STARTURN 8

****

PARTS MANUAL

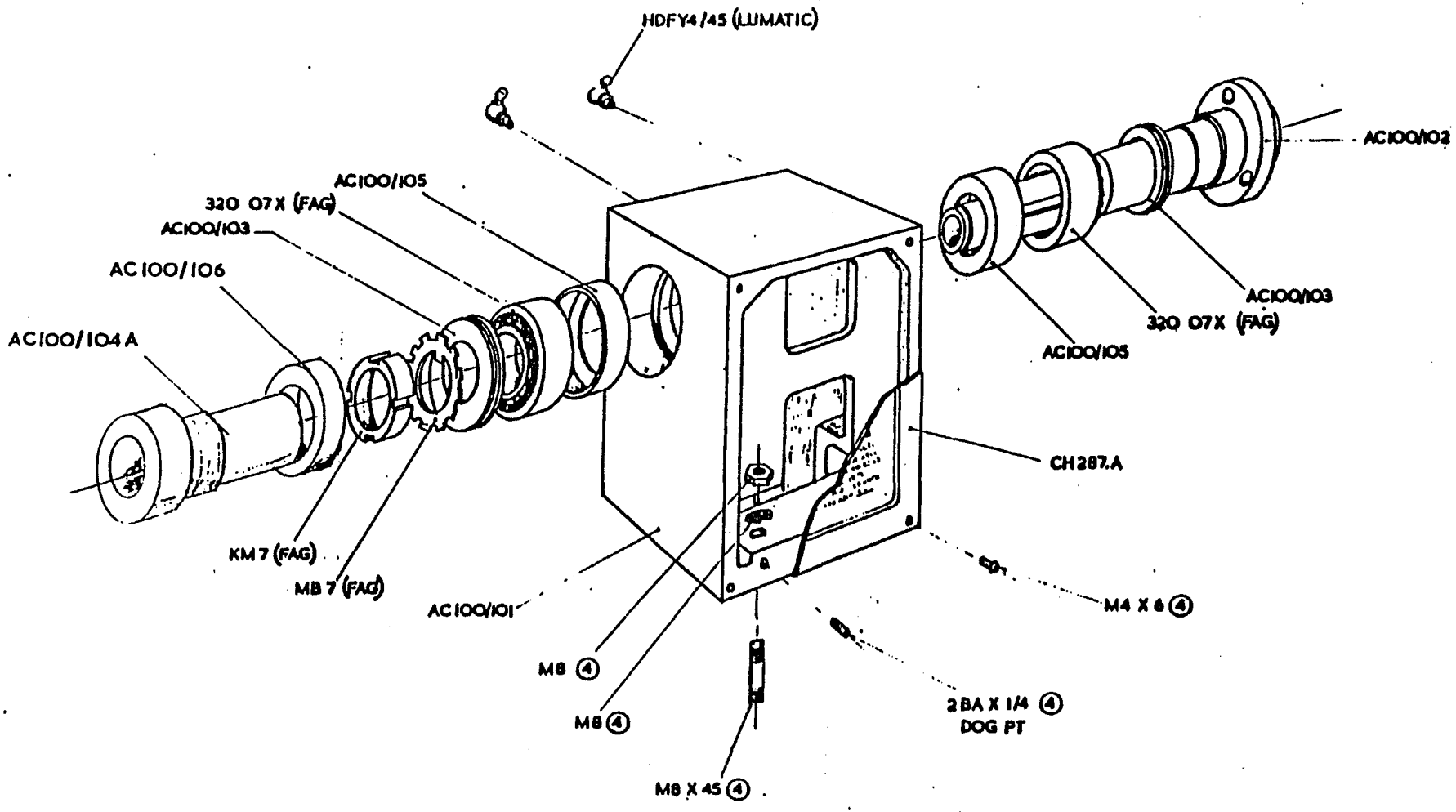
****

STARTURN 8 HEADSTOCK & SPINDLE ST.8/100

PART NUMBER	DESCRIPTION	QUANTITY
AC.100/101	HEADSTOCK	1
102	MAIN SPINDLE	1
103	GREASE RETAINING PLATE	1
105	GREASE CAP	1
107	CHUCK GUARD SPIGOT	1
108 A	CHUCK GUARD	1
ST.8/101	HEADSTOCK COVER PLATE	1

DESCRIPTION	MANUFACTURER & REFERENCE	COMPUTER NUMBER	QUANTITY
BEARINGS	FAG: 320 07X	55500193	2
LOCKNUT	FAG: KM7	55500186E	1
TAB WASHER	FAG: MB7	55500186F	1
GREASE NIPPLE	LUMATIC: HDFY4/45		2

IF IN DOUBT ASK.



AC100/100

DESCRIPTION	CHKD	APPD	DATE
ALTERATIONS			

DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED
ANGULAR ± 1° 2 PLACE DECIMAL ± .005°
FRACTIONAL ± 1/64" 4 PLACE DECIMAL ± .0005"

MATL.
MATL. SIZE
No. REQD.
MACHINE AT 99
GRIND AT "0"

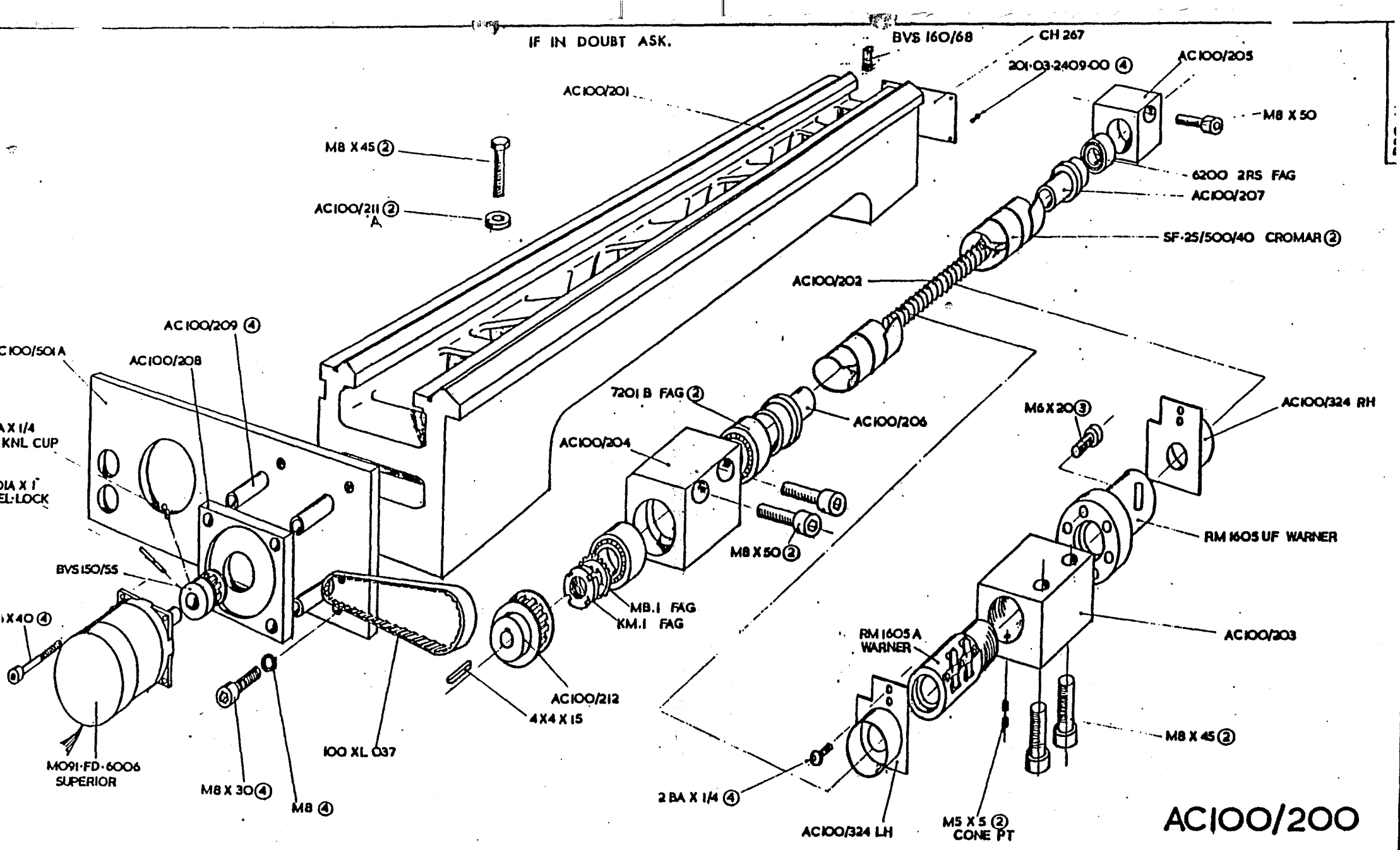
DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
W				14/2/84	

DRAWING No.

