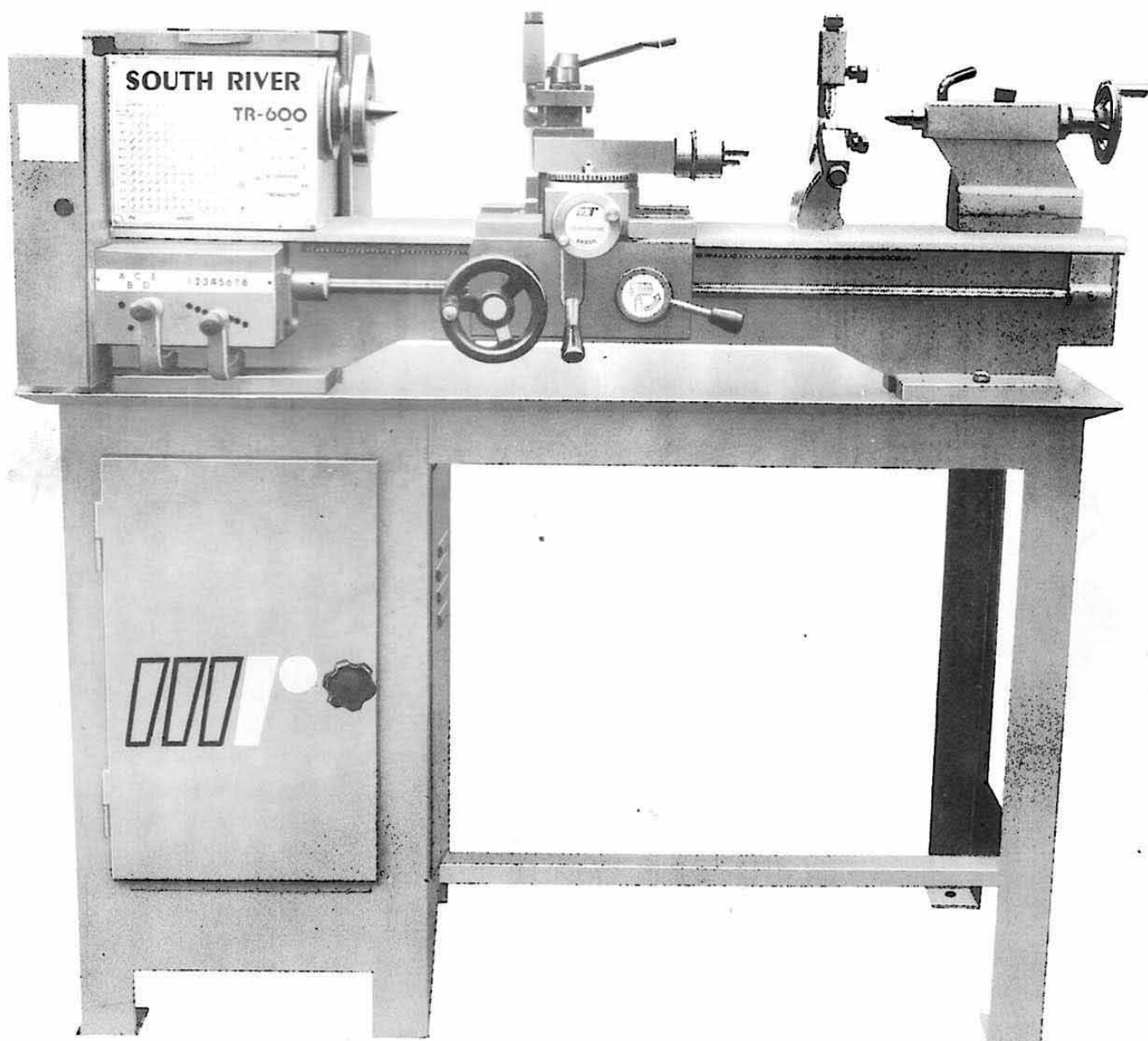


SOUTH RIVER



TR-600

INSTRUCTIONS MANUAL

SOUTH RIVER

TR-600

INSTRUCTIONS MANUAL

INTRODUCTION

This manual has been elaborated to permit you the best profit from your SOUTH RIVER TR-600 LATHE.

SOUTH RIVER TR-600 LATHE is projected for maintenance works and light or medium production.

Its construction is on precision and with simple handling has a easy maintenance and operations .

This manual is composed in two parts.

On the first part, you will find Technical Data, General Description, Standard and Optional Accessories, Installment, Lubrication, Guarantee and Requesting for Reposition Spare Parts.

On the second part you will find illustrations (drawing) in order to become easy to identify the pieces e accessories.

Our engineering department will be pleased to study any machining problems and solve any doubts about SOUTH RIVER TR-600 LATHE. Please always inform us the number on the identification plate.

METALÚRGICA RIOSULENSE S/A.

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SOUTH RIVER TR-600 SPECIAL CARES

- 1 - Maintain always clearing the service area.
- 2 - Before to start the service, please verify Tailstock is fixed Over Bed.
- 3 - Do not put tools or pieces Over Bed.
- 4 - Well fixe the plate before to connect the machine.
- 5 - Before threadcutting, clean and lubricate Bearing.
- 6 - Protect Over Bed Guides before polish or smooth one piece.
- 7 - Verify the LATHE is dully lubricate.
- 8 - Verify tools are well fixed on toolholder.
- 9 - Lubricate with grease for working between centers.
- 10 - Verify Carriage position before to approach tools.
- 11 - Maintain clearing Tailstock Spindle taper and Spindle Box before to insert centers.
- 12 - Maintain clearing and dry: Spindle Noise Taper, Universal Plate bore and Chuck 4 Independent jaws.

TECHNICAL DATA

SPECIFICATION

| | |
|------------------------------------|----------------------|
| Height between centers | 127 mm |
| Distance between centers | 600 mm |
| Swing over Bed dia' | 254 mm |
| Swing over Carriage dia | 150 mm |
| Cross Slide Stroke | 140 mm |
| Toolholder Slide Stroke | 65 mm |
| Swing over Follower Rest dia | 40 mm |
| Swing over Steady Rest dia | 40 mm |
| Motor Power | 1 HP |
| Net Weight | 170 Kg |
| Gross Weight | 225 Kg |
| Package Dimensions | 1400 X 800 X 1250 mm |

OVER BED

| | |
|--------------|--------|
| Width | 150 mm |
| Height | 192 mm |

SPINDLE BOX

| | |
|-------------------------------|----------------|
| Spindle Bore dia | 20 mm |
| Tailstock Spindle Taper | Morse 3 |
| Spindle Speeds | 12 |
| Spindle Speed Range | 80 to 1207 rpm |

TAILSTOCK

| | |
|-------------------------------------|---------|
| Spindle dia | 27 mm |
| Tailstock Spindle Stroke | 60 mm |
| Spindle Internal Seat | Morse 2 |
| Tailstock Lateral Disjounting | 16 mm |

NORTON GEARBOX

| | |
|------------------------------|-----------------|
| Threads | 168 |
| Metrics Thread Pitches | 120 - 0,12 to 4 |
| Withworth Threads | 48 - 4 to 224 |
| Principal Spindle Step | 3,175 |

FEEDS

| | |
|--------------------------|-------------------|
| Automatic Feeds | 288 |
| Longitudinal Feeds | 144 - 2 to 963 |
| Transversal Feeds | 144 - 0,66 to 321 |

GENERAL DESCRIPTION

For best comprehension SOUTH RIVER TR-600 LATHE we present you a detailed description about it setting and operations.

OVER BED: Single Piece on iron casting supplied with a pair of guides and other pair of shear, both rectified on precision and hardness 200 HB.

SPINDLE BOX: Mounted on the left side supplied with reduction, reverse, shear and spindle.

Spindle Box is totally rectified and revolves over 2 conics bearings (nr. 30208 and 32209).

Spindle Box internal side, near the right bearing is fitted one regulation nut to correctly adjust the axle.

Over the Spindle Box is fitted 3 channel V pulley that free rotates on the Spindle Box and a Gear Z-80 fixed by a wrench. A V belt connects the pulley and it connects the spindle thru a pin linked the pulley to Spindle Gear.

For start operations with Spindle Box Gears: Bring in front the spindle box thru a back-reduction lever, always with STOPPED SPINDLE BOX. The Spindle Box gears to the pulley and to Spindle Gear.

Release the pulley and pull the pin.

The back-speed obtained is 5:1 and the collection has a helical-Gear for a silent work.

To put on break the Spindle Box Gears press screw located over right eccentric bearing.

Selecting longitudinal and transversal directions the Return lever can be placed on high, medium or low position. Please do not forget to press the safety screw on desired position.

Change gears are mounted over shear, protected by a covering on the lathe left side.

NORTON GEARBOX: Collection of gears mounted down the Spindle Box. Composed by a NORTON mechanism with 8 positions linked to a MEANDER mechanism with 5 positions and one change lever.

Please always change the position with STOPPED SPINDLE BOX.

TABLIER: You find the following:

Tablier lever along Over Bed.

Lever automatic Transversal Carriage.

Lever Longitudinal Carriage for screws and advances.

LONGITUDINAL CARRIAGE: Run Over Bed where is fixed the Tablier. Can be stopped for a Screw on any Over Bed point.

TRANSVERSAL CARRIAGE: Run over Longitudinal Carriage, moving on transversal direction Over Bed.

Handly movement is done thru a 0,05 mm graduated dial maniple and can be accurated resetting to zero on any position.

Transversal Carriage works over shear handly adjusted with rules.

TOOLHOLDER: Mounted over Transversal Carriage and can be stopped on any angle between + 90 - 90 grades Over Bed.

TAILSTOCK: Run over plain guides and shear Over Bed and can be stopped on any Over Bed point. On Tailstock can be fixed a rotary or fixed counter male or a mandrill, according a kind of work.

