# Special Attention

1. Remove the wooden crate. And check whether the standard or special accessories accord with the packing list or not. Please contact the seller for unconformity.
2. Never attempt to use, operate or adjust the lathe before reading the operation manual and understanding the installation procedure.
3. Wear gaberdine, approved safety goggles and face shield while using the machine.
4. Forbidden to wear gloves, high-heel shoes and skirts.
5. Be subject to alteration without notice during the production procedure.
6. Under the condition of normal use and maintenance, if the operation is not satisfied, please contact the seller.

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# 1、APPLICATION

This machine is suitable for processing cast iron pieces, steel pieces, non-ferrous metal and non-metal pieces up to 250mm(HD210 for 210mm). The size of the spindle bore allows 20mm bar-shaped materials to go or through it. It can work out, cone, step, end sarface,grooves, holes (drilling and boring),threads(Metric and Imperial).

With the advantage of high accuracy,rational structure, easy operation & reliable quality,the bench lathe can be fixed on the iron or wooden worktable(the iron work table can be ordered from factory) without the concrete base.We use the cold-reduced trapezoidal steel lead screw to improve the hardness, abrasion resistance and durability of the threads surface, and also to prolong its work life. It's the ideal machine for family maintenance, metals, light machinery, school training,and car repairing, ete. It' s proper both for the one to process the piece production and for the factories to produce in batches.

## 2、MAIN TECHNICAL SPECIFICATION.

| | HD210 | HD250 | CQ6125 |
|---|---|---|---|
| Max.swing over bed | 210mm | 250mm | 250mm |
| Max.swing over gap | 320mm | 400、550、750mm | 400、550、750mm |
| Metric thread | 0.4~3mm | 0.4~3mm | 0.3-2.5mm |
| Steps | 12 steps | | |
| Spindle bore | 20mm | | |
| Tape lf spindle bore | M.T.NO.3 | | |
| Range of spindle speeds | 125-2000r.p.m | | |
| Steps | 6 steps | | |
| Longitudinal feed per spindle revoution | 0.1~0.2mm | | |
| Tool post cutting area | 14×14mm | | |
| Inch threads | 10~44/25.4mm | | |
| Steps | 8 steps | | |
| Taper of tail stock puill | M.T.NO.2 | | |
| Motor frequency(50、60HZ) | 550w/220v-380v | | |

## Form 1 Form to distinguish the different lathe models

| Model / Name | HD210 | HD250 | CQ6125 |
|---|---|---|---|
| Head stock | See Fif5-2(with oblique head stock) | See Fif5-1(with oblique head stock) | See Fif5-3 |
| Feed box | No | No | See Fig10 |
| Bed assembly | See Fig4-1 | See Fig4-1、4-4 | See Fig4-2、4-3 |
| Tal stock | See Fig6-2 | See Fig6-1 | See Fig6-1 |
| Tool post | See Fig7-3 | See Fig7-1、7-2 | See Fig7-1、7-2 |
| Saddle | See Fig 8-2 | See Fig 8-1、8-3 | See Fig 8-1、8-3 |
| Apron | See Fig9-1、9-2 | See Fig9-1、9-2 | See Fig9-1、9-2 |
| Change gear | See Fig11-1 | See Fig11-1 | See Fig11-2 |
| Base for 3-jaw chuck | No | See Fif5-4 | See Fif5-4 |

## 3、TRANSMISSON SYSTEM

### 3.1 See Fig1 Form 2,Fig 3

All the moving force of the spindle in head stock and feed system comes form electric motor.When you open the safety cover, you'll see the transmission structure. The triangle pulley on the motor will drive the spindle directly to reach the high speed at 620,1000,2000 r.p.m ,If you want to moderate by using the symchromesh pulley which is concatenated on the motor pulley,you can reach the low speed at 125,210,420r.p.m,that is six different speed from the spindle.

### 3.2 Feed system

The tool post feed is that the main shaft gear behind the main spindle through the different speed ratio of the change gears, makes 114 lead screw turning. If you operate 608 handle on the apron to shut the half nut, you can get different feed speed, you can also get different cutting thread pitch.

During the course of the head stock spindle rotation from clockewise cutting direction to recolution,generally the clockwise feed is for right threads cutting. If you wand the counter-clock wise rotation to get the left threads, you can take out another set of fixed shaft bolts with 40 teeth from the

standard accessories, and fixed below the spindle to get the relative mesh together with the original fixed 40 teeth shaft bolt. Only in this way can you get the 114 lead screw reverse to realize counter-clockwise feed and left threads cutting.

3.3 Fig 2 is the transmission system for CQ6125 with feed box. CQ6125 is same as HD250 except for the feed box. The parts in the feed box are shown in Fig.10.

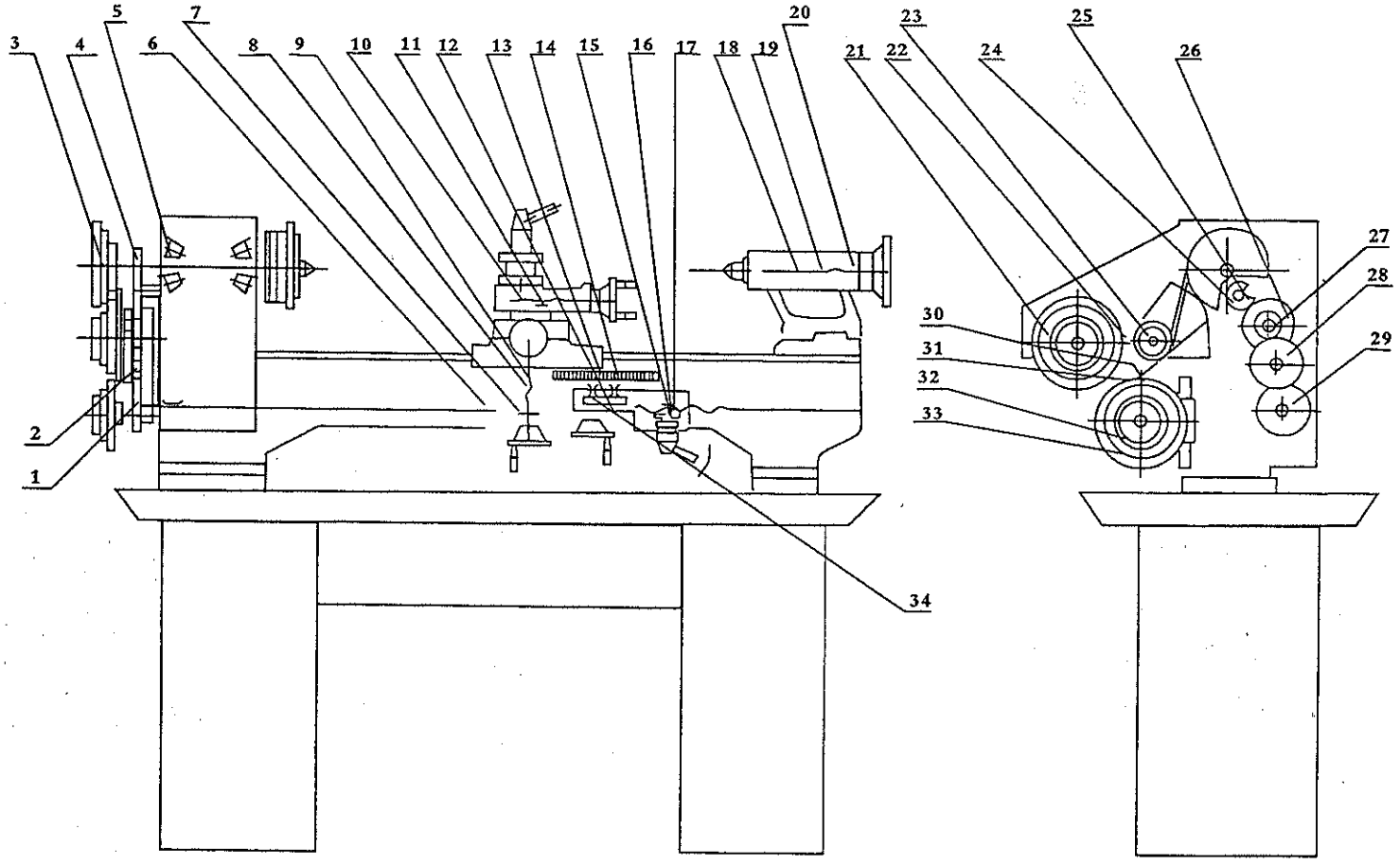



Fig.1 Transmission System And Bearing Distribution (HD250、HD210)

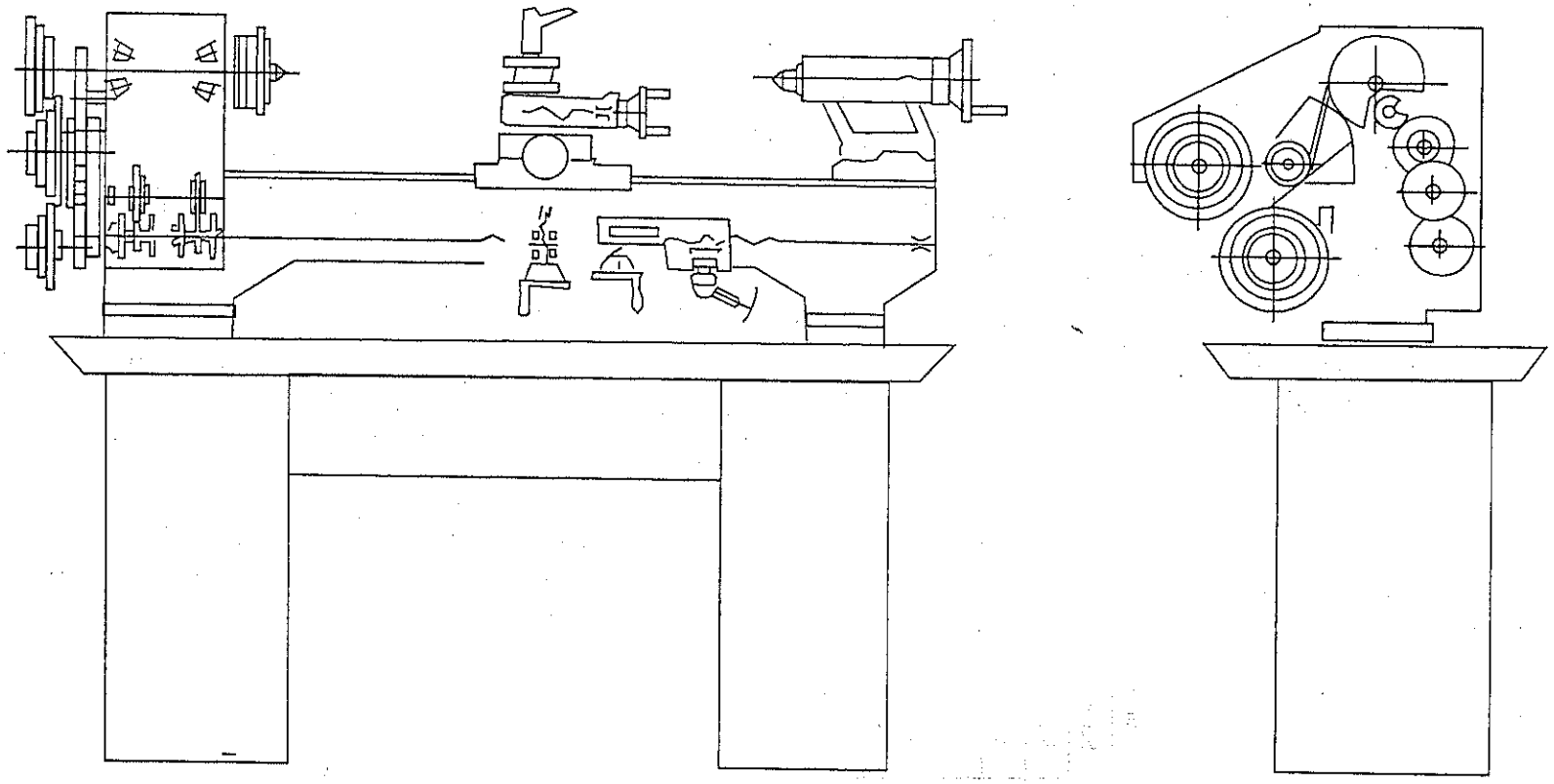


Fig.2 Transmission System And Bearing Distribution (Cq6125)

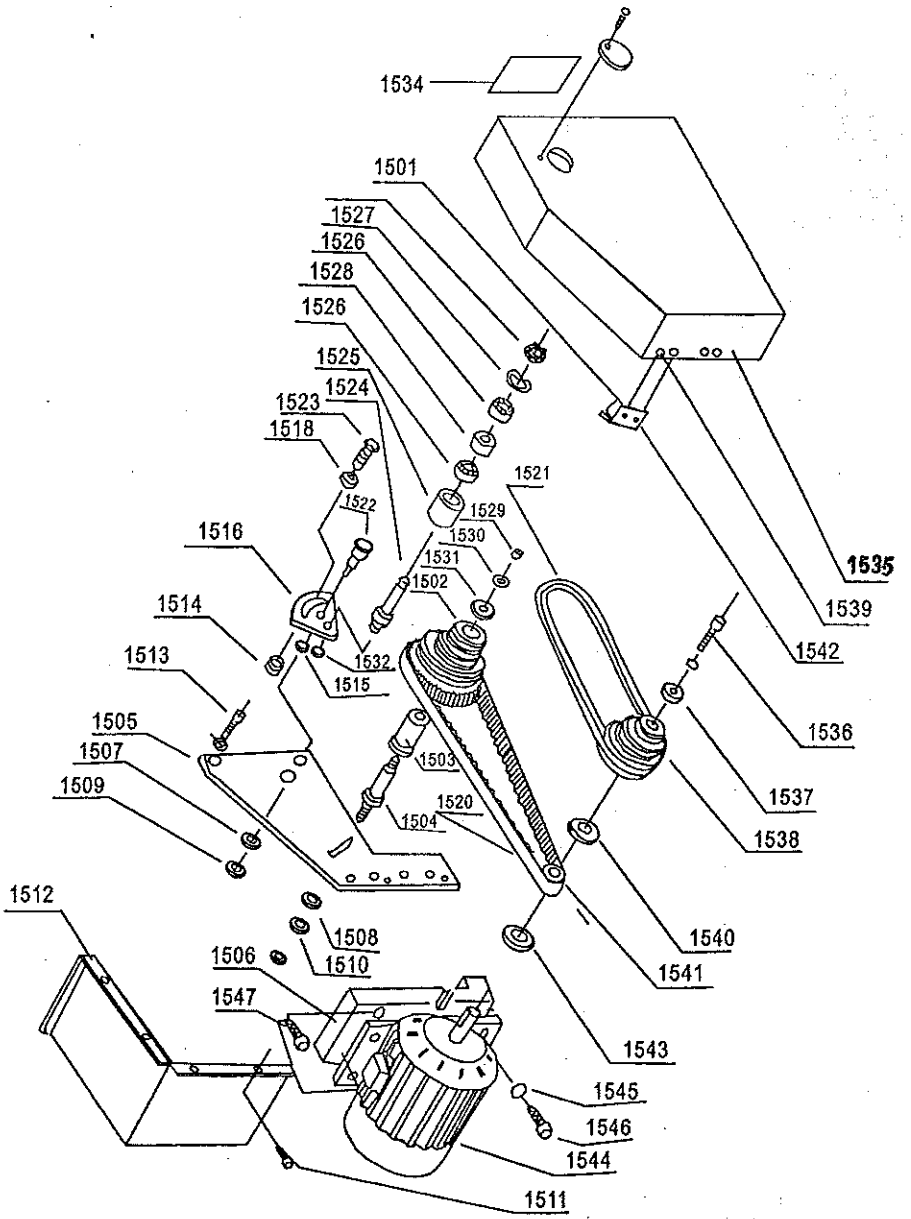
# Form2 Transmission Parts

| NO | Name | No. of teeth threads | Module pitch | Serratcd form angle | Spiral direction | Relatcd part | Nos in Fig | Notes |
|---|---|---|---|---|---|---|---|---|
| 1 | Belt | 19 | 1.5 | 20° | | 15 | 15024 | |
| 2 | Change gear | 25 | 1 | 20° | | 08 | 08017 | |
| 3 | Spindle belt | | | | | 02 | 02020 | |
| 4 | Spindle gear | 40 | 1 | 20° | right | 02 | 02021 | |
| 6 | Lead screw | | T20×2 | | left | 01 | 01005 | |
| 8 | Jam Nut | | M14 | | left | 05 | 05014 | |
| 9 | Screw Post | | M14 | | right | 05 | 05013 | |
| 10 | Screw Post | | M8×1 | | left | 04 | 04018 | |
| 11 | Arbor Plate | | M8×1 | | | 04 | 04011 | |
| 12 | Gear | 57 | 1 | 20° | | 06 | 06016 | |
| 13 | Gear rack | | 1.25 | 20° | | 01 | 01009 | |
| 14 | Gear shaft | 17 | 1.25 | 20° | | 06 | 06014 | |
| 15 | Nut | | T20×2 | | Right | 06 | 06017 | |
| 16 | Eccentric | | | | | 06 | 06020 | |
| 17 | Pin | | | | | 06 | | GB119-76/5×12 |
| 18 | Screw Post | | M14 | | left | 03 | 03016 | |
| 19 | Tailstock sleece | | M14 | | left | 03 | 03015 | |
| 21 | Synchromesh mid belt | 90 | 1.5 | 20° | | 15 | 15023 | |
| 22 | Jam wheel | | | | | 15 | 15012 | |
| 24 | Transition gear | 40 | 1 | 20° | | 08 | 08013 | |
| 26 | Change gear | 80 | 1 | 20° | | 08 | 08019 | |
| 27 | Change gear | 33 | 1 | 20° | | 08 | 08025 | |
| 28 | Change gear | 90 | 1 | 20° | | 08 | 08032 | |
| 29 | Change gear | 90 | 1 | 20° | | 08 | | B=18 |
| 30 | Synchromesh serrated belt | 124 | 1.5 | 20° | | 15 | | O type 762 |
| 31 | Triangle tape | | | | | 15 | | |
| 32 | Motor wheel | | | | | 15 | 15018 | JZ7134/550W |
| 33 | Motor | | | | | 15 | | |
| 34 | Gear shaft | 17 | 1 | | | 06 | 06013 | |

## Form 3 Bearings

| No | Name | Type | Specification | Qty | Position |
|---|---|---|---|---|---|
| 5 | Single row taper bearing | 2007107 | 35×62×17 | 2 | Head stock |
| 7 | Single row thrust bearing | 8101 | 12×26×9 | 1 | Saddle |
| 20 | Single row thrust bearing | 8101 | 12×26×9 | 1 | Tail stock |
| 23 | Single row centripetal force bearing | 101 | 12×28×8 | 2 | Jam wheel |
| 25 | Single row centripetal force bearing | 101 | 12×28×8 | 1 | Change gear |

## Fig.3 Motor And Belt Wheels



# Form4 Motor & pulley transmission

| No. | Excused standard no. | Name | Qty r | Notes |
|---|---|---|---|---|
| 1501 | GB96-52-67 | Nut | 3 | M5 |
| 1502 | 15023 | Synchromesh mid pulley | 1 | |
| 1503 | 15021 | Bearing | 1 | |
| 1504 | 15020 | Shaft | 1 | |
| 1505 | 15022 | Cover | 1 | |
| 1506 | GB96-76 | Washer | 1 | 12 |
| 1507 | GB97-76 | Washer | 1 | 10 |
| 1508 | GB52-76 | Nut | 1 | M12 |
| 1509 | GB52-76 | Nut | 1 | M10 |
| 1510 | GB54-76 | Nut | 1 | M12 |
| 1511 | GB818-76 | Screw | 4 | M5×8 |
| 1512 | 15027 | Cover | 1 | |
| 1513 | GB30-76 | Threaded bolt | 3 | M10×20 |
| 1514 | 15025 | Washer | 1 | |
| 1515 | 15016 | Washer | 1 | |
| 1516 | 15026 | Fan shaped support | 1 | |
| 1517 | 15030 | Support | 1 | |
| 1518 | GB97-76 | Washer | 1 | 8 |
| 1519 | GB818-76 | Screw | 2 | M5×12 |
| 1520 | | Serrated belt | 1 | M1.5×Z124 |
| 1521 | | Triangle belt | 1 | Otype762 |
| 1522 | 15015 | Shaft | 1 | |
| 1523 | GB30-76 | Bolt | 1 | M8×25 |
| 1524 | 15014 | Shaft | 1 | |
| 1525 | 15012 | Jam wheel | 1 | |
| 1526 | 101 | Single row centripetal force bearing | 2 | 12×28×8 |
| 1527 | GB894-76 | Spaver | 1 | 12 |
| 1528 | 15013 | Quill | 1 | |
| 1529 | R71-1 | Oil seal | 1 | 6 |
| 1530 | GB894-76 | Spacer | 1 | 12 |
| 1531 | 15031 | Washer | 1 | |
| 1532 | GB894-76 | Spacer | 1 | 12 |
| 1533 | GB893-76 | Spacer | 1 | 28 |
| 1534 | 15029 | Plate | 1 | |
| 1535 | 15028 | Cover | 1 | |
| 1536 | GB70-76 | Screw | 1 | |
| 1537 | 15017 | Spacer | 1 | |
| 1538 | 15018 | Pulley | 1 | |
| 1539 | GB818-76 | Svrew | 5 | M5×8 |
| 1540 | 15024-1 | Spacer | 1 | |
| 1541 | 15024 | Pulley | 1 | |
| 1542 | | Hinge | 1 | 75 |
| 1543 | 15024-2 | Spacer | 1 | |
| 1544 | JZ7134 | Motor | 1 | 400/370W 500/550W |
| 1545 | GB97-76 | Washer | 4 | 8 |
| 1546 | GB30-76 | Bolt | 4 | M8×25 |

## 4.BED ASSEMBLY

See Fig 4-1,4-2,4-3,Form5.

