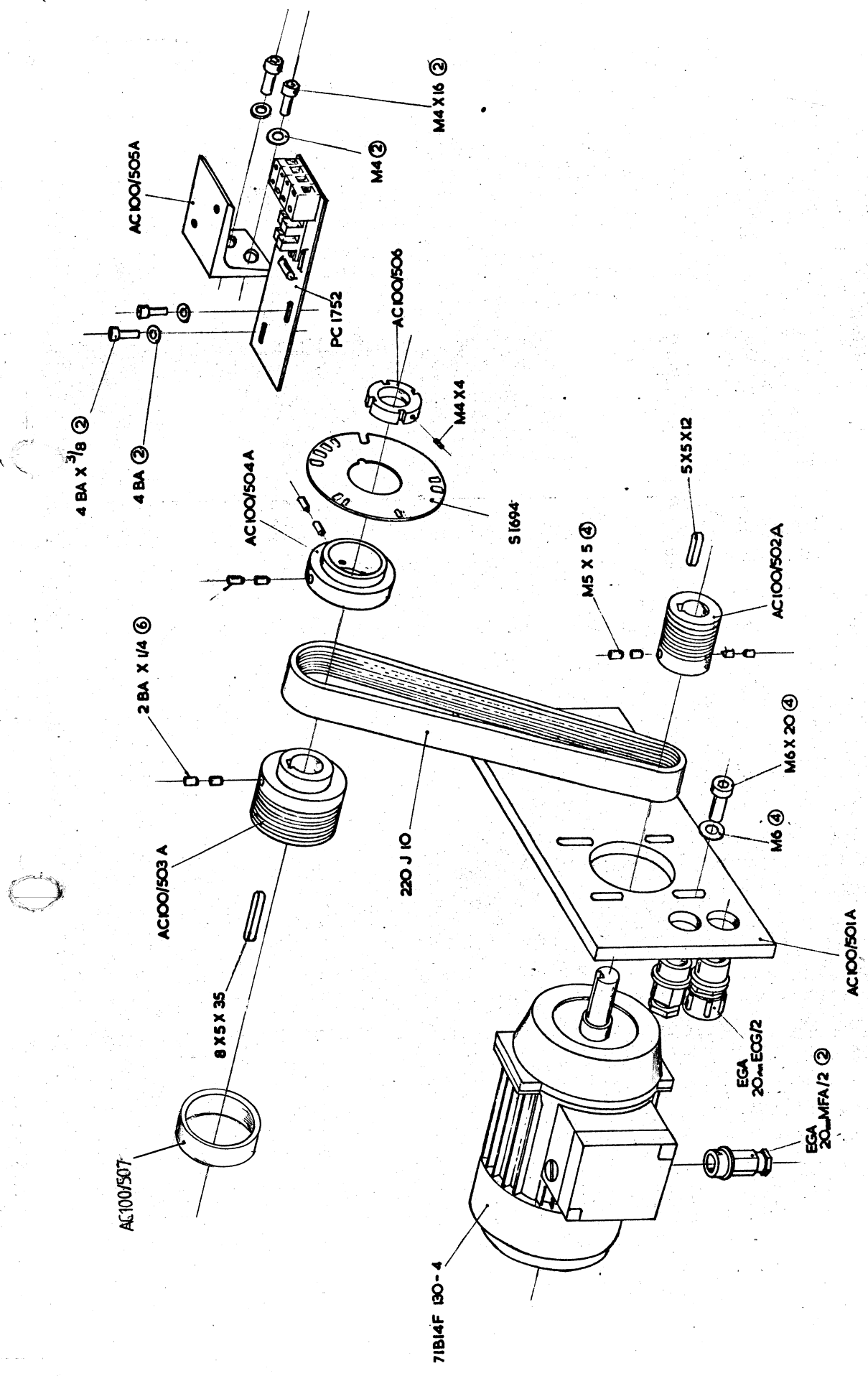
DRAWN		TRACED		CHECKED		APPROVED		DATE	
LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.									
ANGULAR ± 1° 3 PLACE DECIMAL ± .005°									
RATIONAL ± .001" 4 PLACE DECIMAL ± .0005"									
MATERIAL									
MATERIAL SIZE									
MATERIAL SPEC.									
MACHINE AT									
GRIND AT									
DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.									
ORAC - TOP SLIDE SWIVEL & TOOL POST									
ALTERATIONS									
DESCRIPTION									
DATE									

DRAWING No.

'ORAC' SPINDLE DRIVE AC. 100/500 NO. OFF

AC. 100/501A	SPINDLE DRIVE PLATE	1.
502A	MOTOR PULLEY	1.
503A	MAIN SPINDLE PULLEY	1.
504A	SPINDLE TRANSDUCER DISC	1.
505A	SPINDLE SENSOR BRACKET	1.
506	LOCKNUT	1
507	SPINDLE PULLEY SPACER	1

DESCRIPTION	MANUFACTURER	REF.	NO. OFF
DRIVE MOTOR	ASEA	MT 71 B1 4F 130-4	1.
DRIVE BELT		POLY 'V' J10220	1.
COMPRESSION GLAND	EGA	20mm ECG/2	1.
STRAIGHT ADAPTOR	EGA	20mm MFA/2	1.
KEY		8 x 5 x 35 LONG	1.
KEY		5 x 5 x 12 LONG	1
SKT CAP HEAD		M6 x 20	4.
GRUB SCREW		M5 x 5 PLAIN CUP	2.
" "		2BA x $\frac{3}{8}$ " " "	1.
" "		2BA x $\frac{1}{4}$ " " "	2.
WASHER		M6	4.
SKT CAP HEAD		M8 x 20	4.
SPRING WASHER		M8	4.
SKT CAP HEAD		M4 x 16	2.
" " "		6BA x $\frac{3}{8}$ "	2.



AC100/500

FROM AUG 53	NO. APP'D	DATE	SCALE
DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.			
LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.		MATERIAL	
ANGULAR ± 1° 3 PLACE DECIMAL ± .005		MACHINE AT W	
FRACTIONAL ± .010 4 PLACE DECIMAL ± .0005		GRIND AT G	
DRAWN	TRACED	CHECKED	APPROVED
DRAWING No.			

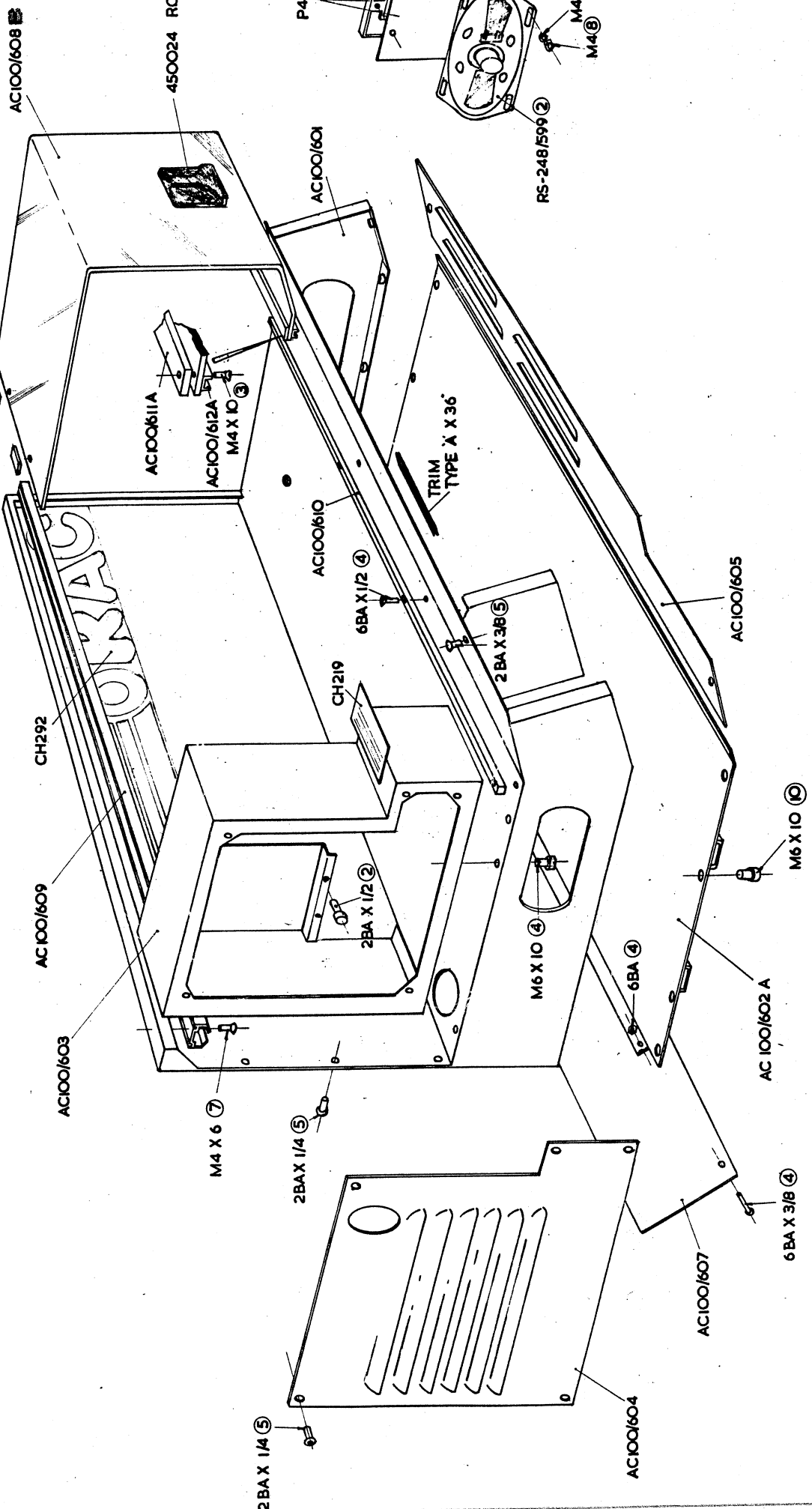
'ORAC'CABINET AND SLIDING GUARDAC.100/600

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
AC.100/601A	CABINET	1
602A	CABINET BASE	1
603	END DRIVE HOUSING	1
604	END DRIVE COVER	1
605	VENTILATION PANEL	1
606A		
607	REAR DOOR	1
608B	SLIDING GUARD	1
609	TOP SLIDING RAIL	1
610	BOTTOM RAIL	1
611A	GUARD CLAMP PLATE	1
612A	GUARD RETAINING CHANNEL	1
618	DIVIDING PANEL	1
621	CASSETTE FIXING PLATE	1
622	CASSETTE COVER PLATE	1
623	CASSETTE BRACKET	2

CH, 292	'ORAC' NAMEPLATE	1
304A	EARPHONE PLATE	1
305A	T.V. SOCKET PLATE	1
351	MAINS SUPPLY PLATE	1
438B	NAMEPLATE "DENFORD"	1
355	AUDIO TEACHING UNIT NAMEPLATE	1
419	TOOLPOST & EXT. MONITOR NAMEPLATE	1

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
SLIDING GEAR	APEX ENTERPRISE	55501430	1
SPEAKER	RADIO SPARES 248/599	248/599	2
SPEAKER GRILL	UNICAR 1-05.071	55501432	2
KNOB	ELESA VTR 40B MB	55501214	1
EARPHONE(EXTRA)	EAGLE SE 500N	55501442	1

IF IN DOUBT ASK.



