

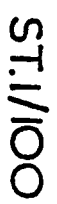
SECTION 50

STARTURN

PARTS ILLUSTRATIONS

| | |
|----------------------------|----------|
| HEADSTOCK & SPINDLE | ST.1/100 |
| BED & SADDLE DRIVE | ST.1/200 |
| SADDLE & CROSS SLIDE DRIVE | ST.1/300 |
| SPINDLE DRIVE | ST.1/500 |
| CABINET | ST.1/600 |
| TAILSTOCK | ST.1/700 |
| QUICK CHANGE TOOLPOST | TP.100 |

DRG. No.



| | | | | | |
|-------|--------|---------|----------|---------|-------|
| DRAWN | TRACED | CHECKED | APPROVED | DATE | SCALE |
| A.M. | | | | 11.3.05 | |

DRAWING No.

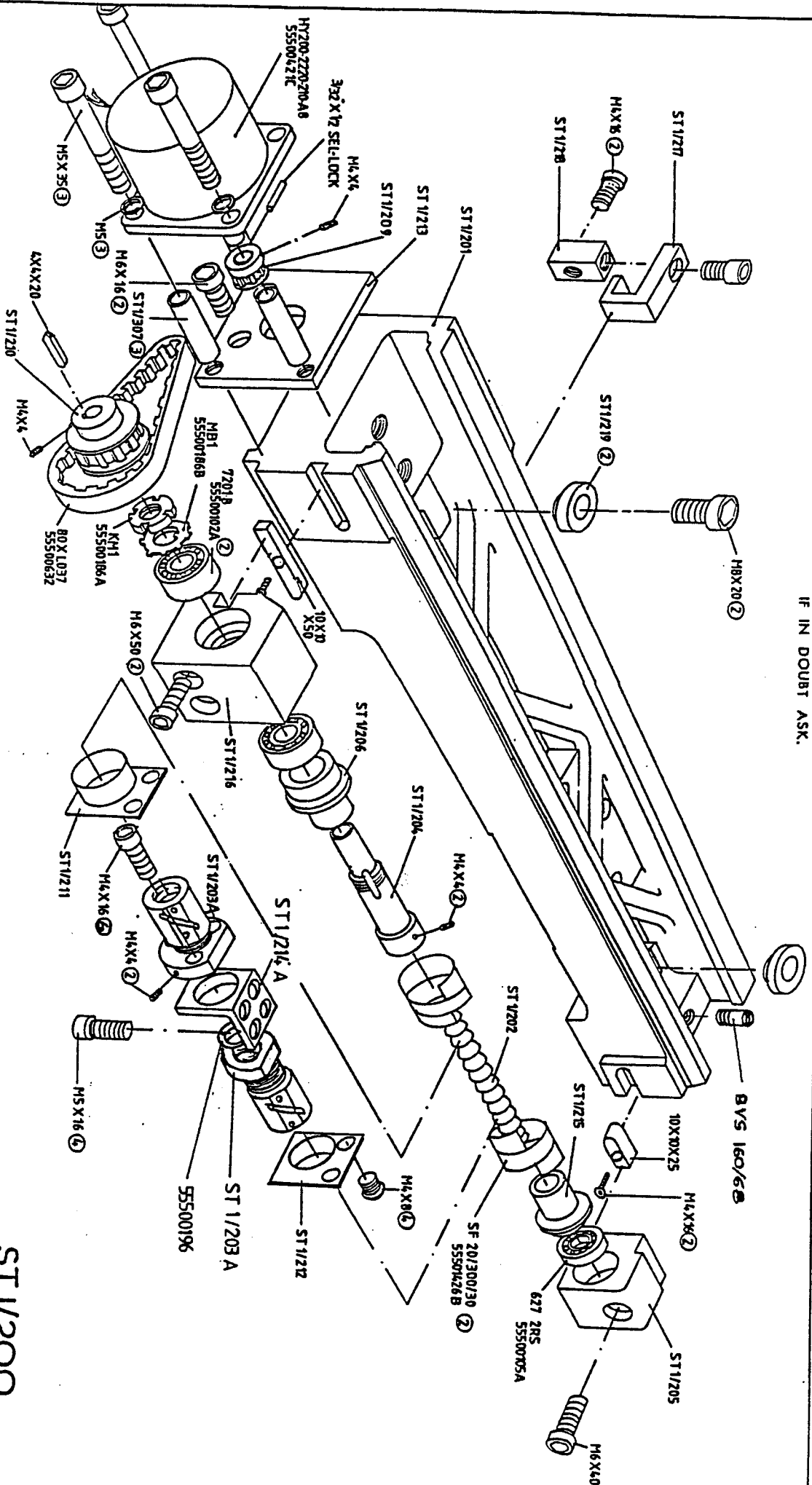
'STARTURN' HEADSTOCK AND SPINDLE

ST.1/100

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</u> |
|--------------------|---|-----------------|
| ST.1/101 | HEADSTOCK | 1 |
| 102 | MAIN SPINDLE | 1 |
| 103 | GREASE RETAINING PLATE | 2 |
| 104 | CHUCK GUARD | 1 |
| 105 | SPINDLE END PLUG | 1 |
| 106 | 4 JAW CHUCK BACKPLATE (EXTRA EQUIPMENT ONLY) | 1 |

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|--------------------|-------------------------------------|------------------------|-----------------|
| BEARING | FAG 7204 - B | 55500177 | 2 |
| LOCKNUT | FAG KM - 4 | 55500183 | 1 |
| TAB WASHER | FAG MB - 4 | 55500184 | 1 |
| GREASE NIPPLE | LUMATIC HDFY4/45 | | 2 |

IF IN DOUBT ASK.



ST.1/200

DRG. No.

ALTERATIONS

DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED
ANGULAR ± 1° 3' PLACES DECIMAL ± 0.05°
FRACTIONAL ± 0.001" PLACES DECIMAL ± 0.0001"

DATE: _____
BY: _____
CHECKED: _____
DATE: _____

DRAWN: A.M.
CHECKED: _____
DATE: 13.3.85

DRAWING No.