All the components will be assembled on the bed which is made of HT200 cast iron as the lathe body material after eliminating its internal stress, and it can be used for a long time without deformation, with adequate hardness to bear the cutting load, the fine processed two lozenge tracks can supply easy linear sliding for saddle, tail stock when processing parts.

Before delivery of the lathe, the moving precision of the lead screw & gear rack on bed body has been calibrated, customers do not have to adjust it.

Fig.4-1 Bed Assembly(HD250、HD210)

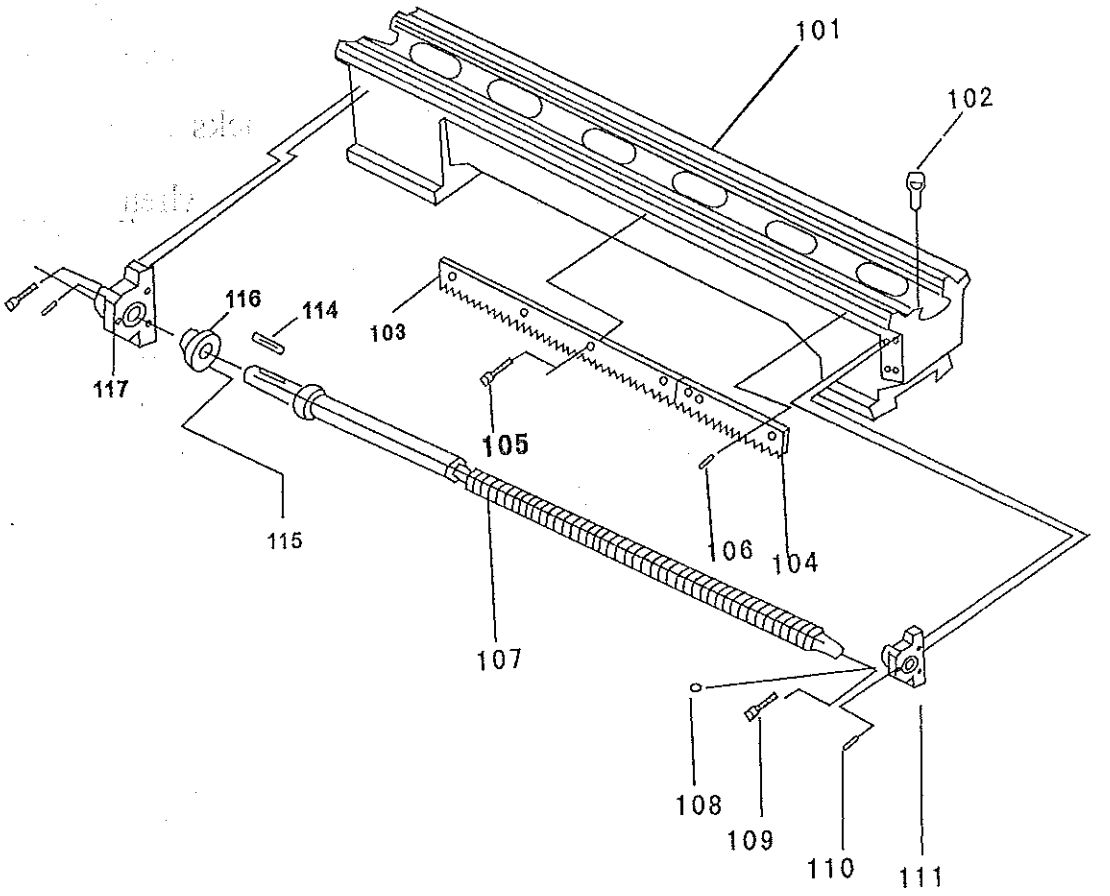


Fig.4-2 Bed Assembly(CQ6125 With switch lever )

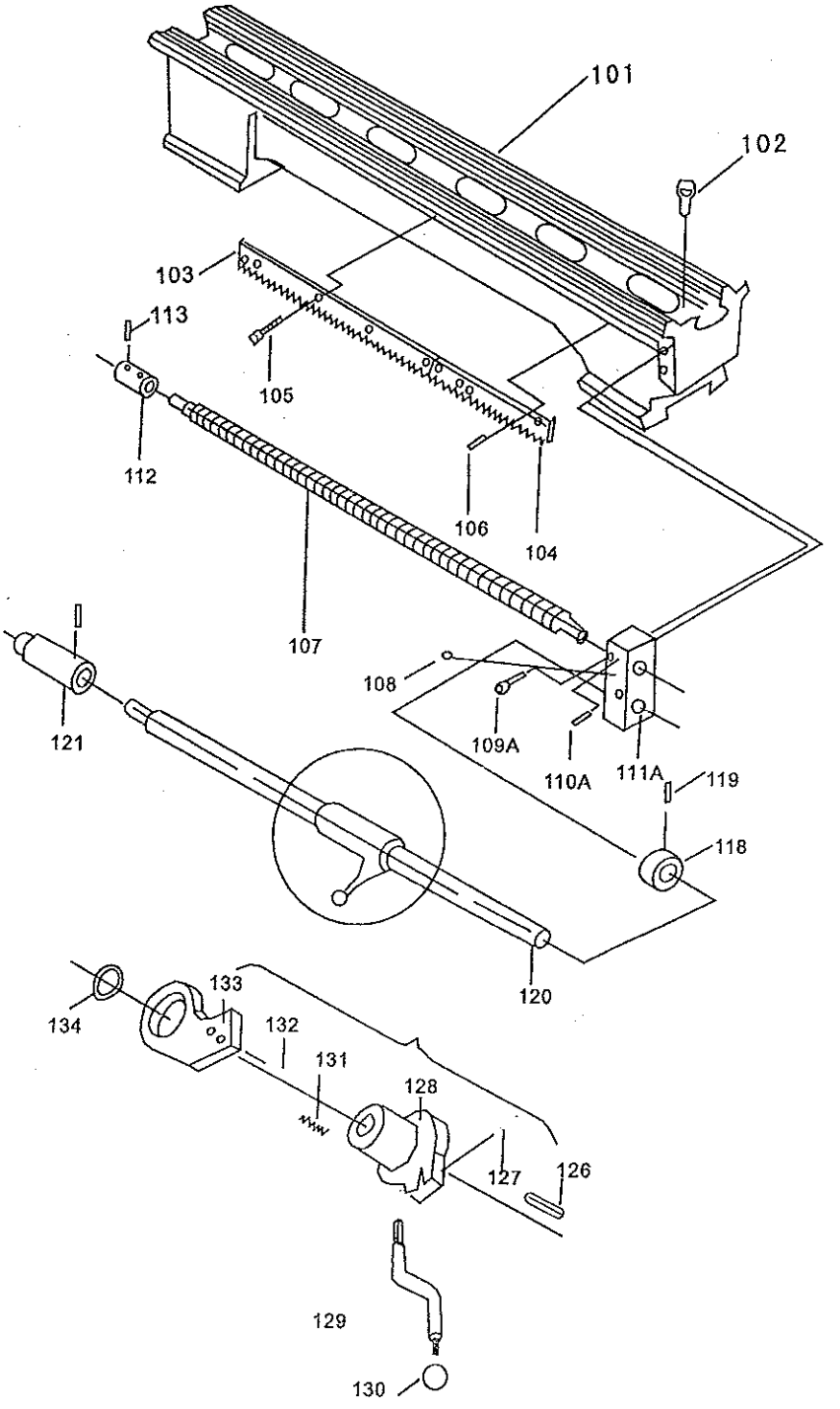


Fig.4-3 Bed Assembly(CQ6125 )

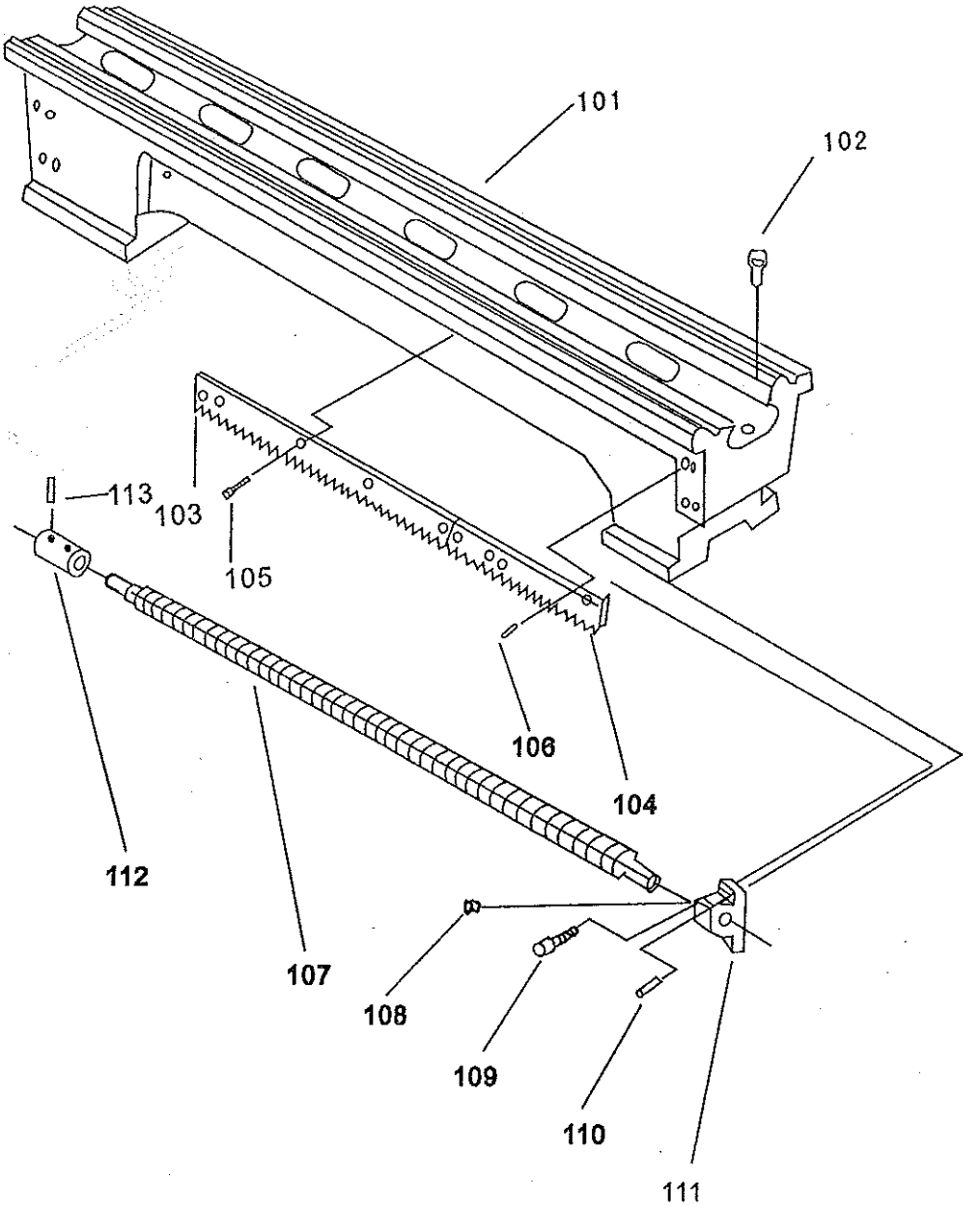
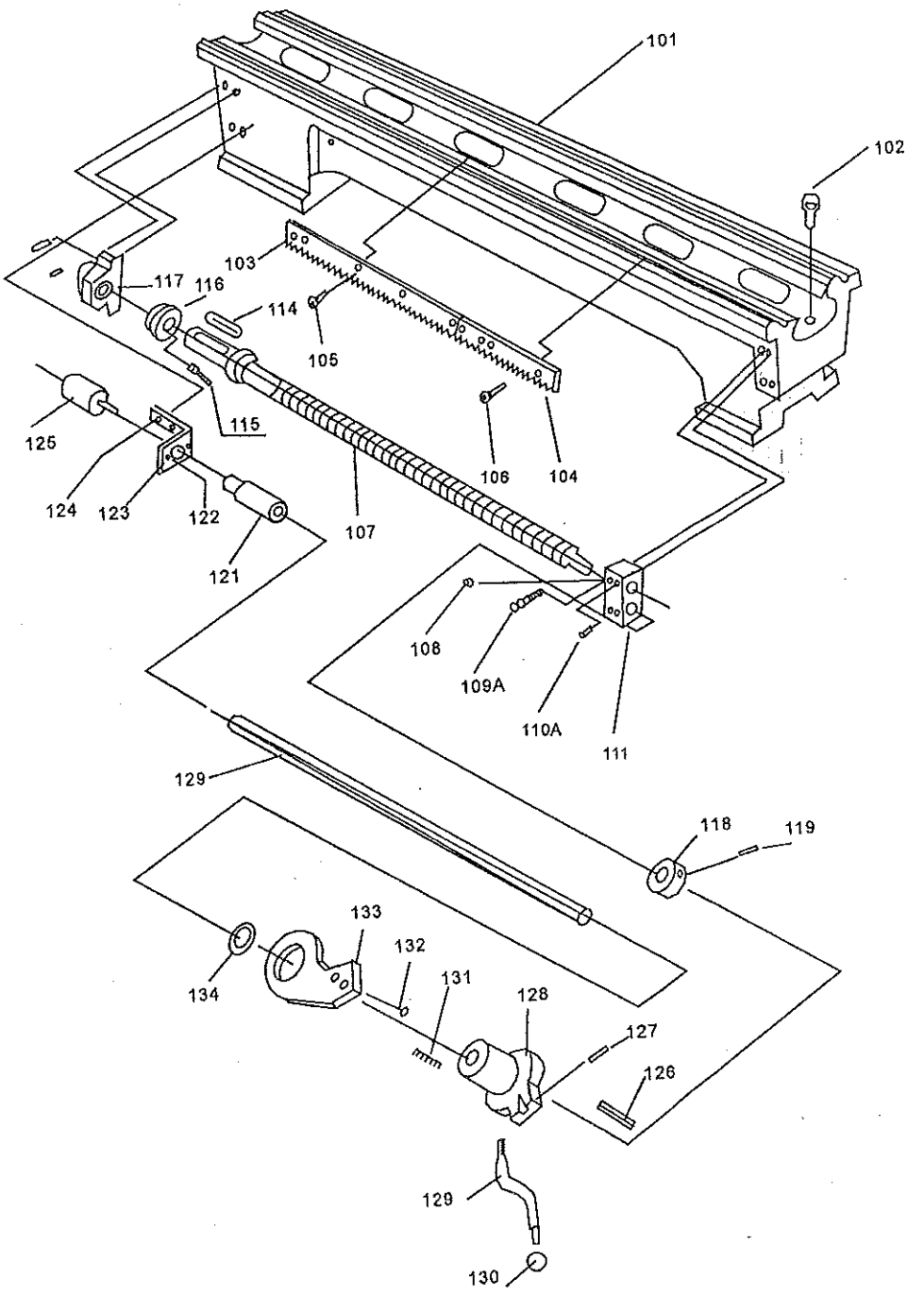


Fig.4-4 Bed Assembly(CQ250 With switch lever )



# Form5 Bed Assembly(Fig4-1,Fig4-2,Fig4-3,fig4-4)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 101 | 01001 | Lathe Body | 1 | 400、500、750 |
| 102 | GB70-85 | Screw | 1 | M8×16 |
| 103 | 01019B/1 | Long Gera rack | 1 | |
| 104 | 01019/B/2 | Short gear rack | 1 | |
| 105 | GB819-85 | Screw | 6 | M5×16 |
| 106 | GB879-86 | Elatic bin | 1 | 4×12 |
| 107 | 01015 | Screw post | 1 | |
| 108 | GB115-89 | Oil seal | 2 | Φ6 |
| 109 | GB70-85 | Screw | 4 | 6×16 |
| 109A | GB70-85 | Screw | | 6×45 |
| 110 | GB118-86 | Taper pin | 2 | 6×22 |
| 110A | GB118-86 | Taper pin | 4 | 6×30 |
| 111 | 01018 | Right back up | 2 | |
| 111A | 01029 | Post support | 1 | |
| 112 | 01012 | Commection puili | 1 | |
| 113 | GB117-86 | Taper pin | 1 | 4×20 |
| 114 | GB1096-79 | Key | 2 | 4×16 |
| 115 | GB70-85 | Screw | 1 | M4×6 |
| 116 | 01014 | Adjusting gland | 3 | |
| 117 | 01012 | Left back up | 1 | |
| 118 | 01028 | Positioning loop | 1 | |
| 119 | GB829-86 | Elatic bin | 1 | 4×26 |
| 120 | 01022 | Swith lever | 1 | |
| 121 | 01030 | Switch shaft | 1 | |
| 122 | GB70-85 | Screw | 1 | M6×20 |
| 123 | 01033 | Switch block | 2 | |
| 124 | GB70-85 | Screw | 1 | M6×20 |
| 125 | HZ-B/10A | Combination switch | 2 | |
| 126 | J31-3A | Key | 1 | 5×5×24 |
| 127 | GB879-86 | Elastic bin | 1 | 4×20 |
| 128 | 01024 | Hand wheel base | 1 | |
| 129 | 01025 | Hand wheel post | 1 | |
| 130 | GB4141.14-84 | Plastic sleeve | 2 | 8×40 |
| 131 | GB2089-50 | Spring | 1 | Y11.2×6×16 |
| 132 | GB70-85 | Screw | 1 | M5×10 |
| 133 | 01023 | Support | | |
| 134 | GB894.1-86 | Retaining ring | | 25 |

# 5、HEAD STOCK

See Fig 5-1,Fig5-2,Fig5-3,Fig5-4.

Due to the adoption of cone pulley belt to transmit,the strucrure of the head stock does not become complicated, it is mainly composed of head stock base,shaft,bearings, retaining rings,pulley,nut,etc.

Head stock is important part of the lathe,it will deal with the precision or roughness of the work parts, and it ' s made with high precision. So the high precision 2007107D grade of single row taper bearings are used for the supports of the main shaft, it can bear the load coming from the radial and axial direction, ensure the main shaft to remain the good precision of regidity and revolutio. The clearence of the bearings for the spindle has been well adjusted before delivery, customers don ' t have to cdjust again. When the lathe is used long and the precision becomes low,also cutting with vibration,then it needs adjusting.