The spindle lever is done by a wheel.

INSTALLMENT

- 1 - After receiving the machine, clean the grease and oil Over Bed using thinner or similar.
- 2 - Verify the selected local is firm and plain.
- 3 - After install the machine on a proper local the LATHE will be leveled on precision.
Put a level on transversal and longitudinal direction as well on the Spindle Box and Tailstock.

LUBRICATION

Special Cares:

- 1 - Put oil each 3 hours using the reduction back axle and Spindle Box back pulley.
- 2 - Daily put oil:
 - Norton Gearbox.
 - Return lever.
 - Transversal Carriage and Toolholder bushing.
 - Tablier wheel bushing.
 - Tailstock.
 - Over Bed guides.
 - Longitudinal Carriage.
- 3 - Each 3.000 hours, put grease on Spindle Box bearings.

ACCESSORIES

SET OF CHANGE GEAR (19, 234, 235, 243, 244, 245 and 246): Follow with SOUTH RIVER TR-600 LATHE and it permitt several setting, indicated on Thread Chart.

DRIVING PLATE (292): Used on works between centers.

TWO 60' STEEL CENTERS: Spindle Taper CM 3.
Tailstock Taper CM 2.

CHUCK BACKPLATE (293): With a ready screw that permitts to setting on Lathe. Use plate maximun 130 mm (5").

FOURTOOL SQUARE TURRET: Permitt to fixe 4 tools.

CABINET: One-door steel cabinet.

4 - JAWS INDEPENDENT CHUCK DIA. 8" WITH KEY (294): Permitt to use jaws on 4 different positions.

SMOOTH SURFACE PLATE DIA. 8" (296): Permitt to fixe special pieces.

STEADY REST (281): Used when working on long pieces.

FOLLOWER REST (285): Fixed on Longitudinal Carriage.

GUARANTEE

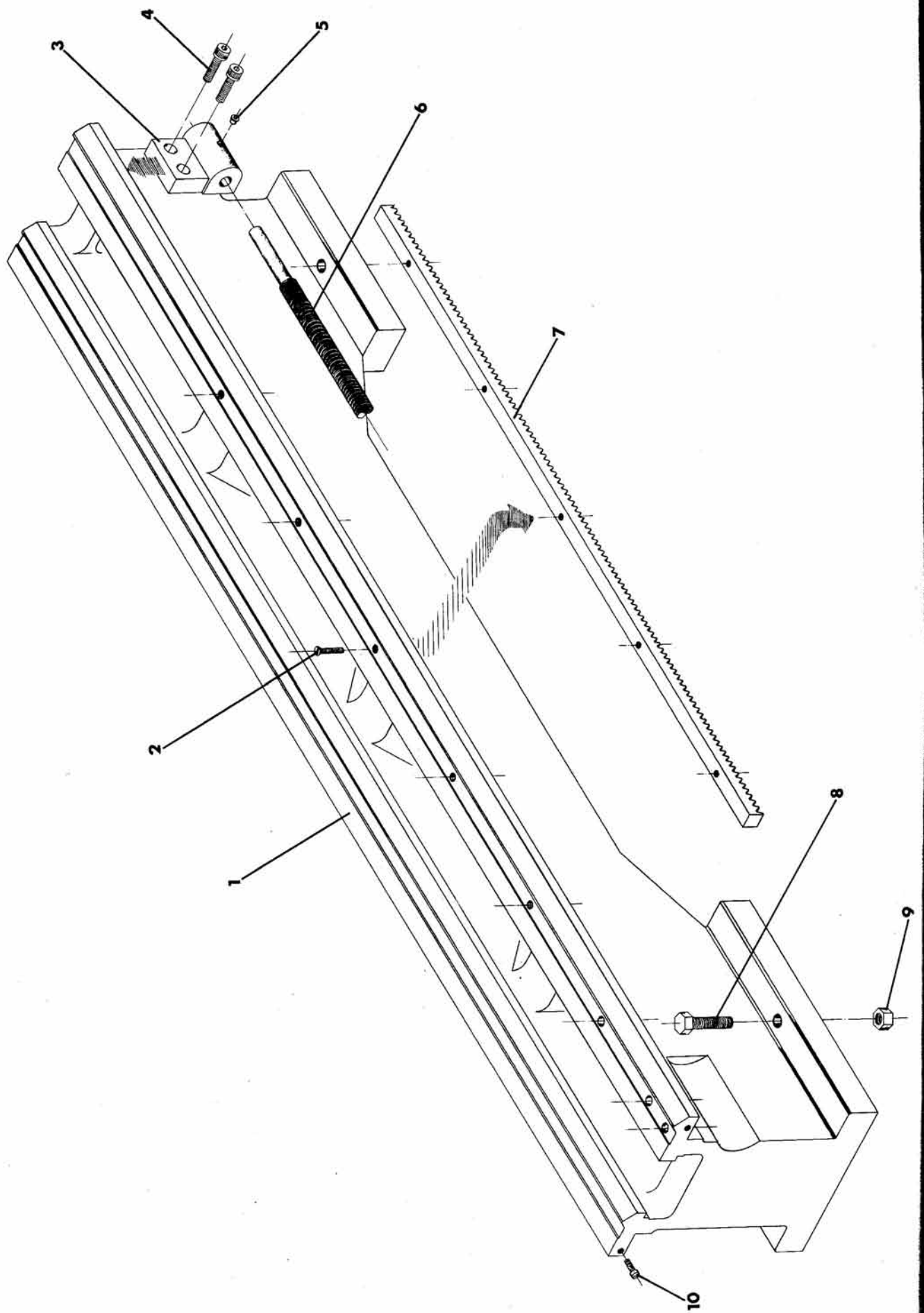
METALÚRGICA RIOSULENSE S/A. guarantees the reposition for all pieces, not including problems originated from bad used, wearing and modifications introduced on SOUTH RIVER TR-600 LATHE.

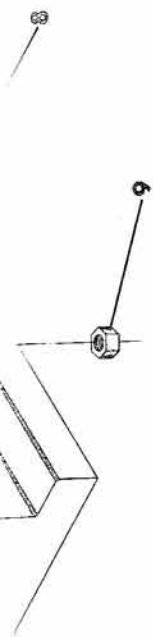
Our engineering departament will be pleased to study any machining problems and solve any doubts about SOUTH RIVER TR-600 LATHE.

REPOSITION PIECES REQUESTING

For requesting Spare Parts reposition:

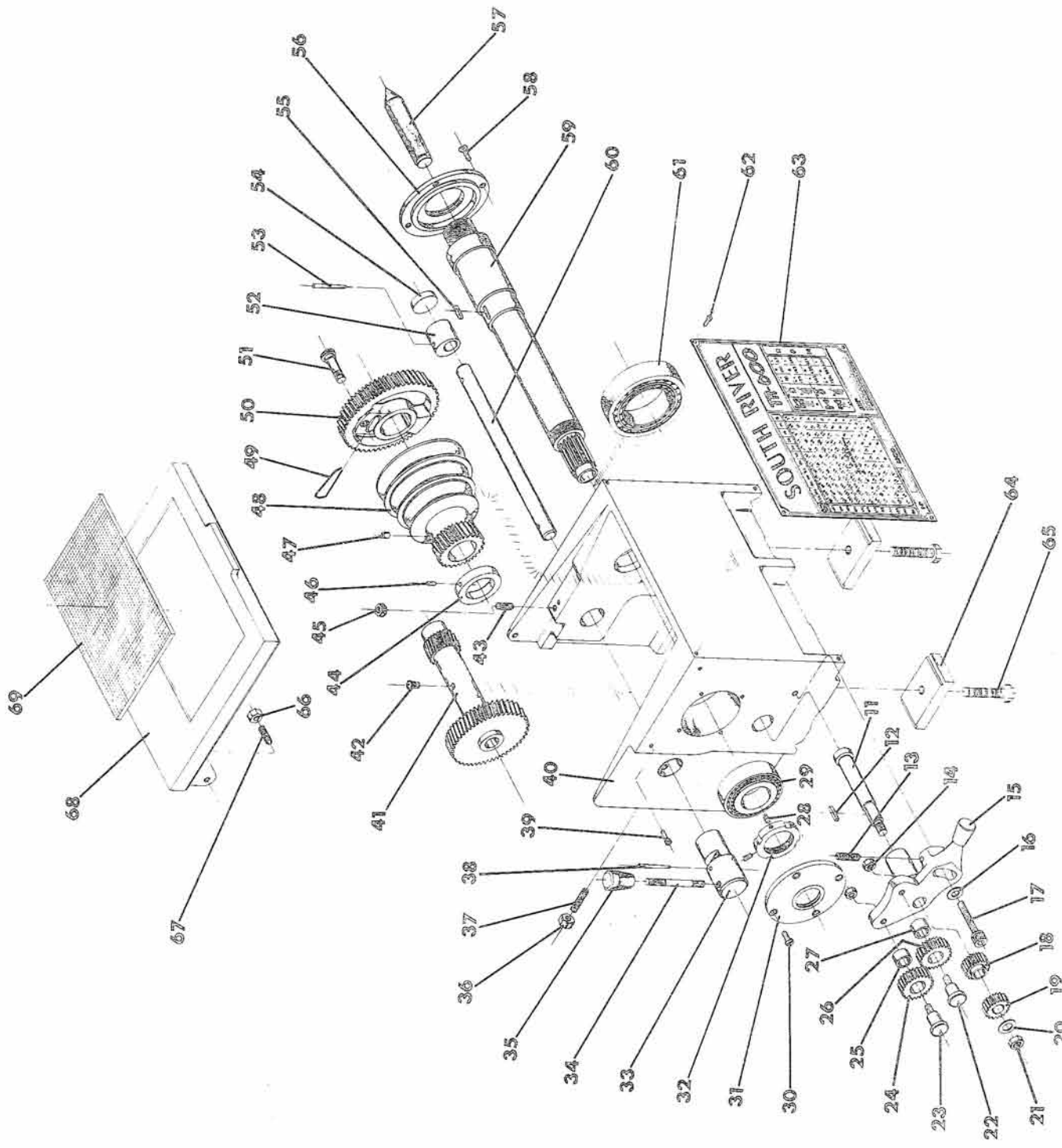
- Verify the number and the name on its drawing.
- Please always inform number and name as above in order to became easy to identify the pieces e accessories.
- Please always inform us the machine number on the identification plate.