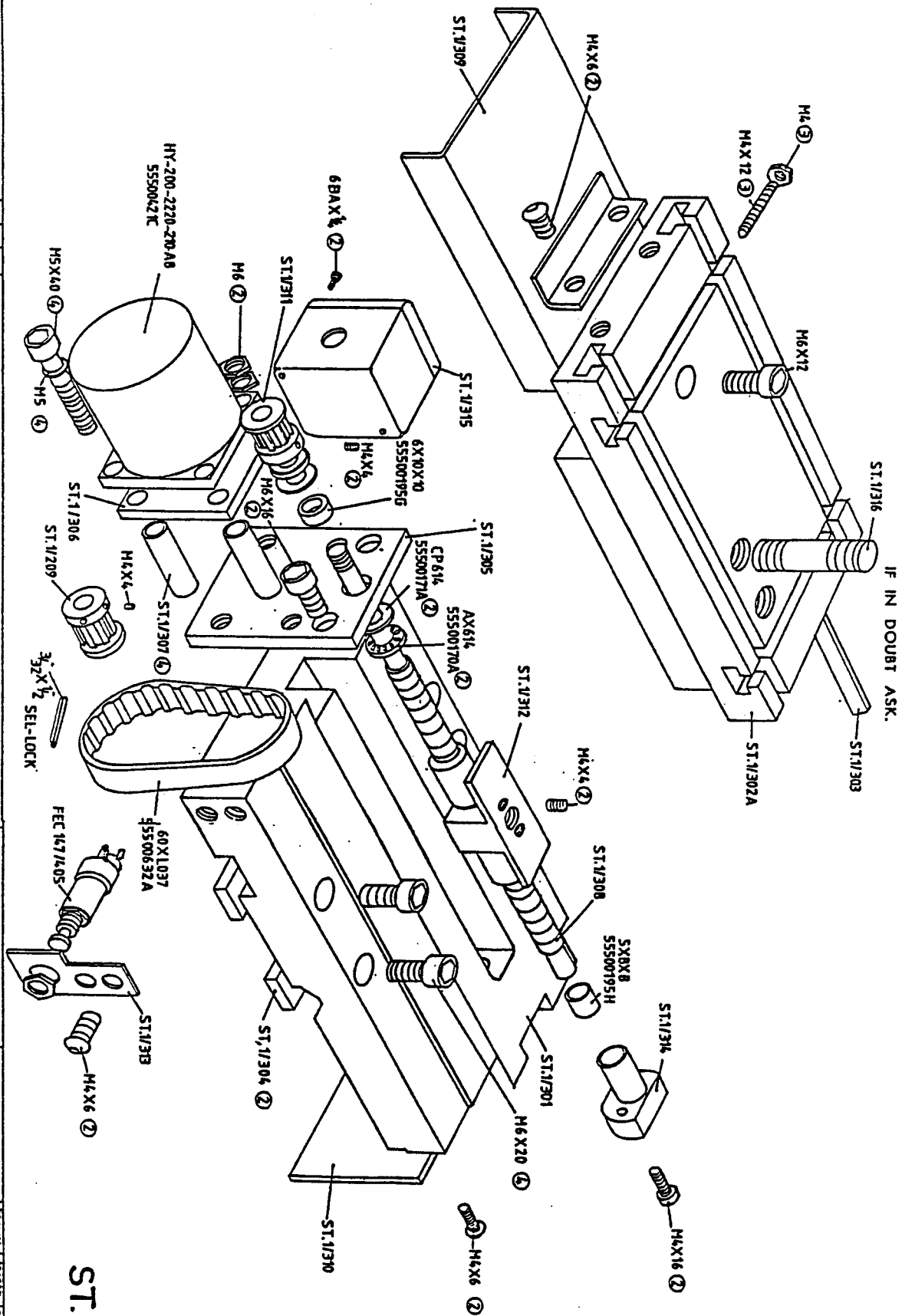
STARTURN BED AND SADDLE DRIVEST.1/200

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</u> |
|--------------------|--------------------------|-----------------|
| ST.1/210 | BED | 1 |
| 202 | SADDLE BALLSCREW | 1 |
| 203 A | BALLNUT HOUSING | 2 |
| 204 | BALLSCREW ADAPTOR | 1 |
| 205 | END SUPPORT BRACKET | 1 |
| 206 | GUARD SPIGOT | 1 |
| 209 | 12T MOTOR PULLEY | 1 |
| 210 | 24T PULLEY | 1 |
| 211 | APRON END CAP LEFT HAND | 1 |
| 212 | APRON END CAP RIGHT HAND | 1 |
| 213 | MOTOR PLATE | 1 |
| 214 A | BALLNUT BRACKET | 1 |
| 215 | GUARD SPIGOT | 1 |
| 216 | BEARING HOUSING | 1 |
| 217 | SADDLE STOP | 1 |
| 218 | SADDLE STOP ARM | 1 |
| 219 | BED WASHER | 2 |

| | | |
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| ST.1/307 | MOTOR SPACER | 3 |
|----------|--------------|---|

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| BVS.160/68 | PIN | 1 |
|------------|-----|---|

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|--------------------|-------------------------------------|------------------------|-----------------|
| BEARING | FAG 7201 - B | 55500102A | 2 |
| BEARING | FAG 627 2RS | 55500105A | 1 |