Fig.5-1 Head Stock(HD250)

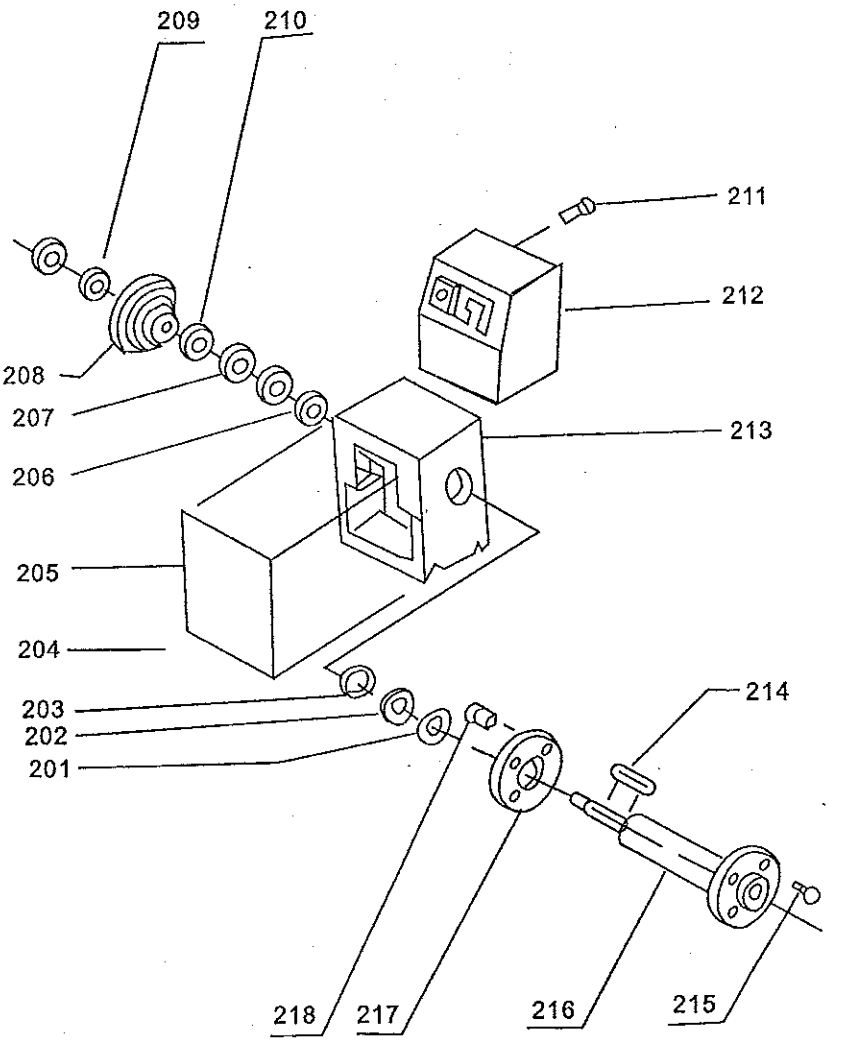


Fig.5-2 Head Stock(HD210)

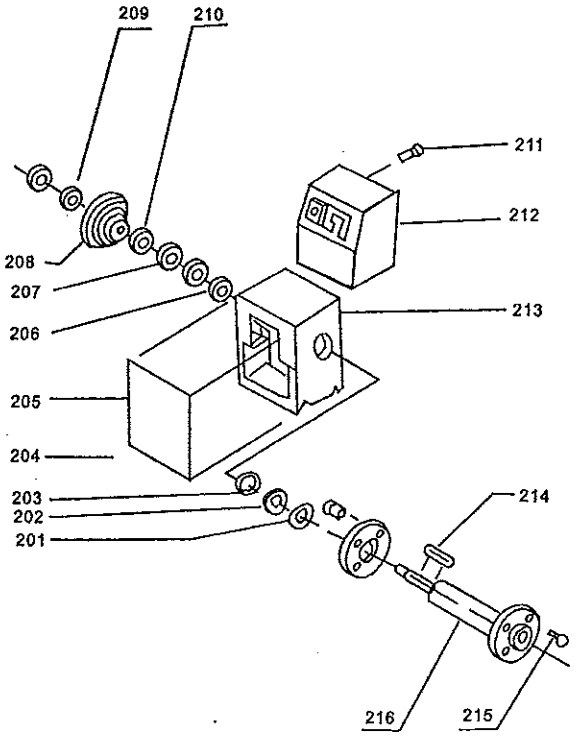
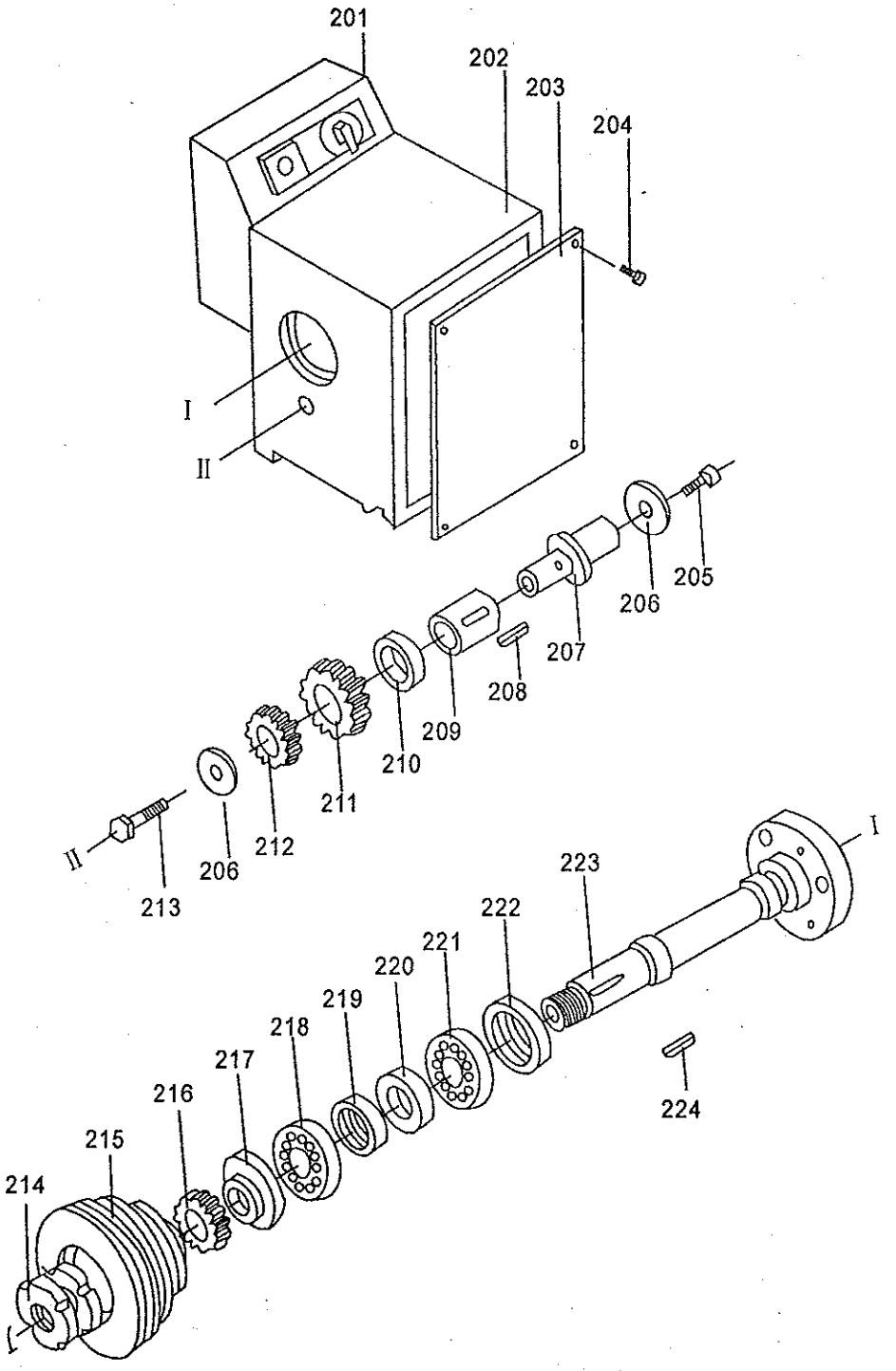



Fig6 Head stock (Fig5-1,Fig5-2)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 201 | 02014 | Oil seal | 1 | |
| 202 | 2007107 | Gearing | 2 | 35×62×17 |
| 203 | 02013 | Oil seal | 1 | |
| 204 | GB818-76 | Screw | 4 | M3×8 |
| 205 | 02016 | Face cover | 1 | |
| 206 | 02014A | Oil seal | 1 | |
| 207 | 02015 | Loop | 1 | |
| 208 | 02020 | Pulley | 1 | |
| 209 | GB812-76 | Nut | 2 | |
| 210 | 02021 | Spindle gear | 1 | |
| 211 | GB818-76 | Nut | 3 | M5×10 |
| 212 | | Switch | 1 | |
| 213 | 02011 | Head stock | 1 | |
| 214 | GB1096-79 | Key | 1 | 4×40 |
| 215 | GB70-76 | Screw | 3 | M6×16 |
| 216 | 02012 | Spindle | 1 | |
| 217 | 02018 | Positioning loop | 3 | |

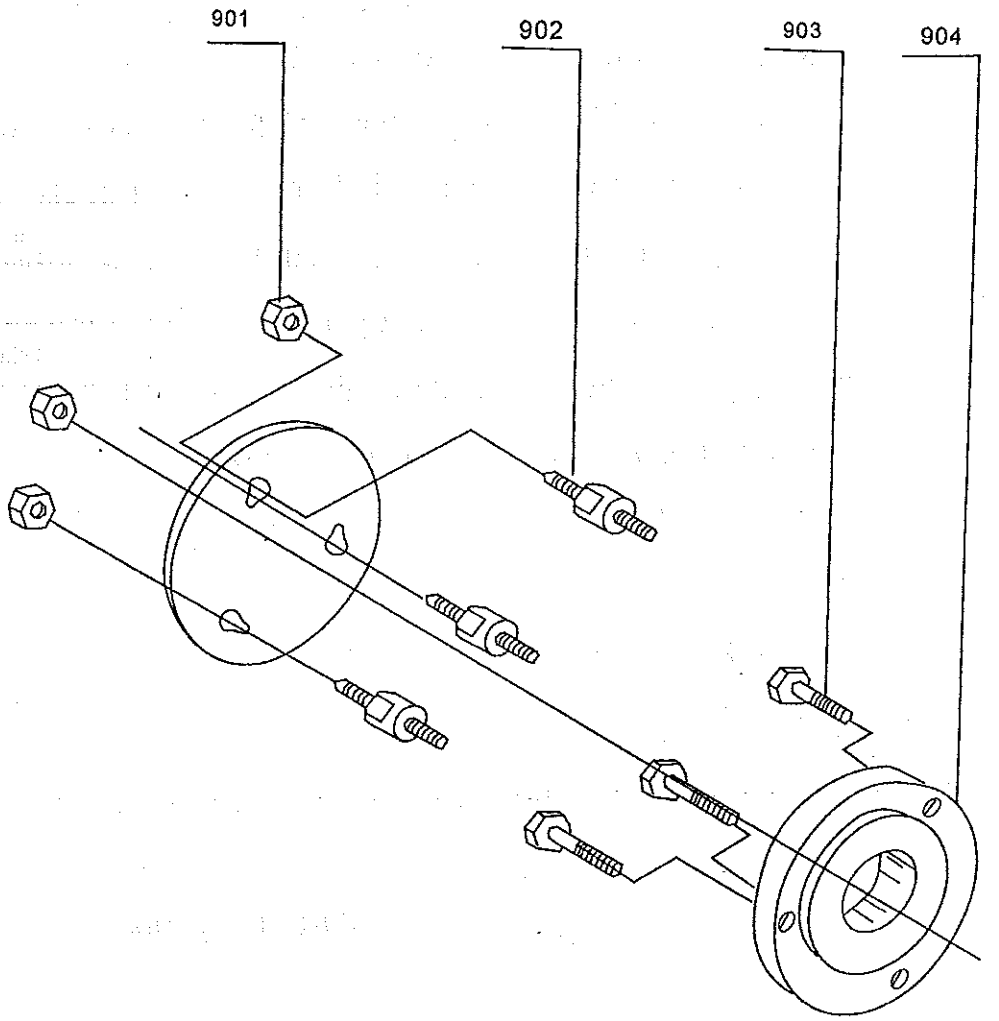
Fig.5-3 Head Stock(CQ6125)



# Form7 Head stock (Fig5-3)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 201 | 15032 | Electric box | 1 | |
| 202 | 02011 | Head stock body | 1 | |
| 203 | 02016 | Face cover | 1 | |
| 204 | GB818-86 | Screw | 4 | M3×6 |
| 205 | GB70-85 | Threaded bolt | 1 | M6×12 |
| 206 | GB96-85 | Washer | 2 | 6 |
| 207 | 02027 | Shaft | 1 | |
| 208 | GB1096-86 | Key | 1 | 4×20 |
| 209 | 02028 | Quill | 1 | |
| 210 | 08019 | Loop | 1 | |
| 211 | 08018A | Gear | 1 | Z60 |
| 212 | 08016 | Gear | 1 | Z50 |
| 213 | GB5783-86 | Bolt | 1 | M6×16 |
| 214 | GB812-88 | Nut | 1 | M27×1.5 |
| 215 | 02020 | Pulley | 2 | |
| 216 | 02021 | Gear | 1 | Z45 |
| 217 | 02025 | Loop | 1 | |
| 218 | GB297-64 | Bearing | 1 | 2007107 |
| 219 | 02013 | Oil seal | 1 | |
| 220 | 02013 | Oil seal | 1 | |
| 221 | GB297-64 | Bearing | 1 | 2007107 |
| 222 | 02013 | Oil seal | 1 | |
| 223 | 02012 | Spindle | 1 | |
| 224 | GB1096-86 | Key | 1 | 4×50 |

Fig.5-4 3-jaw Chuck Base(HD250、CQ6125)




Form8 3-jaw chuck base(Fig5-4)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 901 | GB55-76 | Nut | 3 | M10 |
| 902 | 09012 | Bolt | 3 | |
| 903 | GB21-76 | Bolt | 3 | M8×25 |
| 904 | 09011 | 3-jaw chuck base | 1 | |

## 6、TAIL STOCK

See Fig 6-1,6-2

Tail stock is comsisted of its base,sleeve,screw post,etc.It can be moved along the guiding rails, you can screw 304 Nut to fasten it at any position on the guiding rails. Then turn 320 Hand wheel to get the tail stock sleeve moving forward and backward to finish boring, tapping, reaming, cutting, etc. The manrfacturing accuracy of the tail stock has reached the alowable error range. The zero central position line is carved in front of the 305 tail stock body and 326 tail stock base.If you need moving the tail stock axis to left and right side when cutting, adopt the following measures.

6.1Loosen 304 Nut,you can move the tail stock.

6.2Loosen 315 Nut

6.3 Adjust 301 screw slightly to move tail stock for the righe process repuirement.

6.4 Fasten 315 screw and 304 Nut to start operation.

Fig.6-1 Tail Stock(HD250、CQ6125)

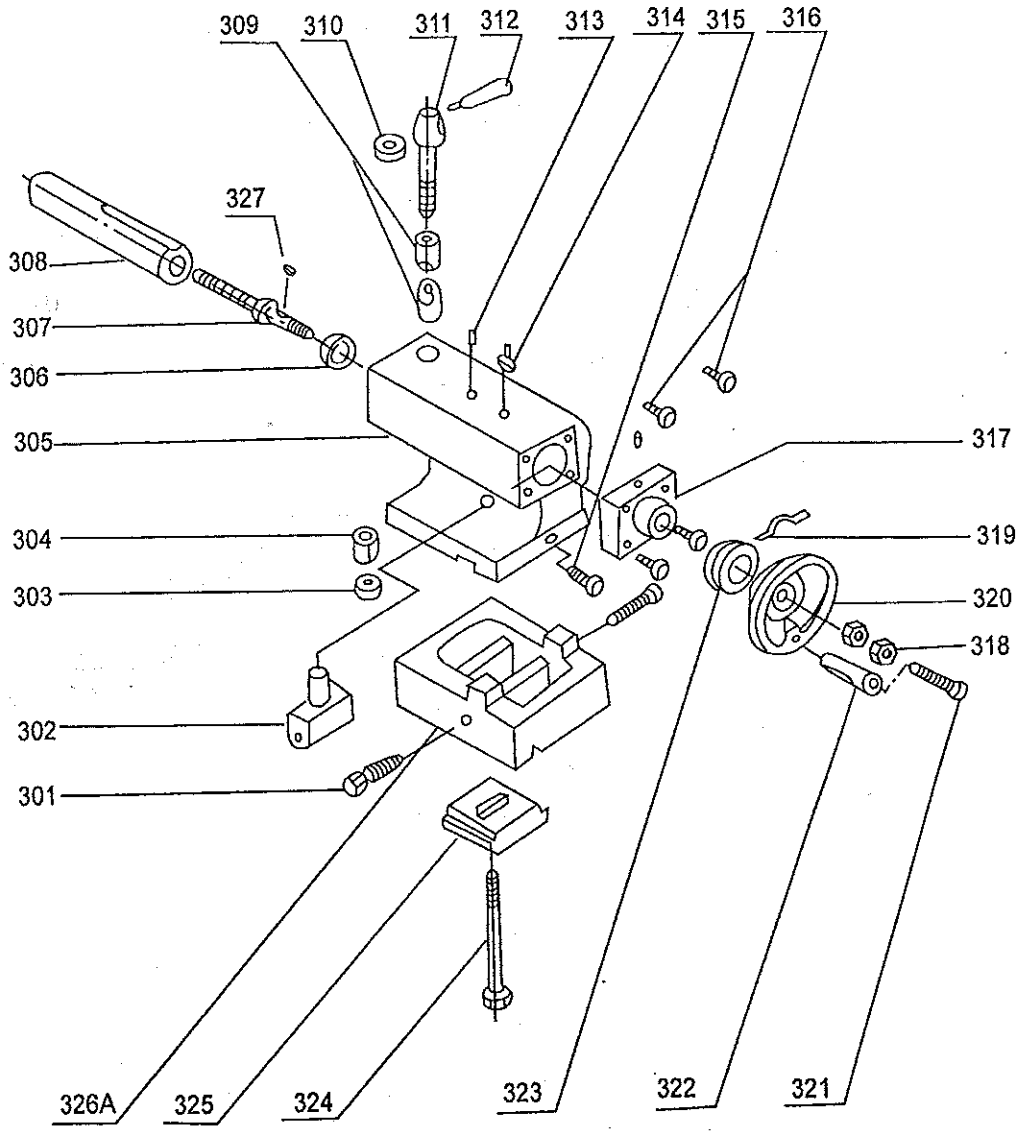
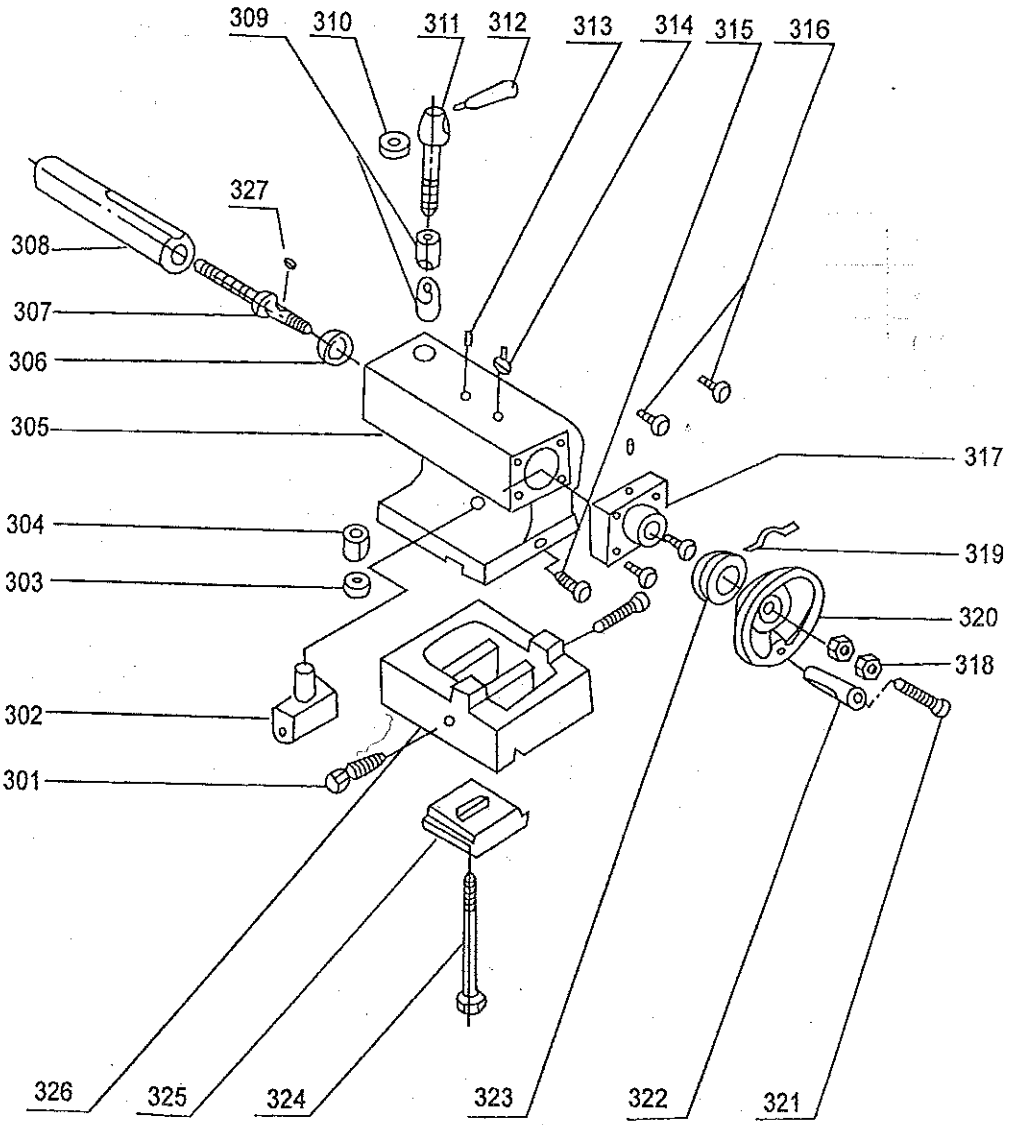


Fig.6-2 Tail Stock(HD210)



# Form 9 Tail stock prats(Fig6-1,Fig6-2)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 301 | GB70-76 | Screw | 2 | M8×30 |
| 302 | 03013 | Nut | 1 | |
| 303 | GB97-76 | Washer | 1 | B12 |
| 304 | GB55-76 | Nut | 1 | M12 |
| 305 | 03011 | Tail stock base | 1 | |
| 306 | 8101 | Single row thrust bearing | 1 | 12×26×9 |
| 307 | 03016 | Screw post | 1 | |
| 308 | 03015 | Sleeve | 1 | |
| 309 | 03020 | Jam Quill | Ipair | |
| 310 | GB97-76 | Washer | 1 | B8 |
| 311 | 03021 | Screw Post | 1 | |
| 312 | 03022 | Handle | 1 | 6 |
| 313 | R71-1 | Oil cup | 2 | |
| 314 | 03019 | T-shqped key | 1 | M6×16 |
| 315 | GB75-76 | Screw | 1 | M5×16 |
| 316 | GB70-76 | Screw | 4 | |
| 317 | 03017 | End cover | 1 | 4×30 |
| 318 | GB879-76 | Nut | 1 | |
| 319 | 04022 | Pinch cock | 1 | |
| 320 | 03018 | Hand wheel | 1 | |
| 321 | 06027A | T hreded bolt | 1 | |
| 322 | 06027 | Quill | 1 | |
| 323 | 04021 | Ring | 1 | |
| 324 | GB30-76 | Threaded bolt | 1 | M12×100 |
| 325 | 03014 | Gland | 1 | |
| 326 | 03012 | Gase | 1 | |
| 326A | HD210-03012 | Base | 1 | |
| 327 | GB1079-86 | Key | 1 | 4×12 |

## 7、TOOL POST &SADLE

See Fig 7-1,7-2,7-38-1,8-3.