STARTURN 8 BED & SADDLE DRIVE ST.8/200

PART NUMBER	DESCRIPTION	QUANTITY
AC.100/201	BED	1
202	SADDLE BALLSCREW & NUTS	1
203 B	BALLNUT HOUSING	1
204	BEARING HOUSING	1
205	END SUPPORT BLOCK	1
206	CENTERING FLANGE	1
207	CENTERING FLANGE	1
211 A	BED WASHER	2
212	30T PULLEY	1
213	ADJUSTABLE SADDLE STOP	1
214	SADDLE STOP PLUNGER	1
215	SADDLE STOP CLAMP PLATE	1
216	PLUNGER HEAD	1
ST.8/209	MOTOR PLATE SPACER	3
501	Z AXIS MOTOR PLATE	1
BVS.150/55	12T PULLEY	1
BVS.160/68	BED END STOP	1

DESCRIPTION	MANUFACTURER & REFERENCE	COMPUTER NUMBER	QUANTITY
STEPPING MOTOR	CETRONIC DYNAMICS HY 200 3424 310 A8	55500421	1
BEARING	FAG: 7201 B	55500102A	2
BEARING	FAG: 6200 2RS	55500110	1
LOCKNUT	FAG: KM1	55500186A	1
TAB WASHER	FAG: MB1	55500186B	1
TIMING BELT	UNIROYAL: 100XL037	55500636	1
SPRING COVER	CROMER: SF.25/500/40	55501426A	2

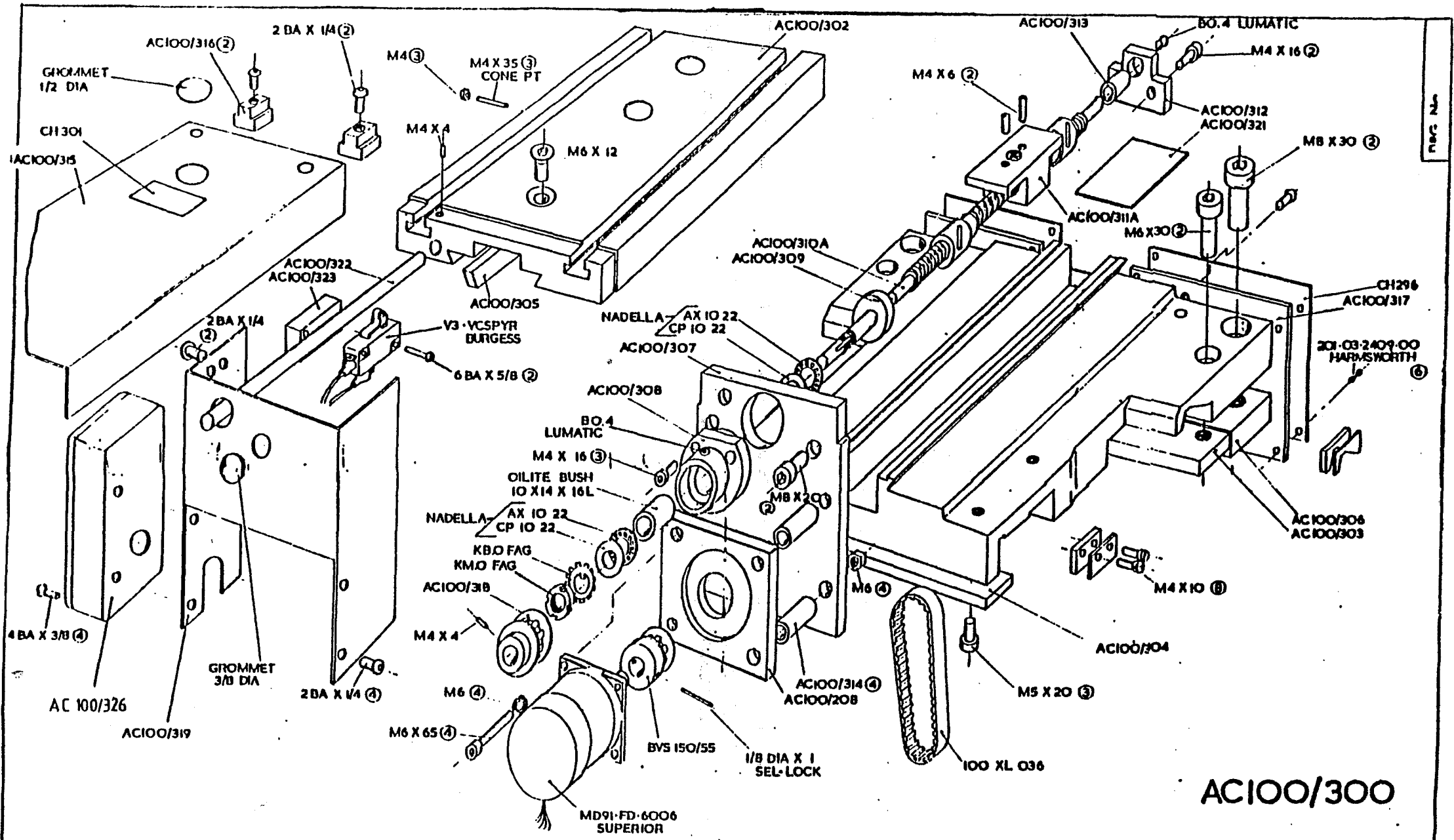


DESCRIPTION	CHKD	APPD	DATE	DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.	LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED. ANGULAR ± 1° 3 PLACE DECIMAL ± ·005" FRACTIONAL ± ·010" 4 PLACE DECIMAL ± ·0005"	MATL.	DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
ALTERATIONS						MATL. SIZE						
						No. REQD.	DRAWING No.					
						MACHINE AT 'W'						
						GRIND AT 'G'						

STARTURN 8 SADDLE & CROSS SLIDE DRIVE ST.8/300

PART NUMBER	DESCRIPTION	QUANTITY
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
310 A	CROSS SLIDE BALLSCREW	1
311 A	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
208	MOTOR PLATE	1
CH.296	APRON COVER PLATE	1
CH.301	LUBRICATION PLATE	1