| STEPPING MOTOR | CETRONIC DYNAMICS | | |
| | HY200-2220-210 A8 | 55500421C | 1 |
| TIMING BELT | UNIROYAL 80 X L037 | 55500632 | 1 |
| BALLNUTS | HO FONG 10 X 4 (TYPE RS) | ST.1/202 | 2 |
| LOCKNUT | FAG KM - 1 | 55500186A | 1 |
| TAB WASHER | FAG MB - 1 | 55500186B | 1 |
| SPRING COVER | CROMER SF 20/300/30 | 55501426B | 2 |
| DISC SPRING | ANDERTON 29.7/17.4/0.4 | 55500196 | 1 |



ST.1/300

IF IN DOUBT ASK.

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STARTURN SADDLE & CROSS SLIDE DRIVEST.1/300

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</u> |
|--------------------|-------------------------|-----------------|
| ST.1/301 | SADDLE | 1 |
| 302 A | CROSS SLIDE | 1 |
| 303 | CROSS SLIDE JIB STRIP | 1 |
| 304 | SADDLE JIB STRIP | 2 |
| 305 | CROSS SLIDE DRIVE PLATE | 1 |
| 306 | MOTOR PLATE | 1 |
| 307 | MOTOR SPACER | 4 |
| 308 | CROSS SLIDE BALLSCREW | 1 |
| 309 | CROSS SLIDE COVER | 1 |
| 310 | SADDLE FRONT COVER | 1 |
| 311 | 15T PULLEY | 1 |
| 312 | BALLNUT HOUSING | 1 |
| 313 | SWITCH BRACKET | 1 |
| 314 | FRONT SUPPORT BUSH | 1 |
| 315 | SADDLE CONNECTION BOX | 1 |
| 316 | TOOLPOST STUD | 1 |
| ST.1/209 | 12T MOTOR PULLEY | 1 |