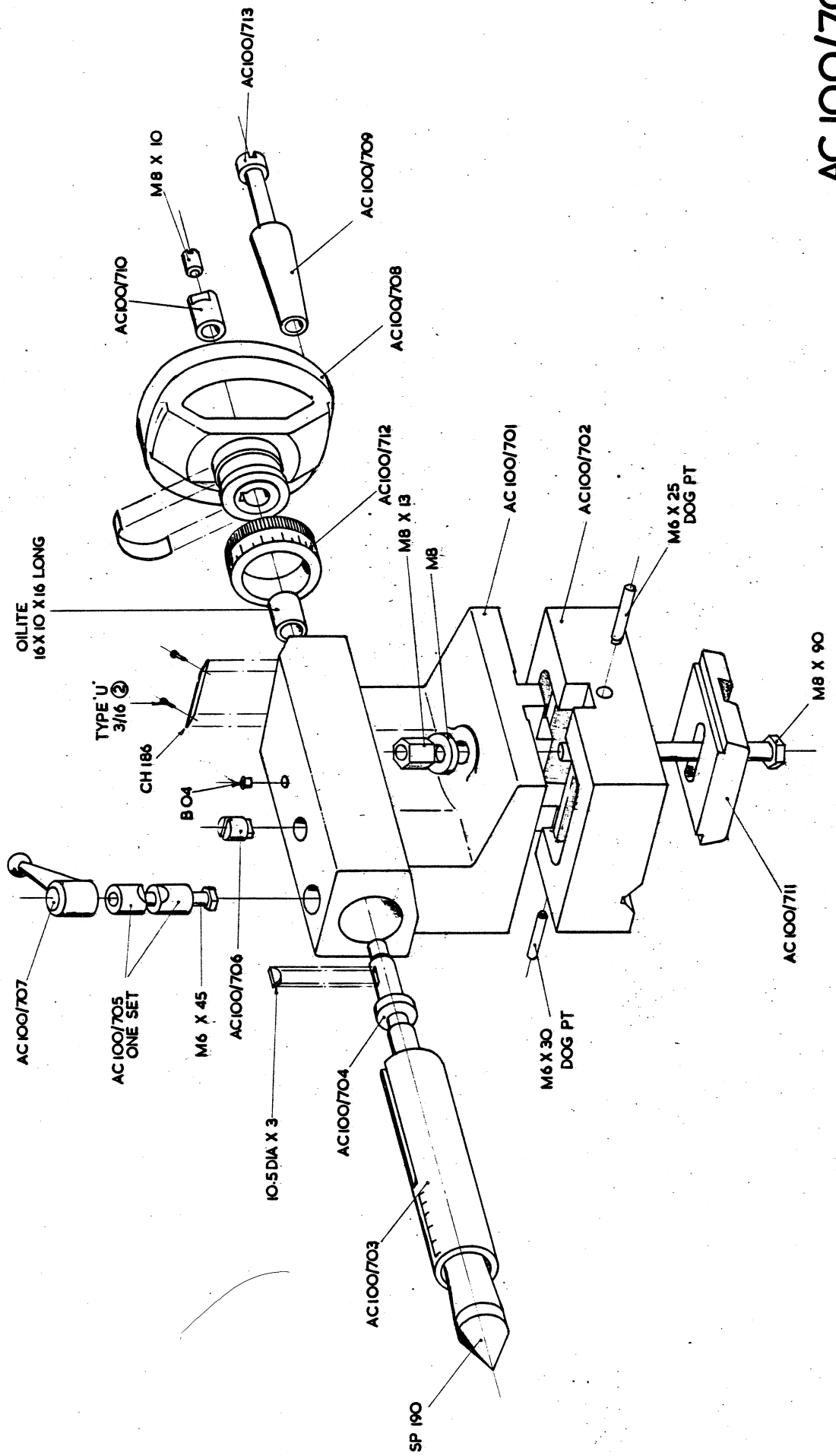
AC100/600

DESCRIPTION ALTERATIONS	Checked	Appd.	DATE
DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.			
LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED. ANGULAR ± 1' 3 PLACE DECIMAL ± .005' FRACTIONAL ± .000' 4 PLACE DECIMAL ± .0005'			
MATL.	DRAWN	TRACED	CHECKED
MATL. SIZE	N.		
No. BOD.			
MACHINE AT W			
GRIND. AT G.			
DRAWING No.		APPROVED	DATE
			12/10

'ORAC'	TAILSTOCK	AC. 100/700	NO. OFF
AC. 100/701	TAILSTOCK BODY		1
702	TAILSTOCK SHOE		1
703	TAILSTOCK BARREL		1
704	BARREL SCREW '		1
705	BARREL CLAMPS		1 SET
706	BARREL KEY		1
707	CLAMP LEVER		1
708	TAILSTOCK HANDWHEEL		1
709	HANDWHEEL HANDLE		1
710	ADJUSTMENT SLEEVE		1
711	TAILSTOCK CLAMP		1
712	DIAL		1
713	SHOULDER SCREW		1
SP. 190	NO. 2 SOFT CENTRE		1

DESCRIPTION	MANUFACTURER	REF.	NO. OFF
WOODRUFF KEY		10.5 Dia x 3	1
OILITE BUSH		16x10x10 Long	1
OILER	LUMATIC	BO4	1
SET SCREW		M8 x 90	1
SET SCREW		M6 x 45	1
GRUB SCREW		M6 x 25 DOG POINT	1
GRUB SCREW		M6 x30 DOG POINT	1
HEX NUT		M8 x 13 LONG	1
STD WASHER		M8	1
RIVETS (BRASS)	G.K.N.	TYPE 'U' - 3/16"	1

IF IN DOUBT ASK.



AC 100/700

DRAWN		TRACED	CHECKED	APPROVED	DATE	SCALE
MAIL		LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED		ANGULAR ± 1' 3 PLACE DECIMAL ± .005		FRACATIONAL ± .005 4 PLACE DECIMAL ± .0005
No. RECD.		MACHINE AT W		GRIND AT G		
DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.						
DESCRIPTION		ALTERATIONS		CHG. APPD		DATE

DRAWING No.

DENFORD MACHINE TOOLS LIMITED

CHANGED
12-10-89

PARTS LIST 'ORAC' TRANSFORMER

AC.101/1	TRANSFORMER BOX	1
2A	TRANSFORMER BOX LID	1
AC.100/211.A.	WASHER	1
CH.329C	PANEL PLATE	1
CH.398	CONNECTION NAMEPLATE	1
CH.399	TAPPINGS NAMEPLATE	1
CH.400	ALT. VOLTAGE NAMEPLATE	1

DESCRIPTION	MANUFACTURER	REF.	NO.
TRANSFORMER	I.L.P.	XA 0375	1
SWITCH	R.S.	338 - 529	1
FUSE HOLDER	R.S.	412 - 863	1
FUSE HOLDER	R.S.	412 - 021	1
STRAIN BUSH	R.S.	542 - 894	2
CABLE TIE BASE	R.S.	543 - 901	1
PLUG	R.S.	488 - 208	1
TERMINAL BLOCK	KLIPPON	2435-2	4
SCREWED ROD		M8 - 120 LONG	1
HEX NUT		STD. M8	2
SOCKET	R.S.	489-245	1
V.D.R.	F.E.C.	V275LA40A	1

PARTS LIST 'ORAC' TRANSFORMER

AC.101/1 2A	TRANSFORMER BOX	1
	TRANSFORMER BOX LID	1
AC.100/211.A.	WASHER	1
CH.329C	PANEL PLATE	1
CH.398	CONNECTION NAMEPLATE	1
CH.399	TAPPINGS NAMEPLATE	1
CH.400	ALT. VOLTAGE NAMEPLATE	1

DESCRIPTION	MANUFACTURER	REF.	NO.
TRANSFORMER	R.L.P.	B700431	1
SWITCH	R.S.	338 - 529	1
FUSE HOLDER	R.S.	412 - 863	1
FUSE HOLDER	R.S.	412 - 021	1
STRAIN BUSH	R.S.	542 - 894	2
CABLE TIE BASE	R.S.	543 - 901	1
PLUG	R.S.	488 - 208	1
TERMINAL BLOCK	KLIPPON	062012	1
SCREWED ROD		M8 - 120 LONG	1
HEX NUT		STD. M8	2
SOCKET	R.S.	489-245	1
V.D.R.	F.E.C.	V275LA40A	1

PARTS LIST 'ORAC' TRANSFORMER

AC.101/1 2A	TRANSFORMER BOX TRANSFORMER BOX LID	1 1
AC.100/211.A.	WASHER	1
CH.329C	PANEL PLATE	1
CH.398	CONNECTION NAMEPLATE	1
CH.399	TAPPINGS NAMEPLATE	1
CH.400	ALT. VOITAGE NAMEPLATE	1

DESCRIPTION	MANUFACTURER	REF.	NO.
TRANSFORMER	2kVA	8100374M	1
SWITCH	R.S.	338 - 529	1
FUSE HOLDER	R.S.	412 - 863	1
FUSE HOLDER	R.S.	412 - 021	1
STRAIN BUSH	R.S.	542 - 894	2
PLUG	R.S.	488 - 208	1
SOCKET	R.S.	489-245	1
V.D.R.	F.E.C.	V275LA40A	1

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
AC.103/1	MAIN SPINDLE	1
2	CHUCK BACKPLATE	1
3	SPINDLE PIPE BRACKET	1
CH 378	HEADSTOCK NAMEPLATE	1

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
CHUCK	R. LEADER	BI 00050	1
FILTER	MARTONAIR B06-101-AK2D	BI 01451	1
GAUGE	MARTONAIR 18-013-989	BI 01451A	1
BRACKET	MARTONAIR 18-001-053	BI 01451B	1
ELBOW	ENOTS 36-0511-04	BI 01451M	1
TUBING SLEEVE	ENOTS 36-0501-04	BI 01451Q	2
TUBING NUTS	ENOTS 36-0500-04	BI 01451P	2
ADAPTOR	ENOTS 97-1505-04	BI 01451E	4
BULKHEAD ADAPTOR	ENOTS 97-1508-04	BI 01451I	3
LOCKNUT	ENOTS 36-0520-03	BI 01451J	3
SOLENOID VALVE	ENOTS 14-1135-50-240	BI 01128G	1
CABINET	SAREL 8002	BI 00420	1
PANEL PLATE	SAREL 5202	BI 00420A	1
TAILPIECE ADAPTOR	ENOTS 36-0321-09	BI 01129S	1
NYLON TUBE	6mm Dia	BI 01110C	1

See AC 103C

<u>PART No</u>	<u>DESCRIPTION</u>	<u>QTY</u>
AC 104/ 1	BAR RACK BASE	1
2	BAR RACKS	3
3	GUARD PUSH	1
4	ROBOT JAWS	2

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No</u>	<u>QTY</u>
ROBOT ARM	MITSUBISHI RM-501 MOVEMASTER	55501814	1

'ORAC'

INTERLOCKING GUARD

AC 105

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
AC 105/1	KNOCK OFF SUPPORT BRACKET	1
2	KNOCK OFF	2
3	ROD SUPPORT BLOCK	2
4	ROD	1
5	BEARING HOUSING	2
6	STOP	1
7	TUBE ADAPTOR	
AC 100/608B	SLIDING GUARD	1
611A	GUARD CLAMP PLATE	1
615	BUNDY TUBE ADAPTOR	1

DESCRIPTION

MICRO SWITCH
TRACK
KNOB
TUBE
OILITE BUSH

MANUFACTURER & REF

BURGESS KB5EQR
WIDNEY 2012-FN X 35 $\frac{1}{2}$ "
ELESA VTR 40B M8
BUNDY 5/16" OD.X 13 $\frac{7}{8}$ "
MANGANESE BRONZE
 $\frac{1}{2}$ "X $\frac{5}{8}$ " X1"

COMPUTER No.

55500380
55501431
55501214

55500194B

QTY

1
1
1
1
2

ORAC

COLLET ATTACHMENT

A.C. 107

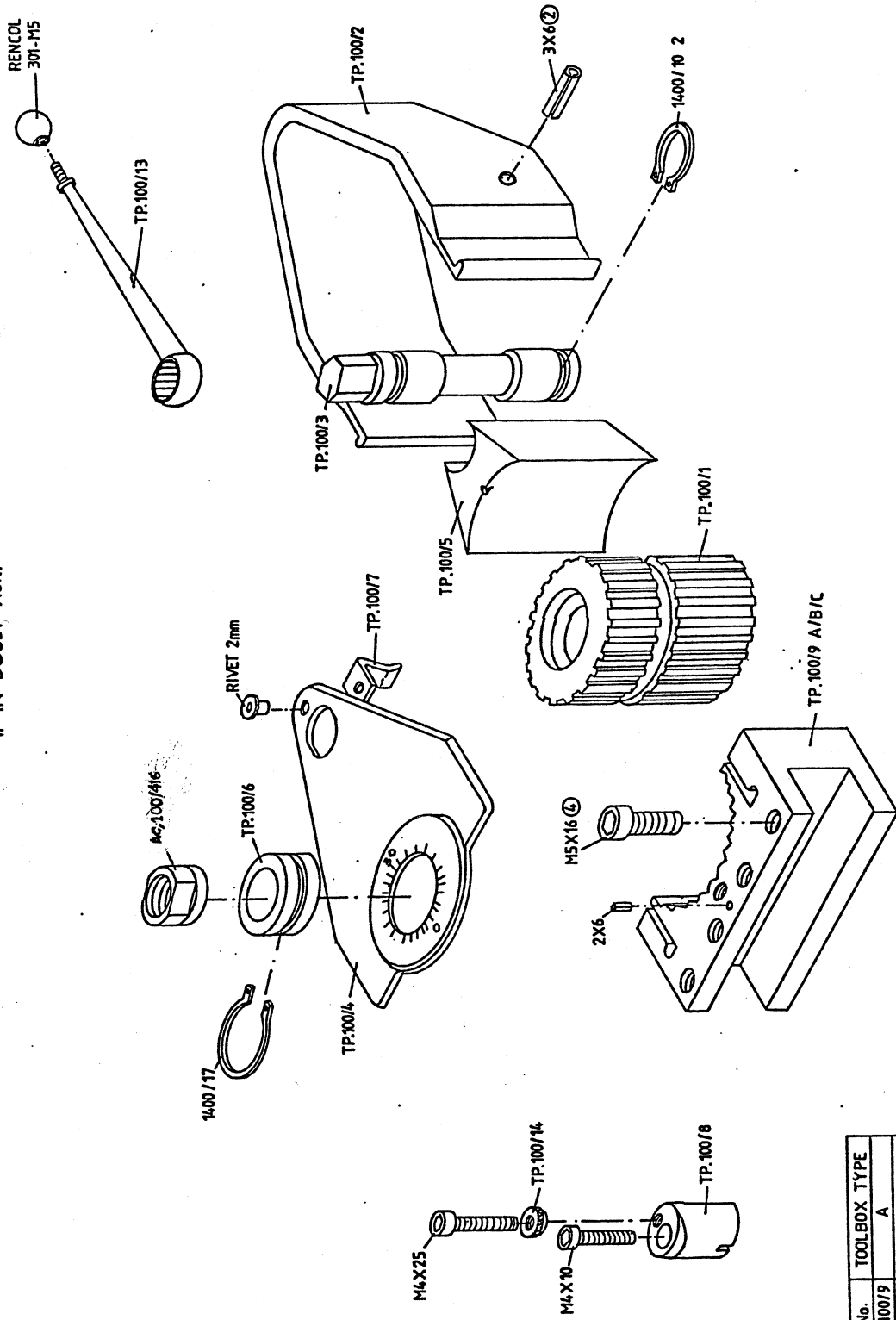
<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
AC 107/1	DRAWBAR	1
2	DRAWBAR EXTENSION	1
3	HANDWHEEL	1
ML 107/3	COLLET ADAPTOR	1