Tool Post is connected with saddle, it' s mainly consisted of slide, screw post, adjustable iron, tool post, turn plate base, etc. If can be moved lingitudinally & transversely through locomotive and manual operation. The turn plate of the tool post can have 60° revolution from left to right when needed, the dividing disk is fixed on the handle, using the mark can help process accurate circular column, taper and plane , etc. During the long time use of the lathe, the dovetail guide of the saddle, tool post slide, saddle clip, they' ll abrade the tuiding rails, the saddle bolts will also abrade the nuts and cause the bigger clearance ,low precision . Adopt the following measures to adjust the clearance.

1、To adjust the clearance of the saddle slide dovetail, tool post slide dovetail and saddle clip is to loose 513Nut, adjust514 nut till to elininate the clearance, then screw up 513 nut.Using the same way to adjust the clearance of the tool post slide and the clearance of 518 saddle to get the stable slide without looseness.

2、To adjust the clearance between the saddle bolts and nuts is to dismount 539 support and 501 nuts , proprly screw up the two 541 screws, you' ll see the clearance obviously

becomes small. After installing again , turn 533 hand wheel in clockwise & counter clockwise direction.

With the idle running amount decreased,the process precision is improved.

Fig.7-1 Tool Post(HD250、CQ6125)

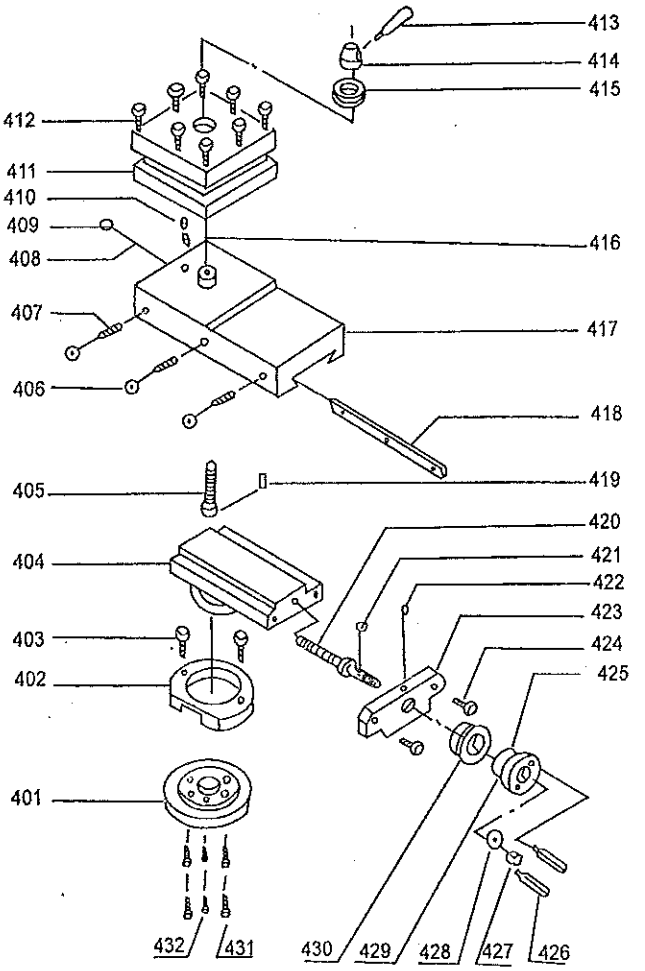


Fig.7-2 Tool Post(HD250A、CQ6125A)

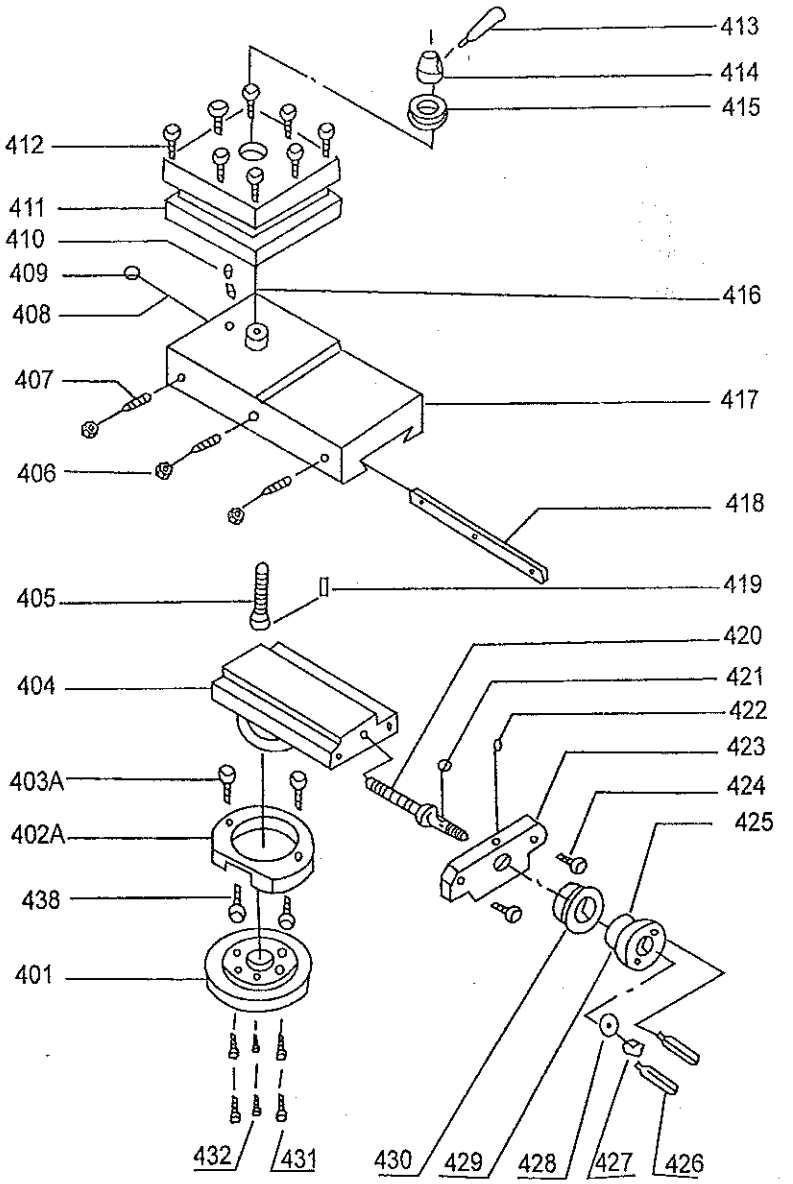
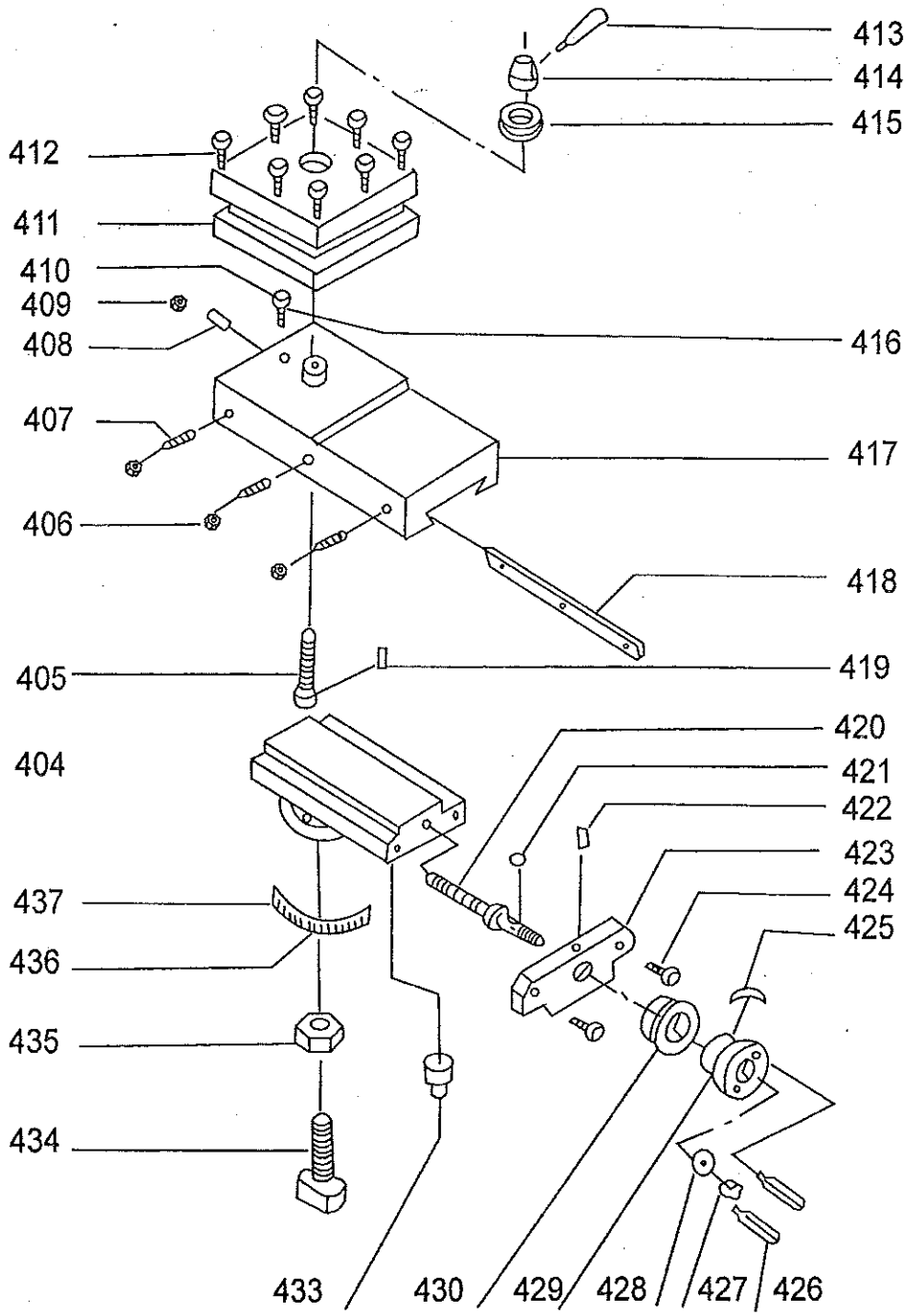


Fig.7-3 Tool Post(HD210)



# From 10 Tool rest(Fig7-1,7-2,7-3)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 401 | 04025 | Turn plate base | 1 | |
| 402 | 04024 | Gland | 1 | |
| 402A | 04024A | Gland | 1 | |
| 403 | GB30-76 | Threaded bolt | 2 | M8×20 |
| 403A | GB41-85 | Nut | 2 | M6 |
| 404 | 04011 | Turn plate | 1 | |
| 404A | HD210-04011 | Turn plate | 1 | |
| 405 | 04015 | Threaded bolt | 1 | |
| 405A | HD210-04015 | Threaded bolt | 1 | |
| 406 | GB54-76 | Nut | 3 | M4 |
| 407 | GB75-76 | Screw | 3 | M4×20 |
| 408 | GB75-76 | Screw | 1 | M4×12 |
| 409 | GB54-76 | Nut | 1 | M4 |
| 410 | 04014 | Locating pin | 1 | |
| 411 | 04013 | Follow rest | 1 | |
| 411A | H0D210-04013 | Follow rest | 1 | |
| 412 | GB85-76 | Screw | 8 | |
| 413 | 03022 | Handle | 1 | |
| 414 | 04017 | Handle base | 1 | |
| 415 | 04016 | Washer | 1 | |
| 416 | Q81-1 | Spring | 1 | |
| 417 | 04012 | Slide | 1 | |
| 418 | 04026 | Filling iron | 1 | |
| 419 | GB879-76 | Cylinder pin | 1 | |
| 420 | 04018 | Screw post | 1 | 3×10 |
| 421 | GB879-76 | Key | 1 | |
| 422 | R71-1 | Oil cup | 2 | 3×10 |
| 423 | 04020 | Srpport | 1 | |
| 424 | GB70-76 | Screw | 2 | |
| 425 | 04022 | Spring slice | 1 | |
| 426 | 04023B | Handle | 2 | |
| 427 | GB5781-76 | Nut | 2 | M8 |
| 428 | GB97-76 | Washer | 1 | |
| 429 | 04023 | Hand wheel | 1 | |
| 430 | 04021 | Calibration ring | 1 | |
| 431 | GB65-76 | Screw | 4 | M6×16 |
| 432 | GB897-76 | Cylinder pin | 2 | 4×16 |
| 433 | 04024 | Position bolt | 1 | |
| 434 | GB37 | T-shaped bolt | 2 | M6×22 |
| 435 | GB41-85 | Nut | 2 | M6 |
| 436 | 04025 | Shaft | 1 | |
| 437 | GB876-84 | Rivet | 2 | 2×4 |
| 438 | GB37 | T-shaped bolt | 2 | M6×22 |

Fig.8-1 Saddle(HD250、CQ6125)

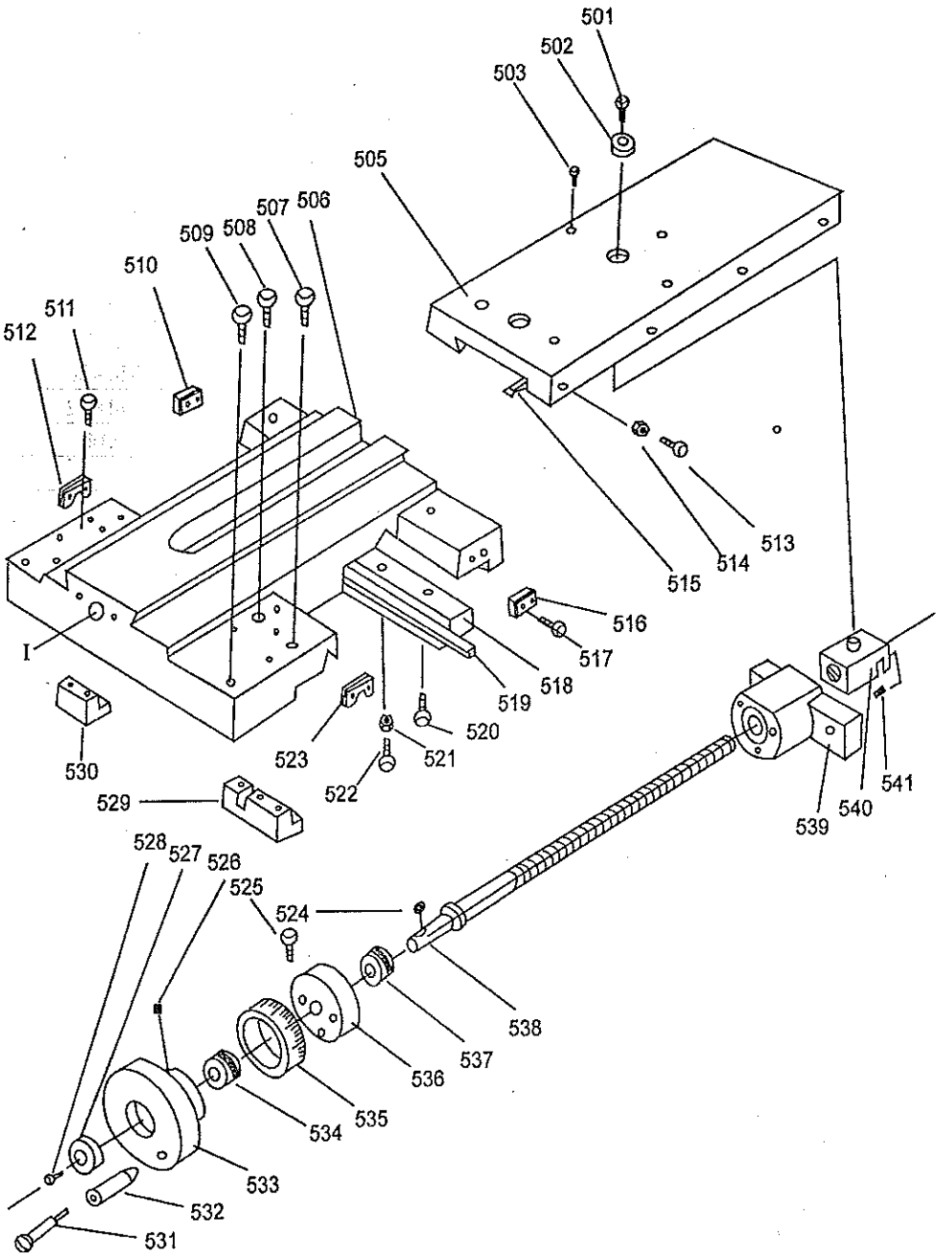


Fig.8-2 Saddle(HD210)

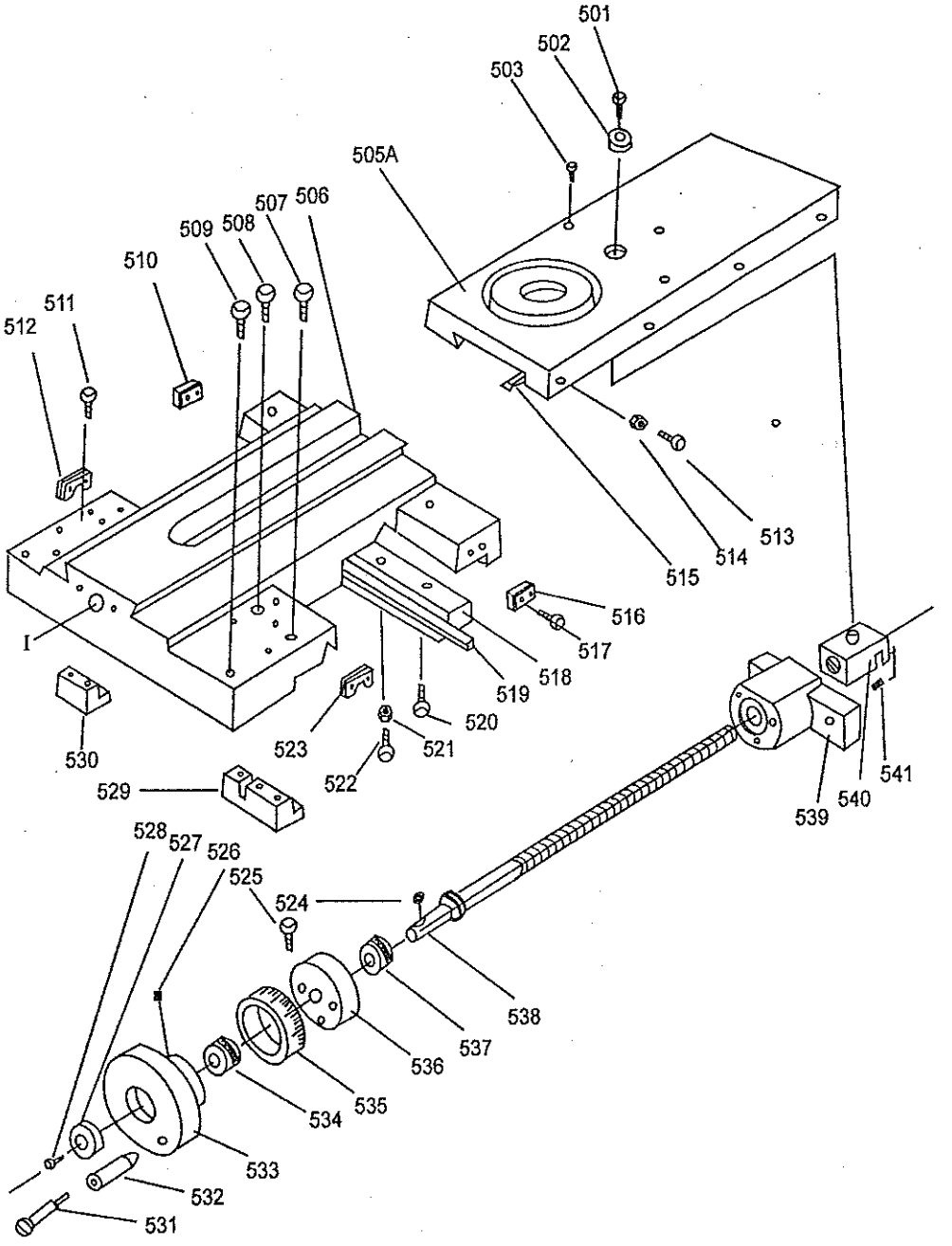
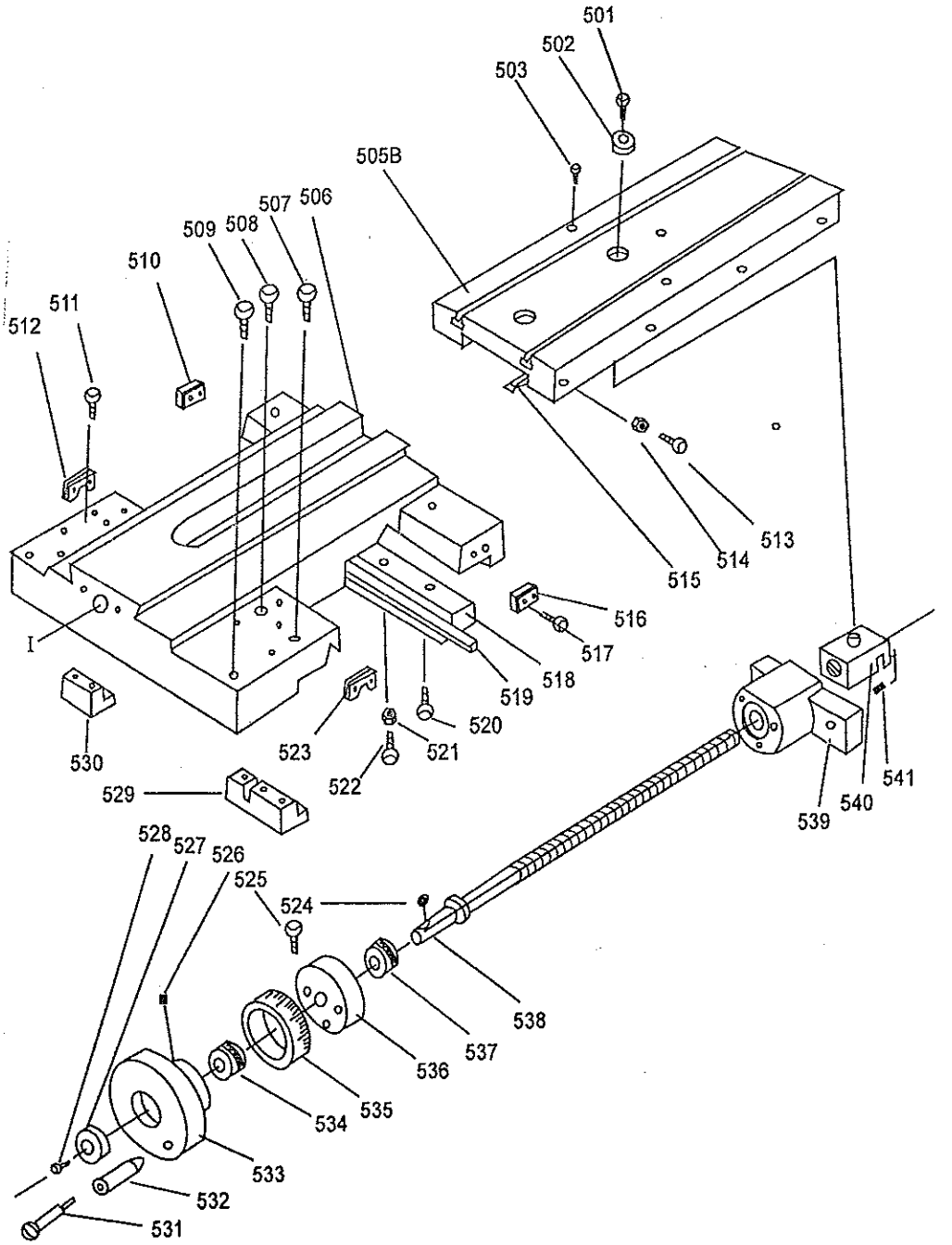