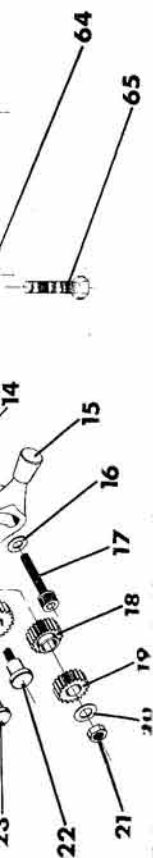




OVER BED

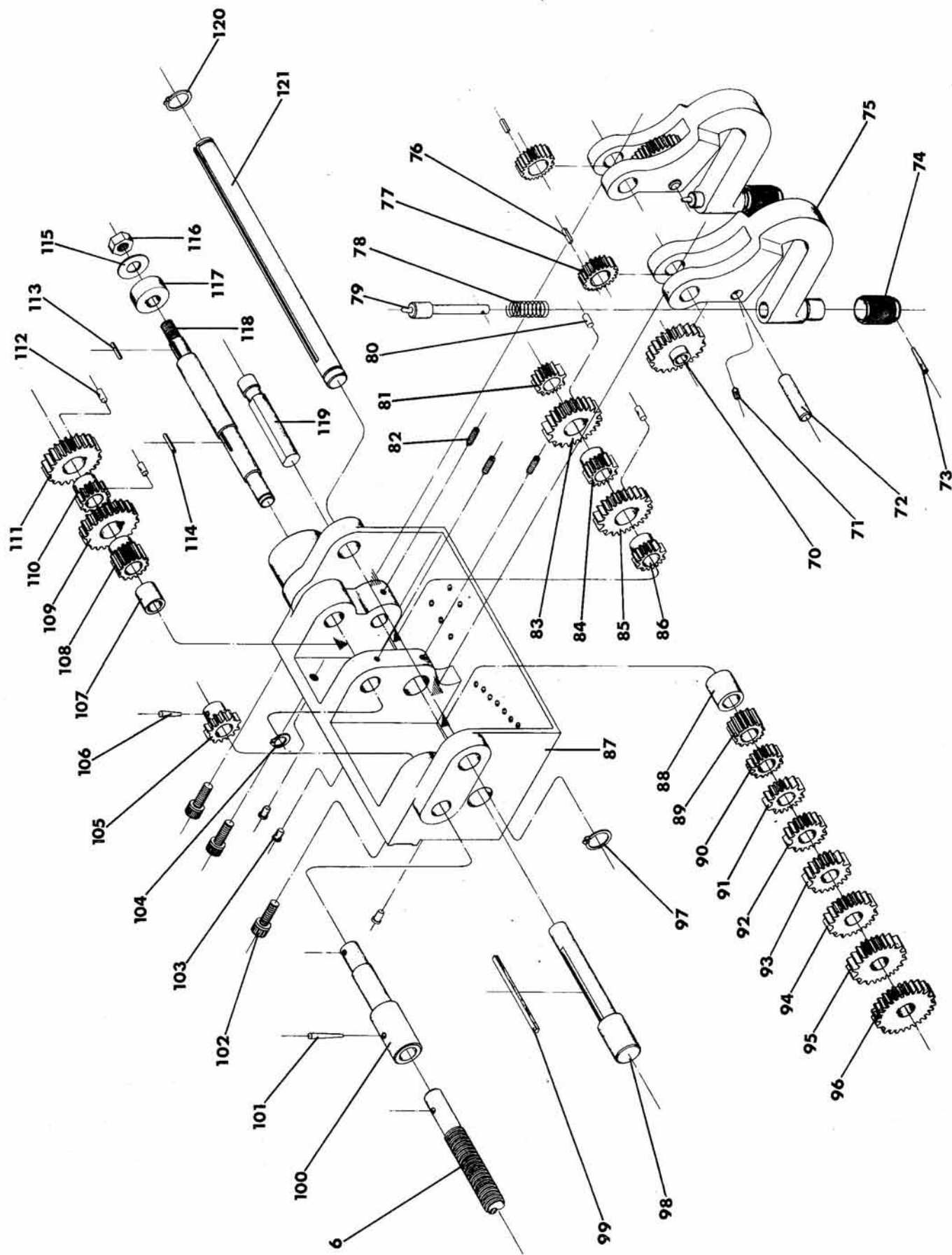
| RE. | NAME | RE. | NAME |
|-----|--------------------------------|-----|---------------------------------|
| 1 | Over Bed | 6 | Spindle |
| 2 | Slotted-Head Screw M 5 X 25 mm | 7 | Rack |
| 3 | Spindle Bearing | 8 | Hexagonal Screw M 12 X 45 mm |
| 4 | Allen Screw M 8 X 25 mm | 9 | Hexagonal Nut M 12 |
| 5 | Grease Driver dia. 7 mm | 10 | Slotted -Head Screw M 6 X 12 mm |





SPINDLE BOX

| RE. | NAME | RE. | NAME | RE. | NAME |
|-----|---------------------------------|-----|--------------------------------|-----|--------------------------------|
| 11 | Axle | 31 | Back Covering | 51 | Back-Gear Pin |
| 12 | Wrench 3 X 3 X 22 mm | 32 | Clamp Nut | 52 | Right Eccentric Lump |
| 13 | Allen Grub Screw M 6 X 30 mm | 33 | Left Eccentric Lump | 53 | Spring Pin dia. 4 X 40 mm |
| 14 | Hexagonal Nut M 8 | 34 | Left Eccentric Lever | 54 | Wad |
| 15 | Return Lever | 35 | Cape MBC 2536 - M 10 | 55 | Wrench 1/4" X 1/4" X 21" mm |
| 16 | Washer Nut as per draw nr. 7119 | 36 | Hexagonal Nut M 8 | 56 | Forward Covering |
| 17 | Allen Screw M 10 X 55 mm | 37 | Allen Grub Screw M 8 X 40 mm | 57 | Male Center |
| 18 | Gear Z-14 | 38 | Spring Pin dia. 40 X 40 mm | 58 | Slotted-Head Screw M 6 X 20 mm |
| 19 | Gear Z-20 | 39 | Slotted-Head Screw M5 X 12 mm | 59 | Spindle Axle |
| 20 | Washer Nut as per draw nr. 7121 | 40 | Spindle Box | 60 | Back-Gear Axle |
| 21 | Hexagonal Nut M 12 | 41 | Back-Gears Z-60; Z-24 | 61 | Bearing nr. 32209 |
| 22 | Axle | 42 | Slotted-Head Screw M 5 X 10 mm | 62 | Slotted-Head Screw M 5 X 12 mm |
| 23 | Axle | 43 | Allen Grub Screw M 8 X 40 mm | 63 | Identification Plate |
| 24 | Gear Z-32 | 44 | Spring Ring | 64 | Fixing Block |
| 25 | Bushing | 45 | Hexagonal Nut M 8 | 65 | Hexagonal Screw M 10 X 45 mm |
| 26 | Gear Z-32 | 46 | Allen Grub Screw M 6 X 10 mm | 66 | Hexagonal Nut M 8 |
| 27 | Bushing | 47 | Grease Driver dia. 7 mm | 67 | Allen Grub Screw M 8 X 30 mm |
| 28 | Allen Grub Screw M 5 X 12 X mm | 48 | Pulley | 68 | Spindle Box Covering |
| 29 | Bearing nr. 30208 | 49 | Staple | 69 | Rug |
| 30 | Slotted-Head Screw M 6 X 20 mm | 50 | Back-Gear Z-72 | | |





NORTON GEARBOX

| RE. | NAME | RE. | NAME | RE. | NAME |
|-----|------------------------------|-----|---------------------------|-----|---------------------------------|
| 70 | Gear Z-32 | 88 | Bushing | 105 | Gear Z-20 |
| 71 | Allen Grub Screw M 6 X 6 mm | 89 | Gear Z-16 | 106 | Spring Pin dia. 3 X 26 mm |
| 72 | Axle | 90 | Gear Z-18 | 107 | Bushing |
| 73 | Spring Pin dia. 3 X 26 mm | 91 | Gear Z-20 | 108 | Gear Z-16 |
| 74 | Manipule | 92 | Gear Z-22 | 109 | Gear Z-32 |
| 75 | Change Lever | 93 | Gear Z-23 | 110 | Gear Z-16 |
| 76 | Wrench 4 X 4 X 13 mm | 94 | Gear Z-24 | 111 | Gear Z-32 |
| 77 | Gear Z-20 | 95 | Gear Z-26 | 112 | Pin dia. 2,5 X 8 mm |
| 78 | Spring as per draw nr. 7168 | 96 | Gear Z-28 | 113 | Wrench 3 X 3 X 18 mm |
| 79 | Trigger Pin | 97 | Spring Ring dia. 17,5 mm | 114 | Wrench 3 X 3 X 15,5 mm |
| 80 | Pin dia. 2,5 X 8 mm | 98 | Transmission Axle | 115 | Washer Nut as per draw nr. 7120 |
| 81 | Gear Z-16 | 99 | Wrench 3 X 3 X 70 mm | 116 | Hexagonal Nut M 12 |
| 82 | Allen Grub Screw M 6 X 10 mm | 100 | Axle | 117 | Of-exchange Sharer |
| 83 | Gear Z-32 | 101 | Spring Pin dia. 3 X 30 mm | 118 | Axle |
| 84 | Gear Z-16 | 102 | Allen Screw M 8 X 19 mm | 119 | Axle |
| 85 | Gear Z-32 | 103 | Grease Driver dia. 7 mm | 120 | Spring Ring dia. 17,5 mm |
| 86 | Gear Z-16 | 104 | Spring Ring dia. 11 mm | 121 | Change Axle |
| 87 | Norton Gearbox | | | | |