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
HANDWHEEL	RENCOL 325 (AC 107/3)	55501204	1
COLLET	327 0.125"	55500039	1
"	" 0.1875"	55500040	1
"	" 0.250"	55500041	1
"	" 0.3125"	55500042	1
"	" 0.375"	55500043	1
"	" 0.4375"	55500044	1
"	" 0.500"	55500045	1
"	" 3mm	55500039A	1
"	" 5mm	55500040A	1
"	" 6mm	55500041A	1
"	" 8mm	55500042A	1
"	" 10mm	55500043A	1
"	" 11mm	55500044A	1
"	" 12mm	55500045A	1

ORAC PROGRAMMABLE POWER CHUCK AC108

DESCRIPTION	MANUFACTURER AND REFERENCE	COMPUTER No	QUANTITY
CONTROL BOX	SAREL: 8002	55500420	1
BACK PLATE	SAREL: 5202	55500420A	1
SOLENOID VALVE	ENOTS: 03-8813-50-240 (2))		
SOLENOID VALVE	ENOTS: 02-650-00)	55500441	1
SOLENOID VALVE	ENOTS: 03-1703-00)		
AIRLOCK	LEADER	55500050B	1
AIR CHUCK	LEADER	55500050	1
REGULATOR, BRACKET FILTER AND GAUGE		55500050F	1
<u>APE FITTINGS</u>			
COMM PUSH FIT		55501451G	6
TEE PUSH FIT		55501451L	1
BULKHEAD ADAPTOR		55501451I	3
BULKHEAD LOCKNUTS		55501451J	3
ELBOW	ENOTS: 36055510	55501451K	1
TUBING SLEEVE	ENOTS: 36050104	55501451Q	2
TUBING NUT	ENOTS: 36050004	55501451P	2
COMM PIPE		55501110C	2 METRES
RELAY	RS 348-813	348-813	4
RELAY BASE	RS 402-153	402-153	4
SUPPRESSOR	RS 238-463	238-463	2
15 WAY PLUG	RS 466-185	466-185	2
15 WAY SOCKET	RS 466-214	466-214	2
RETAINER	RS 466-242	466-242	2
SWITCH	BBC 130045016		1
CONTACT BLOCK	BBC 120116-002		1
CONTACT BLOCK	BBC 120115-001		1
PUSH BUTTON	BBC 13004001/14		1
END STOP	E-UK	55500402D	1
ISOLATOR SWITCH	KLOCKNER & MUELLER: R-32-Ea-svb	55500368A	1
CONNECTOR BLOCK	KLIPPON	55500402B	18
AIR SUPPLY PLATE		CH 363	1
ORAC NAMEPLATE		CH 378	1
CHUCK DIRECTION		CH 308	1
BRACKET		AC 103/3	1

IF IN DOUBT ASK.



TP.100

No.	TOOLBOX TYPE
TP.100/9	A
" " 10	B
" " 11	C

LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED. ANGULARS ± 1° 3 PLACE DECIMAL & .005" FRACTIONAL & .00" 4 PLACE DECIMAL & .0005" GRIND AT 'G'		MAIL	DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
		MAIL SIZE	A/M				23.4.65	
		NO. RECD.	DRAWING No.					
		MACHINE AT 'P'						
		GRIND AT 'G'						
		DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.						
		ALTERATIONS						
		DESCRIPTION	CHECKED	DATE				

'ORAC'

INDEXING TOOLPOST

PARTS LIST

TP.110.A

COLLET & CHUCK

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
TP.110/17A	COLLET 6 DIA	1
17B	COLLET 8 DIA	1
17C	COLLET 12 DIA	1
18	CHUCK ADAPTOR	1

DESCRIPTION

MANUFACTURER & REF

COMPUTER No.

QTY

DRILL CHUCK

JACOBS : K10 ACG $\frac{3}{8}$ x24M

55500047A

1

DENFORD MACHINE TOOLS LIMITED

ORAC

TP 100

QUICK CHANGE TOOLPOST

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
TP 100/1	BASE BODY	1
2	SLIDE ARMS	1
3	ECCENTRIC PIN	1
4	COVER	1
5	CLAMP	1
6	CLAMPING BUSH	1
7	TENSION SPRING	1
8	ADJUSTING BRACKET	1
9	TOOL BOX "TYPE A"	1
10	TOOL BOX "TYPE B"	1
11	TOOL BOX "TYPE C"	1
12	TOOLHOLDER EXTENSION	1
13	HANDLE	1
14	LOCKING NUT	1

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
KNOB	RENCOL 301-M5		1

'ORAC' INDEXING TOOLPOSTPARTS LIST

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
TP.110/1	TOOLPOST BODY	1
2	TURRET	1
3	MAIN SHAFT	1
4	WORM SHAFT	1
5	WORM GEAR	1
6	WORM SHAFT END CAP	1
7	RATCHET STOP	1
8	RETAINING PIN	1
9	FRONT PLATE	1
10	REAR PLATE	1
11	TRANSDUCER DISC	1
12A	MOTOR JACKET	1
13		
*14A	TEE BOLT	4
15	ELECTRICAL COVER	1
16A	ADAPTOR PLATE	1
17A,B&C	COLLETS 6,8&12 DIA	1set
18	CHUCK ADAPTOR	1
19	GREASE RETAINING PLATE	1
20	SENSOR BOARD BRACKET	1
21		
22	CHIP GUARD EXTENTION (STARTURN 8 ONLY)	1
23	MANUAL SWITCH BRACKET	1
24	EXTENSION No.2 SOFT CENTRE	1

CH.321	'D' SYMBOL	1
CH.364	LIFTING WARNING PLATE	1
AG.100/608B	CHIP GUARD (EXTENDED)	1
611A	GUARD CLAMP PLATE	1
612A	GUARD RETAINING CHANNEL	1

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
MOTOR	TRIDENT : 2332.912 11.151 000	55500302	1
GEARBOX	TRIDENT : 2938.804 0060.0 000	55500302A	1
BEARING	FAG : 7205 B	55500102B	1
BEARING	FAG : 6200 2RS	55500110	1
OILITE BUSH	16/22/25	55500195F	1
LOCKNUT	FAG : KM5	55500184A	1
TABWASHER	FAG : MB5	55500184B	1
OPTO SWITCH	RS 307 913	307 913	3
GREASE NIPPLE	LUMATIC : HDFV4		1
DISC SPRING	ANDERTON : AL 4017	55500196D	1
DRILL CHUCK	JACOBS : K10 ACG ³ / ₈ x24M		1
'O'RING	G ANGUS; RMO416-24	55500198C	1

ORAC NAMEPLATES AC 100/2000

CH,			+
292	ORAC	NAMEPLATE	
304A		EARPHONE PLATE	
305A		T.V. SOCKET PLATE	
351		MAINS SUPPLY PLATE	
355		AUDIO TEACHING UNIT NAMEPLATE	
419		TOOLPOST & MONITOR NAMEPLATE	
438B		NAMEPLATE "DENFORD"	
296		APRON COVER PLATE	
301		LUBRICATION PLATE	
267D		SPECIFICATION PLATE	
215		ISOLATE ELECTRICS	
333A		DIAL INDICATOR	

HX 20. PNC. 2.

SOFT WARE
INSTRUCTIONS

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SOFT WARE
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PARTS ILLUSTRATIONS

HEADSTOCK & SPINDLE
BED & SADDLE DRIVE
SADDLE & CROSS SLIDE DRIVE
TOP & SWIVEL SLIDE
SPINDLE DRIVE
CABINET & SLIDING GUARD
TAILSTOCK

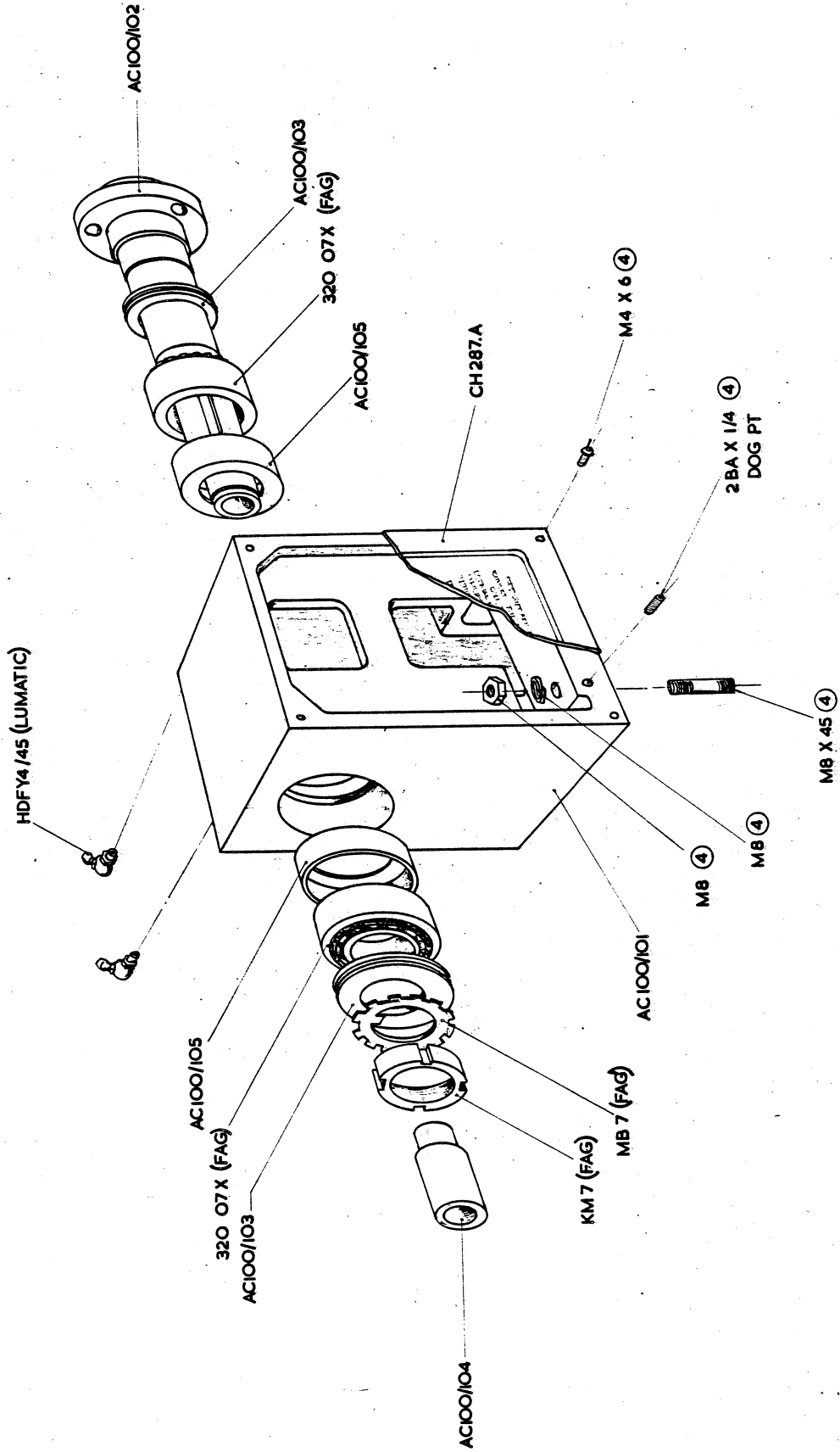
AC 100/100
AC 100/200
AC 100/300
AC 100/400
AC 100/500
AC 100/600
AC 100/700

WIRING DIAGRAMS

POWER SUPPLIES
COMPUTER INTERFACE BOARD
COMPUTER P.S.U.
JACKPLUG CONNECTION
SPINDLE SPEED OVERRIDE
POWER SUPPLY
MAIN SUB-CHASSIS
REGULATOR BOARD
SPINDLE SENSORS
BEEPER & CASSETTE
CHASSIS RIBBON CABLES
MODULATOR BOARD · PC 1626
P.S.U. & INTERFACE CONNECTIONS
COMPUTER RACK
BACK & PANEL CONNECTIONS

M 1587
M 1602
S 1610
S 1632
M 1633
M 1642
L 1644
S 1645
M 1646
M 1648
L 1661
S 1668
M 1611
M 1612
M 1615

IF IN DOUBT ASK.