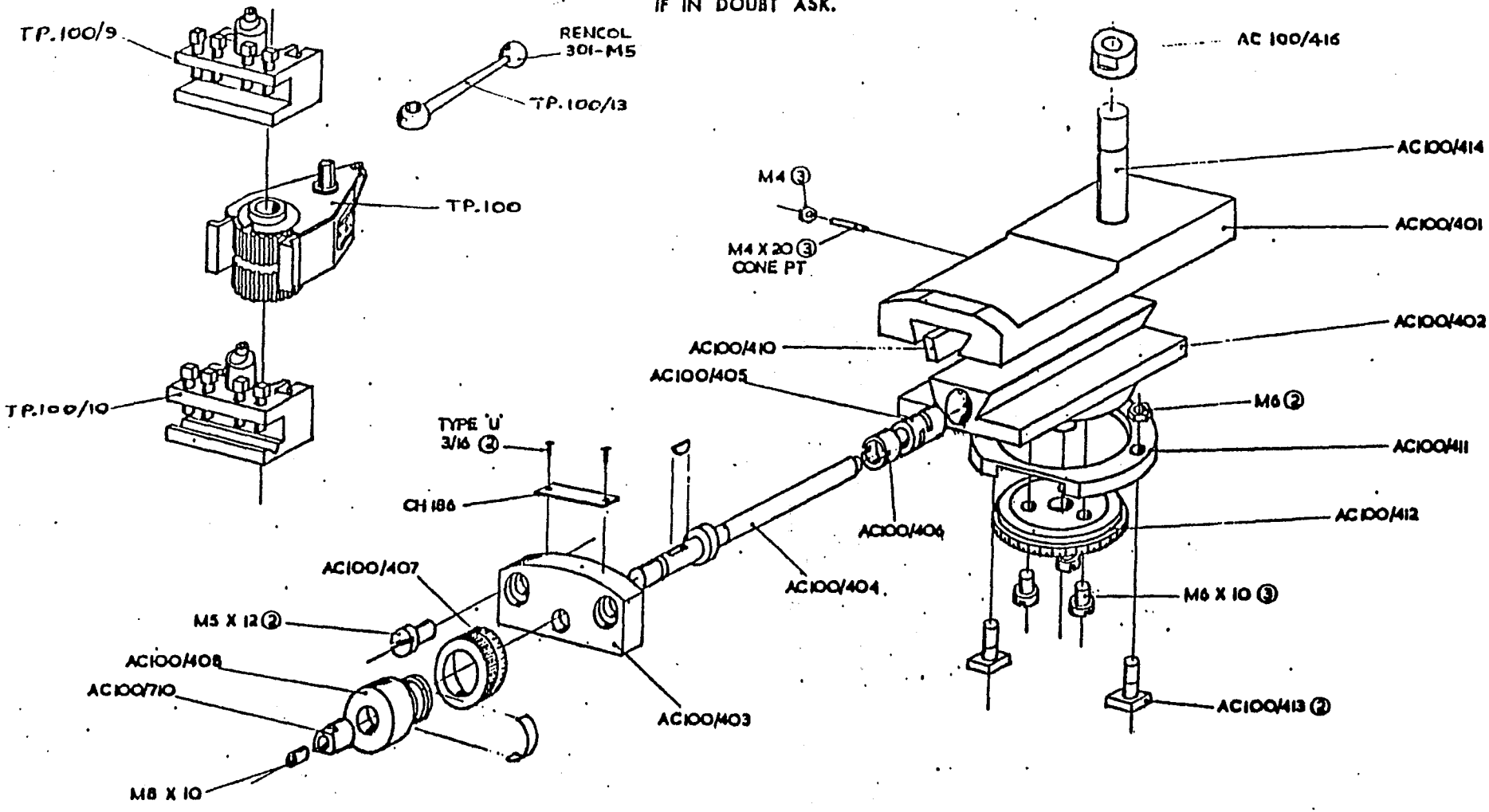
DESCRIPTION	MANUFACTURER & REFERENCE	COMPUTER NUMBER	QUANTITY
STEPPING MOTOR	CETRONIC DYNAMICS HY 200 3424 310 A8	55500421	1
TIMING BELT	UNIROYAL: 100XL037	55500636	1
THRUST BEARING	NADELLA: AX 10 22	55500170	2
THRUST PLATE	NADELLA: CP 10 22	55500171	2
OILITE BUSH	MANGANESE BRONZE: 10X14X16L	55500195E	1
LOCKNUT	FAG: KM 0	55500186C	1
TAB WASHER	FAG: MB 0	55500186D	1
OILER	UNIMATIC: BO 4		2
MICRO SWITCH	BURGESS: V3 VCSPYR	55500380B	1
TERMINAL BOX	R.S. 509 - 939	509 - 939	1
MICRO SWITCH	BURGESS: V3 QVCF9D	55500381B	1
RIVETS	HARMSWORTH: 201-03-2409-00		6



AC100/300

ALTERATIONS	DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.	UNLESS OTHERWISE STATED.	MAIN	DRAWN	TRACED	CHECKED	APPROVED	DATE 23.12.82	SCALE
			MAIN DEPT						
			MACHINE AT '0'	DRAWING No.					

IF IN DOUBT ASK.



AC100/400

DESCRIPTION	CHKD	APPD	DATE
ALTERATIONS			

DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

'ORAC' - TOP SLIDE SWIVEL & TOOLPOST

UNLESS ON DIMENSIONS UNLESS OTHERWISE STATED
ANGULAR ± ½° 2 PLACE DECIMAL ± .005"
FRACTIONAL ± .010" 4 PLACE DECIMAL ± .0005"

MATL.
MATL. SIZE
No REQD.
MACHINE AT 'F'
GRIND AT 'G'

DRAWN	TRACED	CHECKED	APPROVED	DATE

DRAWING No.

STARTURN 8 SPINDLE DRIVE ST.8/500

PART NUMBER	DESCRIPTION	QUANTITY
ST.1/501 B	SPINDLE DRIVE BRACKET	1
505	POTENTIOMETER LOCKNUT	1
ST.8/502	MAIN SPINDLE PULLEY	1
AC.100/502	MOTOR PULLEY	1
504 A	SPINDLE TRANSDUCER DISC	1
505 A	SPINDLE SENSOR BRACKET	1
506	LOCKNUT	1
507	SPINDLE PULLEY SPACER	1

DESCRIPTION	MANUFACTURER & REFERENCE	COMPUTER NUMBER	QUANTITY
DRIVE MOTOR	TUSCAN: PM 71L14F85	55500307	1
DRIVE BELT	POLY 'V' BELT: 360J10	55500627A	1

STARTURN 8 CABINET (STD) ST.8/600

PART NUMBER	DESCRIPTION	QUANTITY
ST.8/601	CABINET	1
602	CHASSIS BASE	1
603	REAR GUARD	1
604	END DRIVE HOUSING	1
605	CHIP GUARD	1
606	END DRIVE COVER	1
607		
608	CHIP GUARD BASE	1
609	CHIP GUARD HINGE SUPPORT	1
610	GUARD SUPPORT RAIL	1
CH.365 B	CONTROL PANEL	1
CH.356	FUSE PANEL CHART	1
ST.1/607	FUSE PANEL	1
609	MOTOR BRACKET SUPPORT LATHE	1
613	LIGHT BRACKET	2

DESCRIPTION	MANUFACTURER & REFERENCE	COMPUTER NUMBER	QUANTITY
HINGE	SOUTHCO: E6-10-501-20	5551229	2
REED SWITCH	R.S. 338 - 743	338 - 743	1
ACTUATOR	R.S. 338 - 759	338 - 759	1
EMERGENCY STOP	CUTLER/HAMMER E22MKRJ & E22C1	55500365D	1 SET
BUTTON RED	FARNELL: 140 - 651	FEC 140 - 651	1
BUTTON GREEN	FARNELL: 140 - 650	FEC 140 - 650	1
ALUM DIAL	R.S. 499 - 955	499 - 955	1
RESET BUTTON	FARNELL: 147 - 405	FEC 147 - 405	1
LIGHT	LAB CRAFT: GL 16		1