Fig.8-3 Saddle(HD250A、CQ6125A)



# From 11 Saddle(Fig8-1,Fig8-2,Fig8-3)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 501 | GB70-85 | Svrew | 1 | M5×10 |
| 502 | 05015 | Washer | 1 | |
| 503 | R71-1 | Oil vup | 9 | |
| 505 | 05012 | Slide | 1 | |
| 501A | HG210-05012 | Slide | 1 | |
| 505B | 05012A | Slide | 1 | |
| 506 | 05011 | Saddle | 1 | |
| 507 | GB70-85 | Screw | 4 | M5×20 |
| 508 | GB70-85 | Screw | 1 | M8×20 |
| 509 | GB70-85 | Screw | 4 | M6×35 |
| 510 | 05027 | Protection board | 2 | |
| 511 | GB70-86 | Screw | 2 | M8×30 |
| 512 | 05030 | Oil scraper felt | 2 | |
| 513 | GB75-76 | Screw | 4 | M5×25 |
| 514 | GB52-76 | Nut | 4 | M5 |
| 515 | 05026 | Brake iron | 1 | |
| 516 | 05027 | Oil scraper felt | 1 | |
| 517 | GB67-76 | Screw | 8 | M3×12 |
| 518 | 05021 | Brake clip | 1 | |
| 519 | 05022 | Brake irom | 1 | |
| 520 | GB70-85 | Screw | 4 | M5×16 |
| 521 | GB70-76 | Nut | 5 | M4 |
| 522 | GB54-76 | Screw | 5 | M4×16 |
| 523 | 05029 | Protection board | 2 | |
| 524 | GB1079-86 | Key | 1 | 4×8 |
| 525 | GB70-85 | Screw | 3 | M5×22 |
| 526 | GB1096-79 | Spring slice | 1 | |
| 527 | 05032A | Washer | 1 | |
| 528 | GB70-85 | Screw | 1 | M6×10 |
| 529 | 05024 | Brake clip | 1 | |
| 530 | 05023 | Brake clip | 1 | |
| 531 | 06027A | Handle bolt | 1 | |
| 532 | 06027 | Handle casing | 1 | |
| 533 | 05018 | Hand wheel | 1 | |
| 534 | GB301-84 | Hearing8101 | 1 | 12×26×9 |
| 535 | 05019 | Calibration ring | 1 | 100 格 |
| 536 | 05031 | Bearing base | 1 | 0.02mm |
| 537 | GB301-84 | Bearoing 8101 | 1 | 12×26×9 |
| 538 | 05013 | Lead screw | 1 | |
| 539 | 05017 | Screw base | 1 | |
| 540 | 05014 | Nut | 1 | Metric2mm |
| 541 | gb75-76 | Screw | 2 | M4×12 |
| 542 | gb70-85 | Screw | 2 | M8×20 |

## 8、APRON

See Fig9-1,9-2.

Apron is the longitudinal transmission part on tool post . It can realize locomotive and manual operation measures during cutting .Apron is mainly consisted of its base,gears, shafts,half-muts,operation handle,etc.

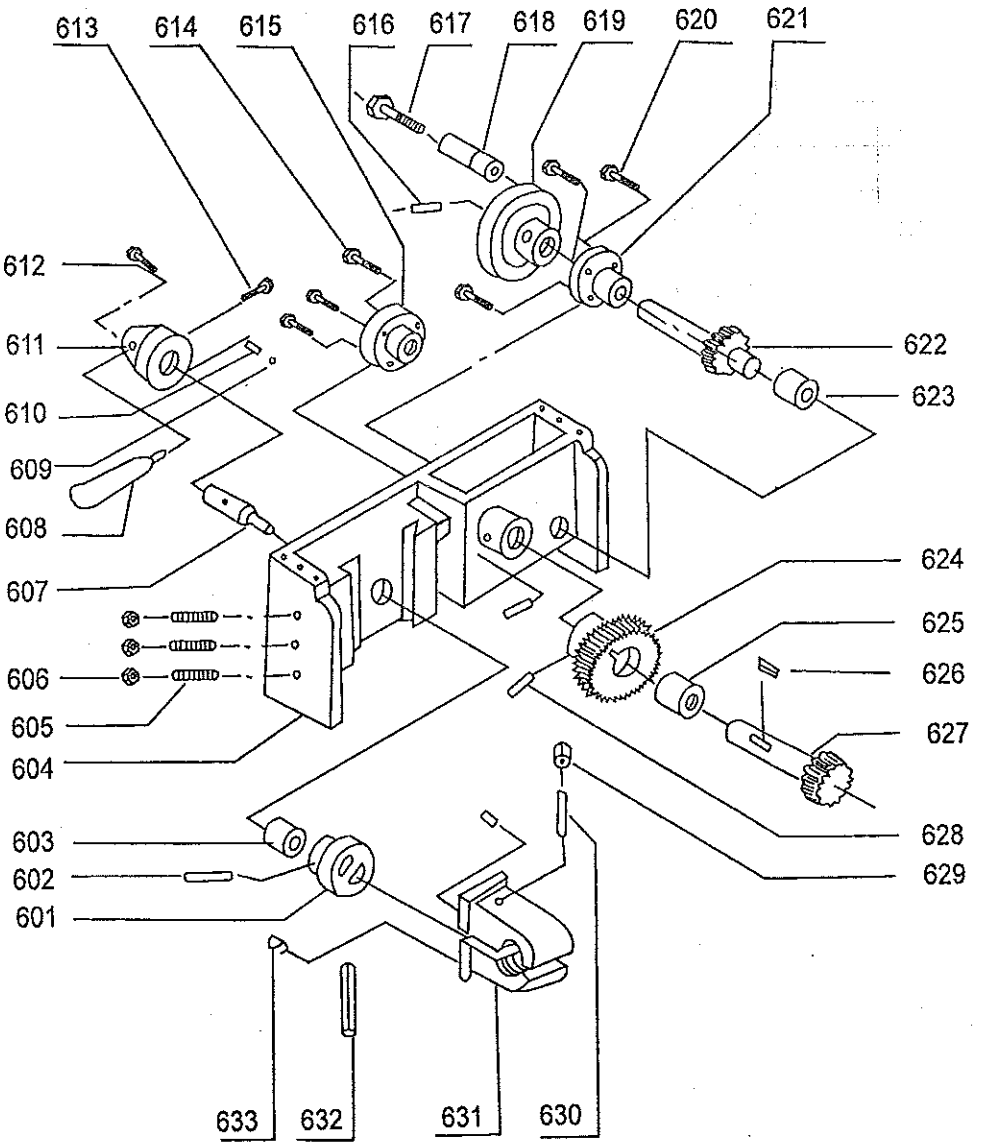
During the running of the lathe,push 608 handle down about 45°, the half nut with the revolution function of the 601 trough plate will get the mesh on the lead screw. Meanwhile the tool post may move forward and the slow or fast longitudinal preselected feed amount is based on the table on the change gear. During the completion of the process, move the handle of the half nut up, push in 619 hand wheel, you can withdraw the tool post to the original position. During the lovomotive feed period. you' d better pull out the hand wheel to keep the hand wheel in still state for safe operation.

In order that the threads cutting and feed amount accord with the process precision, to shut or open 630 half nut is ensured by the stable slide of the dovetail guide without looseness.

During long time use of the lathe, the guide is hard to avoid from abrading .To adjust the clearance between the dovetail

guide and half nut is a must .The nethod is to loosen 606 nut, adjust 605 nut to proper position, that is, not too loose and not too tight without getting stuck, then tighten the nut.

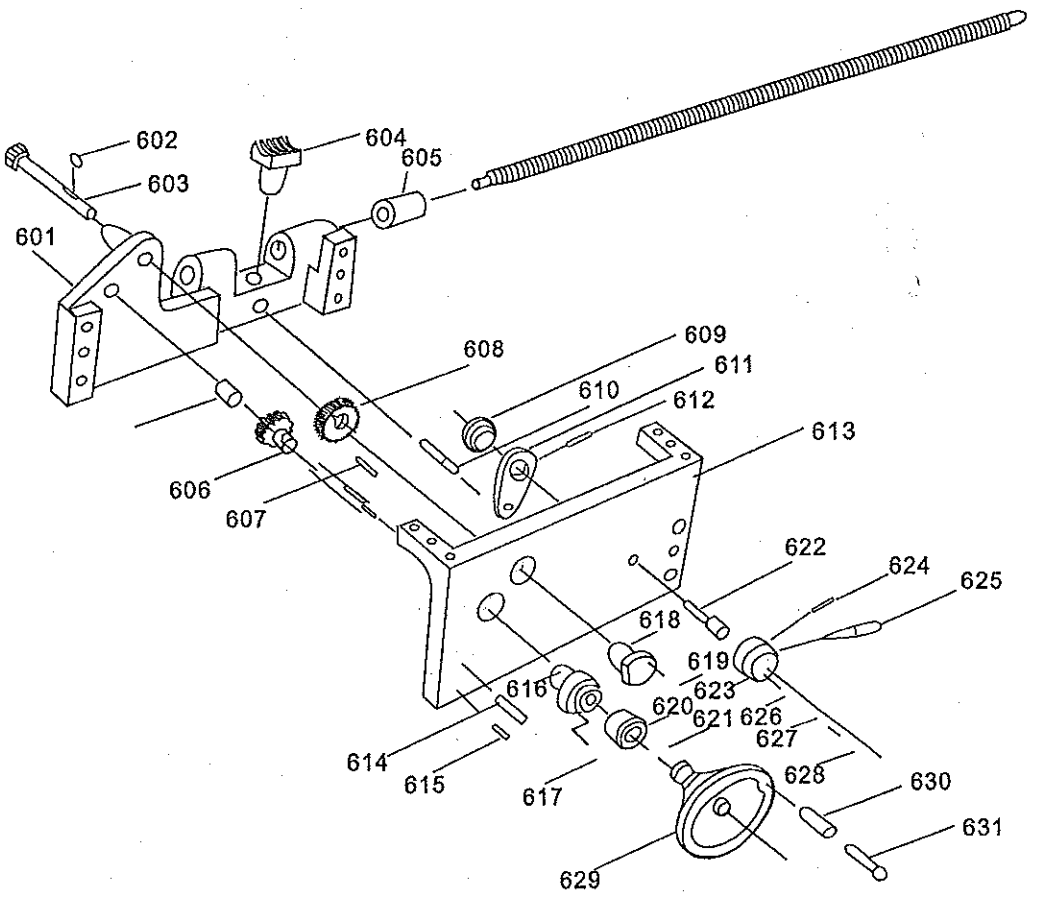
Fig.9-1 Apron



# Form 12 Apron(Fig9-1)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 601 | 06020 | Notched joint | 1 | |
| 602 | GB117-76 | Circular cone pin | 1 | |
| 603 | 06012 | Shaft puill | 1 | |
| 604 | 06011 | Apron base | 1 | |
| 605 | GB75-76 | Screw | 3 | |
| 606 | GB54-76 | Nut | 3 | |
| 607 | 06021 | Rotation shaft | 1 | |
| 608 | 03022 | Handle | 1 | |
| 609 | GB308-77 | Steel ball | 1 | |
| 610 | Q81-76 | Spring | 1 | |
| 611 | 06026 | Fixed handle | 1 | |
| 612 | GB73-76 | Screw | 1 | |
| 613 | GB73-76 | Screw | 1 | |
| 614 | GB70-76 | Screw | 3 | |
| 615 | 06024 | Quill | 1 | |
| 616 | GB117-76 | Circular cone pin | 1 | |
| 617 | 06027A | Bolt | 1 | |
| 618 | 06027 | Handle casing | 1 | |
| 619 | 03018 | Hand wheel | 1 | |
| 620 | GB70-76 | Screw | 3 | |
| 621 | 06025 | Quill | 1 | |
| 622 | 06013 | Gear shaft | 1 | |
| 623 | 06012 | Quill | 1 | |
| 624 | 06016 | Gear | 1 | |
| 625 | 06015 | Quill | 1 | |
| 626 | GB1096-79 | Key | 1 | |
| 627 | 06014 | Gear shaft | 1 | |
| 628 | GB71-76 | Screw | 2 | |
| 629 | GB54-76 | Nut | 1 | |
| 630 | GB73-76 | Svrew | 1 | |
| 631 | 06017 | Half nut | 1 组 | |
| 632 | 06019 | Adjustable | 1 | |
| 633 | GB119-76 | Cylinder pin | 2 | |

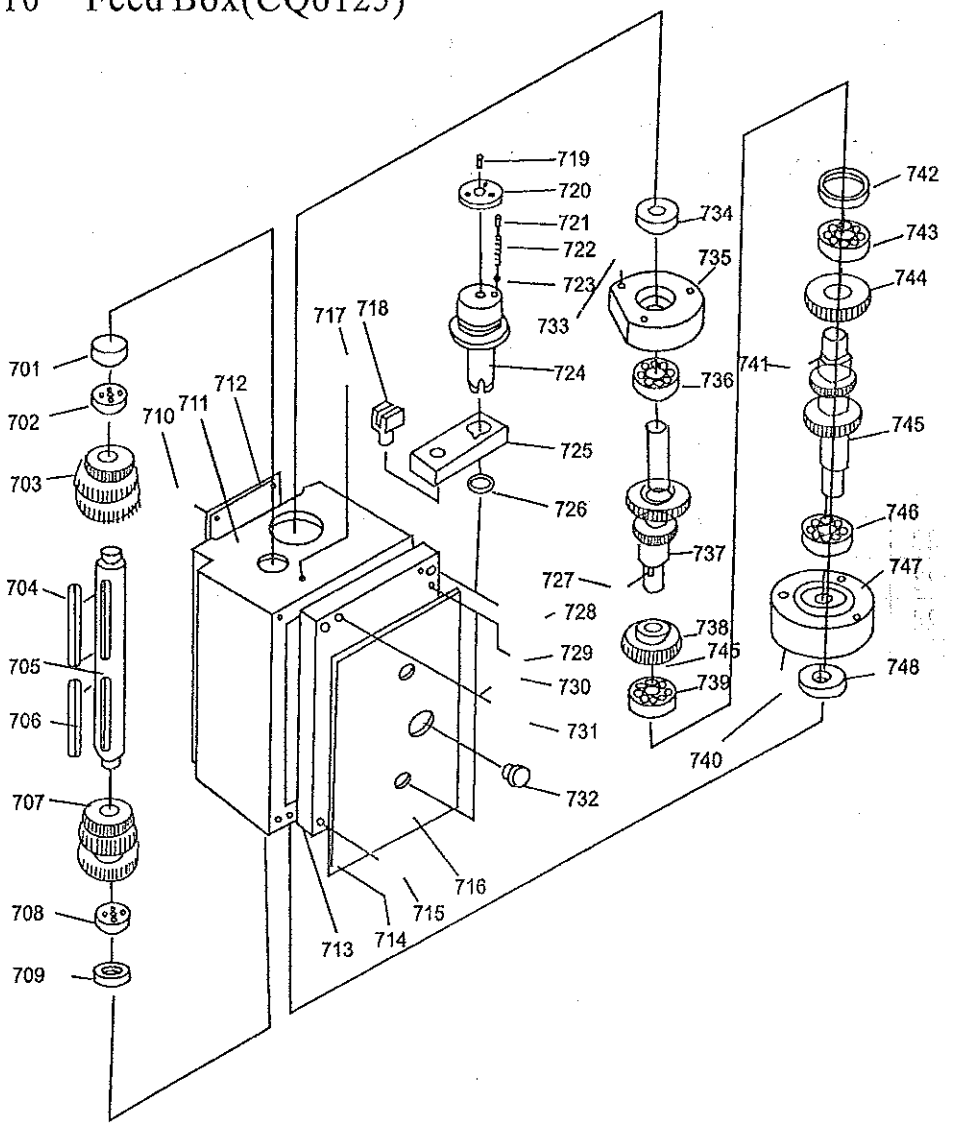
Fig.9-2 New model of Apron



## Form 13 New model of apron(Fig9-2)

| No. | Excused standard no. | Name | Qty | Notes |
|---|---|---|---|---|
| 601 | 06011B-1 | Apronbase | 1 | |
| 602 | GB1069-79 | Key | 1 | C5×8 |
| 603 | 06014A | Gear shaft | 1 | |
| 604 | 06017A | Half nut | 1 | |
| 605 | | Shaft quill | 2 | B2015 |
| 606 | 06013B | Gear shaft | 1 | |
| 607 | GB1096-79 | Key | 1 | 4×14 |
| 608 | 06016A | Gear | 1 | |
| 609 | 06038 | Eccentric wheel | 1 | |
| 610 | GB119-86 | Cylinder pin | 1 | 10×45 |
| 611 | 06037 | Stir arm | 1 | |
| 612 | GB879-86 | Elastic pin | 2 | 4×16 |
| 613 | 06011B-2 | Apron cover | 1 | |
| 614 | GB118--86 | Taper pin | 2 | 6×22 |
| 615 | GB70-85 | Screw | 2 | M8×12 |
| 616 | 06025A | Quill | 1 | |
| 617 | GB70-85 | Screw | 3 | M4×10 |
| 618 | 06024 | Quill | 1 | |
| 619 | GB70-85 | Screw | 3 | M4×10 |
| 620 | 06036 | Calibration ring | 1 | |
| 621 | 04022 | Spring slice | 1 | |
| 622 | 06039 | Shaft | 1 | |
| 623 | 06023 | Handle end | 1 | |
| 624 | GB78-85 | Screw | 2 | |
| 625 | 03022 | Handle | 1 | M6×20 |
| 626 | GB308-77 | Steel ball | 1 | ϕ5 |
| 627 | Q81-1 | Spring | 1 | 0.7×5×25 |
| 628 | GB73-85 | Screw | 2 | M6×10 |
| 629 | 03018A | Hand wheel | 1 | |
| 630 | 06027 | Quill | 1 | |
| 631 | 06027A | Threaded bolt | 1 | |
| 632 | | Quill | 1 | B1208 |