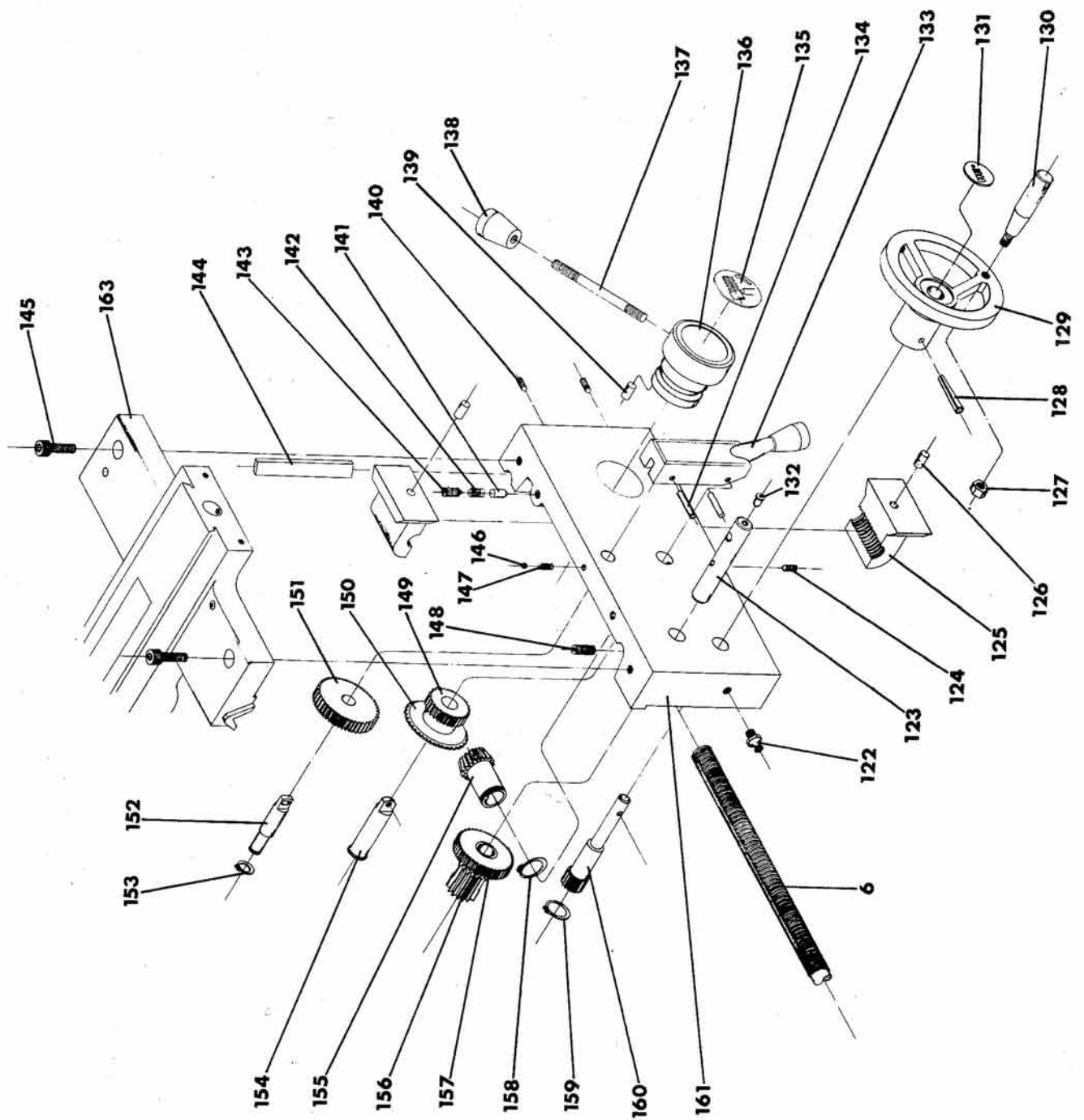
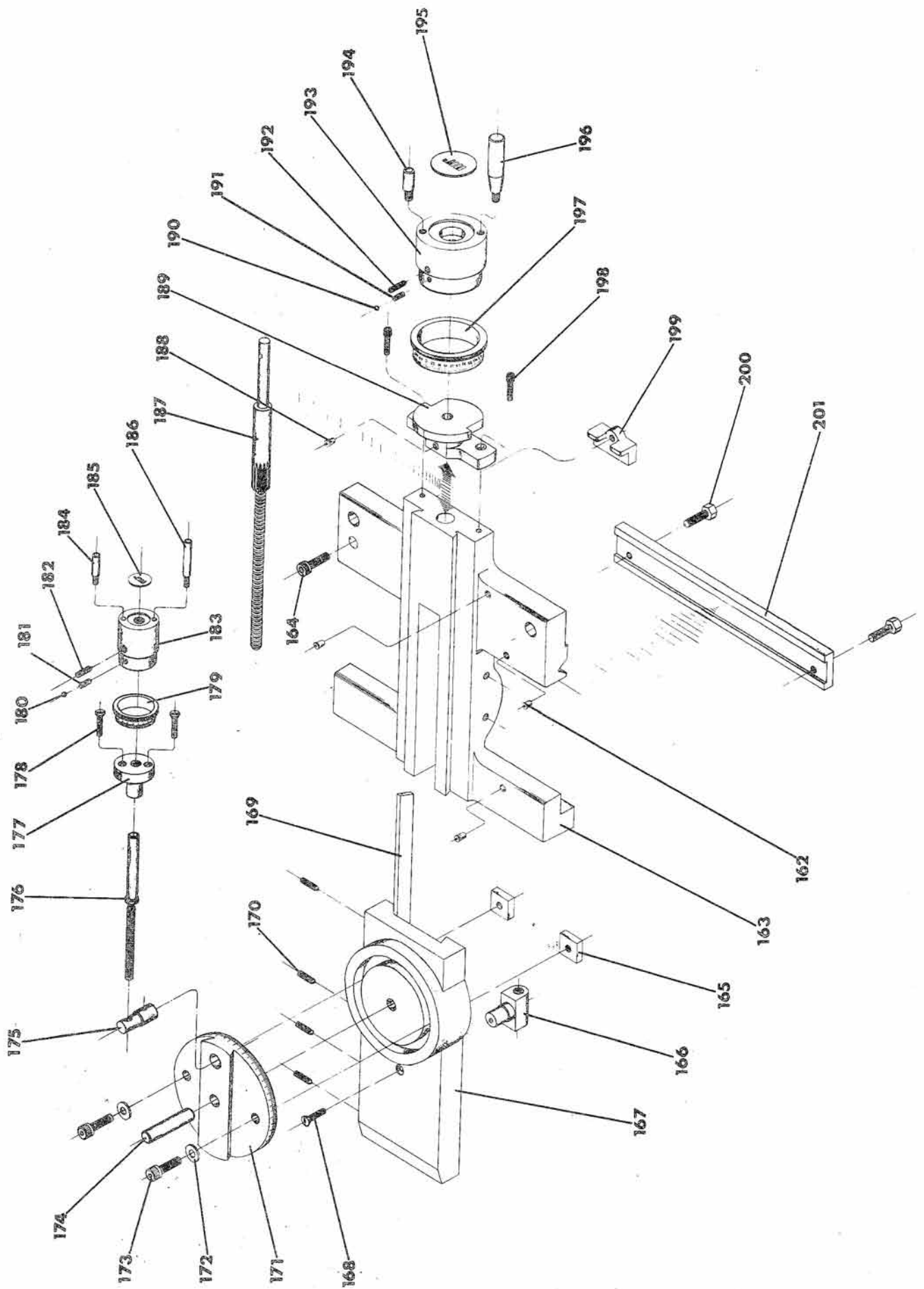