STARTURN 8 CABINET (TOOL CABINET) ST.8/650

PART NUMBER	DESCRIPTION	QUANTITY
ST.8/651	CABINET TOP	1
652	CABINET BASE	1
653	REAR GUARD	1
654	CHASSIS BASE	1
655	FUSE PANEL	1
656	MOTOR COVER	1
657	DIVIDING PANEL	1
658	INSPECTION COVER	1
659 A	COMPUTER STAND	1
660	MONITOR STAND	1
661	SLIDING DOOR	2
662	SWITCH GUARD	1
663	CHIP GUARD	1
664	SHELVES	4
ST.8/604	END DRIVE HOUSING	1
606	END DRIVE COVER	1
608	CHIP GUARD BASE	1
609	CHIP GUARD HINGE SUPPORT	1
610	GUARD SUPPORT RAIL	1
ST.1/613	LIGHT BRACKET	2
CH.356	FUSE PANEL CHART	1
CH.365 B	CONTROL PANEL	1
CH.372	PANEL EXTENSION	1
CH.372 A	PANEL EXTENSION (IBM COMPUTER)	1
ST.1/609	MOTOR BRACKET SUPPORT PLATE	1

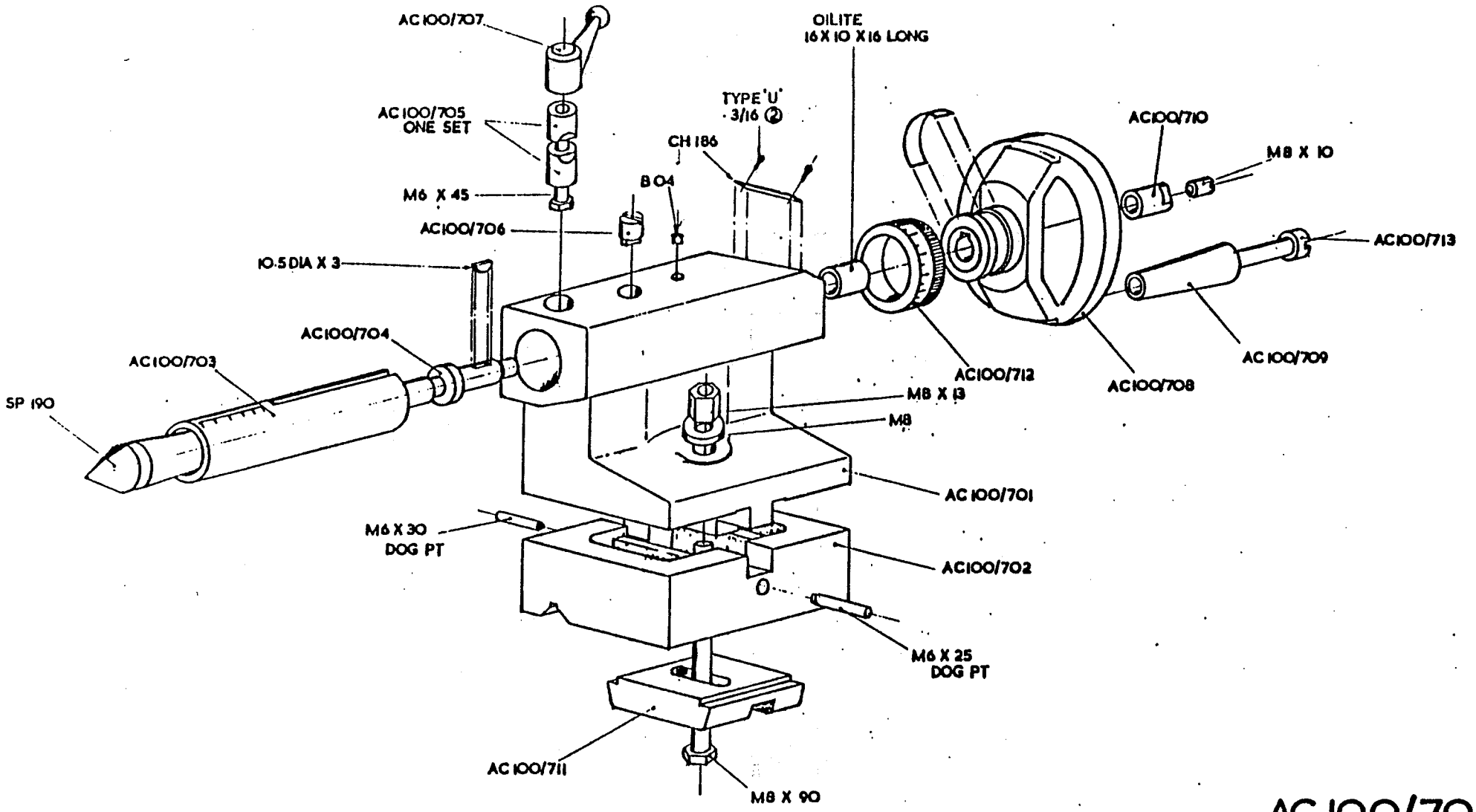
DESCRIPTION	MANUFACTURER & REFERENCE	COMPUTER NUMBER	QUANTITY
HINGE	SOUTHCO: E6-10-501-20	5551229	2
REED SWITCH	R.S. 338 - 743	338 - 743	1
ACTUATOR	R.S. 338 - 759	338 - 759	1
EMERGENCY STOP	CUTLER/HAMMER E22MKRJ & E22C1	55500365D	1 SET
BUTTON RED	FARNELL: 140 - 651	FEC 140 - 651	1
BUTTON GREEN	FARNELL: 140 - 650	FEC 140 - 651	1
ALUM DIAL	R.S. 499 - 955	499 - 955	1
RESET BUTTON	FARNELL: 147 - 405	FEC 147 - 405	1
LIGHT	LAB CRAFT: GL 16		3
SLIDING TRACK	ALUMINIUM SECTIONS: TOP MM 01H		1
	BOTTOM MM 01G		1
HANDLES			2
MAINS SOCKETS	R.S. 489 - 784	489 - 784	1

STARTURN 8 TAILSTOCK ST.8/700

PART NUMBER	DESCRIPTION	QUANTITY
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 & REFERENCE		QUANTITY
WOODRUFF KEY		10.5 DIA X 3	1
OILITE BUSH		16X10X10 LONG	1
OILER	LUMATIC	B04	1
SET SCREW		M8 X 90	1
SET SCREW		M6 X 45	1
GRUB SCREW		M6 X 25 DOG POINT	1
GRUB SCREW		M6 X 30 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