Fig.10 Feed Box(CQ6125)




Form 14 Feed box(Fig10)

| No. | Excused standard no. | Name | Qty | Specification |
|---|---|---|---|---|
| 701 | 07023 | cover | 1 | |
| 702 | GB276-86 | Bearing | 1 | 1000802 |
| 703 | 07026 | Gear | 1 | |
| 704 | GB1096-86 | Key | 1 | 4×55 |
| 705 | 07024 | Shaft | 1 | |
| 706 | GB1096-86 | Key | 1 | 4×55 |
| 707 | 07025 | Gear | 1 | |
| 708 | GB276-86 | Bearing | 1 | 1000802 |

| | | | | |
|---|---|---|---|---|
| 709 | 07023 | Cover | 1 | |
| 710 | GB68-86 | Screw | 4 | M5×8 |
| 711 | 07011 | Feed box | 1 | |
| 712 | 07027 | Back cover | 1 | |
| 713 | 07012 | Face plate | 1 | |
| 714 | GB818-88 | Screw | 4 | M3×6 |
| 715 | GB70-85 | Screw | 4 | M5×18 |
| 716 | 07029 | Plate | 1 | |
| 717 | JB1000 | Oil plug | 1 | M10×1 |
| 718 | 07018 | Shift fork | 2 | |
| 719 | GB818-88 | Screw | 2 | M3×6 |
| 720 | 07030 | Plate | 2 | |
| 721 | GB73-85 | Spring | 4 | M6×8 |
| 722 | GB2089 | Steel ball | 4 | 0.7×5×19 |
| 723 | GB308-85 | Steel ball | 4 | |
| 724 | 07017 | Handle | 2 | |
| 725 | 02016 | Con nection block | 2 | |
| 726 | GB894.2-86 | Spacer | 2 | |
| 727 | GB1096-86 | Key | 3 | 4×8 |
| 728 | GB70-85 | Threaded bolt | 2 | M8×90 |
| 729 | GB118-89 | Circular cone pin | 2 | |
| 730 | JB1000 | Oil plug | 1 | M10×1 |
| 731 | GB70-85 | Screw | 2 | M6×90 |
| 732 | GB1160.1-79 | Oil window | 1 | |
| 733 | GB70-85 | Screw | 3 | M5×20 |
| 734 | HG4-691 | Oil seal | 1 | 15×30×10 |
| 735 | 070156 | Cover | 1 | |
| 736 | GB276-89 | Bearing | 1 | 202 |
| 737 | 07022 | Gear shaft | 1 | |
| 738 | 07020 | Gear | 1 | |
| 739 | GB276-89 | Bearing | 1 | 202 |
| 740 | GB70-85 | Screw | 1 | M5×25 |
| 741 | GB1096-86 | Key | 1 | 4×8 |
| 742 | 07021 | Spacer | 1 | |
| 743 | GB076-89 | Bearing | 1 | 202 |
| 744 | 07020 | Gear | 1 | |
| 745 | 07019 | Gear shaft | 1 | |
| 746 | GB276-89 | Bearing | 1 | 103 |
| 747 | 07014 | Cover | 1 | |
| 748 | HG4-691 | Oil seal | 1 | |

# 9、CHANGE GEAR

## 9.1 See Fig 11-1(HD210,HD250)

Change gear part is consisted of change gears, bolts, nuts, etc.

The change gear is fixed on the left back up of 101 lead screw, in the light of the table plate of 15029 Chang gear to collocate the cutting threads, the change gears for the speed ratio of feed amount, and swing 833 change gear to ensure around 0.1mm transmission gap between the gears, then fasten 835 screw.

The fixed 825 bolt below the main shaft is used for the right threads cutting and clockwise feed. After another set of fixed bolts erected, we can get the combination transmission, and the lead screw will change from its clockwise direction to reversal, and process the cutting of left threads and the counter clock wise feed.

For the metric & inch threads cutting, refer to the table plate on the change gear to collocate the gears. The measurememt of the change gear to collocate the gears.The measurement of the feed amount is based on the work piece, surface inelegance level and process accuracy.

When it's not ideal for the feed of work piece procession, the change gear system can be added through careful calculation in accordance with operator's requirement. The

factory can supply the change gears. If the counted number of teeth can not meet the satisfaction, adopt the similar gear to be instead, daring the collocation. The relation between the transmission shaftl must satisfy the condition of Z3+Z4 >Z2+Z5+2. otherwhise, the gear top of Z2&Z5 will hit together and lead to fail.

For example: Request feed distance 0.3mm/Spindle round.

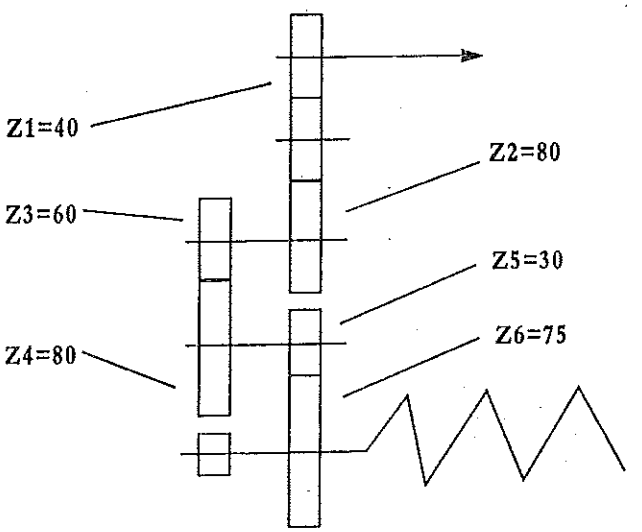
Given:Gear on spindleZ=40.

$$\text{Feed distance}=\frac{Z1}{Z2}\times\frac{Z3}{Z4}\times\frac{Z5}{Z6}\times t$$

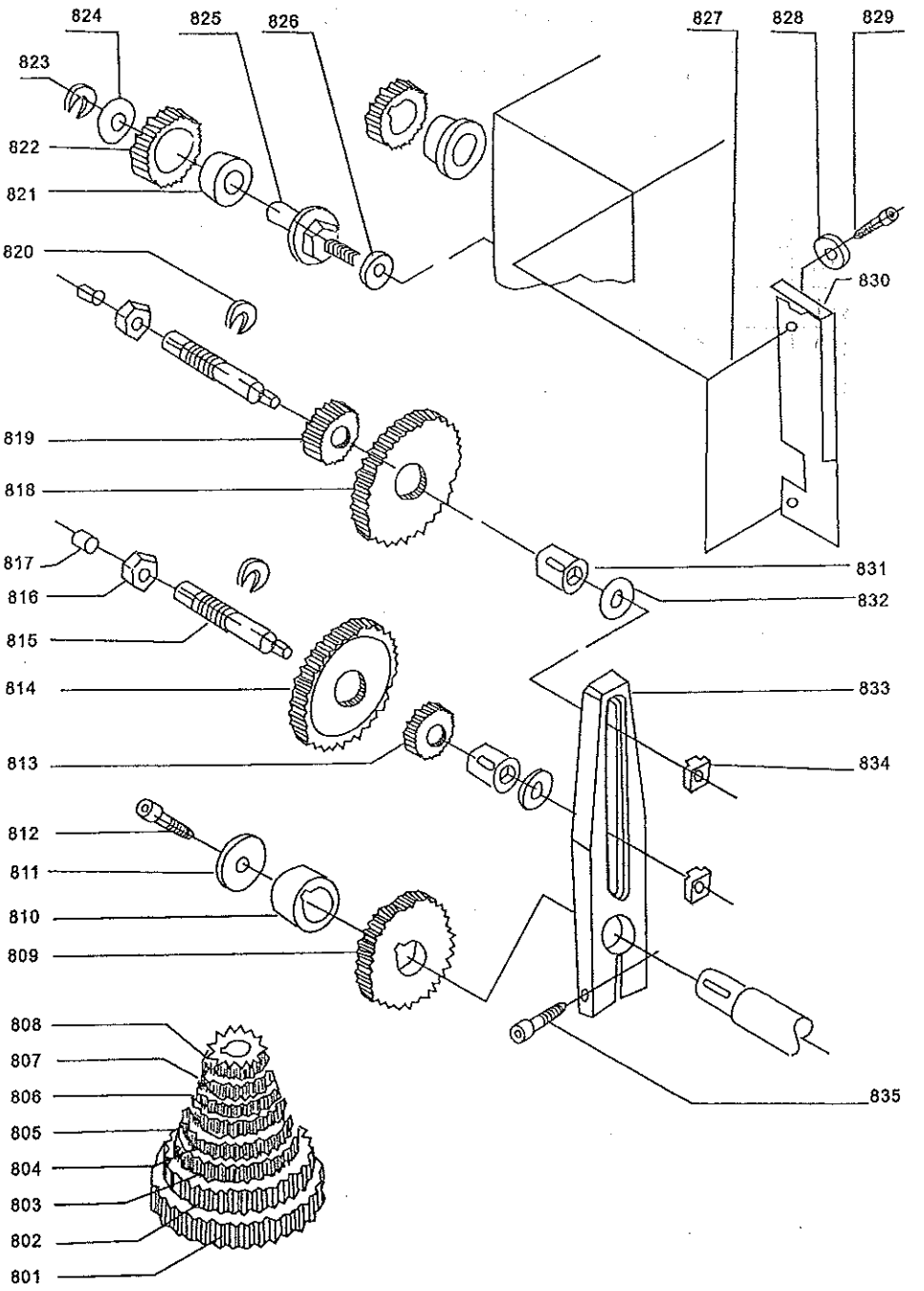
Screw distance $t=2$

$$\text{Solution}=\frac{0.3}{2}=\frac{10\times1.5\times2}{20\times2\times5}\times\frac{40}{80}\times\frac{60}{80}\times\frac{30}{75}$$

$$\text{Feed distance}=\frac{40}{80}\times\frac{60}{80}\times\frac{35}{75}\times2=\frac{60}{200}=0.3(\text{mm})$$



# Fig.11-1 Change Gear(HD210,HD250)



# Form 15 CHANGE GEAR(Fig11-1)

| No. | Excused standard No. | Name | Qty. | Notes |
|---|---|---|---|---|
| 801 | 08032 | Change gear | 2 | Z90 |
| 802 | 08019 | Change gear | 2 | Z80 |
| 803 | 08023 | Change gear | 1 | Z70 |
| 804 | 08020 | Change gear | 1 | Z52 |
| 805 | 08027 | Change gear | 1 | Z50 |
| 806 | 08022 | Change gear | 1 | Z42 |
| 807 | 08026 | Change gear | 1 | Z40 |
| 808 | 08025 | Change gear | 1 | Z33 |
| 809 | 08018 | Change gear | 1 | Z60 |
| 810 | 08029 | Washer | 1 | |
| 811 | GB891-76 | Spacer | 1 | |
| 812 | GB68-76 | Screw | 1 | M5X8 |
| 813 | 08017 | Change gear | 1 | Z25 |
| 814 | 08028 | Change gear | 1 | Z75 |
| 815 | 08016 | Bolt | 2 | |
| 816 | GB52-76 | Nut | 2 | M12 |
| 817 | R71-1 | Oil cup | 2 | |
| 818 | 08024 | Change gear | 1 | |
| 819 | 08021 | Change gear | 1 | |
| 820 | 08037 | Open washer | 2 | |
| 821 | 101 | Rolling bearing | 1 | 12×28×8 |
| 822 | 08013 | Transition gear | 1 | Z40 |
| 823 | GB894-76 | Spacer | 1 | 12 |
| 824 | 08036 | Washer | 1 | |
| 825 | 08012 | Fixed bolt | 1 | |
| 826 | 08012B | Washer | 1 | 10 |
| 827 | GB818-85 | Screw | 2 | M5X8 |
| 828 | GB97-76 | Washer | 1 | 6 |
| 829 | GB65-76 | Screw | 1 | M6X10 |
| 830 | 08035 | Baffle-plate | 1 | |
| 831 | 08030 | Rolling bearing | 2 | |
| 832 | 08038 | Washer | 3 | |
| 833 | 08033 | Change gear | 1 | |
| 834 | 08031 | Square not | 2 | |
| 835 | GB70-76 | Screw | 1 | M6X35 |

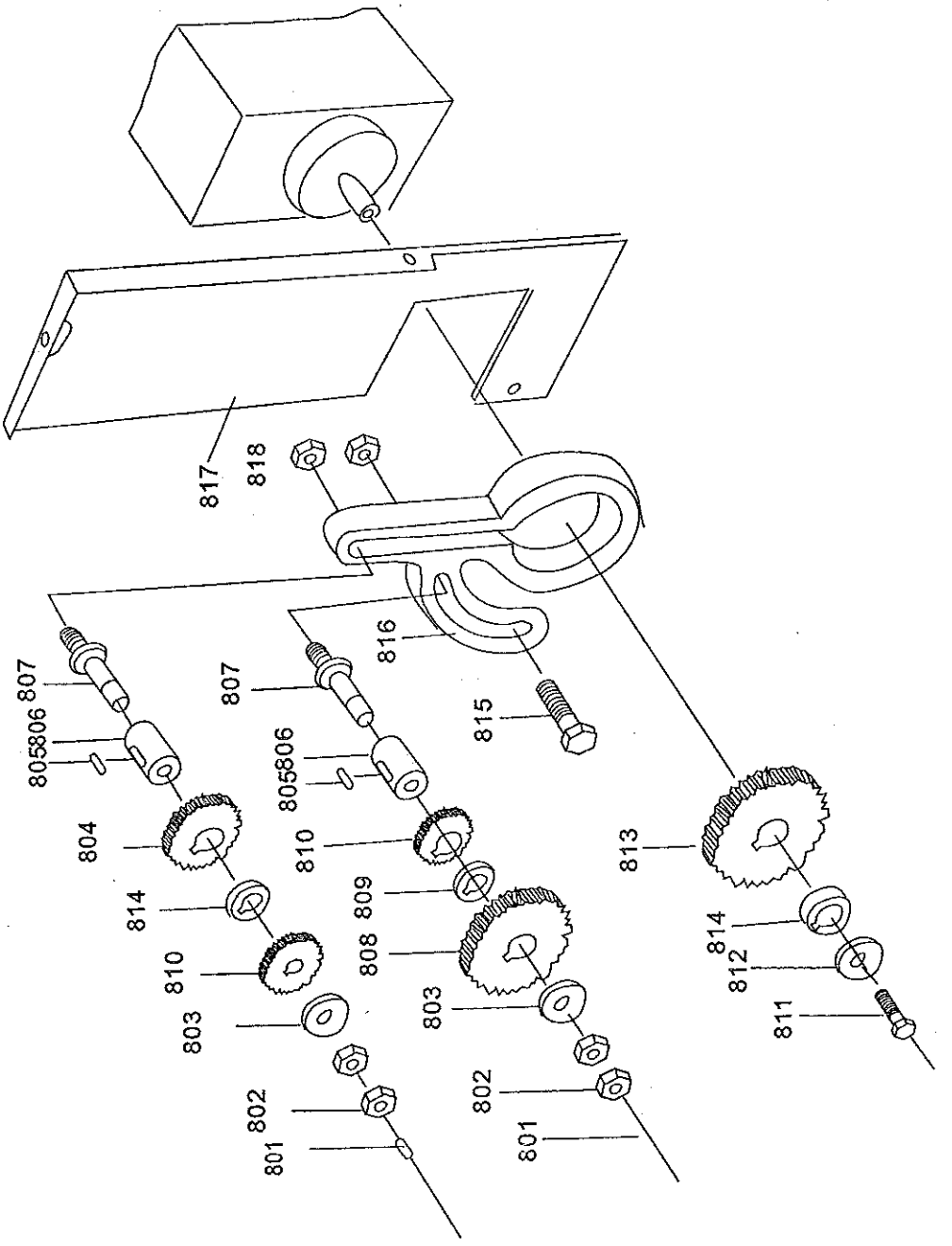
9.2 See Fig. 11-2(CQ6125)

Change gear section is consisted of change gears, shaft bolt, fixed shaft bolt, square nut etc. Change gear is fixed on the left of feed box. According to the speed ratio on the table plate to configure the cutting threads, feed amount, and change gears, swing the frame, ensure the rotation gap between frame and gears around 0.1mm, then fix the screw.

Form 16 CHANGE GEAR WHEEL BOX (Fig11-2)

| No. | Excused standard No. | Name | Qty | Notes |
|---|---|---|---|---|
| 801 | R71-1 | oil cup | 2 | 6 |
| 802 | GB6172-86 | thin nut | 4 | M10 |
| 803 | GB97.1-86 | washer | 2 | 10 |
| 804 | 08018A | change gear | 1 | Z60 |
| 805 | GB1096-86 | key | 2 | 4X12 |
| 806 | 08013 | sliding bearing | 2 | |
| 807 | 08012 | bolt | 2 | |
| 808 | 08019A | change gear | 1 | Z80 |
| 809 | 08038A | spare | 2 | |
| 810 | 08017 | change gear | 2 | Z40 |
| 811 | GB70-85 | bolt | 1 | M5X16 |
| 812 | 01020 | washer | 1 | |
| 813 | 08014 | change gear | 1 | Z100 |
| 814 | 08019 | quill | 1 | |
| 815 | GB5781-86 | threaded bolt | 1 | M8X25 |
| 816 | 08011 | change gear | 1 | |
| 817 | 08035 | baffle-plate | 1 | |
| 818 | GB52-76 | nut | 2 | M8 |

Fig.11-2 Change Gear(CQ6125)



## 10、FOLLOW REST & STEADY REST

See Fig 12, Fig 13.

The follow rest is used to process slender shafts, use 10-27 screw to fix is on the saddle when operating, turn 10-02 adjustable bolt to make 10-03 supports touch the work piece with proper gyration and move with the cutter. It can ensure the workpiece. Procession to bear the cutting force without bending and deformation. It can abate vibration and ameliorate the surface of the work piece inelegance level.

The steady rest is basically same as the follow rest in use and function principle. The difference is that it's fixed on the lead screw and can't move with cutter. It has three support feet, just like one more pivot for the work piece, so it's used more frequently than follow rest. Such as when processing the medium length shafts it can be used as the positioning support.

Fig.12 Follow Rest

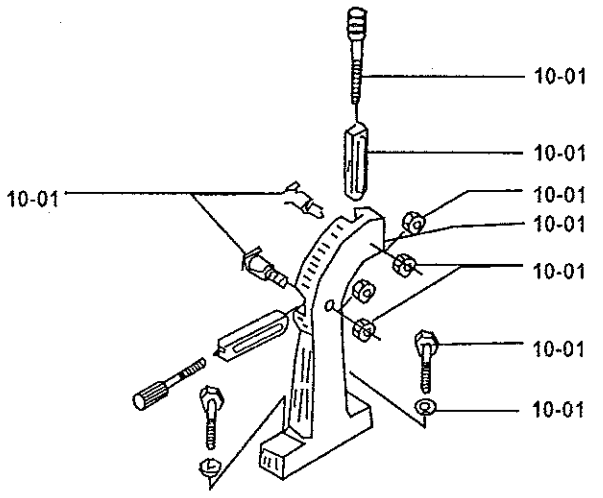
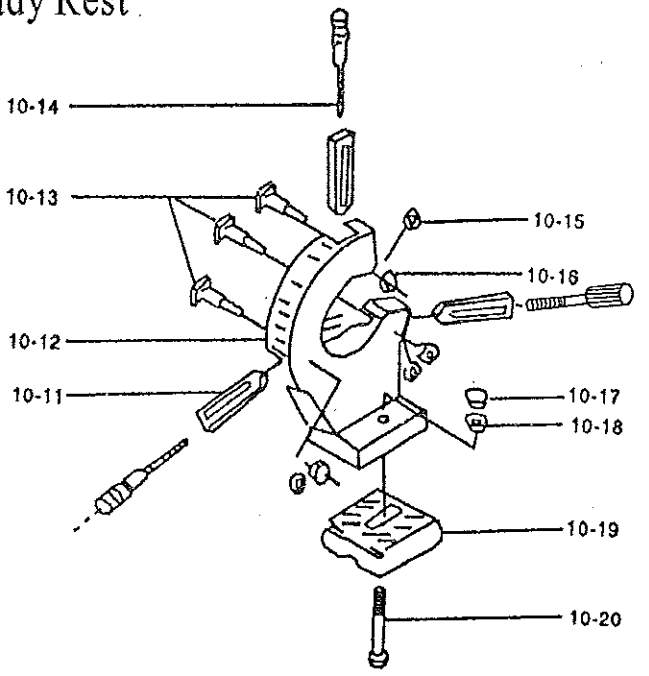



Fig.13 Steady Rest



Form 17 FOLLOW REST (Fig. 12)

| No. | Excused standard No. | Name | Qty | Notes |
|---|---|---|---|---|
| 1001 | 11014 | screw | 2 | take to use |
| 1002 | 11012 | adjustable threaded bolt | 2 | take to use |
| 1003 | 12012 | support | 2 | |
| 1004 | GB97-76 | washer | 2 | 10 |
| 1005 | 12011 | follow rest base | 1 | |
| 1006 | GB52-76 | nut | 2 | M10 |
| 1007 | GB30-76 | threaded bolt | 2 | M8X30 |
| 1008 | GB97-76 | washer | 2 | 8 |

Form 18 STEADY REST (Fig. 13)

| No. | Excused standard No. | Name | Qty | Notes |
|---|---|---|---|---|
| 1011 | 11013 | support | 3 | |
| 1012 | 11011 | steady rest base | 1 | |
| 1013 | 11014 | screw | 3 | |
| 1014 | 11012 | adjustable | 3 | |
| 1015 | GB97-76 | washer | 3 | 10 |
| 1016 | GB6170-86 | nut | 3 | M10 |
| 1017 | GB41-86 | nut | 1 | M12 |
| 1018 | GB97-76 | washer | 1 | 12 |
| 1019 | 03014 | clip | 1 | |
| 1020 | GB8-76 | threaded bolt | 1 | M12×70 |

## 11. PROTECTION OF THE LATHE

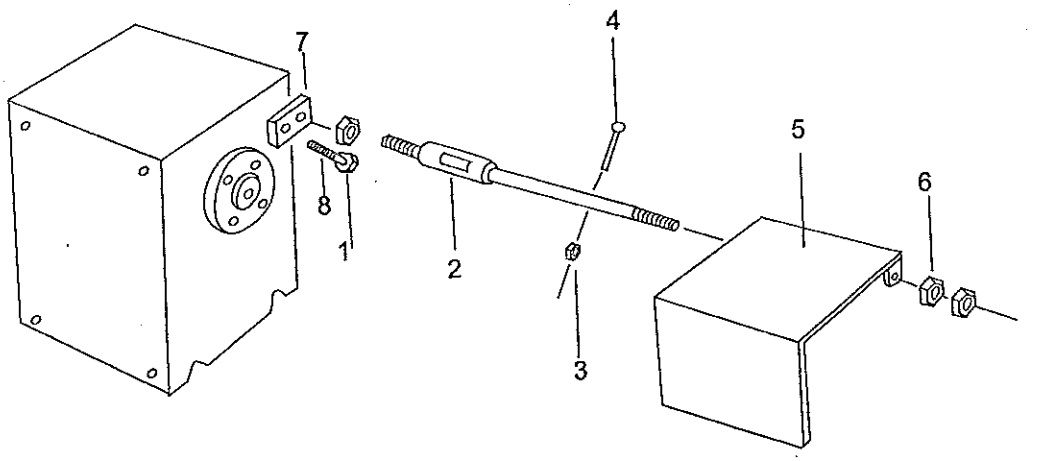
In order to ensure the security, and avoid unexpected hurt, we supply many kinds of safety devices for customers to order properly.