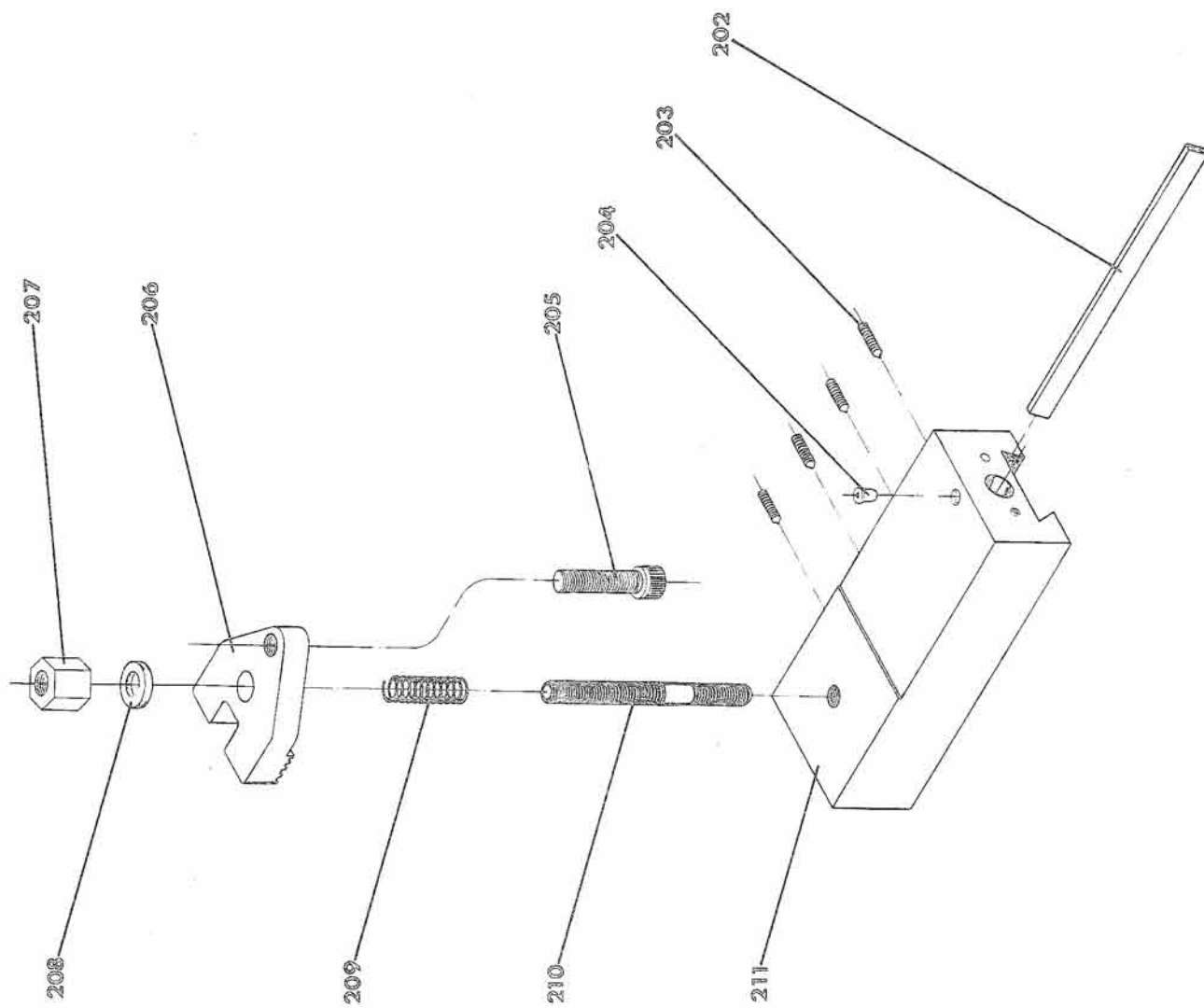
TABLE 11

| RE. | NAME | RE. | NAME | RE. | NAME |
|-----|------------------------------|-----|------------------------------|-----|--------------------------|
| 122 | Grease Driver M 10 | 136 | Two-pieces Bearing Lump | 149 | Gear Z-30 |
| 123 | Axle | 137 | Lever | 150 | Conic Gear Z-50 |
| 124 | Allen Grub Screw M 6 X 18 mm | 138 | Cape | 151 | Gear Z-46 |
| 125 | Two-pieces Bearing | 139 | Pin | 152 | Axle |
| 126 | Two-pieces Bearing Pin | 140 | Allen Grub Screw M 5 X 16 mm | 153 | Spring Ring dia. 11 mm |
| 127 | Hexagonal Nut M 8 | 141 | Attaching Pin | 154 | Axle |
| 128 | Spring Pin dia. 4 X 40 mm | 142 | Spring as per draw nr. 7169 | 155 | Conic Gear Z-25 |
| 129 | Wheel MBV 115 | 143 | Allen Grub Screw M 8 X 12 mm | 156 | Gear Z-14 |
| 130 | Maniple | 144 | Adjust Rule | 157 | Gear Z-43 |
| 131 | Plate dia. 25 mm | 145 | Allen Screw M 10 X 25 mm | 158 | Spring Ring dia. 23 mm |
| 132 | Grease Driver dia. 7 mm | 146 | Sphere dia. 3/16" | 159 | Spring Ring dia. 17,5 mm |
| 133 | Automatic Lever | 147 | Spring dia. 4 X 35 mm | 160 | Gear Z-14 |
| 134 | Pin dia. 5 X 26 mm | 148 | Allen Grub Screw M 8 X 12 mm | 161 | Tablier |
| 135 | Plate dia. 45 mm | | | | |



LONGITUDINAL AND TRANSVERSAL CARRIAGE

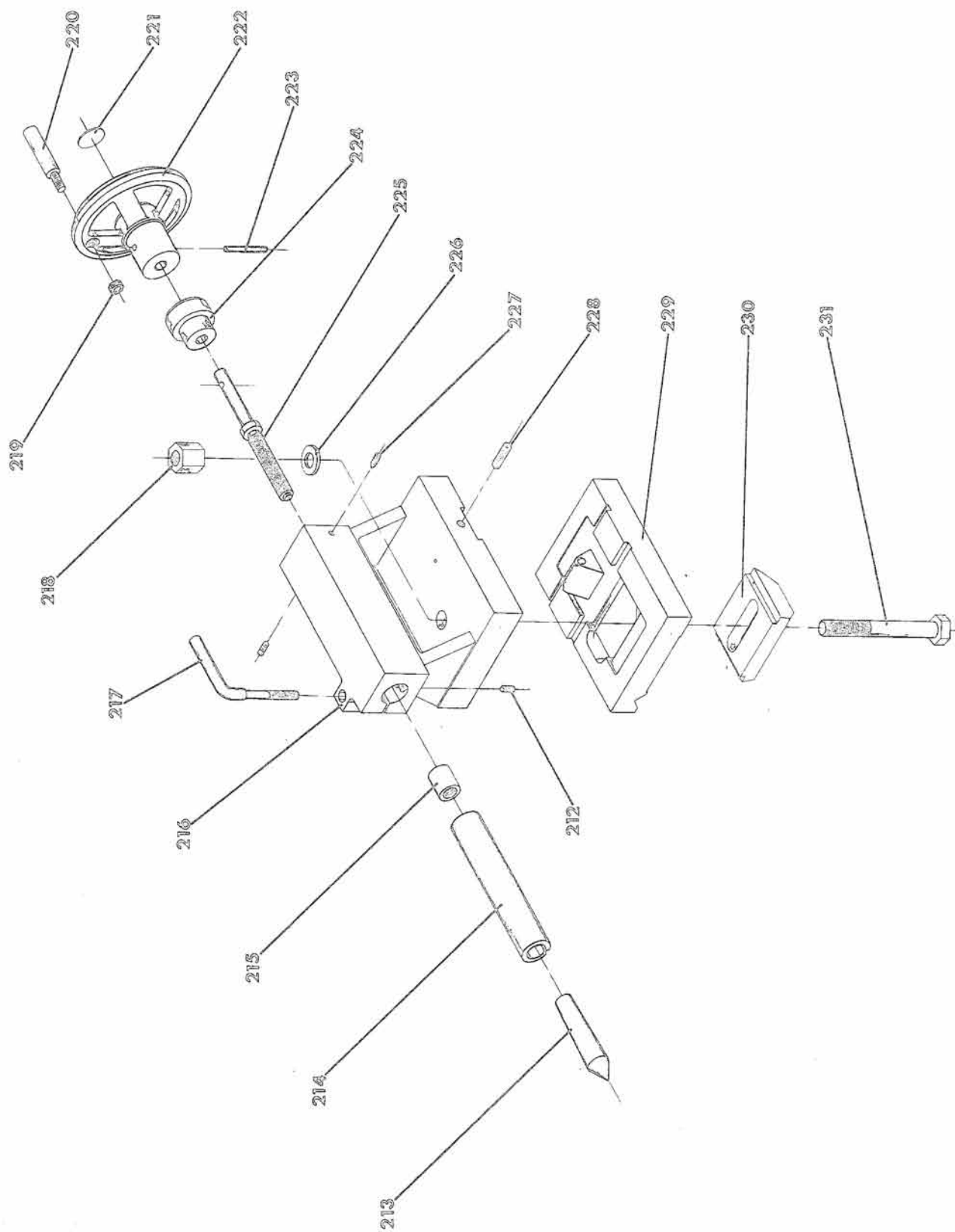
| RE. | NAME | RE. | NAME | RE. | NAME |
|-----|--------------------------------|-----|--------------------------------|-----|------------------------------|
| 162 | Grease Driver dia. 7 mm | 176 | Wad | 189 | Bearing |
| 163 | Longitudinal Carriage | 177 | Wad | 190 | Sphere dia. 3/16" |
| 164 | Allen Screw M 8 X 40 mm | 178 | Slotted-Head Screw M 5 X 25 mm | 191 | Spring dia. 4 X 35 mm |
| 165 | Attaching-Nut | 179 | Dial | 192 | Allen Screw Grub M 6 X 20 mm |
| 166 | Spindle Nut | 180 | Sphere dia. 3/16" | 193 | Wheel |
| 167 | Transversal Carriage | 181 | Spring dia. 4 X 35 mm | 194 | Maniple |
| 168 | Slotted-Head Screw M 6 X 20 mm | 182 | Allen Grub Screw M 6 X 20 mm | 195 | Plate dia. 45 mm |
| 169 | Adjust Rule | 183 | Wheel | 196 | Maniple |
| 170 | Allen Grub Screw M 5 X 16 mm | 184 | Maniple | 197 | Dial |
| 171 | Toolholder Slide Carriage | 185 | Plate dia. 25 mm | 198 | Allen Screw M 6 X 20 mm |
| 172 | Washer as per draw nr. 7122 | 186 | Maniple | 199 | Safety Nut |
| 173 | Allen Screw M 8 X 30 mm | 187 | Bearing | 200 | Hexagonal Screw M 8 X 25 mm |
| 174 | Guide Pin | 188 | Grease Driver dia. 7 mm | 201 | Adjust Rule |
| 175 | Spindle Bearing | | | | |