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|--------------------|--|------------------------|-----------------|
| STEPPING MOTOR | CETRONIC DYNAMICS HY200-2220-210 A8 | 55500421C | 1 |
| TIMING BELT | UNIROYAL 60 X L037 | 55500632A | 1 |
| THRUST BEARING | NADELLA AX614 | 55500170A | 2 |
| THRUST PLATE | NADELLA CP614 | 55500171A | 2 |
| BALLNUTS | HO FONG 8X2.5 | ST.1/308 | 2 |
| BRONZE BUSH | 6 X 10 X 10 | 55500195G | 1 |
| BRONZE BUSH | 5 X 8 X 8 | 55500195H | 1 |
| MICRO SWITCH | FARNELL: 147-405 | FEC 147-405 | 1 |

DRG. No.



| | | | | | | | |
|------------|-------|--|--|---|---|-------|-------|
| MAIL. | DRAWN | | | 1 | 1 | DATE | SCALE |
| MAIL SIZE | A.M. | | | 1 | 1 | 23.05 | |
| NO. ROD | | | | 1 | 1 | | |
| MACHINE AT | | | | 1 | 1 | | |
| BY | | | | 1 | 1 | | |

DRAWING No.

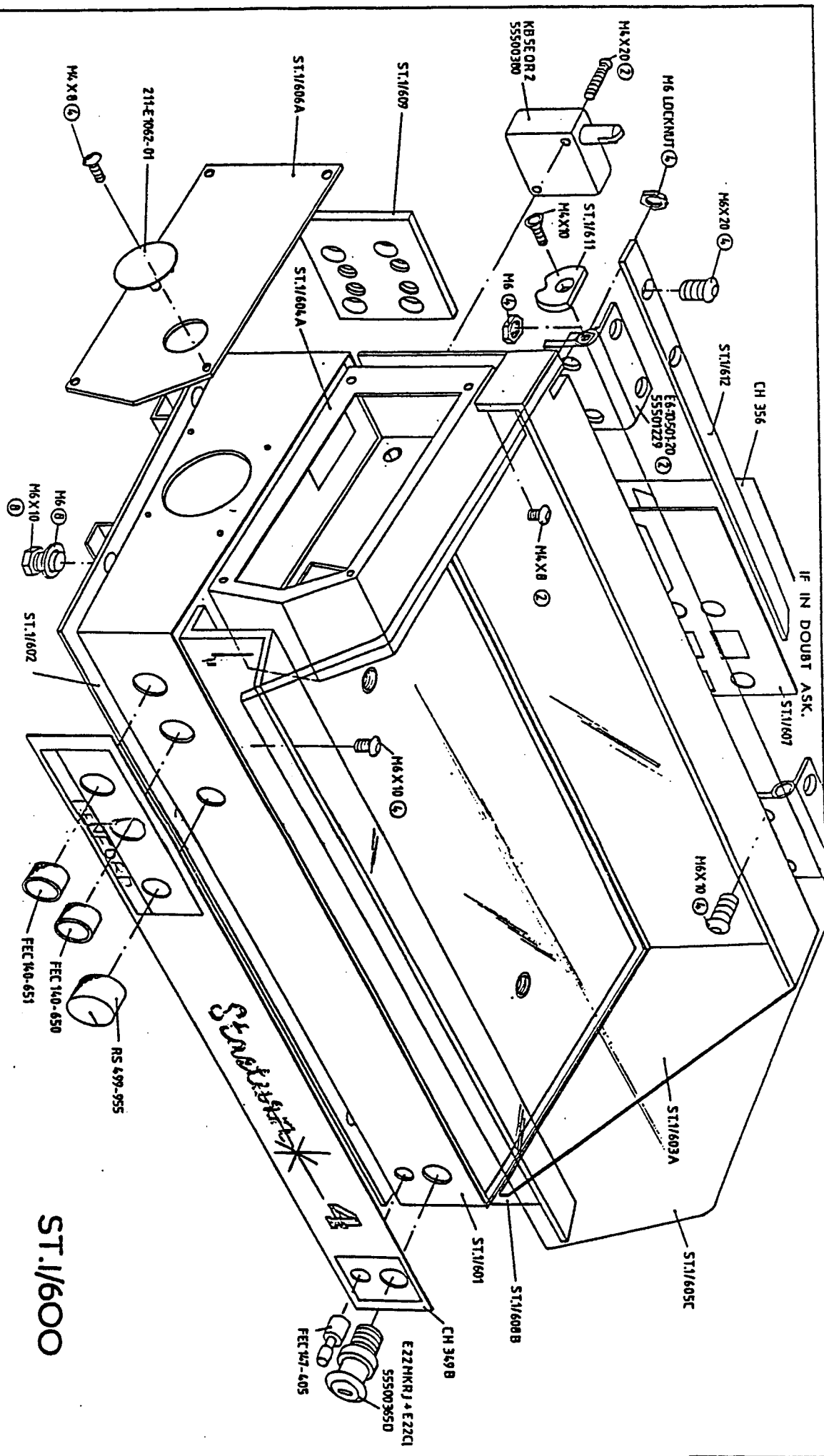
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| DRAWN | INACED | CHGICED | APPROVED | DATE |
| A.M. | | | | 22.3.85 |