### 11.1 Chuck protection

There are two kinds of chuck protection devices. See Fig

14-1 The glass protection cover, which is fine & pretty, can prevent fron being hurt by the chuck rotation. see Fig. 14-2 the chuck cover with cutting power device, when it's lifted, the power is cut off to ensure security.

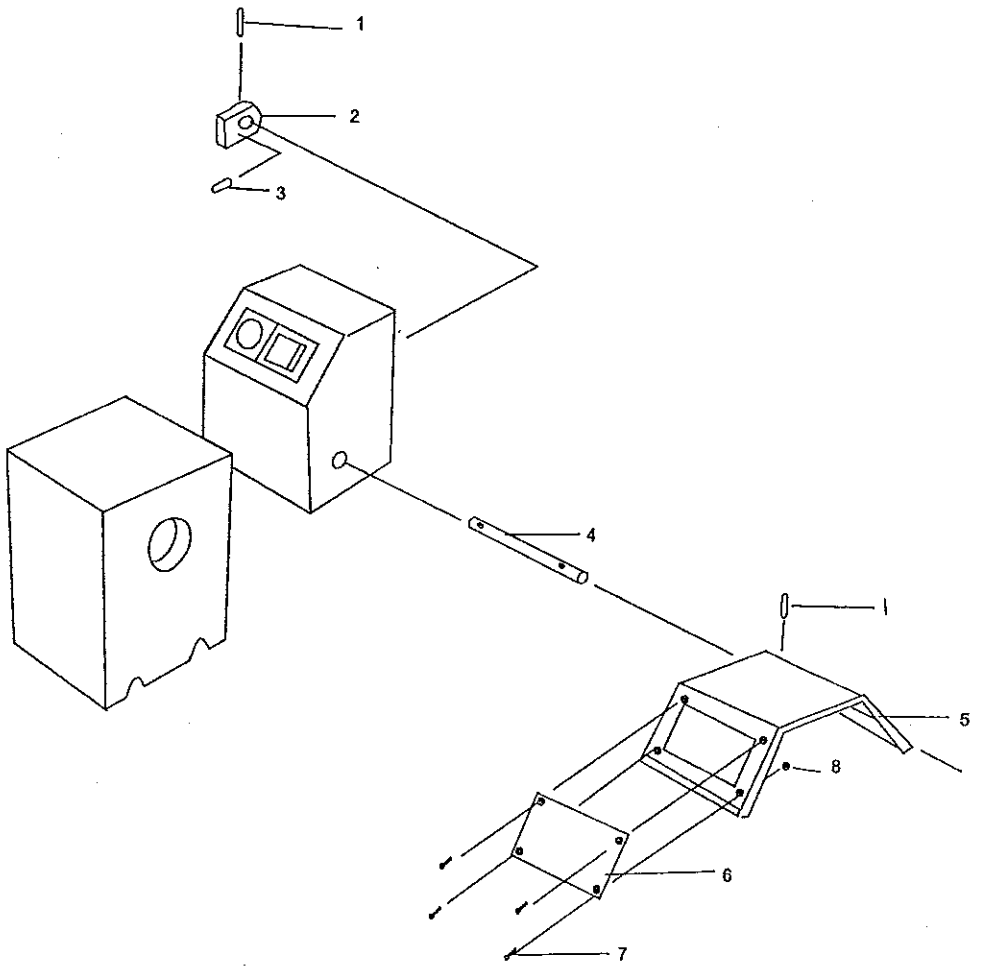
Fig. 14-1 Organic Glass Chuck Cover




Form 19 Organic glass chuck cover ( Fig. 14-1)

| No. | Excused standard No. | Name | Qty | Notes |
|---|---|---|---|---|
| 1 | GB6170-86 | nut | 1 | M8 |
| 2 | 02024 | bearing post | 1 | |
| 3 | GB6170-86 | nut | 1 | M3 |
| 4 | GB818-86 | screw | 1 | M3×30 |
| 5 | 02025 | chuck cover | 1 | |
| 6 | GB6170-86 | nut | 2 | M5 |
| 7 | 02023 | support | 1 | |

Fig.14-2 Chuck Cover(With cutting power device)




Form 20 Chuck cover (With cutting power device) ( Fig. 14-2)

| No. | Excused standard No. | Name | Qty | Notes |
|---|---|---|---|---|
| 1 | GB79-86 | Elsatic pin | 2 | 4x20 |
| 2 | 02029 | Switch block | 1 | |
| 3 | GB79-86 | Elastic pin | 1 | 4x10 |
| 4 | 02031A/2 | Shaft | 1 | |
| 5 | 02031A | Chuck cover | 1 | |
| 6 | 02031A/3 | Glass | 1 | |
| 7 | GB818-86 | Screw | 4 | M3X6 |
| 8 | GB6170-86 | Nut | 4 | M3 |

11.2 The safety proof of leadscrew

Lead screw cover can effectively avoid hair, clothing, etc. fron catching.

There are two kinds of screw covers. The helical cover is used for both new & old apron, but the bar-type cover is only used for new model of apron.

Fig. 15-1 Helical Safety Cover for lead screw

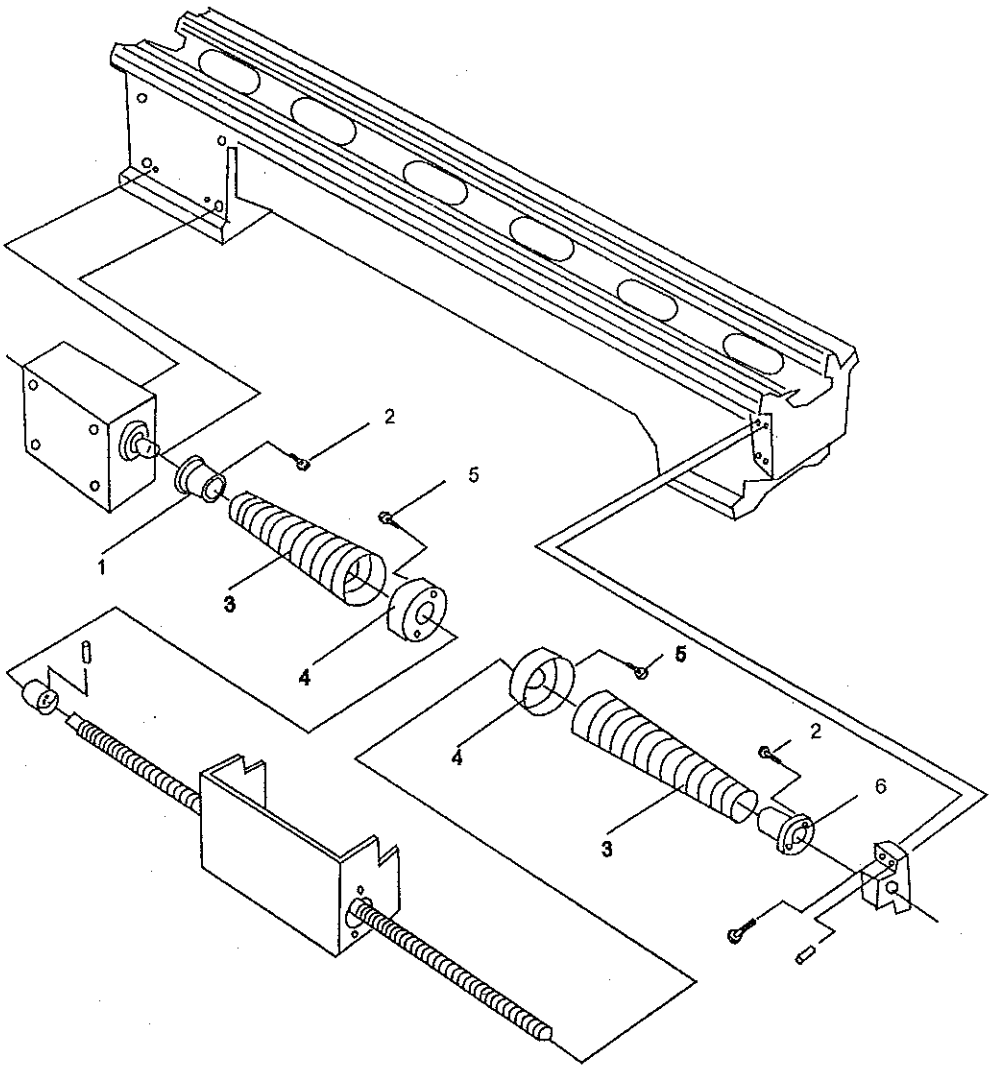


Fig.15-2 Helical Safety Cover For Lead Screw
(Used for new model of apron)

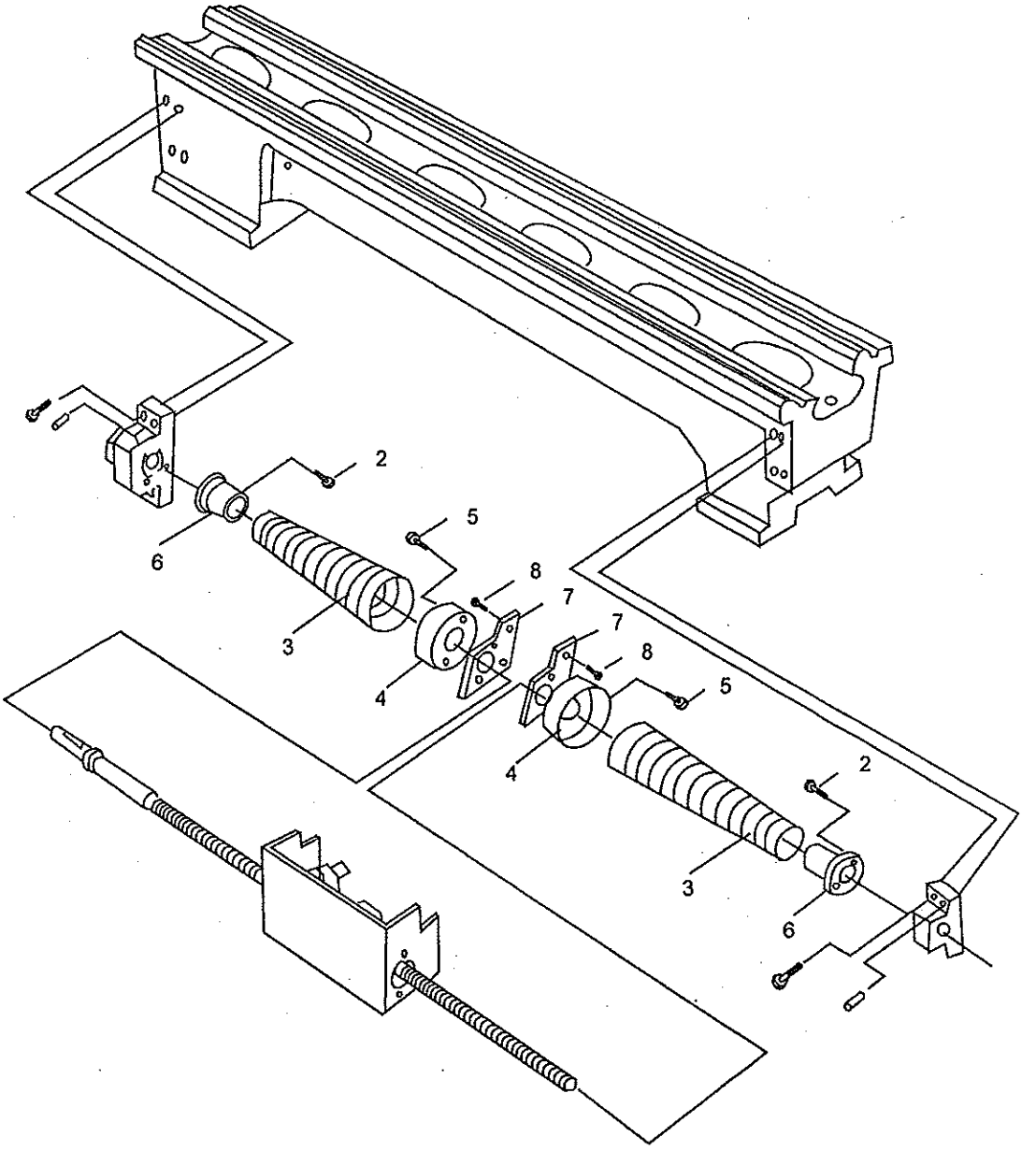
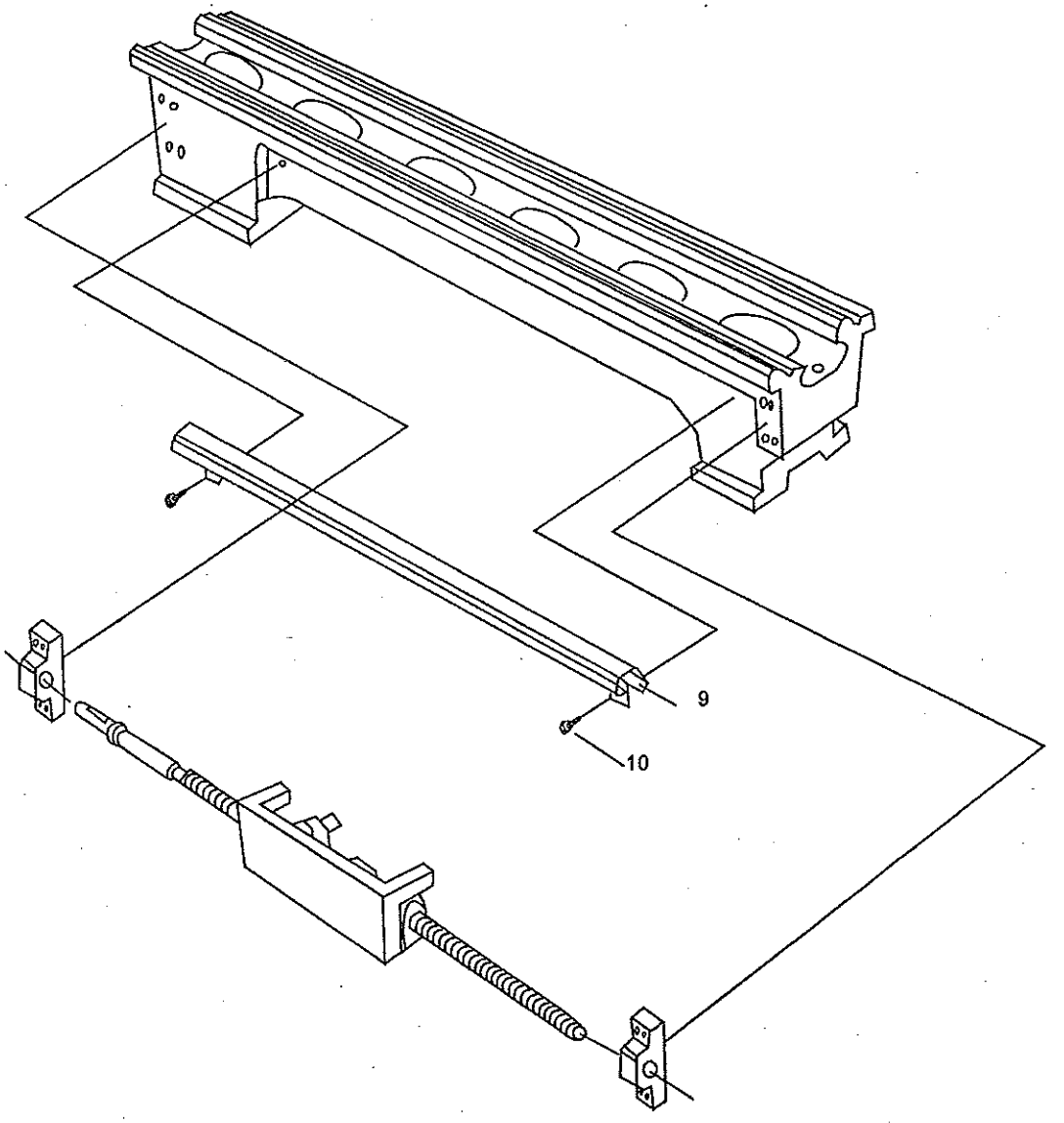


Fig.15-3 Bar-Type Safety Cover For Leadscrew
(Used for new model of apron)



Form 21 SAFETY GUARD FOR LEAD SCREW ( Fig. 15-2, 15-2, 15-3)

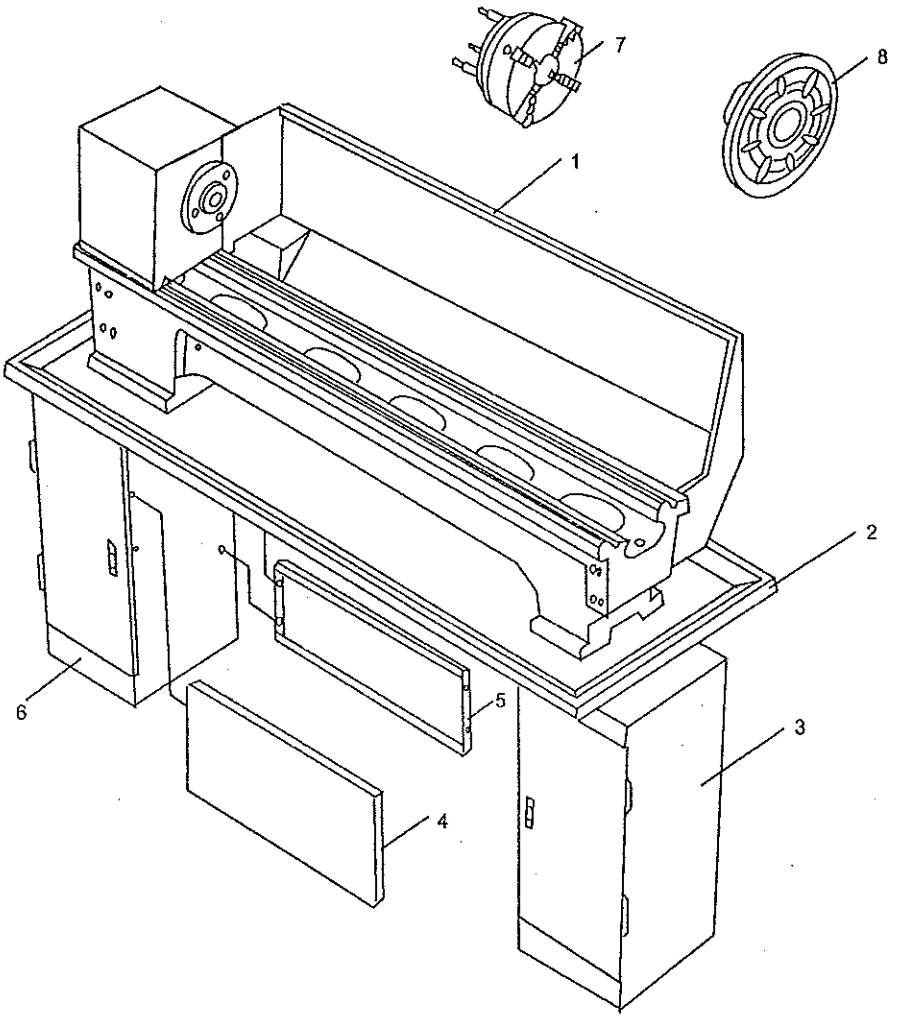
| No. | Excused standard No. | Name | Qty | Notes |
|---|---|---|---|---|
| 1 | 07032 | Left backup quill | 1 | for CQ6125 |
| 2 | GB70-85 | threaded bolt | 6 | M4×10 |
| 3 | | helical safety jacket | 2 | |
| 4 | 06040 | support | 2 | |
| 5 | GB68-85 | screw | 4 | M5×8 |
| 6 | 01014A | adjustable gland | 2 | |
| 7 | 06041 | joint board | 2 | For new modelof apron |
| 8 | GB70-85 | thread bolt | 4 | M4×10 |
| 9 | 01032 | safety cover for leadscrew | 1 | For new modelof apron |
| 10 | GB818-86 | screw | 2 | M6×8 |

## 12.SPECIAL ACCESSORIES

In order to be more convenient to use the lathe, we have prepared some special accessories for option, but some extra payment needed.