DESCRIPTION	CHKD	APPD	DATE
ALTERATIONS			

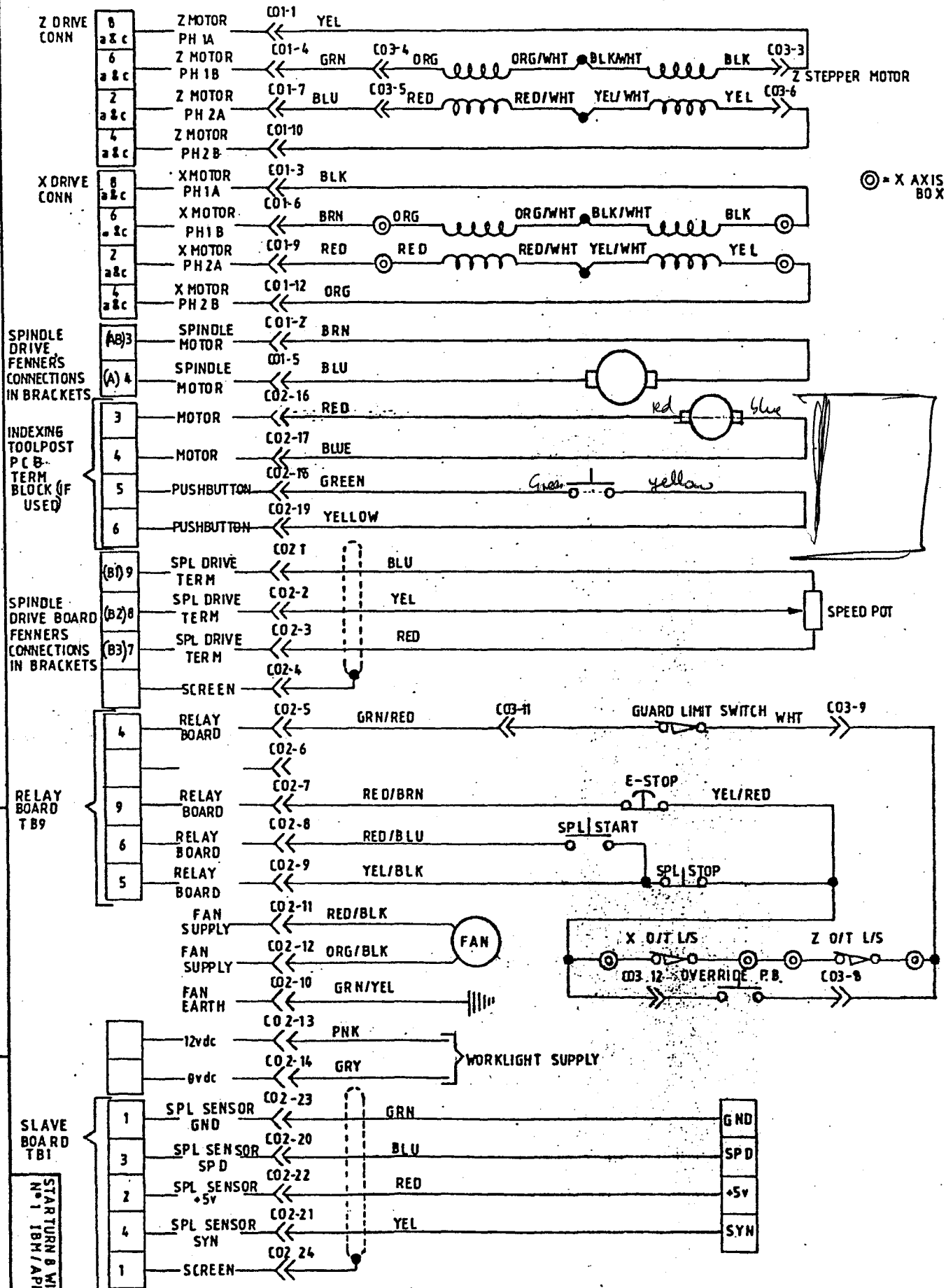
DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.
ANGULAR ± 1° 2 PLACE DECIMAL ± ·005"
FRACTIONAL ± ·010" 3 PLACE DECIMAL ± ·005"

MATL.
MATL. SIZE
No. REQD.
MACHINE AT 'M'
GRIND AT 'G'

DRAWN	TRACED	CHECKED	APPROVED	DATE	SCALE
M.				11/11/-	

DRAWING No.



C01 12 WAY QM PLUG AND SOCKET MOUNTED ON CHASSIS
C02 24 WAY QM PLUG AND SOCKET MOUNTED ON CHASSIS
C03 12 WAY QM PLUG AND SOCKET MOUNTED IN SPINDLE END GUARD

DENFORD MACHINE TOOLS LTD BRIGHOUSE WEST YORKSHIRE

DRN. BY: K STANTON DATE: 10-4-86

TRCD. BY:

DATE:

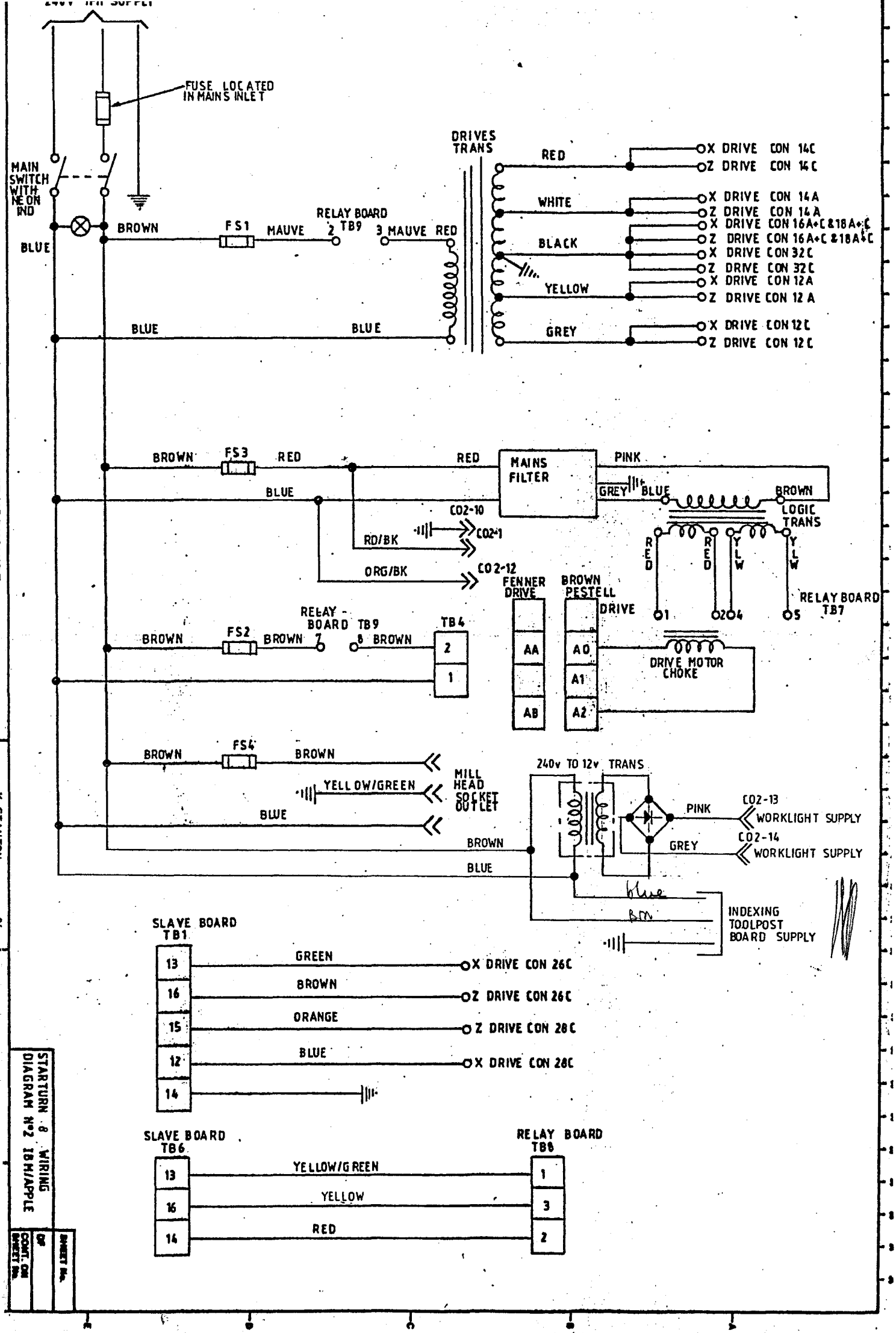
STARTURN 8 WIRING DIAGRAM N°1 IBM/APPLE

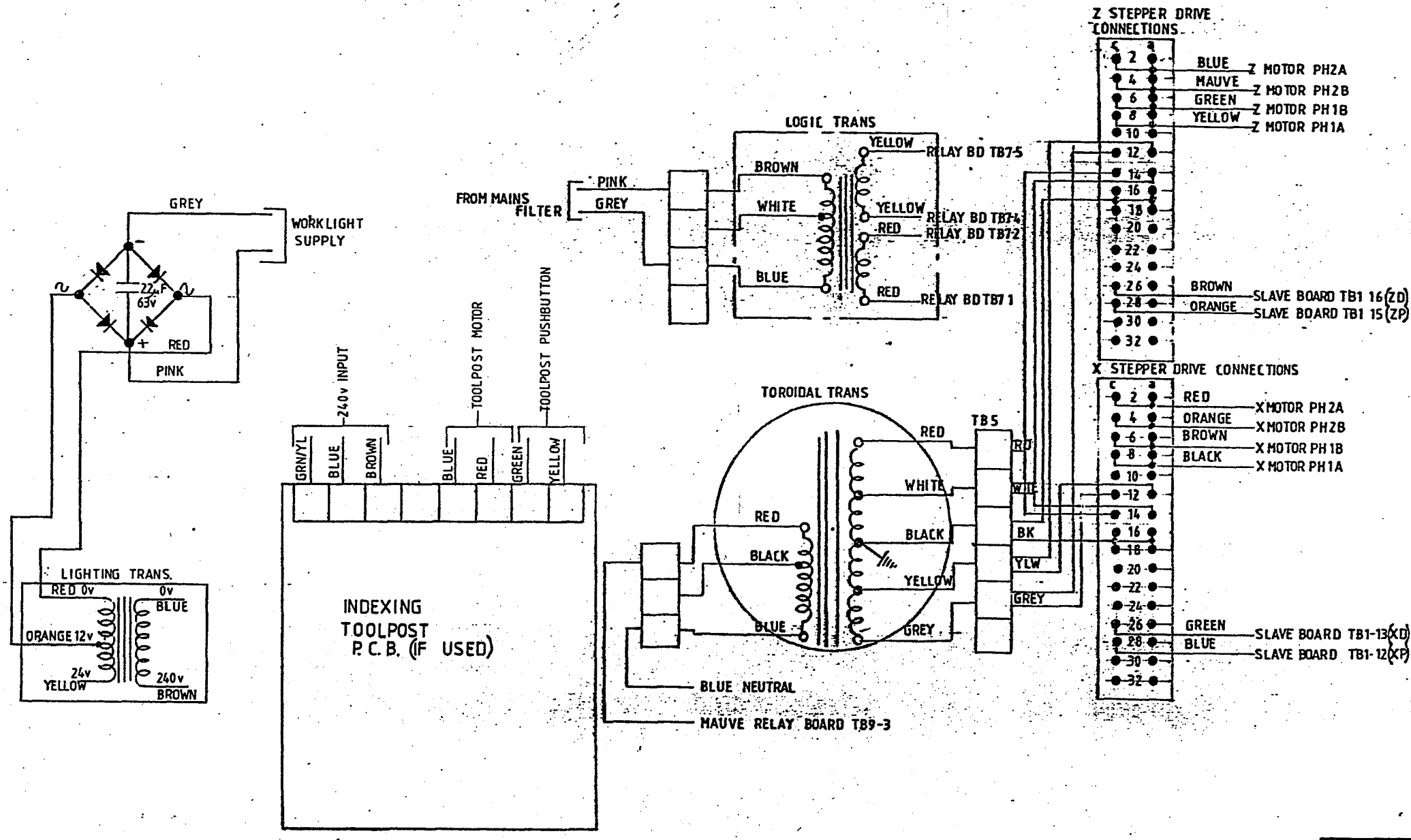
A3-100040

CONT. ON SHEET No.

OF

SHEET No.


DENFORD MACHINE TOOLS LTD
BRIGHOUSE
WEST YORKSHIRE
DRN. BY: K. STANTON DATE: -86
240V 1PH SUPPLY
FUSE LOCATED IN MAINS INLET
MAIN SWITCH WITH NE ON IND
BLUE
BROWN
FS1
MAUVE
RELAY BOARD TB9
2
3 MAUVE
RED
DRIVES TRANS
RED
X DRIVE CON 14C
Z DRIVE CON 14C
WHITE
X DRIVE CON 14A
Z DRIVE CON 14A
BLACK
X DRIVE CON 16A+C & 18A+C
Z DRIVE CON 16A+C & 18A+C
X DRIVE CON 32C
Z DRIVE CON 32C
YELLOW
X DRIVE CON 12A
Z DRIVE CON 12A
GREY
X DRIVE CON 12C
Z DRIVE CON 12C
BLUE
BLUE
BROWN
FS3
RED
RED
MAINS FILTER
PINK
GREY
BLUE
BROWN
LOGIC TRANS
BLUE
CO2-10
CO2-1
RD/BK
ORG/BK
CO2-12
FENNER DRIVE
BROWN PESTELL DRIVE
RED
RED
YLW
YLW
1
2
4
5
RELAY BOARD TB7
RELAY BOARD TB9
BROWN
FS2
BROWN
7
8 BROWN
TB4
2
1
AA
AB
A0
A1
A2
DRIVE MOTOR CHOKE
BROWN
FS4
BROWN
YELLOW/GREEN
BLUE
MILL HEAD SOCKET OUTLET
240v TO 12v TRANS
PINK
CO2-13
WORKLIGHT SUPPLY
GREY
CO2-14
WORKLIGHT SUPPLY
BROWN
BLUE
blue
BRN
INDEXING TOOLPOST BOARD SUPPLY
SLAVE BOARD TB1
13
16
15
12
14
GREEN
X DRIVE CON 26C
BROWN
Z DRIVE CON 26C
ORANGE
Z DRIVE CON 28C
BLUE
X DRIVE CON 28C
SLAVE BOARD TB6
RELAY BOARD TB8
13
16
14
YELLOW/GREEN
YELLOW
RED
1
3
2
STARTURN .8 WIRING DIAGRAM N°2 IBM/APPLE
CONT. ON SHEET No.
OF
SHEET No.



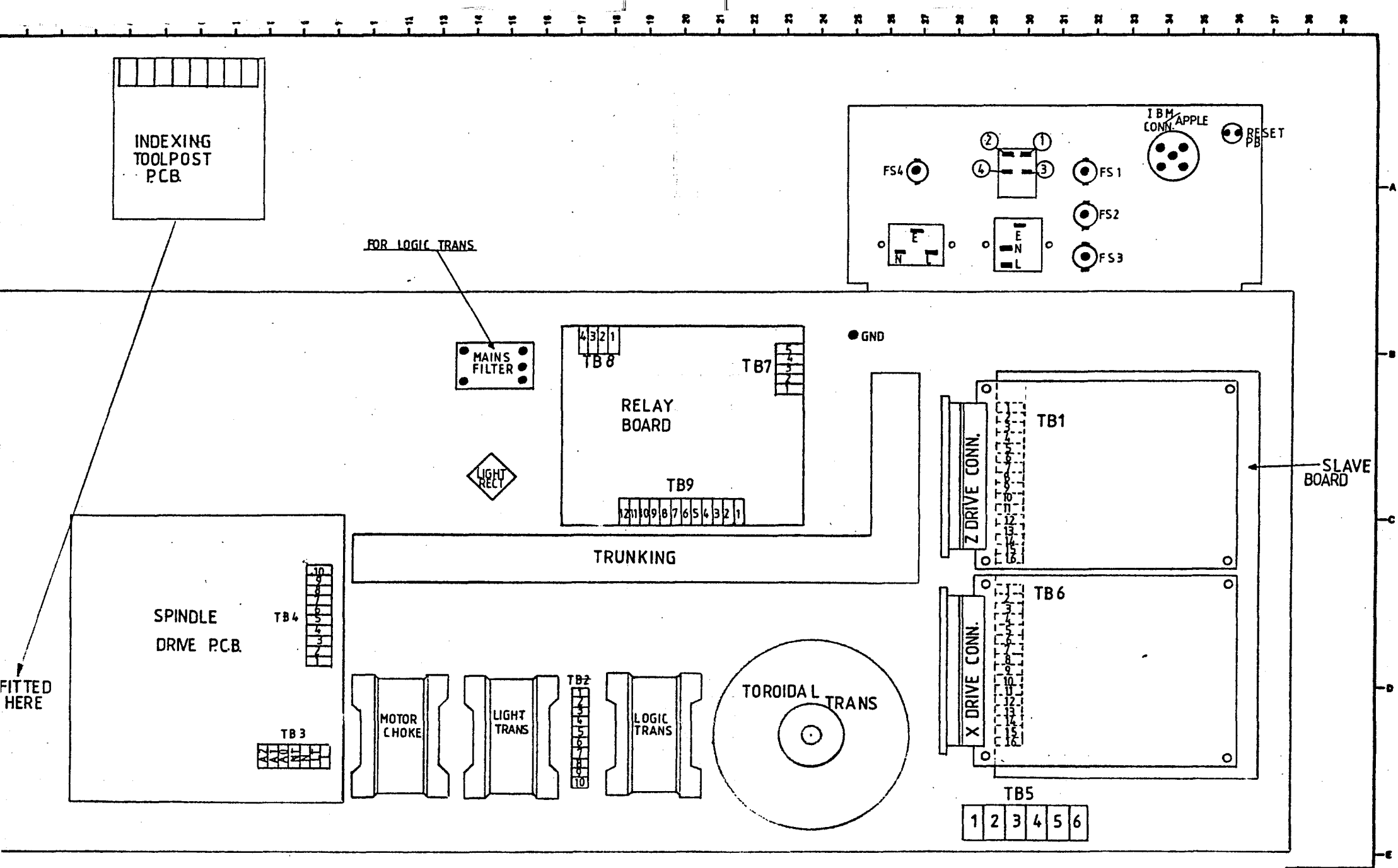
DENFORD MACHINE TOOLS LTD	BRIGHOUSE	WEST YORKSHIRE	DRN. BY: K STANTON DATE: 20-5-86	TRCD. BY: DATE:	A3-100046