DRAWING NO

STARTURN SPINDLE DRIVEST.1/500

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</u> |
|--------------------|---------------------------|-----------------|
| ST.1/501B | SPINDLE DRIVE BRACKET | 1 |
| 502 A | SPINDLE PULLEY (3000 RPM) | 1 |
| 503 A | MOTOR PULLEY | 1 |
| 504 | SPINDLE SENSOR BRACKET | 1 |
| 505 | POTENTIOMETER LOCKNUT | 1 |
| AC.100/504 A | SPINDLE TRANSDUCER DISC | 1 |

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|-------------------------|-------------------------------------|------------------------|-----------------|
| DC SPINDLE MOTOR | TUSCAN: PM 71L14F85 | 55500307 | 1 |
| POLY 'V' BELT | T.B.A.: 240J6 | 55500628 | 1 |
| SPINDLE SPEED SENSOR | G.S.M. PCB 1852 | 55500434E | 1 |



ST.1/600

ST.1/600

| ALTERATIONS | | | |
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DENFORD MACHINE TOOLS LTD. BRIGHOUSE, YORKSHIRE.

LIMITS ON DIMENSIONS UNLESS OTHERWISE STATED.
 ANGULAR ± 1° 3 PAGES DECIMAL ± .001
 FRACTIONAL ± .001 4 PAGES DECIMAL ± .0001
 FINISHING AT 10°

DRAWN: A.M.
 CHECKED: A.M.
 APPROVED: A.M.
 DATE: 21.3.85
 SCALE: 1:1

DRG. No.

STARTURN CABINETST.1/600

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</u> |
|--------------------|-----------------------------|-----------------|
| ST.1/601 | CABINET | 1 |
| 602 | CHASSIS BASE | 1 |
| 603 A | REAR GUARD | 1 |
| 604 A | END DRIVE HOUSING | 1 |
| 605 D | CHIP GUARD | 1 |
| 606 A | END DRIVE COVER | 1 |
| 607 | FUSE PANEL | 1 |
| 608 B | CHIP GUARD BASE | 1 |
| 609 | MOTOR BRACKET SUPPORT PLATE | 1 |
| 610 | 12 WAY CONNECTOR BRACKET | 1 |
| 613 | LIGHT BRACKET | 2 |
| 614 | BUNDY TUBING | 1 |
| CH.349 B | CONTROL PANEL (STARTURN 4) | 1 |
| CH.356 | FUSE PANEL CHART | 1 |

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|--------------------|-------------------------------------|------------------------|-----------------|
| HINGE | SOUTHC0: E6-10-501-20 | 55501229 | 2 |
| EMERGENCY STOP | CUTLER-HAMMER | | |
| | E22MKRJ & E22C1 | 55500365D | 1 SET |
| BUTTON RED | FARNELL; 140 - 651 | F.E.C. 140 - 651 | 1 |
| BUTTON GREEN | FARNELL: 140 - 650 | F.E.C. 140 - 650 | 1 |
| ALUM DIAL | R.S. 499 - 955 | 499 - 955 | 1 |
| RESET BUTTON | FARNELL: 147 - 405 | F.E.C. 147 - 405 | 1 |
| LIGHT FITTING | LABCRAFT GL8 | 55500370G | 1 |
| FAN | R.S. 509 - 052 | 509 - 052 | 1 |
| FINGER GUARD | R.S. 509 - 030 | 509 - 030 | 1 |
| REED SWITCH | R.S. 338 - 743 | 338 - 743 | 1 |
| ACTUATOR | R.S. 338 - 759 | 338 - 759 | 1 |

DRG. No.



| | | | | | | | | | | |
|-------------|--|---------|--|--------|-------|--------|----------|------|-------|-----|
| | | DRAWING | | 134210 | CHIEF | 134210 | APPROVED | DATE | 19385 | KAL |
| | | A.M. | | | | | | | | |
| DRAWING NO. | | | | | | | | | | |