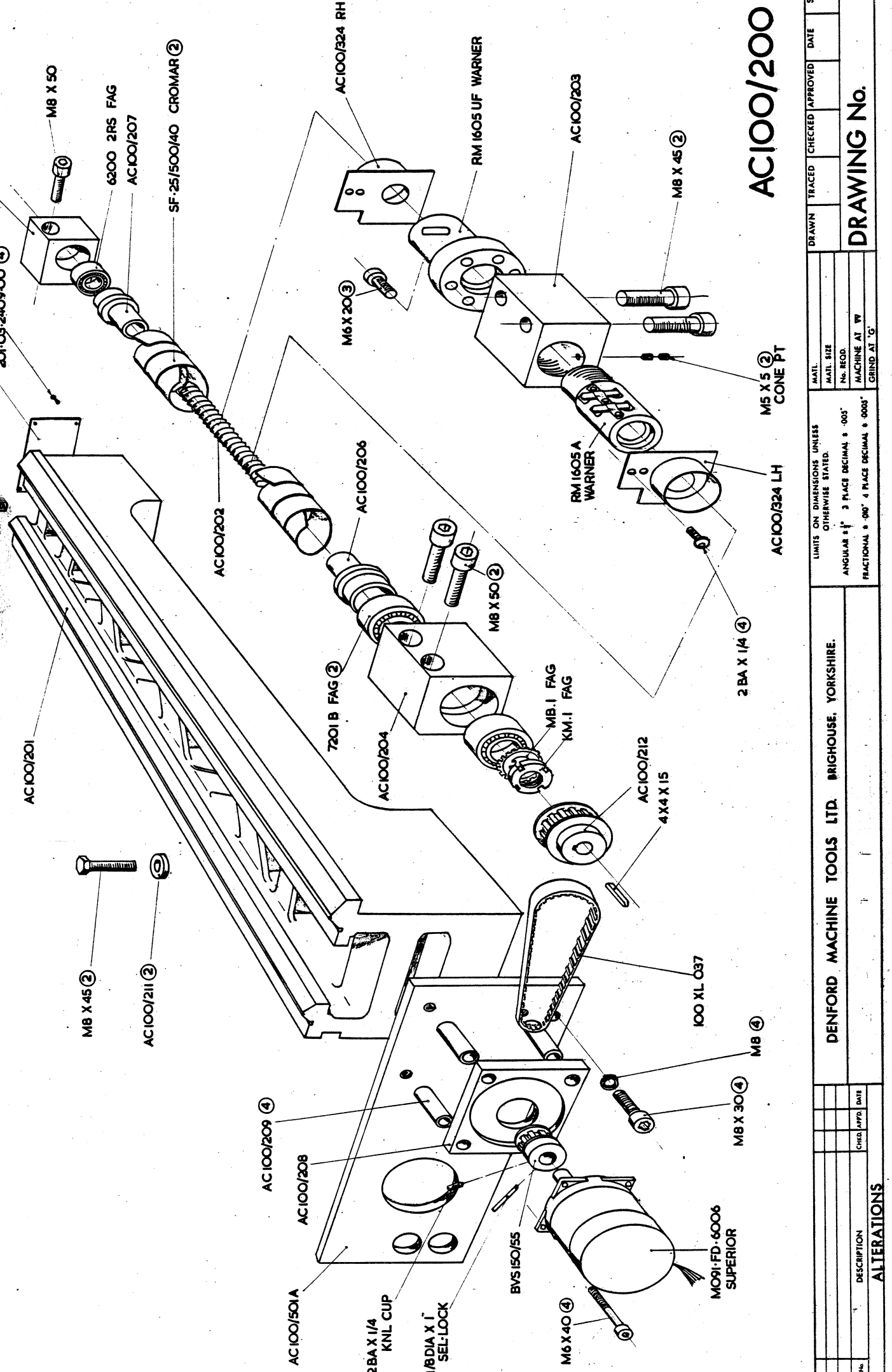
AC100/100

DRAWN		TRACED	CHECKED	APPROVED	DATE	SCALE
IV					14/12/82	
MATERIAL		LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.		MACHINE AT 'G'		
MATERIAL SIZE		ANGULAR ± 1/2° 3 PLACE DECIMAL ± 005'		GRIND AT 'G'		
NO. RECD.		FRACTIONAL ± 0007' 4 PLACE DECIMAL ± 0005'				
MACHINE AT 'G'						
GRIND AT 'G'						
DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.						
DESCRIPTION		CHD		APPD		DATE
ALTERATIONS						

IF IN DOUBT ASK.

VS 160/68

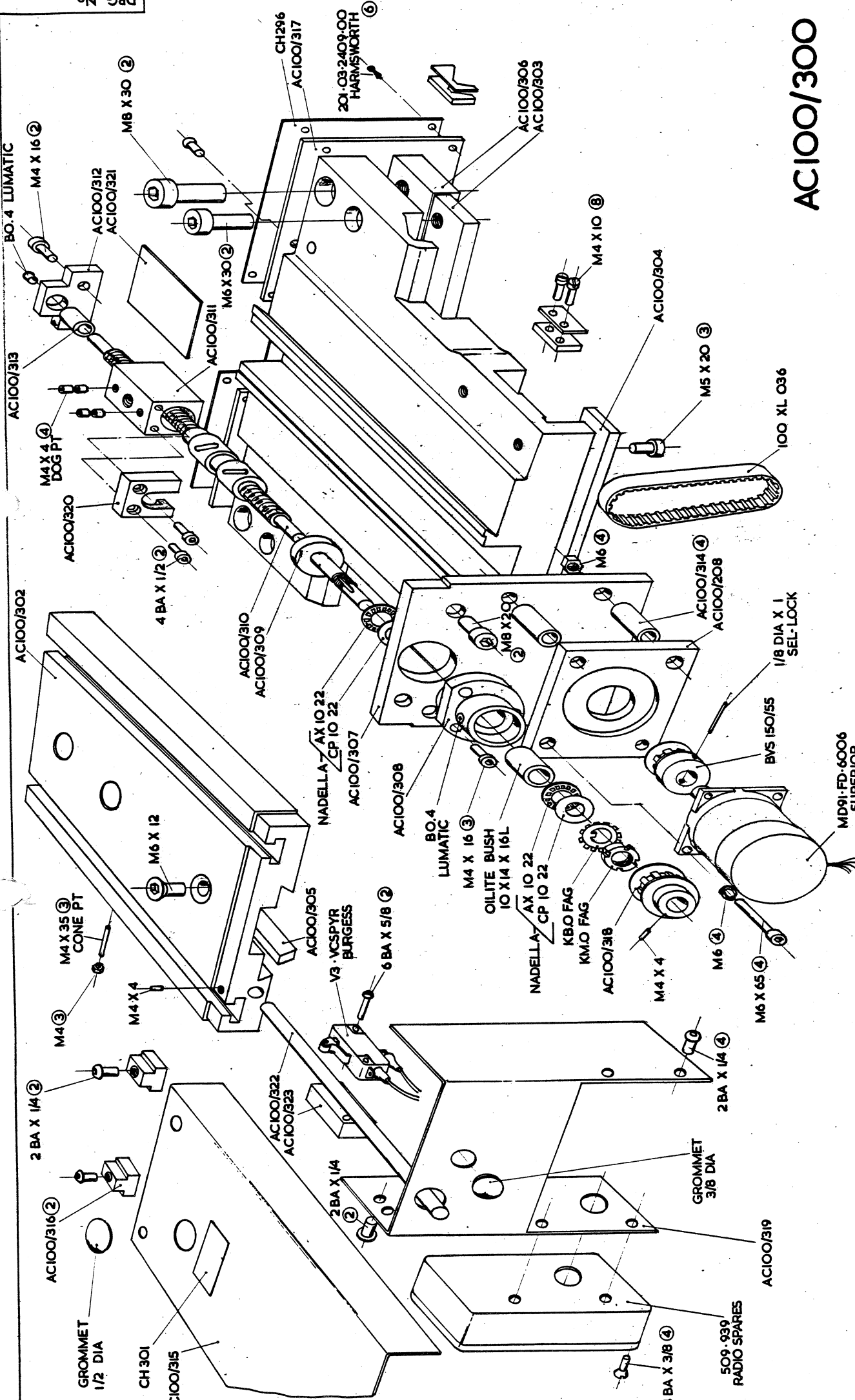
PRG. Z



AC100/200

DRAWN		TRACED		CHECKED		APPROVED		DATE		SCALE	
LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.											
ANGULAR ± 1' 3 PLACE DECIMAL ± .005°											
FRACTIONAL ± .000" 4 PLACE DECIMAL ± .00005"											
MATERIAL											
MACHINE AT W											
GRIND AT G											
DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.											
ALTERATIONS											
DESCRIPTION											
CHG. APPD. DATE											
No.											

DRAWING No.



AC100/300

SCALE	DATE	CHECKED	APPROVED
	29/12/82		
DRAWN	TRACED		
11/			
LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.			
ANGULAR ± 1° 3 PLACE DECIMAL ± .005°			
FRACTIONAL ± .005" 4 PLACE DECIMAL ± .0005"			
MATL.	MATL. SIZE	MACHINE AT BY	
	No. REQD.	GRIND AT 'G'	

DRAWING No.

DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

REV	DESCRIPTION	CHG	APPD	DATE
1	ALTERATIONS			

509-939 RADIO SPARES

4 BA X 3/8 ④

GROMMET 3/8 DIA

2 BA X 1/4 ④

M6 X 65 ④

M4 X 4

MD91-FD-6006 SUPERIOR

BYS 150/55

1/8 DIA X 1 SEL-LOCK

AC100/314 ④
AC100/208

M5 X 20 ③

AC100/304

M4 X 10 ⑧

AC100/306
AC100/303

201-03-2409-00 HARN/SWORTH ⑥

CH296
AC100/317

M8 X 30 ②

AC100/312
AC100/321

BO.4 LUMATIC

M4 X 16 ②

M6 X 30 ②

AC100/311

M4 X 4 ④
DOG PT

AC100/320

4 BA X 1/2 ②

AC100/310
AC100/309

NADILLA AX IO 22
CP IO 22

AC100/307

BO.4 LUMATIC

M4 X 16 ③

OILITE BUSH IO X14 X 16L

NADILLA AX IO 22
CP IO 22

KBO FAG
KMO FAG

AC100/318

M4 X 4

M6

1/8 DIA X 1 SEL-LOCK

M6 X 65 ④

AC100/308

AC100/305

V3 VCS PYR BURGESS

6 BA X 5/8 ②

M4 X 4

M4 X 35 ③
CONE PT

M4 X 12

AC100/322
AC100/323

2 BA X 1/4 ②

AC100/316 ②

GROMMET 1/2 DIA

CH 301

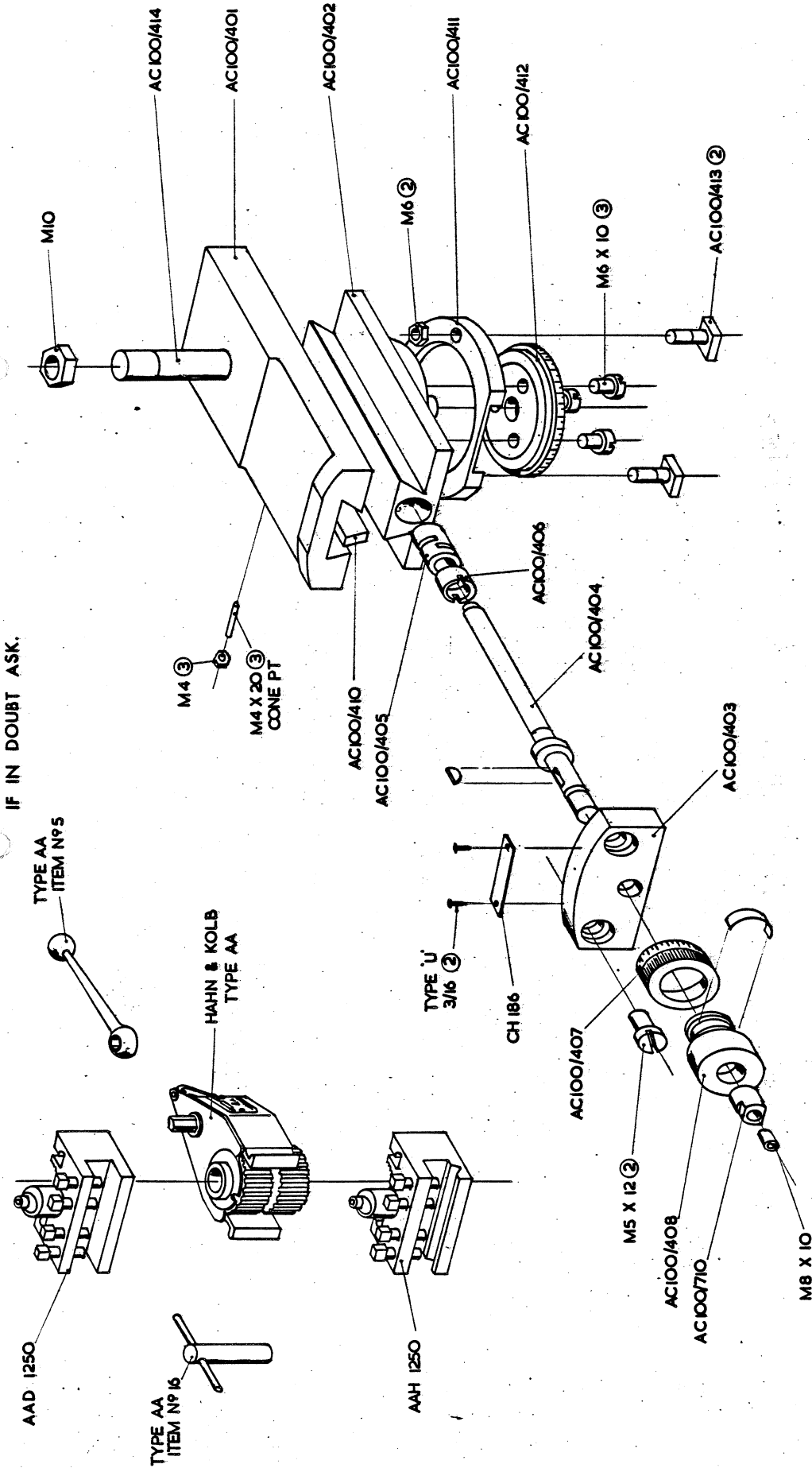
AC100/315

2 BA X 1/4 ②

AC100/319

4 BA X 3/8 ④

509-939 RADIO SPARES



IF IN DOUBT ASK.