STARTURN & IBM/APPLE DRIVES AND TRANFORMER WIRING DIAGRAM

SHEET No.

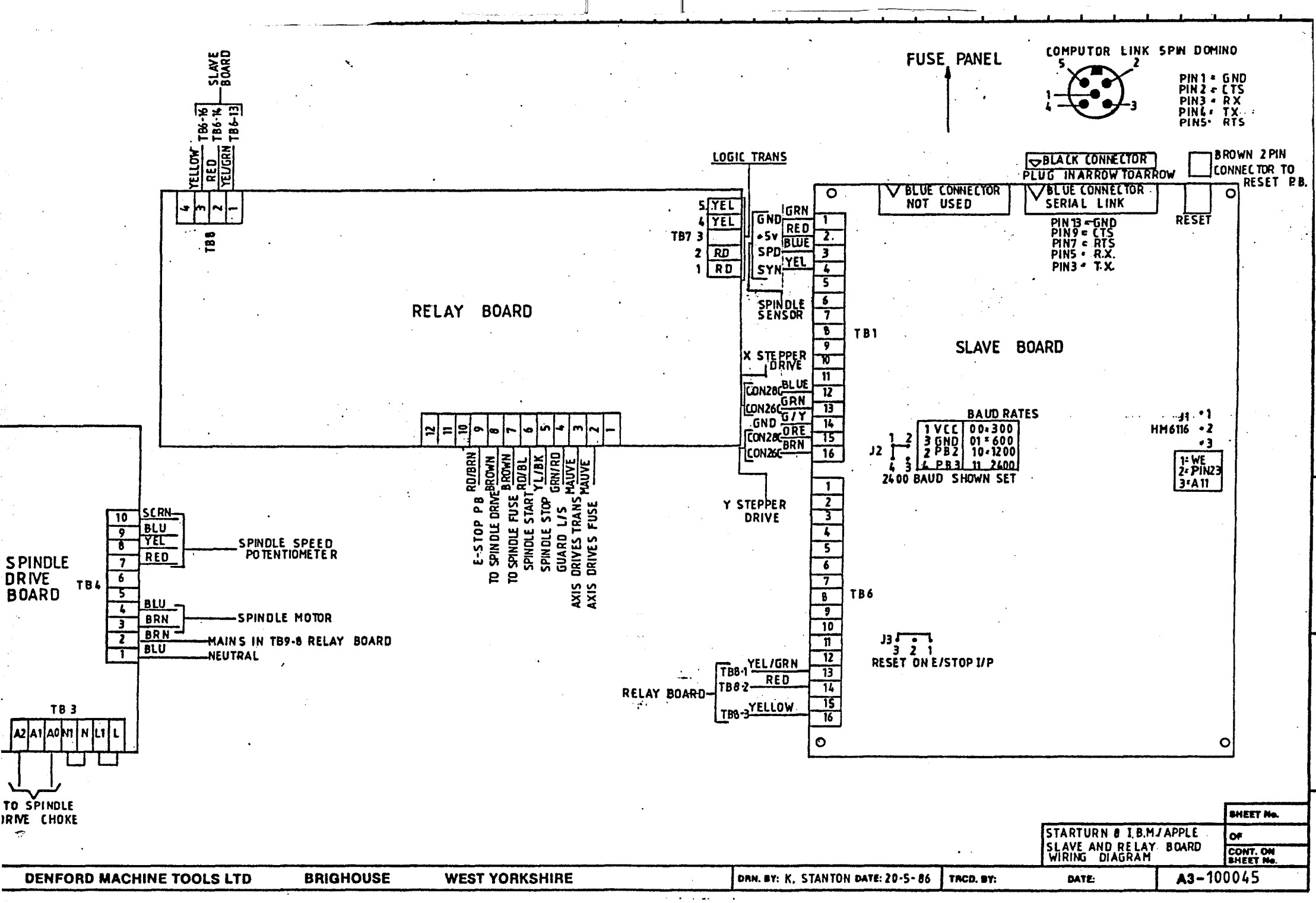
OF

CONT. ON SHEET No.



STARTURN 8 IBM/APPLE CHASSIS LAYOUT	SHEET No.
	OF
	CONT. ON SHEET No.

DENFORD MACHINE TOOLS LTD	BRIGHOUSE	WEST YORKSHIRE	DRN. BY: K STANTON DATE: 19-5-86	TRCD. BY:	DATE:	A3 – 100044


FUSE PANEL
COMPUTOR LINK 9PIN DOMINO
PIN1 = GND
PIN2 = CTS
PIN3 = RX
PIN4 = TX
PIN5 = RTS
SLAVE BOARD
TB6-16
TB6-14
TB6-13
YELLOW
RED
YEL/GRN
TB8
RELAY BOARD
LOGIC TRANS
5 YEL
4 YEL
TB7 3
2 RD
1 RD
GND GRN
+5v RED
SPD BLUE
SYN YEL
SPINDLE SENSOR
BLACK CONNECTOR
PLUG INARROW TOARROW
BROWN 2 PIN CONNECTOR TO RESET P.B.
BLUE CONNECTOR NOT USED
BLUE CONNECTOR SERIAL LINK
PIN13 = GND
PIN9 = CTS
PIN7 = RTS
PIN5 = R.X.
PIN3 = T.X.
RESET
TB1
SLAVE BOARD
X STEPPER DRIVE
CON28C BLUE
CON26C GRN
GND G/Y
CON28C ORE
CON26C BRN
Y STEPPER DRIVE
BAUD RATES
1 VCC 00=300
3 GND 01=600
2 PB2 10=1200
4 PB3 11 2400
J2
2400 BAUD SHOWN SET
J1 *1
HM6116 *2
*3
1=WE
2=PIN23
3=A11
TB6
J3
3 2 1
RESET ON E/STOP I/P
TB8-1 YEL/GRN
TB8-2 RED
TB8-3 YELLOW
RELAY BOARD
12 11 10 9 8 7 6 5 4 3 2 1
E-STOP P B RD/BRN
TO SPINDLE DRIVE BROWN
TO SPINDLE FUSE BROWN
SPINDLE START RD/BL
SPINDLE STOP YL/BK
GUARD L/S GRN/RD
AXIS DRIVES TRANS MAUVE
AXIS DRIVES FUSE MAUVE
SPINDLE DRIVE BOARD
TB4
10 SCRN
9 BLU
8 YEL
7 RED
SPINDLE SPEED POTENTIOMETER
6
5
4 BLU
3 BRN
SPINDLE MOTOR
2 BRN
MAINS IN TB9-8 RELAY BOARD
1 BLU
NEUTRAL
TB 3
A2 A1 A0 N1 N L1 L
TO SPINDLE DRIVE CHOKE
STARTURN 8 I.B.M./APPLE
SLAVE AND RELAY BOARD
WIRING DIAGRAM
SHEET No.
OF
CONT. ON SHEET No.
DENFORD MACHINE TOOLS LTD
BRIGHOUSE
WEST YORKSHIRE
DRN. BY: K. STANTON DATE: 20-5-86
TRCD. BY:
DATE:
A3-100045