STARTURN TAILSTOCKST.1/700

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</u> |
|--------------------|---------------------|-----------------|
| ST.1/701 | TAILSTOCK BODY | 1 |
| 702 | TAILSTOCK SHOE | 1 |
| 703 | TAILSTOCK BARREL | 1 |
| 704 | BARREL SCREW | 1 |
| 705 | BARREL CLAMPS | 1 SET |
| 706 | TAILSTOCK HANDWHEEL | 1 |
| 707 | CLAMP LEVER | 1 |
| 708 | TAILSTOCK CLAMP | 1 |

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|--------------------|-------------------------------------|------------------------|-----------------|
| OILER | LUMATIC B04 | | 2 |

STARTURN QUICK CHANGE TOOLPOSTTP.100

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</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 | | |
| 13 | HANDLE | 1 |
| 14 | LOCKING NUT | 1 |
| AC.100/416 | CLAMP NUT | 1 |

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|--------------------|-------------------------------------|------------------------|-----------------|
| KNOB | RENCOL 301 - M5 | | 1 |

STARTURN INDEXING TOOLPOSTTP.120

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</u> |
|--------------------|------------------------|-----------------|
| TP.120/ 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 A | COLLAR | 1 |
| 12 | MOTOR JACKET | 1 |
| 13 | BOLT SLEEVE | 1 |
| 14 | TENON NUT | 2 |
| 15 | CHIP GUARD EXTENSION | 1 |
| 16 | WIRE SUPPORT TUBE | 2 |
| 17 | SHAFT END COVER | 1 |
| ML.119/6 | SPRING | 1 |
| CH.321 | 'D' SYMBOL | 1 |
| CH.385 | TURRET ADJUSTING LABEL | 1 |

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|--------------------|--|------------------------|-----------------|
| MOTOR | TRIDENT ENGINEERING LTD 2028.941-62.131-025 | 55500302B | 1 |
| GEARBOX | TRIDENT ENGINEERING LTD 2938.801-0060.0-000 | 55500302C | 1 |
| BEARING | FAG 7202B | 55500102E | 1 |
| | FAG 7203B | 55500102 | 1 |
| | FAG 627 | 55500105A | 1 |
| OILITE BUSH | MANGANESE BRONZE 12/16/20 | 55500195D | 1 |
| LOCKNUT | FAG KM2 | 55500185 | 1 |
| TAB WASHER | FAG MB2 | 55500186 | 1 |
| CABLE GLAND | R.S. 544 - 011 | 544 - 011 | 1 |
| PLASTIC CAP | ROBERT MOSS 1615 (TP.120/17) | 55501414A | 1 |

STARTURN 4 MILLING ATTACHMENTST.1/400

| <u>PART NUMBER</u> | <u>DESCRIPTION</u> | <u>QUANTITY</u> |
|--------------------|--------------------------|-----------------|
| ST.1/401 | BASE | 1 |
| 402 | ARM | 1 |
| 403 | PILLAR | 2 |
| 404 | SLIDE WAYS | 2 |
| 405 | BEARING PLATE | 1 |
| 406 | FEED SCREW | 1 |
| 407 | FEED DIAL | 1 |
| 408 | FEED NUT | 1 |
| 409 | CLAMP SCREW | 1 |
| 410 | BUSH | 1 |
| 411 | SPRING | 2 |
| 412 | MOTOR COVER | 1 |
| 413 | BASE SPACER | 1 |
| 414 | MILLING GUARD | 1 |
| 415 | LEFT HAND CHIP GUARD | 1 |
| 416 | RIGHT HAND CHIP GUARD | 1 |
| 417 | LIGHT BRACKET LEFT HAND | 1 |
| 418 | LIGHT BRACKET RIGHT HAND | 1 |
| AC.100/408 | TOP SLIDE HANDWHEEL | 1 |
| 710 | ADJUSTING SLEEVE | 1 |

| <u>DESCRIPTION</u> | <u>MANUFACTURER & REFERENCE</u> | <u>COMPUTER NUMBER</u> | <u>QUANTITY</u> |
|--------------------|-------------------------------------|------------------------|-----------------|
| MOTO TOOL | DREMEL 358-5 240V | 55501447 | 1 |
| TOOLS | DREMEL 214 (SET OF 6) | | 1 SET |
| OILITE BUSH | MANAGANESE BRONZE LTD. | | |
| | 12 - 16 - 20 | 55500195D | 2 |
| PLUG | R.S. 489 - 655 | 489 - 655 | 1 |