AC100/400

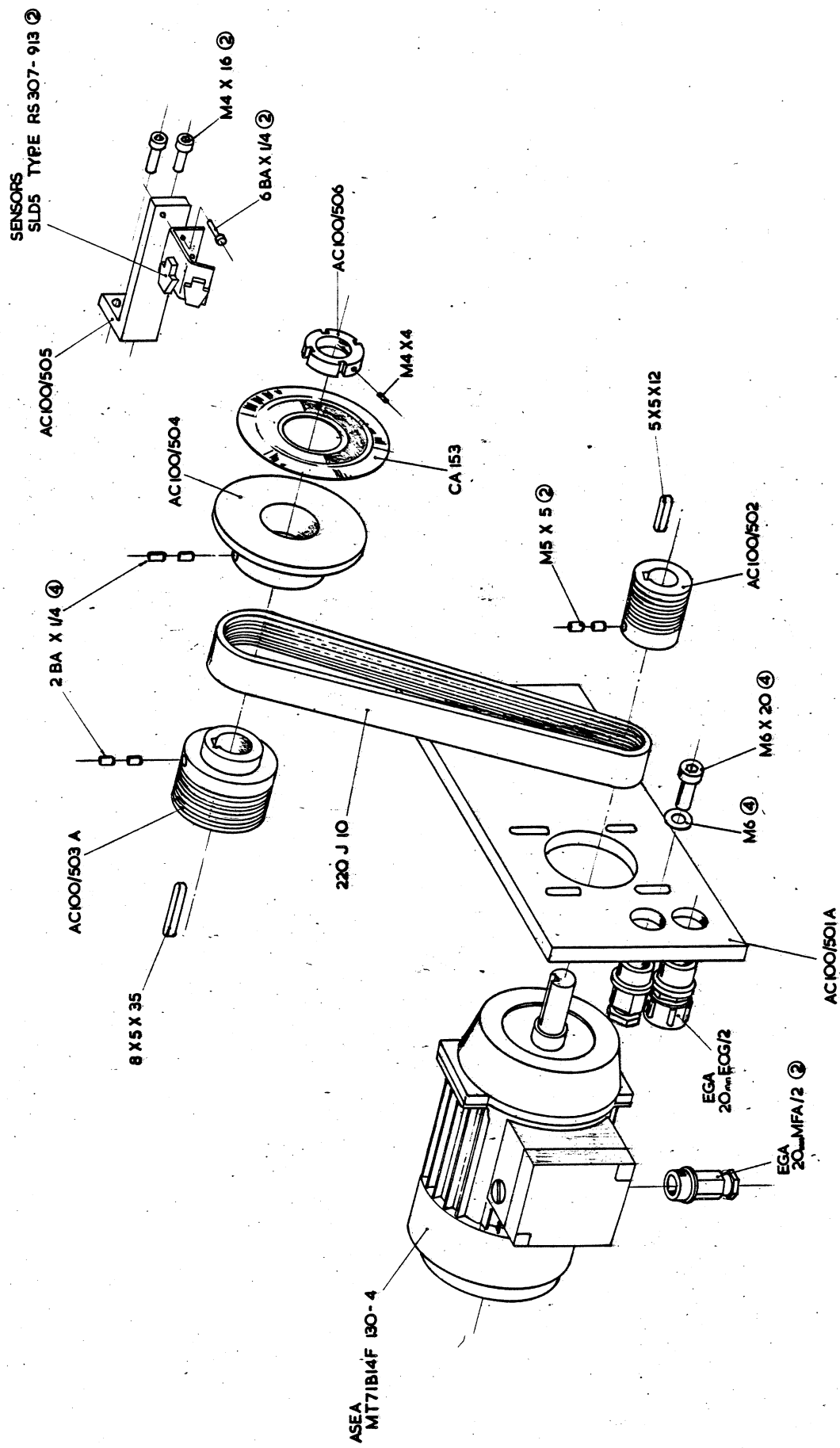
No.	DESCRIPTION	ALTERATIONS	DATE	CHG APPD	DATE	DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE	LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED: ANGULARS ±1' 3 PLACE DECIMAL & 003" FRACTIONAL ±.001' 4 PLACE DECIMAL & .0003"	MATERIAL	MATERIAL SIZE	No. REQD.	MACHINE AT WT	GRIND AT 'G'	DRAWING No.

DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

ORAC - TOP SLIDE SWIVEL & TOOL POST

IF IN DOUBT ASK.

DRG. N^o



AC100/500

DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
1/1					

DRAWING No.

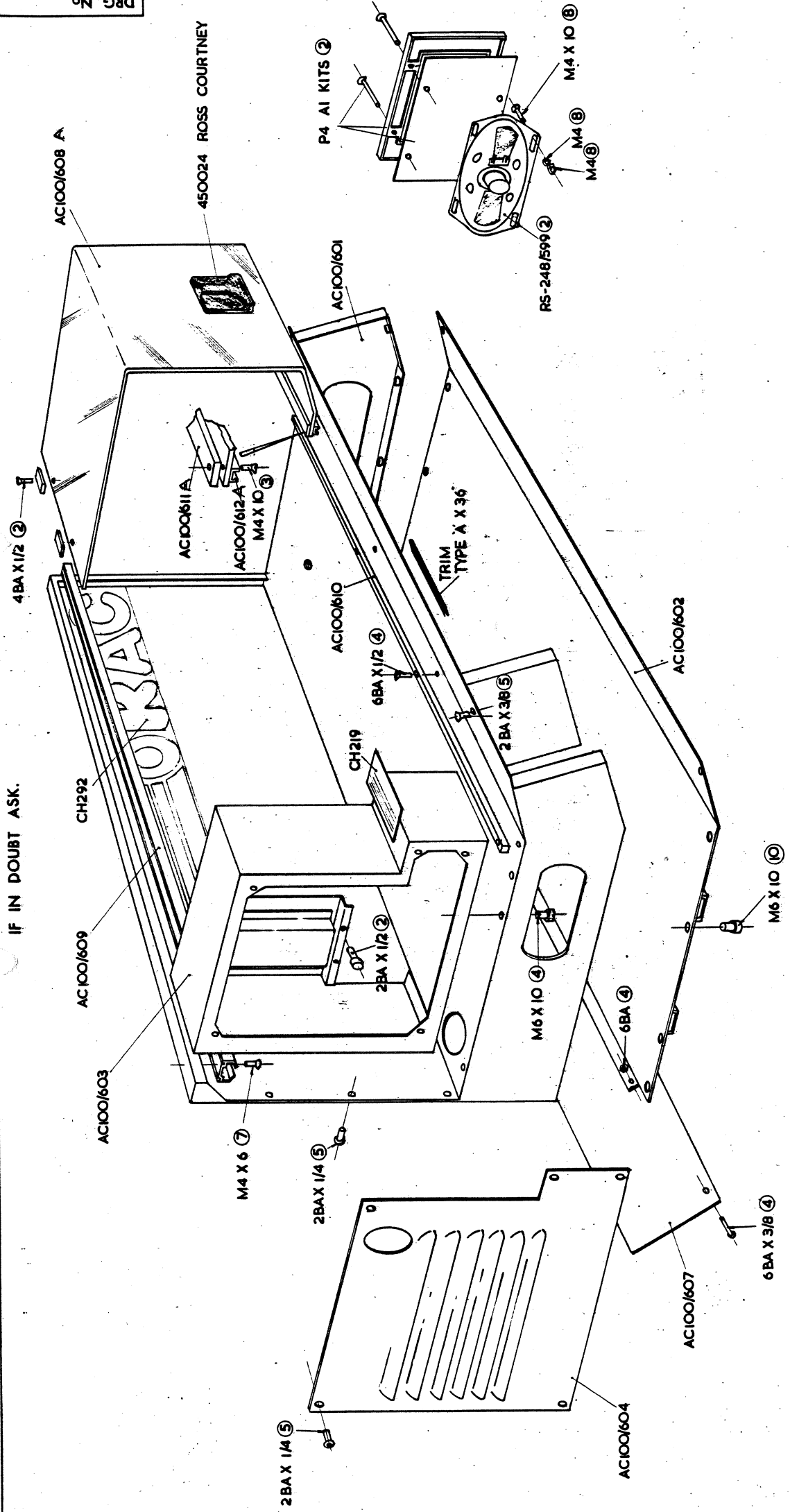
MATL.	
MATL. SIZE	
NO. REQD.	
MACHINE AT W	
GRIND AT G	

LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.
 ANGULAR ± 1° 3 PLACE DECIMAL ± .005°
 FRACTIONAL ± .000" 4 PLACE DECIMAL ± .0005"

DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

TO AUG 83				
DESCRIPTION				
ALTERATIONS				

IF IN DOUBT ASK.



AC100/600

MODELS UP TO JAN 85.

DESCRIPTION	QTY	APPRO	DATE
ALTERATIONS			

DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.
 ANGULAR ± 1° 3 PLACE DECIMAL ± .005°
 FRACTIONAL ± .005" 4 PLACE DECIMAL ± .0005"

DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
				15/1/85	

DRAWING No.

EXTRA EQUIPMENT REQD FOR ORAC

TO END FEB. '83

1.	100MM 4JAW INDEP CHUCK	8
2.	12MM DRILL CHUCK & NO 2 ARBOR	7
3.	SET 6 SANDVIK	7
4.	SET 8 T.C. TOOLS.	4
5.	SET 12 H.S.S.	5
6.	FIXED STEADY	1
7.	TRAV STEADY	1
8.	SET 3 CARRIERS	3
9.	NYLON COVER	12
10.	NO 2 HARD CENTRE	3
11.	SET SOFT JAWS, NOT SUPPLIED.	2
12.	SCOUTING TOOLHOLDER EXT.	6
13.	" " INT.	3
14.	SET 5 TIPS.	5
15.	REV CENTRE NO2.	4
16.	MACHINE CAB. WITH BRAKE CASTORS	4
17.	PROGRAMMING DESK.	2
18.	UNIV. MILL / DRILL ATT. B.K.	3
19.	MILLING TABLE TO DRAW SEE BK.	1
20.	" ARBOR " " " "	1
21.	FINE FEED FOR V. ATT. NOT SUPP.	1
22.	DRILL SET	1
23.	CENTRE DRILL SET.	1
24.	ADJUSTABLE TOOLHOLDER.	10
25.	BURING BAR HOLDER.	5
26.	MINI CASSETTE TAPE.	36
27.	AUDIO " "	2
28.	D BAR & COLLET ATT. INCL. 7 COLL. BK.	3
29.	ANTI-VIB. PAD. GREEN.	5
30.	100MM FACEPLATE. NOT SUPPLIED.	2

'ORAC' INDEXING TOLLPOST

PARTS LIST

<u>PART NO.</u>	<u>DESCRIPTION</u>	<u>QTY.</u>
TP.110/1	TOOLPOST BODY	1
2	TURRET	1
3	MAIN SHAFT	1
4	WORM SHAFT	1
5	WORM GEAR	1
6	WORM SHAFT END CAP	1
7	RATCHET STOP	1
8	RETAINING PIN	1
9	FRONT PLATE	1
10	REAR PLATE	1
11	TRANSDUCER DISC	1
12	MOTOR JACKET	1
13		
14	TEE BOLT	4
15	ELECTRICAL COVER	1
16	ADAPTOR PLATE	1
17A,B&C	COLLETS 6,8&12	1 SET
18	CHUCK ADAPTOR	1
19	GREASE RETAINING PLATE	1
20	SENSOR BOARD BRACKET	1
21	(FACTORY ONLY)	
22	CHIP GUARD EXTENSION (SATURN ONLY)	1
AC.100/608B	CHIP GUARD (EXTENDED)	1
611A	GUARD CLAMP PLATE	1
612A	GUARD RETAINING CHANNEL	1
CH.321	'D' SYMBOL	1
CH.364	LIFTING WARNING PLATE	

<u>DESCRIPTION</u>	<u>MANUFACTURER</u>	<u>REF.</u>	<u>QTY.</u>
MOTOR	TRIDENT ENG LTD.	2332 912 11111 000	1
GEARHEAD	" " "	SERIES 69-10Kgcm.40:1	1
BEARING	FAG	7205 B	2
BEARING	FAG	6200 2RS	1
OILITE BUSH	MANGANESE BRONZE	16/22/25	1
LOCKNUT	FAG	KM 5	1
TAB WASHER	FAG	MB 5	1
DISC SPRING	ANDERTON	AL 4017	1
GREASE NIPPLE	LUMATIC	HDFV4	1
CHUCK	JACOBS	K10 ACG 3/8x24 M	1
GUARD HANDLE	ROSS COURTNEY	450024	1