DENFORD MACHINE TOOLS LIMITED

STARTURN ELECTRICAL CHASSIS

DESCRIPTION	MANUFACTURER AND REFERENCE	COMPUTER NUMBER	QUANTITY
HOLDER FS1 - 4	R.S. 412 - 021	R.S. 412 - 021	4
S INLET	R.S. 489 - 122	R.S. 489 - 122	1
HEAD OUTLET	R.S. 489 - 245	R.S. 489 - 245	1
S SWITCH	R.S. 338 - 529	R.S. 338 - 529	1
PUTER LINK	R.S. 5 PIN DOMINO R.S 470 - 415	R.S. 470 - 415	1
TLET)			
ET P.B -	FARNELL F.E.C. 147 - 405	F.E.C. 147 - 405	1
AVE BOARD	G.S.M. SYNTEL SLAVE BOARD		1
EPPER DRIVES	DIGIPLAN TYPE SD2		2
LAY BOARD	G.S.M. SYNTEL PC - 2060/B		1
GIC TRANS	G.S.M. SYNTEL T.M. 430		1
RIVES TRANS	G.S.M. SYNTEL TOROIDAL TRANS		1
PINDLE DRIVE CHOKE	SPINDLE DRIVE CHOKE J - ELECTRIC'S		1
PINDLE DRIVE	FENNER TYPE 525Z OR BROWN PESTELL TYPE 075	55500432T	1
AINS FILTER	CAMPBELL BAKER TYPE SD1/A50		1
TERMINAL BLOCK TB5	KLIPPON TYPE MK6/6		6 WAY
TERMINAL BLOCK TB2	KLIPPON TYPE MK3		4 WAY
24 WAY QM PLUG	R.S. 466 - 753	R.S. 466 - 753	1
12 WAY QM PLUG	R.S. 466 - 781	R.S. 466 - 781	1
24 WAY QM SOCKET	R.S. 466 - 747	R.S. 466 - 747	1
12 WAY QM SOCKET	R.S. 466 - 775	R.S. 466 - 775	1
SOCKET PIN F/M	R.S. 466 - 826	R.S. 466 - 826	28
SOCKET PIN M	R.S. 466 - 797	R.S. 466 - 797	28
LIGHTING TRANSFORMER	MELLOR ME - 912	55500378	1
RECTIFIER	R.S. 262 - 309	R.S. 262 - 309	1
CAPACITOR	R.S. 105 - 076	R.S. 105 - 076	1
INDEXING TOOLPOST P.C.B. (IF USED)	J. ELECTRICS	55500434Q	1

INTRODUCTION

Denford Machine Tools have a range of CNC software packages for all of today's popular Micro's. Our off line programming software has been developed to assist in the training of CNC programming and has been developed around a particular Denford controller. CNC programs can be written in the Editor, tested with simulated graphics and finally downloaded to the Machine Tool.

Hardware Specification

* BBC B, BBC B+128, MASTER Series, Compact
* Single or Dual Disk Drive (40 or 80 Track)
* Monitor

Software Specification

* Single Floppy Disk 40/80 Track
* Security EPROM
* Manual
* Cable

SETTING UP

FIRST TIME BBC USER'S

If you have received a BBC system with your software be sure to read through the BBC User guide on how to setup your computer before trying to use this Software. Run through the BBC Software supplied with the computer to get a feel for the machine.

FITTING THE EPROM (This may have been fitted already by Denford's)

Remove the lid from the BBC computer by means of four screws, on the MASTER Series these are labelled 'FIX'

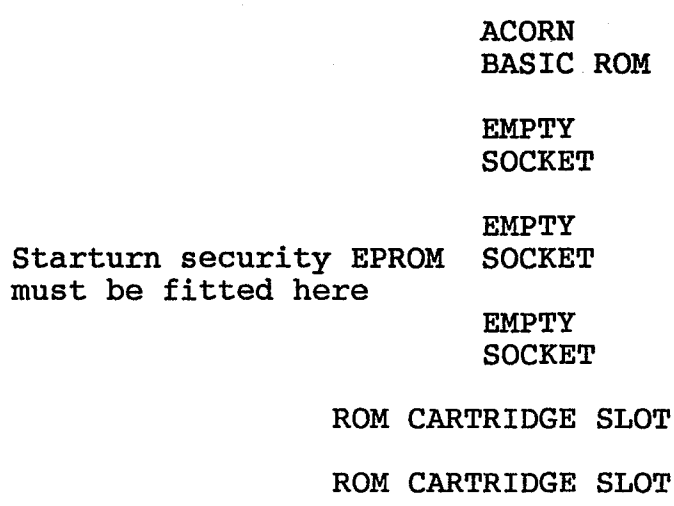
BBC Model B
Unscrew the keyboard by removing the two screws, one at either end. On the near right of the main circuit board there are five 28 pin ROM sockets and the EPROM can be inserted into any free socket.

BBC MODEL B
The keyboard section does not need removing. Located at the far left of the main circuit board are 8 ROM sockets. The EPROM can be inserted into any of these.

BBC MASTER Series
The EPROM can be installed in two ways.

1 ROM Cartridge
If a ROM cartridge is available then use it, as the EPROM is simpler to install, and can be transfered easily between seperate MASTER computers. The EPROM can be positioned into any socket on the cartridge, which can be fitted into any slot of the computer.

2 Socket inside the Computer
After removing the computer cover you will find a bank of four ROM sockets on the near right of the main circuit board, some of which may be occupied. The EPROM must be located in the socket shown in the diagram below.



IMPORTANT

Take Special care when inserting EPROMS and ensure that all the pins on the chip are correctly positioned in the socket and none are bent. The small notch at one end of the chip must lie in the same direction as the other chips on the main circuit board. Try not to touch the pins on the chip.

SECTION ONE AND SECTION TWO

The Starturn software system is supplied on one or two floppy disks.

Disk 1 is supplied if the software has been purchased without the Starturn machine to be used for Offline Programming.

Disk 2 is supplied with the machine and is used for machine control and execution.

The first section of this manual covers the off line programming and the second section Starturn control and execution.

SECTION ONE

Switch on the computer, monitor and Disk Drive and place the Disk in Drive 0. Hold down the SHIFT and BREAK key, release the BREAK key followed by the SHIFT key. The disk drive light will come on for a few seconds and the STARTURN title page will appear on the screen. Press the space bar to continue.

STARTURN MACHINE SIMULATION

Select one of these operations.

S... Simulation
C... Create
E... Edit
B... Build a shape
D... Drive select
N... Name program
W... Workpeice size
Q... Quit

Key in your choice

Drive 0 holds your CNC program Disc
Cnc program is not yet named