TOOLHOLDER SLIDE CARRIAGE

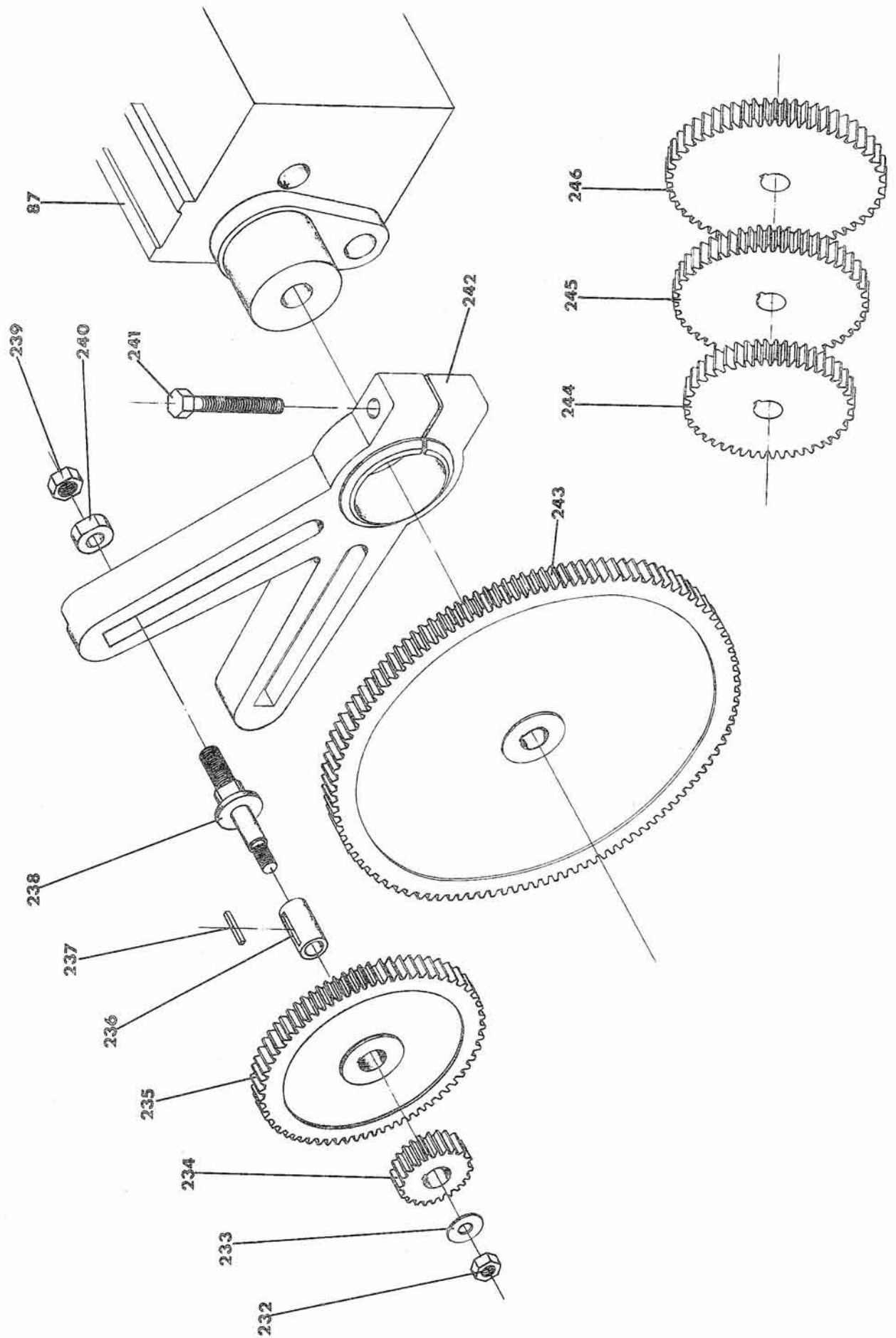
| RE. | NAME | RE. | NAME |
|-----|------------------------------|-----|---------------------------------|
| 202 | Adjust Rule | 207 | Double Hexagonal Nut M 14 |
| 203 | Allen Grub Screw M 5 X 16 mm | 208 | Washer Nut as per draw nr. 7118 |
| 204 | Grease Driver dia. 7 mm | 209 | Spring as per draw nr. 7167 |
| 205 | Allen Screw M 10 X 40 mm | 210 | Toolholder Slide Screw |
| 206 | Toolholder | 211 | Toolholder Slide Carriage |





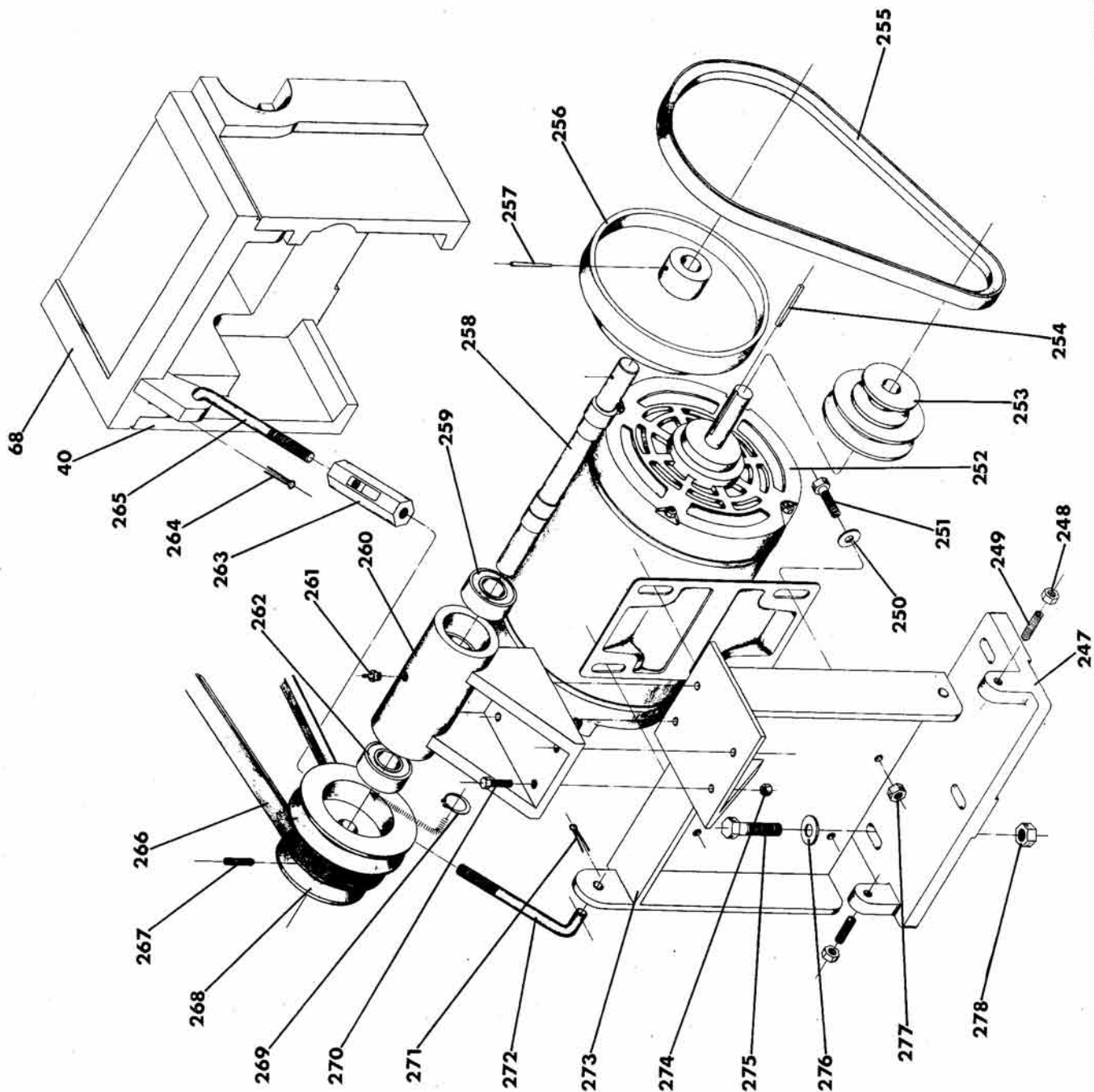
TAILSTOCK

| RE. | NAME | RE. | NAME | RE. | NAME |
|-----|------------------------------|-----|---------------------------|-----|----------------------------------|
| 212 | Allen Grub Screw M 6 X 10 mm | 219 | Hexagonal Nut M 6 | 226 | Washer Nut as per draw nr. 7147B |
| 213 | Counter-Nut | 220 | Manipule | 227 | Allen Grub Screw M 6 X 10 mm |
| 214 | Spindle | 221 | Plate dia. 25 mm | 228 | Allen Grub Screw M 8 X 40 mm |
| 215 | Spindle Bushing | 222 | Wheel MBV-95 | 229 | Shear |
| 216 | Tailstock | 223 | Spring Pin dia. 4 X 40 mm | 230 | Safety |
| 217 | Safety Spindle Manipule | 224 | Bearing Guide Bushing | 231 | Hexagonal Screw M 14 X 100 mm |
| 218 | Double Hexagonal Nut M 14 | 225 | Bearing | | |