0785 JUNE 1985

AC.100/601A	CABINET	1
602A	CABINET BASE	1
603	END DRIVE HOUSING	1
604	END DRIVE COVER	1
605	VENTILATION PANEL	1
606A		1
607	REAR DOOR	1
608A	SLIDING GUARD	1
609	TOP SLIDING RAIL	1
610	BOTTOM RAIL	1
611A	GUARD CLAMP PLATE	1
612A	GUARD RETAINING CHANNEL	1
613	* SWITCH BRACKET	1
614	* GUARD STUD	1
615	* BUNDY TUBE ADAPTOR	1
616	* SWITCH GUARD	2
617	* REED SWITCH SPACER	1
618	DIVING PANEL	2
619	* BUNDY TUBE	1
CH.219	DENFORD LABEL	1
292	'ORAC' NAMEPLATE	1
304A	EARPHONE PLATE	1
305A	T.V. SOCKET PLATE	1
351	MAINS SUPPLY PLATE	1

DESCRIPTION	MANUFACTURER	REF.	NO. OFF
GUARD HANDLE	ROSS COURTNEY	450024	1
- SLIDERS	W & S KERN	GLIDE-A-LONG(NYLON)	2
TRACK	W & S KERN	(SEE AC. 100/609)	1
SPEAKER	RADIO SPARES	248/599	2
SPEAKER GRILL	A1 KITS	P4	2
EARPHONES (EXTRA)	EAGLE	SE 500N	1 Pair
SKT CAP HEADS		M6 x 10	17
SKT C/SUNK		M4 x 10	8
" "		2BA x 1/4	5
" "		4BA x 5/16	3
" "		6BA x 1/2	4
SKT BUTTON HEAD		2BA x 3/8	6
CHEESE HEAD		2BA x 1/4	10
HEX NUTS		M4	4
WASHER		M4	8
* REED SWITCH	RS	338-743	2
* ACTUATOR MAGNET	RS	338-759	2

* EXTRA EQUIPMENT.

PRIOR TO DEC 84

6.

'ORAC' CABINET AND SLIDING GUARD

AC. 100/600

NO. OFF

AC. 100/601	CABINET (UPPER HALF)	1.
602	CABINET (LOWER HALF)	1.
603	END DRIVE HOUSING	1.
604	END DRIVE COVER	1.
605		
606A		1.
607	REAR DOOR	1.
608A	SLIDING GUARD	1.
609	TOP SLIDING RAIL	1.
610	BOTTOM RAIL	1.
611A	GUARD CLAMP PLATE	1.
612A	GUARD RETAINING CHANNEL	1.
613	SWITCH BRACKET	
614	GUARD STUD	
615	BUND/TUBE ADAPTER	
616	SWITCH GUARD	1.
CH. 219	DENFORD LABEL	1.
292	'ORAC' NAMEPLATE	2.
302	RESET PLATE	1.
303	MAINS INPUT PLATE	1.
304A	EARPHONE PLATE	1.
305A	T.V. SOCKET PLATE	
617	Reed ^{switch spacers, 2} guard	
619	BUNNY TUBE	

DESCRIPTION	MANUFACTURER	REF.	NO. OFF
GUARD HANDLE	ROSS COURTNEY	450024	1.
SLIDERS	W & S KERN	GLIDE-A-LONG (NYLON)	2.
TRACK	W & S KERN	(SEE AC. 100/609)	1.
SPEAKER	RADIO SPARES	248/599	2.
SPEAKER GRILL	A1 KITS	P4	2.
EARPHONES (EXTRA)	EAGLE	SE 500N	1 Pair.
SKT CAP HEADS		M6 x 10	17.
SKT C/SUNK		M4 x 10	8.
" "		2BA x $\frac{1}{4}$	5.
" "		4BA x $\frac{5}{16}$	3.
" "		6BA x $\frac{1}{2}$	4.
SKT BUTTON HEAD		2BA x $\frac{1}{8}$	6.
CHEESE HEAD		2BA x $\frac{1}{4}$	10.
HEX NUTS		M4	4.
WASHER		M4	8.

<u>PART No.</u>	<u>DESCRIPTION</u>	<u>QTY</u>
AC103/ 1	MAIN SPINDLE	1
2	CHUCK BACKPLATE	1
3	SPINDLE PIPE BRACKFT	1
4	Air LOCK BRACKET	1
CH 378	HEADSTOCK NAMEPLATE	1

<u>DESCRIPTION</u>	<u>MANUFACTURER & REF</u>	<u>COMPUTER No.</u>	<u>QTY</u>
CHUCK VALVE	RICHARD.R.LEADER	55500050	1
FILTER GAUGE	SCHRADER B43004PP054	55500050A	1
" " "	" " B06-101-A2KD	" "	1
LF GRIP ADAPTOR	" " 18-013-909	" "	1
" " "	ENOTS 97053102	" "	3
" " BEND	" 97053104	" "	6
" " T BEND	" 97100502	" "	4
" " " "	" 97110102	" "	1
" " REDUCER	" 97110104	" "	1
SWITCH VALVE	" 97151727	" "	1
NYLON TUBE	" 03224000	" "	2
LEGEND PLATE	4mm & 6mm DIA	" "	
BRACKET	R.R.LEADER S/P15435/6	" "	2
AIR LOCK	" " 18-001-053	" "	1
SOLENOID VALVE	" " DM / 240 1A	55500050B	1
ELBOW	ENOTS 36055510	55500050C	1
TUBING SLEEVES	" " 36050104	55501451K	1
" " NUTS	" " 36050004	55501451Q	2
		55501451P	2

SEE ALSO DRGS

- AC 103 TUBE FITTING LAYOUT
- AC 103A CIRCUIT DIAGRAM
- AC 103B EXTRA MACHINING OPERATIONS

EXTRA EQUIPMENT REQD FOR ORAC

TO END FEB. '83

1.	100MM 4JAW INDEP CHUCK	8
2.	12MM DRILL CHUCK & NO2 ARBOR	7
3.	SET 6 SANDVIK	7
4.	SET 8 T.C. TOOLS	4
5.	SET 12 H.S.S.	5
6.	FIXED STEADY	1
7.	TRAV STEADY	1
8.	SET 3 CARRIERS	3
9.	NYLON COVER	12
10.	NO2 HARD CENTRE	3
11.	SET SOFT JAWS. NOT SUPPLIED.	2
12.	SCUTTING TOOLHOLDER EXT.	6
13.	" " INT.	3
14.	SET 5 TIPS	5
15.	REV. CENTRE NO2	4
16.	MACHINE CAB. WITH BRAKE CASTORS	4
17.	PROGRAMMING DESK	2
18.	UNIV. MILL / DRILL ATT. B.K.	3
19.	MILLING TABLE TO DRAW SEEBK.	1
20.	" ARBOR " " " "	1
21.	FINE FEED FOR V. ATT. NOT SUPP.	1
22.	DRILL SET	1
23.	CENTRE DRILL SET.	1
24.	ADJUSTABLE TOOLHOLDER.	16
25.	BORING BAR HOLDER.	5
26.	MINI CASSETTE TAPE.	36
27.	AUDIO " "	2
28.	D BAR & COLLET ATT. INCL. 7 COLL. BK.	3
29.	ANTI-VIB. PAD. GREEN.	5
30.	100MM FACEPLATE. NOT SUPPLIED.	2

21/3/88.
PARTS LIST FOR FS-450AN BENCH LATHE

TAIWAN FU SAN MACHINERY WORKS

EXPORT DIVISION

Chi Men Syndicate Co., Ltd.

3RD FL., NO. 468, HUA MEI STREET, TAICHUNG, TAIWAN
TEL: (04)3215852 TELEX: 51114 CHIMEN. CABLE: "CHIMEN" TAICHUNG FAX: 04-3215856

			G. Spindelstock	Headstock	Poupée fixe
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
1	1027		Spindelstock	Headstock	Carter de poupée fixe
2	1028		Spindel	Spindle	Broche principale
3	1029		Passfeder	Key	Clavette
4	1030		Dichtscheibe	Gasket	Disque d'étanchéité
5	1031		Kegelrollenlager	Heavy taper roller bearings	Roulement à rouleaux coniques
6	1032		Deckel	Cover	Bouchon-cuvette
7	1033		Distanzhülse	Bushing	Entretoise
8	1034		Zahnrad	Gear	Engrenage
9	1035		Riemenscheibe	Pulley	Poulie de broche
10	1036		Druckscheibe	Disc	Pastille de pointeau
11	1037		Gewindestift	Set screw	Vis pointeau
12	1038		Spannmutter	Nut	Écrou canelé
13	1039		Gewindestift	Set screw	Goujon

		Antrieb	Drive	Entrainement
Pos	Ref. No.	BENENNUNG	DESCRIPTION	DESIGNATION
1	1040	G. Deckel	Cover	Couvercle assemblé
2	1041	Abdeckblech	Covermount	Tôle de couverture
3	1042	Zylinderschraube	Round head screw	Vis tête cylindrique
4	1043	Federring	Clip	Rondelle grover
5	1044	Scheibe	Washer	Rondelle plate
6	1045	Senkschraube	Flat head screw	Vis tête fraiséc
7	1046	Zylinderschraube	Round head screw	Vis tête cylindrique
8	1047	Scheibe	Washer	Rondelle grover
9	1048	Frontschild metr.	Plate metr.	Plaque frontale metr.
	1049	Frontschild USA	Plate USA	Plaque frontale USA
10	1050	Zylinderschraube	Round head screw	Vis tête cylindrique
	1051	G. Trägerplatte	Bracket plate	Plaque support assemblée
11	1052	Trägerplatte	Bracket plate	Plaque support seule
12	1053	Zylinderschraube	Round head screw	Vis tête cylindrique
13	1054	Schmiernippel	Grease nipple	Graisseur
14	1055	Sicherungsring	Clips	Circlip
15	1056	Stützscheibe	Washer	Rondelle plate
	1057	G. Kupplung	Clutch	Embrayage assemblé
16	1058	Bundlager	Bearing bush	Palier d'assemblage
17	1059	Vorgelegeriemenscheibe	Countershaft pulley	Poulie de renvoi pour courroie crantée
18	1060	Stahikugel	Ball	Bille acier
19	1061	Druckfeder	Feed spring	Ressort de compression
20	1062	Axiallagerscheibe	Thrust bearing washer	Disque
21	1063	Sicherungsring	Clip	Circlip
22	1064	Kupplungsriemenscheibe	Belt pulley	Poulie trapézoïdale de l'embray
23	1065	Keilriemen	Vee belt	Courroie trapézoïdale
24	1066	Zahnriemen	Drive belt	Courroie crantée
25	1067	Scheibe	Washer	Rondelle plate
26	1068	Federring	Clip	Rondelle grover
27	1069	Sechskantmutter	Nut	Ecrou hexagonal
28	1070	Zylinderschraube	Round head screw	Vis tête cylindrique
29	1071	Federring	Clip	Rondelle grover
30	1072	Scheibe	Washer	Rondelle plate épaulée
31	1073	G. Motorriemenscheibe	Pulley	Poulie moteur assemblée
32	1074	Motorriemenscheibe	Pulley	Poulie moteur seule
33	1075	Anlaufring	Start sleeve	Douille entretoise
34	1076	Anlaufscheibe	Spacer	Disque à rainure de clavette
35	1077	Zylinderschraube	Round head screw	Vis tête cylindrique
36	1078	Scheibe	Washer	Rondelle plate
37	1079	Druckfeder	Feed spring	Ressort de compression
38	1080	Klemmleiste	Clamp piece	Lardon de blocage
39	1081	Zylinderschraube	Round head screw	Vis tête cylindriques
40	1082	Riemenscheibenwelle	Belt pulley shaft	Arbre des poulies
	1083	Sechskantmutter	Hexagon nut	Ecrou hexagonal

			Riemenspanner	Tensioning roller	Rouleau tendeur
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
	1084		G. Hebel	Lever	Levier
1	1085		Hebel	Lever	Levier
2	1086		Kugelknopf	Plastics ball	Sphère de matiere comprimée
3	1087		G. Spannhebel	Lever	Levier
4	1088		G. Drehbolzen	Bolt	Boulon
5	1089		Hülse	Sleeve	Manchon
6	1090		Gewindestift	Set screw	Vis pointeau
7	1091		Sicherungsring	Clip	Bague fendue
8	1092		G. Spannrolle	Roller	Rouleau
9	1093		Sicherungsring	Clip	Bague fendue
10	1094		Zugfeder	Spring	Ressort de traction
11	1095		Bolzen	Bolt	Boulon
12	1096		Ausgleichscheibe	Washer	Rondelle
13	1097		Sicherungsring	Clip	Bague fendue
14	1098		Scheibe	Washer	Rondelle
15	1099		Sechskantmutter	Nut	Ecrou
16	1100		Scheibe	Washer	Rondelle
17	1101		Passscheibe	Washer	Rondelle
18	1102		Stützscheibe	Washer	Rondelle
19	1103		Schmiernippel	Grease nipple	Graisneur

		E – Ausrüstung	Electrical equipment	Equipement électrique
Pos	Ref. No.	BENENNUNG	DESCRIPTION	DESIGNATION
1	1104	G. E – Gehäuse	E – housing	Boitier électrique assemblé
2	1105	Zylinderschraube	Flat head screw	Vis tête cylindrique
3	1106	Federring	Clip	Rondelle grover
4	1107	G. E – Deckel	Roofing	Couvercle du boitier assemblé
5	1108	Schalterschild	Switch signboard	Plaque indicatrice pour le contacteur
6	1109	Isolierplatte	Insulating plate	Plaque isolante
7	1110	Erdungsschild	Earthing plaid	Connexion pour mise à la "terre"
8	1111	Sechskantmutter	Nut	Ecrou hexagonal
9	1112	Zahnscheibe	Serrated lock washer	Rondelle dentée
10	1113	Schalter	Switch	Interrupteur
11	1114	Kondensator	Condenser	Condensateur
12	1115	Gegenmutter	Lock nut	Contre - écrou
13	1116	Bruchklemme	Breakage clamp	Domino
14	1117	PG – Verschraubung	Screw coupling	Passe-fil (pour câble d'alimentation)
15	1118	Sechskantschraube	Hexagon screw	Vis tête hexagonale
16	1119	Fächerscheibe	Washer	Rondelle éventail
17	1120	Motor	Motor	Moteur

Spannung Voltage (V) Tension	Frequenz Frequency Frequence	Ref. Nr. für Motor Ref. Nr. for motor Ref. Nr. moteur	Ref. Nr. für Kondensator Ref. Nr. for condenser Ref. Nr. condensateur	Ref. Nr. für Schalter Ref. Nr. for switch Ref. Nr. interrupteur
Standard 220	50	CNS STANDARD	CNS STANDARD	CNS STANDARD
VDE 220	50	CNS STANDARD	CNS STANDARD	CNS STANDARD

		Räderschere	Quadrant	Lyre
Pos	Ref. No.	BENENNUNG	DESCRIPTION	DESIGNATION
1	1121	Schere	Quadrant	Lyre nue
2	1122	Zylinderschraube	Flat head screw	Vis tête cylindrique
3	1123	Scheibe	Washer	Rondelle plate
4	1124	Keilhülse	Bush	Douille - clavette
5	1125	Scherstift	Bushing	Goupille de cisaillement
6	1126	Wechselrad 80	Gear 80	Engrenage 80 dents
7	1127	Zwischenring	Bushing	Douille - entretoise
8	1128	Sicherungsring	Clip	Rondelle fer à cheval
9	1129	Sechskantschraube	Hexagonal screw	Vis tête hexagonale
10	1130	Wechselrad 25	Gear 25	Engrenage 25 dents
11	1131	Wechselrad 80	Gear 80	Engrenage 80 dents
12	1132	Zahnrad 80	Gear 80	Engrenage 80 dents
13	1133	Wechselrad 30	Gear 30	Engrenage 30 dents
14	1134	Keilhülse	Bush	Douille - clavette
15	1135	Scheibe	Washer	Rondelle plate
16	1136	Nutenstein	T-nut	Ecrou en T
17	1137	Scherbolzen	Shaft	Boulon-axe
18	1138	Scheibe	Washer	Rondelle fer à cheval
19	1139	Schmiernippel	Grease fitting	Graisseur

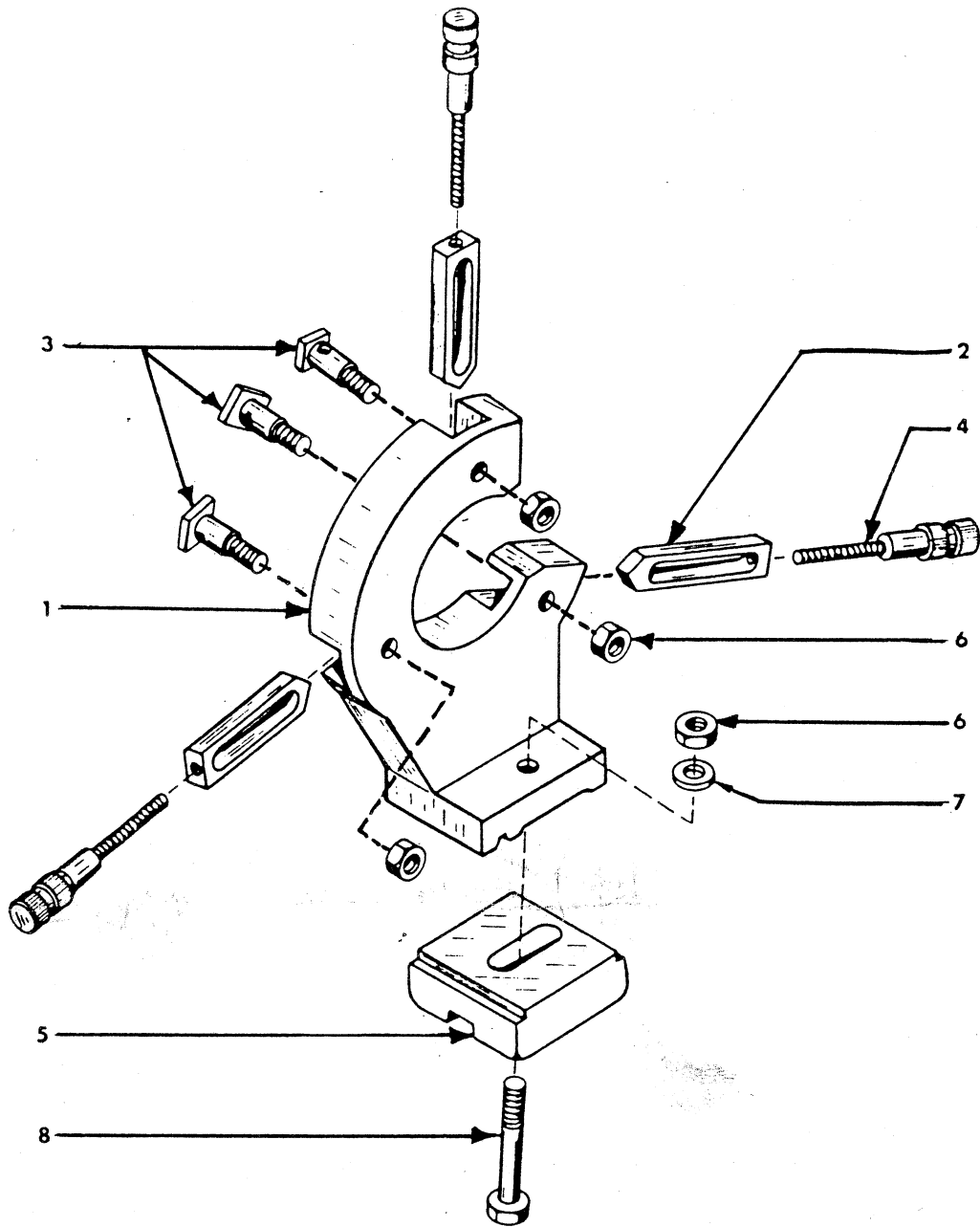
			G. Rädersatz	Set of change gears	Jeu d'engrenages assembles
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
1	1140		Wechselrad Z = 20	Change gear	Engrenage 20 dents
2	1141		Wechselrad Z = 35	Change gear	Engrenage 35 dents
3	1142		Wechselrad Z = 40	Change gear	Engrenage 40 dents
4	1143		Wechselrad Z = 50	Change gear	Engrenage 50 dents
5	1144		Wechselrad Z = 55	Change gear	Engrenage 55 dents
6	1145		Wechselrad Z = 65	Change gear	Engrenage 65 dents
7	1146		Wechselrad Z = 70	Change gear	Engrenage 70 dents
8	1147		Wechselrad Z = 75	Change gear	Engrenage 75 dents
9	1148		Zwischenring	Bushing	Douille-entretoise

			G. Schlossplatte	Apron	Tablier assemblé
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
1	1149		Schlossplatte	Apron casting	Tablier nu
2	1150		Zwischenrad	Gear	Pignon double intermédiaire
3	1151		Ritzel	Shaft gear	Pignon du volant
4	1152		Handrad	Hand wheel	Volant
5	1153		Schlossscheibe	Locking cam	Verrou de la noix
6	1154		Nachstellschraube	Adjusting screw	Vis-pointeau de réglage
7	1155		Führungsschiene	Guide	Languettes de guidage
8	1156		Druckfeder	Feed spring	Ressort de compression
9	1157		Einstellschraube	Adjusting screw	Vis-pointeau de réglage
10	1158		Gr. Schlossmutter	Half nut	Noix = 2 demi-noix
	1159		Gr. Schlossmutter	Half nut	Noix = 2 demi-noix
11	1160		Gr. Schlosshebel	Handle	Levier d'enclenchement assemblé
12	1161		Gr. Kegelgriff	Handle	Manneton assemblé
13	1162		Spannhülse	Grooved pin	Goupille fendue
14	1163		Innensechskantschraube	Allen head screw	Vis tête six pans creux
15	1164		Tellerfeder	Spring washer	Rondelle assiette
16	1165		Sprengtring	Clip	Rondelle grower
17	1166		Sprengtring	Clip	Rondelle grower
18	1167		Stahlkugel	Ball	Bille acier

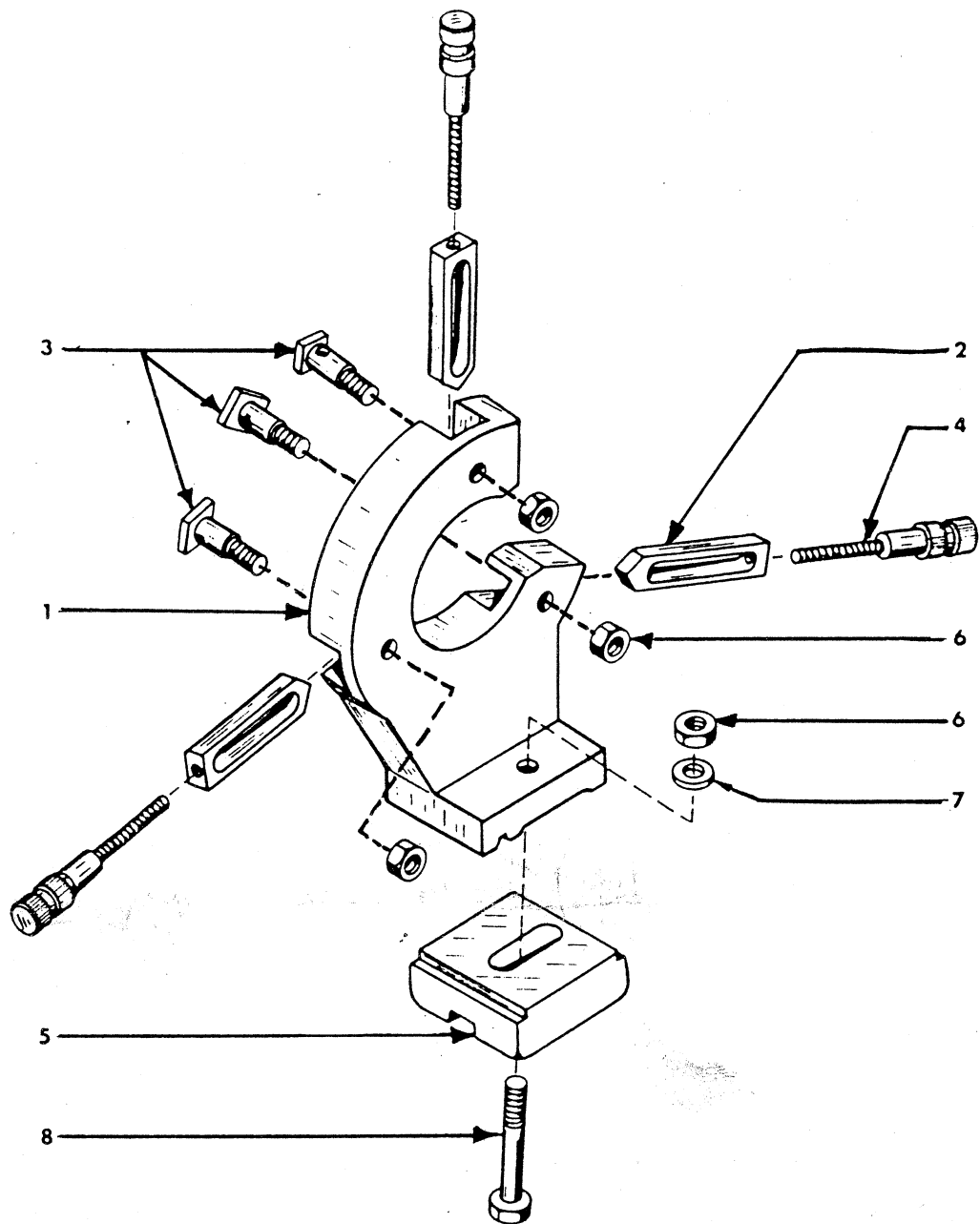
		Längs- und Querschlitzen	Saddle and Cross Slide	Trainard et chariot transversal
Pos	Ref. No.	BENENNUNG	DESCRIPTION	DESIGNATION
1	1168	Schlitten	Carriage	Trainard nu
2	1169	Querschlitzen	Cross-slide-table	Transversal nu
3	1170	Quermutter metr.	Cross-slide-nut metr.	Noix du transversal metr.
	1171	Quermutter USA	Cross-slide-nut USA	Noix de transversal USA
4	1172	Bettleiste	Gib	Languette de guidage
5	1173	Abstreifer	Cover mount	Plaquette couvre-racleur
6	1174	Abstreiffilz	Way cover	Racleur en feutre
7	1175	Abstreifer	Cover mount	Plaquette couvre-racleur
8	1176	Abstreiffilz	Way cover	Racleur en feutre
9	1177	Klemmstück	Binding piece	Plaque de blocage
10	1178	Senkscheibe	Bushing	Douille fraisée
11	1179	Nachstellschraube	Adjusting screw	Vis-pointau de réglage
12	1180	Einstelleiste	Gib	Lardon de réglage
13	1181	Druckstift	Stud	Cheville de pression
14	1182	Deckblech	Cover mount	Toile de recouvrement
15	1183	Senkschraube	Flat head screw	Vis tête fraisée
16	1184	Gewindestift	Set screw	Vis de réglage
17	1185	Sechskantmutter	Nut	Contre-écrou
18	1186	Stahlkugel	Ball	Bille acier
19	1187	Innensechskantschraube	Allen head screw	Vis tête 6 pans creux
20	1188	Zylinderschraube	Flat head screw	Vis tête cylindrique
21	1189	Zylinderstift	Flat screw	Cheville
22	1190	Scheibe	Washer	Rondelle plate
23	1191	Sechskantschraube	Hexagon head screw	Vis tête hexagonale
24	1192	Sechskantschraube	Hexagon head screw	Vis tête hexagonale
25	1193	Scheibe	Washer	Rondelle plate
26	1194	Schmiernippel	Grease fitting	Graisseur
27	1195	Innensechskantschraube	Allen head screw	Vis tête 6 pans creux
28	1196	Innensechskantschraube	Allen head screw	Vis tête 6 pans creux
29	1197	Innensechskantschraube	Allen head screw	Vis tête 6 pans creux
	1198	G. Querspindel metr.	Lead screw compl. metr.	Broche de commande du transversal metr.
	1199	G. Querspindel USA	Lead screw compl. USA	Broche de commande du transversal USA.
30	1200	Querspindel metr.	Lead screw metr.	Broche de commande du transversal metr.
	1201	Querspindel USA	Lead screw USA	Broche de commande du transversal USA.
31	1202	Querspindelträger	Lead screw mount	Support-palier de broche
32	1203	Skalenschild metr.	Plate metr.	Plaquette graduée metr.
	1204	Skalenschild USA	Plate USA.	Plaquette graduée USA
33	1205	Skalenring metr.	Micrometer collar metr.	Vernier metr.
	1206	Skalenring USA	Micrometer collar USA	Vernier USA
34	1207	Bogenfeder	Spring	Lame ressort courbe
35	1208	Handrad	Handwheel	Volant
36	1209	Mutter	Nut	Écrou 2 pans
37	1210	Gr. Kegelgriff	Handle	Manneton
38	1211	Scheibenfeder	Key	Clavette demi-lune
39	1212	Gewindestift	Set screw	Vis-pointau de réglage
40	1213	Kerbringel	Rivet	Rivet
41	1214	Innensechskantschraube	Allen head screw	Vis tête 6 pans creux