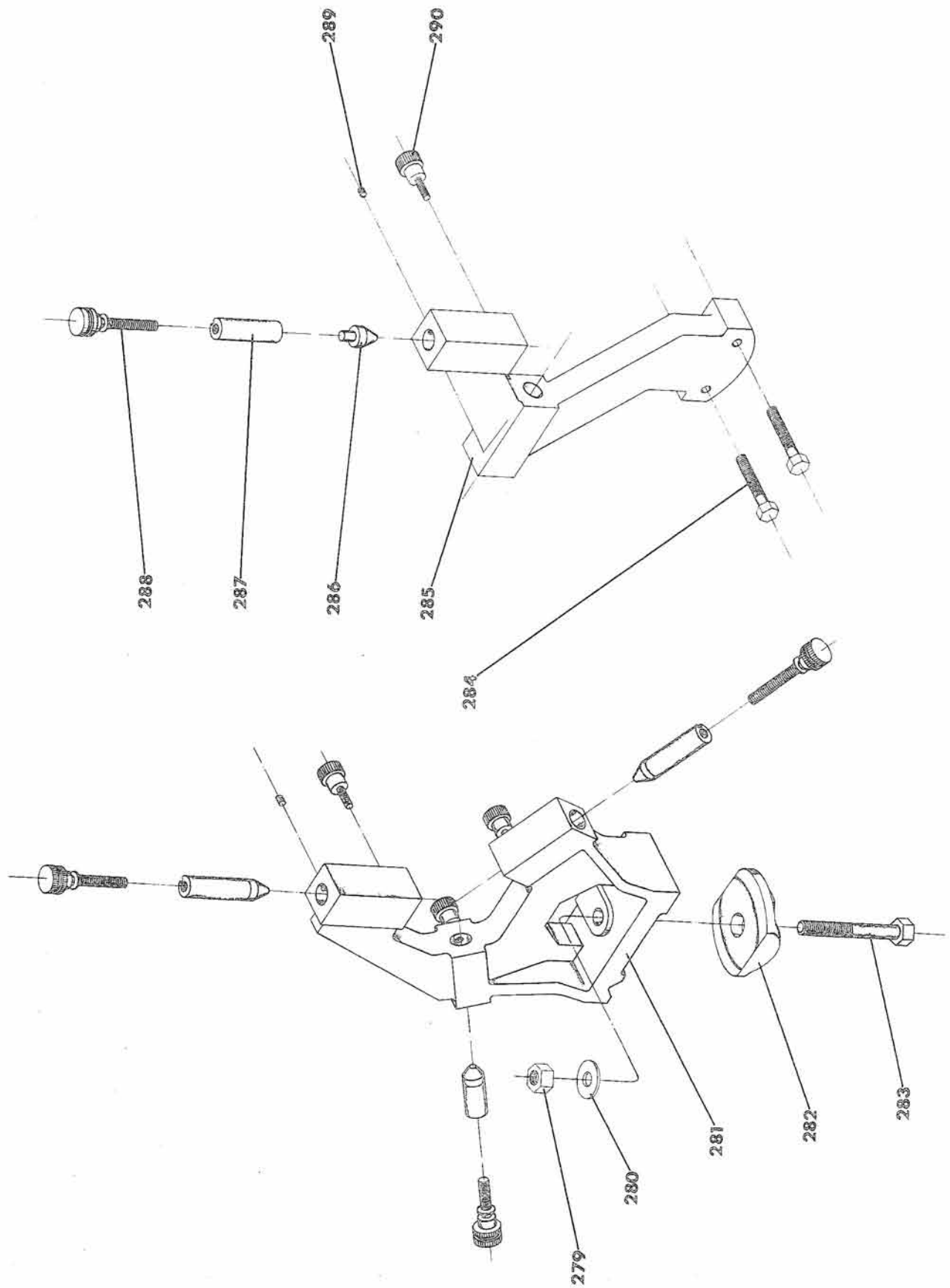
SWITCHGEAR

| RE. | NAME | RE. | NAME | RE. | NAME |
|-----|-----------------------------|-----|------------------------------|-----|------------|
| 232 | Hexagonal Nut M 8 | 237 | Wrench 3 X 3 X 17 mm | 242 | Shear |
| 233 | Washer Nut as per draw 7117 | 238 | Intermediary Gears Axle | 243 | Gear Z-127 |
| 234 | Gear Z-40 | 239 | Hexagonal Nut M 10 | 244 | Gear Z-56 |
| 235 | Gear Z-80 | 240 | Clamp Nut | 245 | Gear Z-64 |
| 236 | Clamp Nut | 241 | Hexagonal Screw M 10 X 50 mm | 246 | Gear Z-75 |



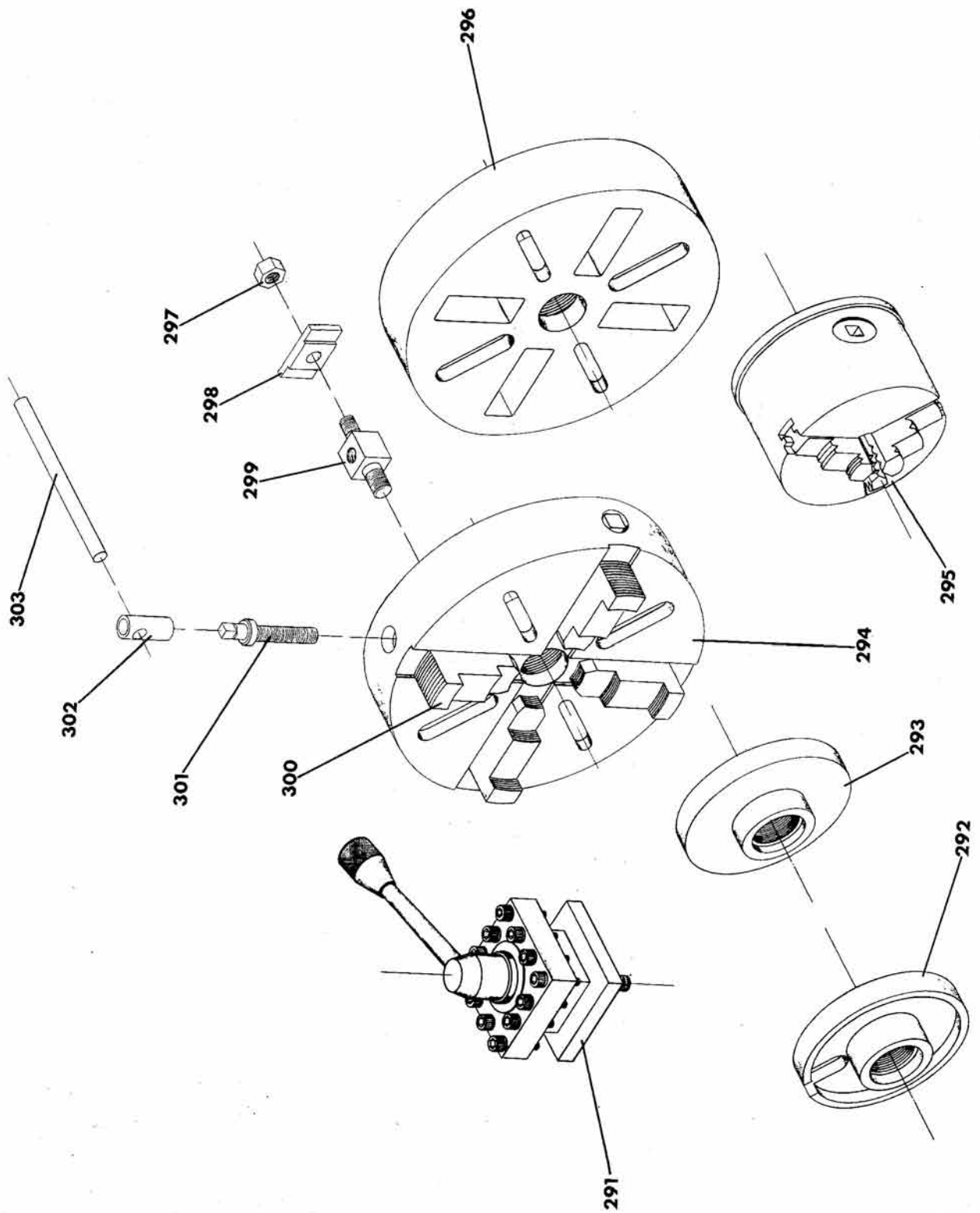
TRANSMISSION

| RE. | NAME | RE. | NAME | RE. | NAME |
|-----|-------------------------------|-----|------------------------------|-----|------------------------------|
| 247 | Motor Support | 258 | Axle | 269 | Spring Ring dia. 17,5 mm |
| 248 | Hexagonal Nut M 12 | 259 | Bearing nr. 6204Z | 270 | Hexagonal Screw M 8 X 25 mm |
| 249 | Allen Grub Screw M 12 X 40 mm | 260 | Intermediary Bearing | 271 | Counter Pin M 8 X 25 mm |
| 250 | Surface Washer M 8 | 261 | Grease Driver | 272 | Stretcher Arm |
| 251 | Hexagonal Screw M 8 X 20 mm | 262 | Bearing nr. 6204Z | 273 | Motor Support |
| 252 | Motor 1 HP - IV Poles | 263 | Stretcher Adjust | 274 | Hexagonal Nut M 8 |
| 253 | Pulley | 264 | Counter Pin dia. 2 X 40 mm | 275 | Hexagonal Screw M 10 X 40 mm |
| 254 | Wrench 3/16" X 3/16" X 28 mm | 265 | Stretcher Arm | 276 | Surface Washer M 10 |
| 255 | Belt A-27 | 266 | Belt B-35 | 277 | Hexagonal Nut M 8 |
| 256 | Intermediary Pulley | 267 | Allen Grub Screw M 8 X 20 mm | 278 | Hexagonal Nut M 12 |
| 257 | Spring Pin dia. 4 X 40 mm | 268 | Intermediary Pulley | | |