			G. Obersupport	Compound	Chariot supérieur
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
1	1215		Obersupport	Compound	Chariot supérieur nu
2	1216		Oberplatte	Swivel base	Support-glissière
3	1217		Einstelleiste	Gib	Lardon de réglage
4	1218		Klemmring	Clamping ring	Bague de blocage
5	1219		Skalenring	Micrometer collar	Embase graduée
6	1220		Obermutter metr.	Lead screw nut metr.	Noix metr.
	1221		Obermutter USA	Lead screw nut USA	Noix USA
7	1222		Einstellschraube	Adjusting screw	Bague-écrou de réglage
8	1223		Schraube	Screw	Boulon de fixation du porté-outil
9	1224		Nutenschraube	T-nut screw	Boulon en T
10	1225		Druckstift	Stud	Cheville
11	1226				
12	1227		Sechskantschraube	Hexagon head screw	Vis à tête hexagonale
13	1228		Zylinderschraube	Flat head screw	Vis tête cylindrique
14	1229		Zylinderschraube	Flat head screw	Vis tête cylindrique
15	1230		Gewindestift	Set screw	Vis-pointau de réglage
16	1231		Sechskantmutter	Nut	Contre-écrou
17	1232		Sechskantmutter	Nut	Ecrou hexagonal
18	1233		Spannhülse	Lock pin	Goupille fendue
19	1234		Spannhülse	Lock pin	Goupille fendue
20	1235				
21	1236				
22	1237				
	1238		G. Oberspindel metr.	Lead screw metr.	Broche du chariot supérieur assemblee metr.
	1239		G. Oberspindel USA	Lead screw USA	Broche du chariot supérieur assemblee USA
23	1240		Oberspindel metr.	Lead screw metr.	Broche nue metr.
	1241		Oberspindel USA	Lead screw USA	Broche nue USA
24	1242		Oberspindelträger metr.	Lead screw mount metr.	Palier-support de broche metr.
	1243		Oberspindelträger USA	Lead screw mount USA	Palier-support de broche USA
25	1244		Skalenring metr.	Micrometer collar metr.	Vernier metr.
	1245		Skalenring USA	Micrometer collar USA	Vernier USA
26	1246		Handrad	Handwheel	Volant
27	1247		Kegelgriff	Handle	Manneton
28	1248		Scheibenfeder	Key	Clavette demi-lune
29	1249		Bogenfeder	Spring	Lame ressort courbe
30	1250		Mutter	Nut	Ecrou 2 pans
31	1251		Gewindestift	Set screw	Vis de réglage

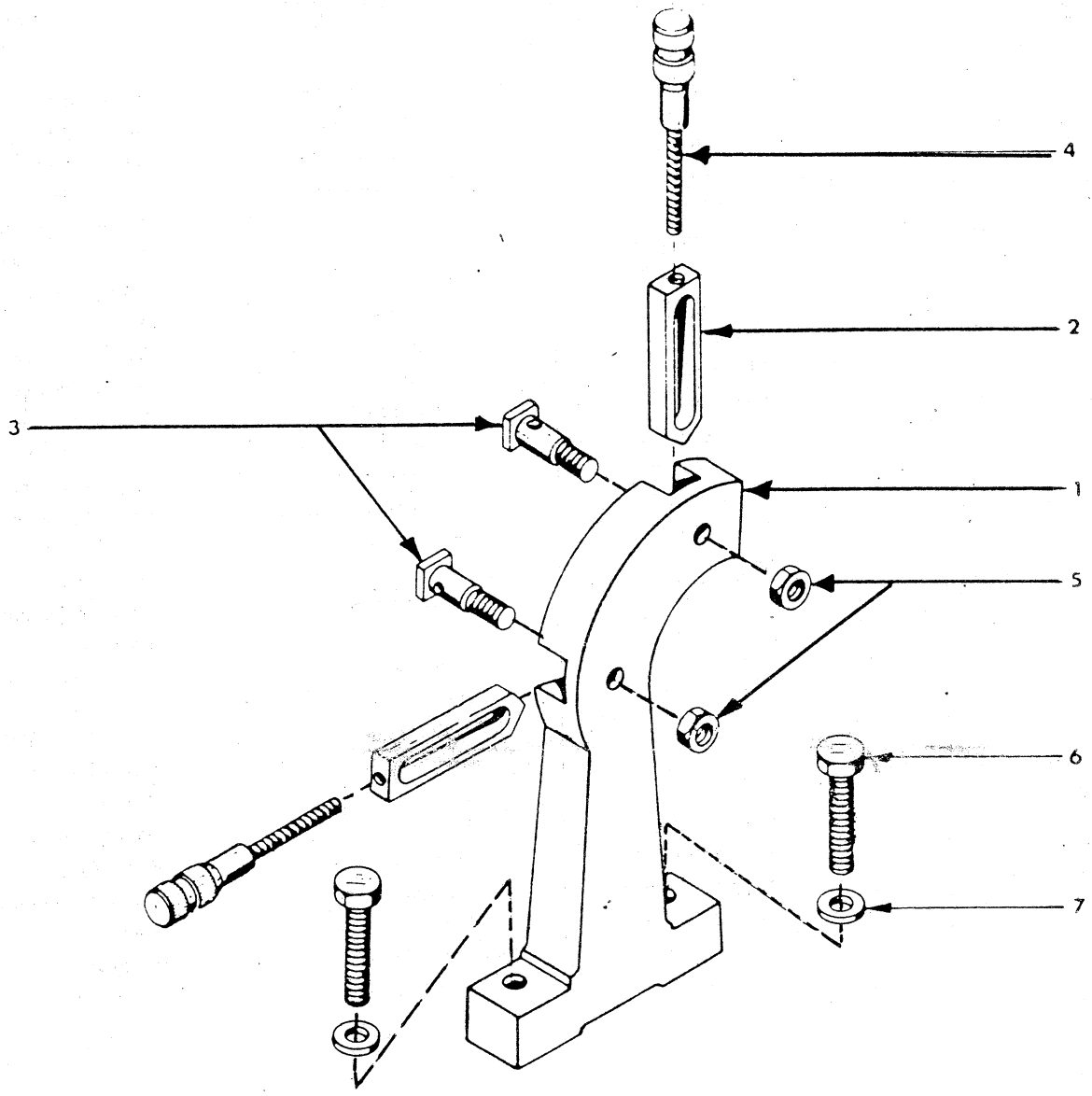
			G. Reitstock	Tailstock compl.	Poupee mobile assemblée
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
1	1252		Reitstockpinole metr.	Tailstock ram metr.	Canon metr.
	1253		Reitstockpinole USA	Tailstock ram USA	Canon USA
2	1254		Triebsschraube metr.	Lead screw metr.	Broche metr.
	1255		Triebsschraube USA	Lead screw USA	Broche USA
3	1256		Bundbüchse	Bushing	Douille d'assemblage
4	1257		Skalenschild metr.	Plate metr.	Plaquette graduée metr.
	1258		Skalenschild USA	Plate USA	Plaquette graduée USA
5	1259		Handrad	Handwheel	Volant
6	1260		Knebelgriff	Lever	Levier de blocage du canon
7	1261		Klemmbacke	Clamp	Mors de blocage supérieur
8	1262		Klemmstück	Binding piece	Mors de blocage inférieur
9	1263		Führungsschraube	Guide pin	Vis de guidage
10	1264		Skalenring metr.	Micrometer collar metr.	Bague de vernier metr.
	1265		Skalenring USA	Micrometer collar USA	Bague du vernier USA
11	1266		Bogenfeder	Feed spring	Lame ressort courbe
12	1267		Mutter	Nut	Ecrou 2 pans
	1268		G. Reitstockplatte	Tailstock base	Embase de la contre-poupée assemblée
13	1269		Reitstock	Tailstock	Corps de la contre-poupée nue
14	1270		Reitstockplatte	Tailstock base	Embase nue
15	1271		Gewindestift	Set screw	Vis de réglage antérieure ou postérieure
16	1272		G. Kegelgriff	Handle	Manneton
17	1273		Scheibenfeder	Key	Clavette demi-lune
18	1274		Gewindestift	Set screw	Vis de réglage
19	1275		Sechskantschraube	Hexagonal screw	Boulon tête hexagonale
20	1276		Kerbnagel	Rivet	Rivet
21	1277		Schmiernippel	Grease fitting	Graisser
22	1278		Klemmplatte	Clamping plate	Plaque de blocage



			G. Stehlünette	Steady rest	Lunetto fixo
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
1	1286		Stehlünette	Housing	Corps
2	1287		Gleitbacke	Jaw	Touche
3	1288		Nutschraube	Screw	Boulon en T
4	1289		Stellschraube	Thumb screw	Vis tête moletée
5	1290		Klemmplatte	Clamping plate	Contre-plaque de blocage
6	1291		Sechskantmutter	Nut	Ecrou hexagonal
7	1292		Scheibe	Washer	Rondelle plate
8	1293		Sechskantschraube	Hexagonal screw	Boulon tête hexagonale



			G. Stehlünette	Steady rest	Lunetto fixo
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
1	1286		Stehlünette	Housing	Corps
2	1287		Gleitbacke	Jaw	Touche
3	1288		Nutschraube	Screw	Boulon en T
4	1289		Stellschraube	Thumb screw	Vis tête moletée
5	1290		Klemmplatte	Clamping plate	Contre-plaque de blocage
6	1291		Sechskantmutter	Nut	Ecrou hexagonal
7	1292		Scheibe	Washer	Rondelle plate
8	1293		Sechskantschraube	Hexagonal screw	Boulon tête hexagonale



			G. Lauflünette	Follower rest	Lunette a suivre
Pos	Ref. No.		BENENNUNG	DESCRIPTION	DESIGNATION
1	1279		Lauflünette	Housing	Corps
2	1280		Gleitbacke	Jaw	Touche
3	1281		Nutschraube	Screw	Boulon en T
4	1282		Stellschraube	Thumb screw	Vis tête moletée
5	1283		Sechskantmutter	Nut	Ecrou hexagonal
6	1284		Sechskantschraube	Hexagonal screw	Vis tête hexagonale
7	1285		Scheibe	Washer	Rondelle plate