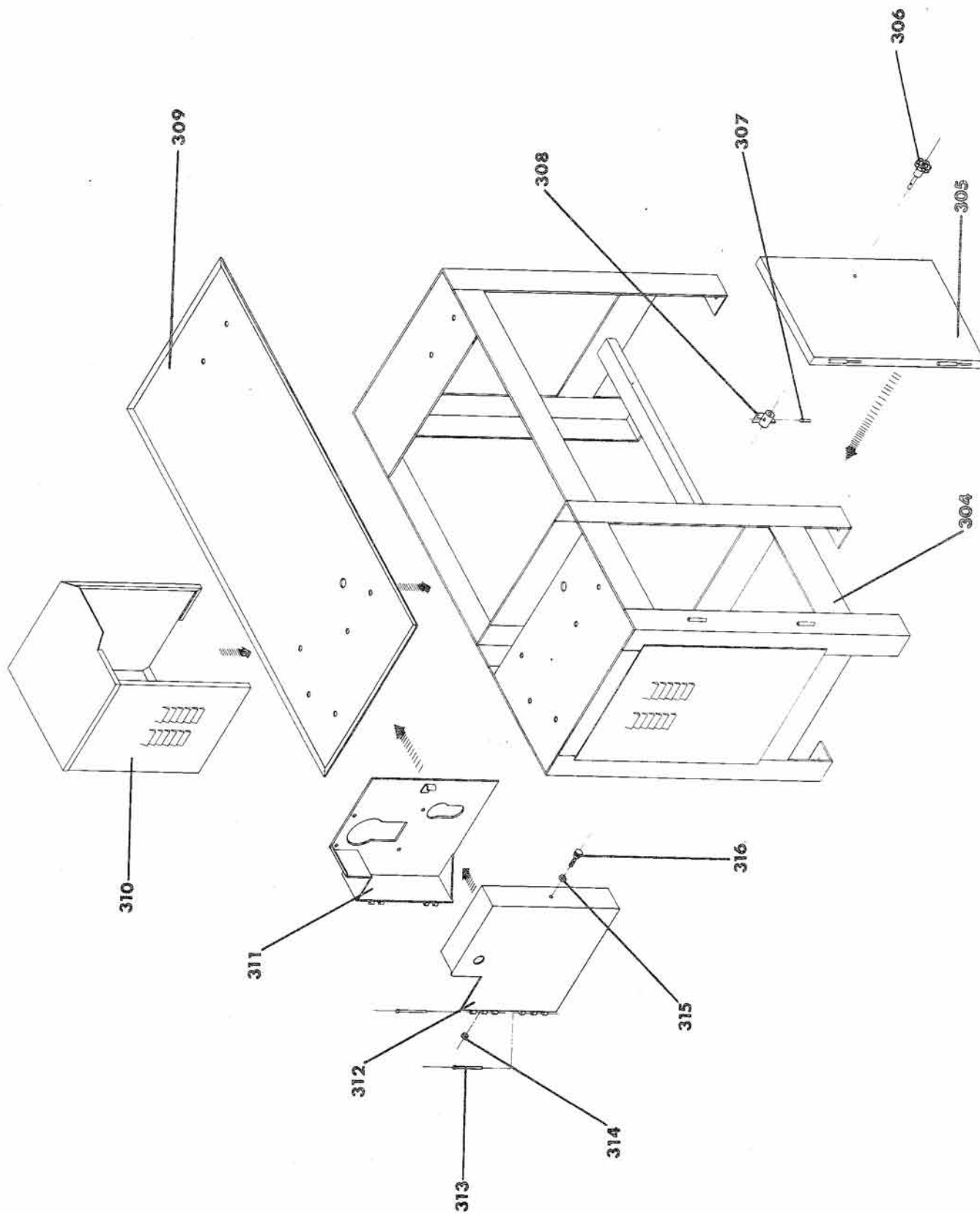
STEADY REST AND FOLLOWER REST

| RE. | NAME | RE. | NAME |
|-----|------------------------------|-----|------------------------------|
| 279 | Hexagonal Nut M 12 | 285 | Follower Rest |
| 280 | Surface Washer M 12 | 286 | Mordant |
| 281 | Steady Rest | 287 | Mordant Support |
| 282 | Steady Rest Safety | 288 | Mordant Guide |
| 283 | Hexagonal Screw M 12 X 65 mm | 289 | Allen Grub Screw M 6 X 10 mm |
| 284 | Hexagonal Screw M 8 X 38 mm | 290 | Grooved Cape M 6 X 25 mm |



FOURTOOL SQUARE TURRET, SET OF CHANGE GEARS AND PLATES

| RE. | NAME | RE. | NAME |
|-----|------------------------|-----|-------------------------------|
| 291 | Fourtool Square Turret | 298 | Jaw-Bracket |
| 292 | Driving Plate | 299 | Jaw-Fixing Support |
| 293 | Chuck Backplate | 300 | Jaw |
| 294 | 4-Independent Jaws | 301 | Jaw Adjust Screw |
| 295 | Universal Plate | 302 | Wrench for 4-Independent Jaws |
| 296 | Surface Plate | 303 | Axle for 4-Independent Jaws |
| 297 | Nut M 12 | | |



CABINET AND PROTECTIONS

| RE. | NAME | RE. | NAME |
|-----|---------------------------|-----|---------------------------|
| 304 | Cabinet | 311 | Switchgear Protection |
| 305 | Door Cabinet | 312 | Of-Exchange Door |
| 306 | Manipule | 313 | Hinge-Pin |
| 307 | Spring Pin dia. 3 X 26 mm | 314 | Hexagonal Counter-Nut M 6 |
| 308 | Door Safety | 315 | Hexagonal Nut M 6 |
| 309 | Chip Tray | 316 | Grooved Cape M 6 |
| 310 | Motor Protection | | |

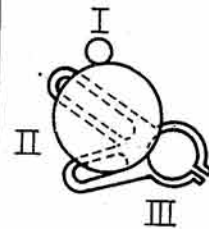
TABELA DE ROSCAS – THREAD CHART

ROSCAS em POL. – ENGLISH THREADS

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | I | II | III |
|---|-----|-----|-----|-----|-----|-----|-----|-----|----|----|-----|
| A | 4 | 4½ | 5 | 5½ | 5¾ | 6 | 6½ | 7 | 40 | 80 | 56 |
| A | 8 | 9 | 10 | 11 | 11½ | 12 | 13 | 14 | 20 | 80 | 56 |
| B | 16 | 18 | 20 | 22 | 23 | 24 | 26 | 28 | | | |
| C | 32 | 36 | 40 | 44 | 46 | 48 | 52 | 56 | | | |
| D | 64 | 72 | 80 | 88 | 92 | 96 | 104 | 112 | | | |
| E | 128 | 144 | 160 | 176 | 184 | 192 | 208 | 224 | | | |

FIOS por POLEGADA
THREADS per INCH

ENGRENAGENS
GEARS

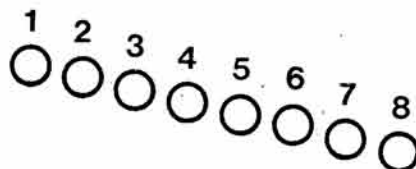
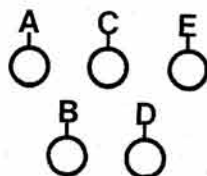
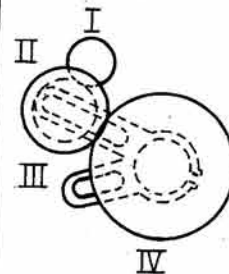


ROSCAS METRICAS – METRIC THREADS

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | I | II | III | IV |
|---|------|------|------|------|------|------|------|------|----|----|-----|-----|
| A | 3,50 | 3,11 | 2,80 | 2,54 | 2,43 | 2,33 | 2,15 | 2,00 | 40 | 64 | 80 | 127 |
| B | 1,75 | 1,55 | 1,40 | 1,27 | 1,21 | 1,16 | 1,07 | 1,00 | | | | |
| C | 0,87 | 0,77 | 0,70 | 0,63 | 0,65 | 0,58 | 0,53 | 0,50 | | | | |
| D | 0,43 | 0,38 | 0,35 | 0,31 | 0,30 | 0,29 | 0,26 | 0,25 | | | | |
| E | 0,21 | 0,19 | 0,17 | 0,16 | 0,15 | 0,14 | 0,13 | 0,12 | | | | |
| A | 3,75 | 3,33 | 3,00 | 2,72 | 2,60 | 2,50 | 2,30 | 2,14 | 40 | 56 | 75 | 127 |
| B | 1,87 | 1,66 | 1,50 | 1,36 | 1,30 | 1,25 | 1,15 | 1,07 | | | | |
| C | 0,93 | 0,83 | 0,75 | 0,68 | 0,65 | 0,62 | 0,57 | 0,53 | | | | |
| D | 0,43 | 0,41 | 0,37 | 0,34 | 0,32 | 0,31 | 0,28 | 0,26 | | | | |
| E | 0,23 | 0,20 | 0,18 | 0,17 | 0,16 | 0,15 | 0,14 | 0,13 | | | | |
| A | 4,00 | 3,55 | 3,20 | 2,90 | 2,78 | 2,66 | 2,46 | 2,28 | 40 | 56 | 80 | 127 |
| B | 2,00 | 1,77 | 1,60 | 1,45 | 1,39 | 1,33 | 1,23 | 1,14 | | | | |
| C | 1,00 | 0,88 | 0,80 | 0,72 | 0,69 | 0,66 | 0,61 | 0,57 | | | | |
| D | 0,50 | 0,44 | 0,40 | 0,36 | 0,34 | 0,33 | 0,30 | 0,28 | | | | |
| E | 0,25 | 0,22 | 0,20 | 0,18 | 0,17 | 0,16 | 0,15 | 0,14 | | | | |

PASSOS em MILIMETROS
PACES in MILLIMETERS

ENGRENAGENS
GEARS



metalúrgica riosulense s.a.

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