For the special accessories, see Fig. 16, Form 22

# Fig.16 Special Accessories




| No. | Excused standard No. | Name | Qty | Notes |
|---|---|---|---|---|
| 1 | 16015 | splash guard | 1 | |
| 2 | 16014 | oil tray | 1 | |
| 3 | 16012 | right foot stand | 1 | |
| 4 | 16016 | front baffle | 1 | |
| 5 | 16013 | back baffle | 1 | |
| 6 | 16011 | left foot stand | 1 | |
| 7 | | 4-jaw chuck base | 1set | 125mm |
| 8 | 14011 | face plate | 1 | |

## 13、TEST RUN, OPERATION & MAINTENANCE

Fig. 17, (From 23)

13.1 Read the operation manual carefully when operating the lathe at the beginning, try to know the functions of the operating handles.

13.2 Before starting, clean the lathe & refer to the lubrication fig. to fill the lubrication oil.

13.3 Check whether the transmission belt & the selection of the feed anount is rational or not, whether the gear collocation of the change gear system can meet the requirement or not.

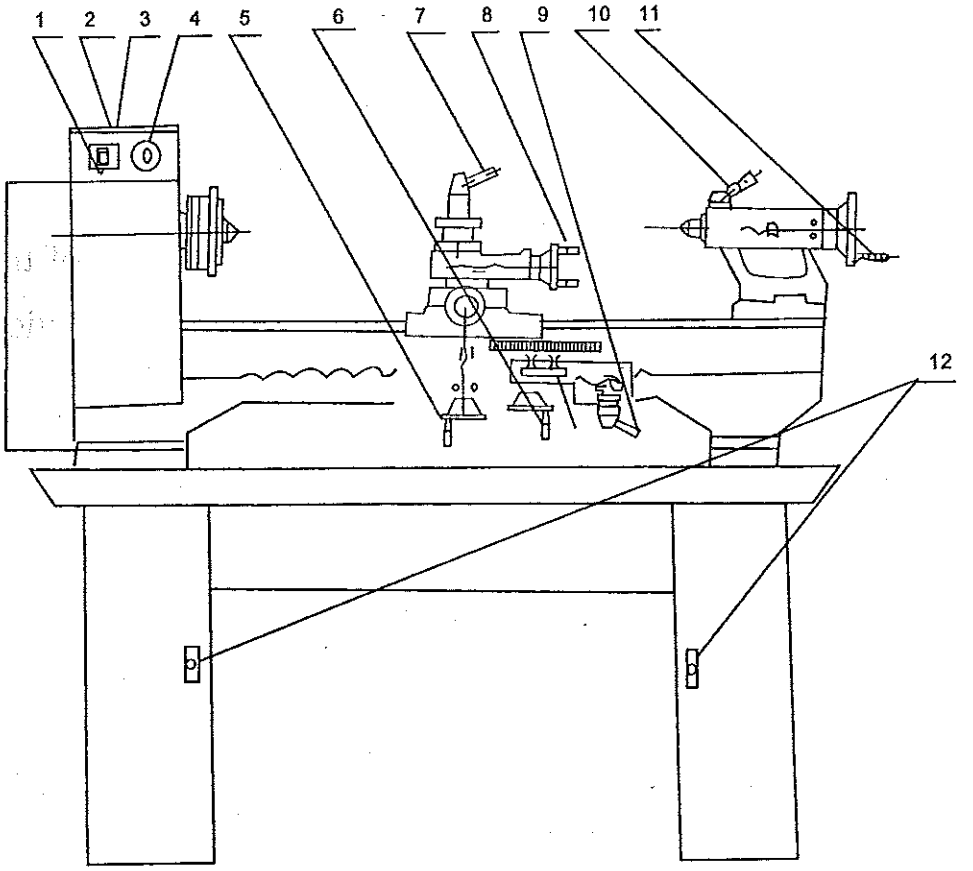
13.4 Close the safety cover when the lathe is running, forbid opening the safety cover to use the belt, changing speeds and collocate the change gears.

13.5 Starting the motor's push button, pay attention to the above reminding. If you want to make the motor turn clock wisely and countetr-clockwise quickly, pause for at least 3 seconds in order not to damage the clectric elements.

13.6 Whenever the mulfunction happens, stop using it immediately and check it.

13.7 Keep the lathe clean, clear away the iron flakes, clean the surfaces of the lead screw and sliding part, and smear oil to prevent from rusting.

Fig.17 Controlling part



Form 23 Controlling part (Fig 17)

| No. sin fig | Name | Uses | Notes |
|---|---|---|---|
| 1 | Switch | To vary spindle to turn clock wise & counter-clock wise | Head stock |
| 2 | Green button | To control the connection and | Head stock |
| 3 | Red button | To comtrol the connection of relay | Head stock |
| 4 | Main switch | To comtrol connection and disconnection of the lathe | Head stock |
| 5 | Handle | To control the saddle to move forward and backward longitudinally | Head stock |
| 6 | Handle | To control the apron to move forward and backward longitudinally | Apron |
| 7 | Handle | To fix and loosen the tool post | Tool post |
| 8 | Handle | To control the slide to move forward & backward | Tool post |
| 9 | Handle | To control the half nut to connect & disconnect | Feed box |
| 10 | Handle | To lock & loosen the quill | Tail stock |
| 11 | Handle | To control the quill to move forward & backward longitudinally | Tail stock |
| 12 | Handle | To open and close tool box | Support |

## 14. LUBRICATION SYSTEM

See Fig 18 (Form 24)

To keep regular running, the operators are required to use appointed machine oil stipulated in the lubrication fig, fill it periodically to reduce the abrasion, and elongate its working life.

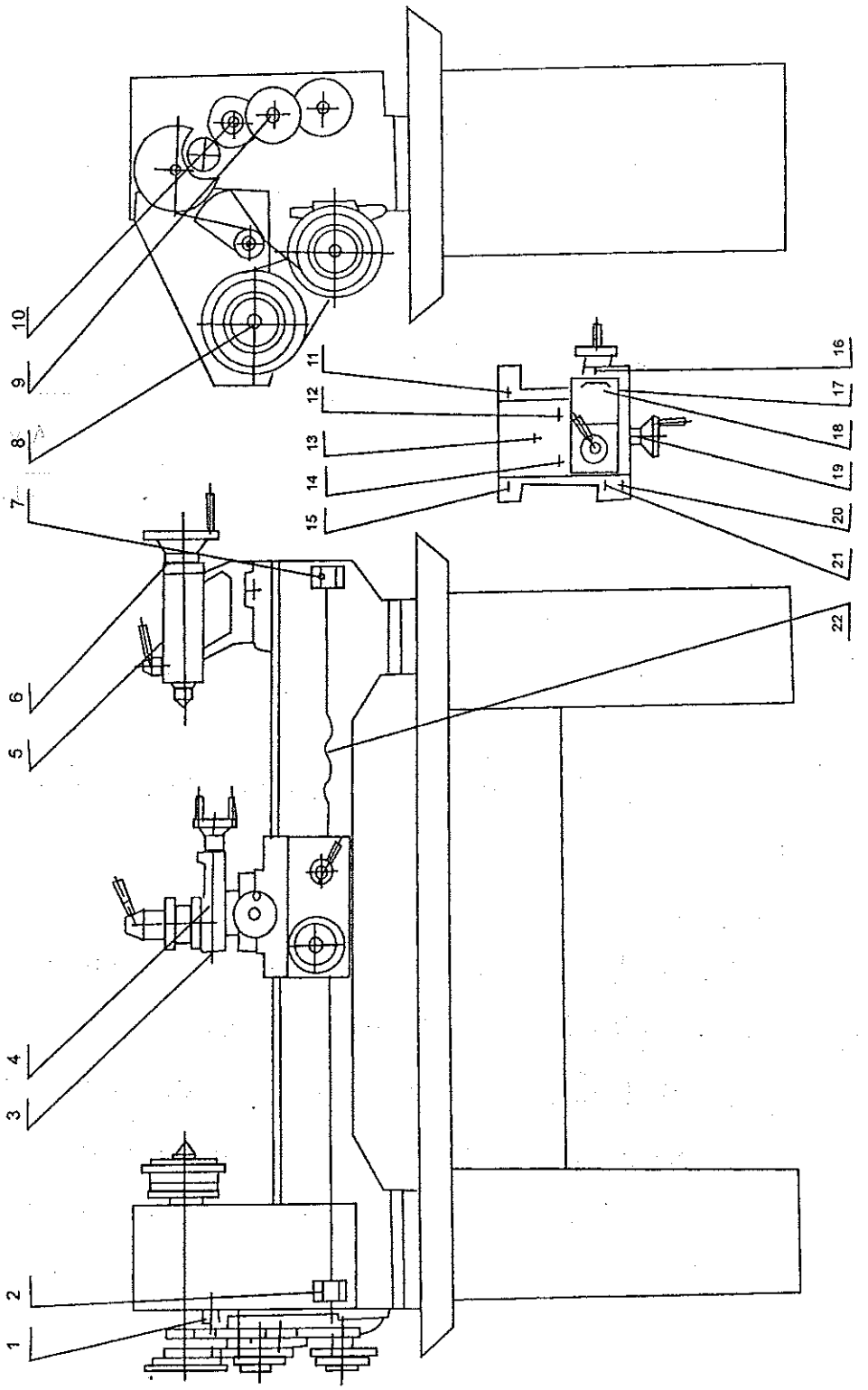



Fig.18 The Distribution Of The Lubrication Position

## Form 24 Lubrication points (Fig 18)

| No.sin fig | Name of lubrication position | Name of lubrication part | Period | Type of oil | Injection tool |
|---|---|---|---|---|---|
| 1 | Fixed bolt of transition gear | Oil cup | Once per shift | 203 machine oil | Oiler |
| 2 | Support | Oil cup | Once per shift | 203 machine oil | Oiler |
| 3 | Screw post | Oil cup | Once per shift | 203 machine oil | Oiler |
| 4 | Tool post slide | Oil cup | Once per shift | 203 machine oil | Oiler |
| 5 | Quill | Oil cup | Once per shift | 203 machine oil | Oiler |
| 6 | Screw post | Oil cup | Once per shift | 203 machine oil | Oiler |
| 7 | Support | Oil cup | Once per shift | 203 machine oil | Oiler |
| 8 | Mid pulley shaft | Oil cup | Once per shift | 203 machine oil | Oiler |
| 9 | Change gear | Oil cup | Once per shift | 203 machine oil | Oiler |
| 10 | Change gear bolt | Oil cup | Once per shift | 203 machine oil | Oiler |
| 11 | Guiding rail | Oil cup | Once per shift | 203 machine oil | Oiler |
| 12 | Slip board | Oil cup | Once per shift | 203 machine oil | Oiler |
| 13 | Screw post | Oil cup | Once per shift | 203 machine oil | Oiler |
| 14 | Sslip board | Oil cup | Once per shift | 203 machine oil | Oiler |
| 15 | Guiding rail | Oil cup | Once per shift | 203 machine oil | Oiler |
| 16 | Screw boit support | Oil cup | Once per shift | 203 machine oil | Oiler |
| 17 | Feed box | Oil cup | Once per shift | 203 machine oil | Oiler |
| 18 | Guiding rail | Oil cup | Once per shift | 203 machine oil | Oiler |
| 19 | Support | Oil cup | Once per shift | 203 machine oil | Oiler |
| 20 | Feed box | Oil cup | Once per shift | 203 machine oil | Oiler |
| 21 | Guiding rail | Oil cup | Once per shift | 203 machine oil | Oiler |
| 22 | Screw post | Direct injection | Once per shift | 203 machine oil | Oiler |

# 15.THE PROCEDURE OF PROCESSING THE COMMON PARTS

## 15.1. Preparations

15.1.1 Set the work piece on the chuck, check the excircle.

15.1.2 Select and fix the cutter on the tool post.

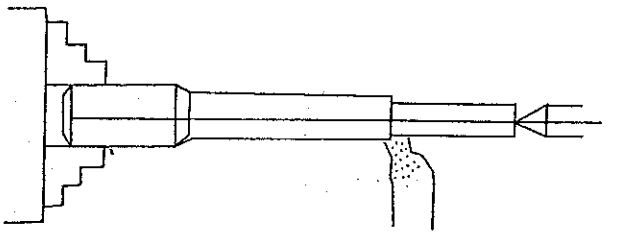
15.1.3 In the light of the size and material of the work piece to select the running speed and feed amount properly.

15.1.4 Adjust the belt, change gear base to collocate the change gears.

15.1.5 Switch on the starting button to check weather the cutting

end and the feed amount are correct or not.

15.2. The procedure to process the circular column parts. Firstly finish the above steps, move the hand wheel of the apron to the right end of the work piece, turn the handle of the saddle to have the cutting end touch the work piece, push the half nut handle to get automatic feed, repeat the cutting and measuring until reaching the right size of the work piece.



15.3. The procedure to process the circular cone parts.

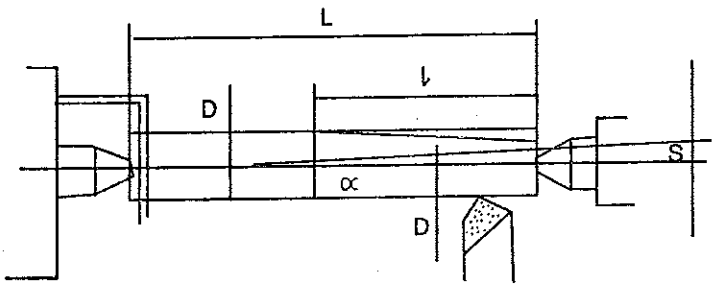
The operation is similar as processing the circular column partl with the difference of taper, the taper is divided into outer cone and inner cone , there're two ways to process it.

15.3.1 Manual operation

According to the required taper of the work piece, turn the tool post to the right angularity of the work piece and fix it, repeat the cutting to get the needed shape.

15.3.2 Automatic feed.

Processing the taper automatically is to use the characteristic which the tail stock can be moved and adjust the feed. To process the long circular cone part with small angularity, abopt the way of clamping within the two top centers, make the center of the tail stock sleeve offset the main shaft center to keep the same angularity as the work piece, repeat the automatic feed till completion of cutting.




$$S = L \times \sin\alpha$$

$$S = \frac{D-d}{2} \times \frac{L}{l}$$

15.4. Procedure of processing threds.

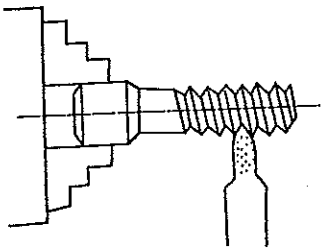
15.4.1 Before the threads cutting, get the tools ready first.

The ordinary specifications of the threads are 60° , 55° , and 30° trapezoid threads, etc.

15.4.2 Check the table plate on the change gear base, in the

lighe of the direction of 800 part to collocate change gears.

15.4.3 Get the needed size for the outer diameter of the threads cutting, check the right thread pitch to make sure it's no error, then repeat the cutting till the nut can be screwed up.



## 16. TRANSPORTATION & INSTALLATION

### 16.1. Transportation

Avoid violent collision and fluctuation during loading, unloading and carrying, try to keep balance when hoisting, watch the cord or other things will not scrape the lead screw, spindle, hand wheels and other machine parts, the painted surfaces can't be scaped, for it will effect the outlook of the lathes.

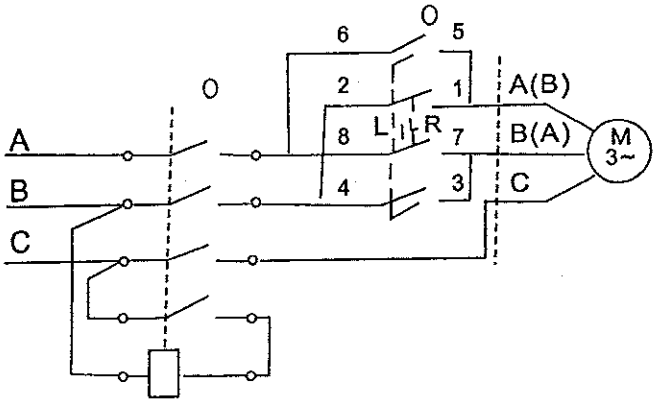
### 16.2 Installation

The lathes can be fixed on the wooden or iron worktable

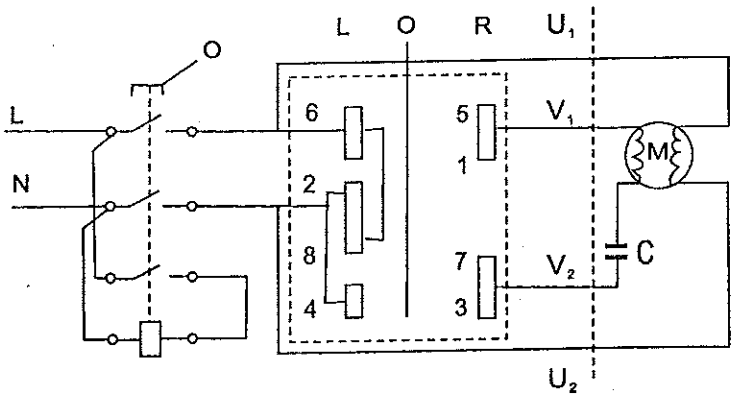
for operation, but the four braces for the worktable must be stable without inclination, in order that you can get the stable cutting without vibration and satisfy the processing accuracy endurably.

17. ELECTRICAL PART

17.1 To open without cutting power device

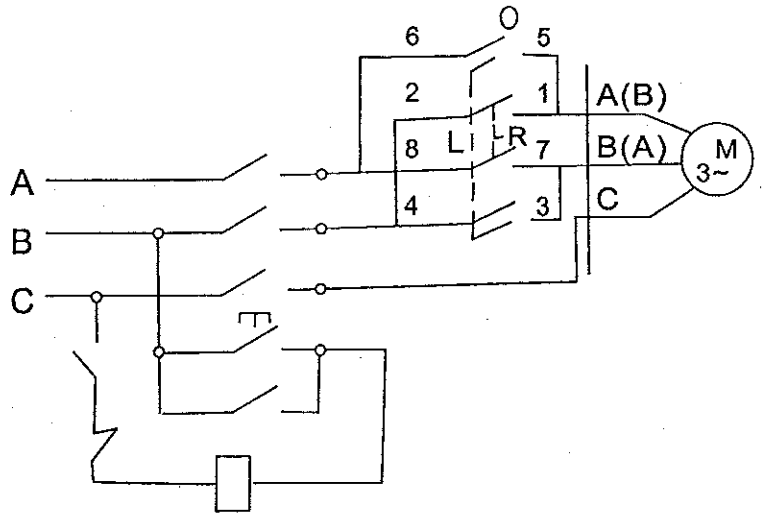



220V—440v/50-60Hz 3PH

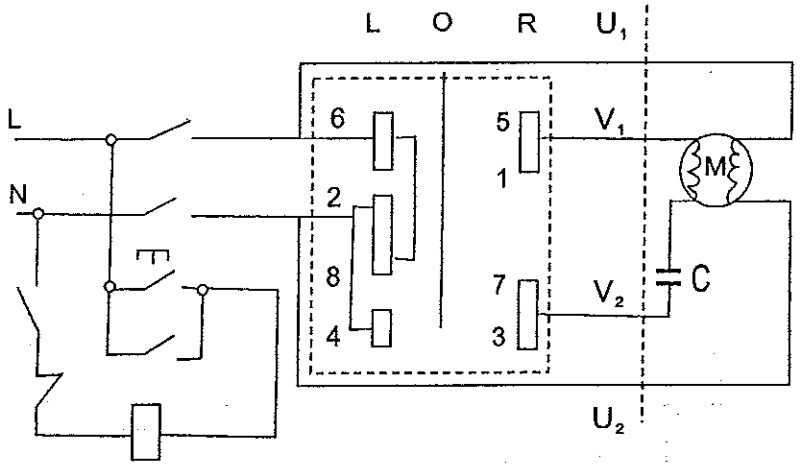



110V—240v/50-60Hz 1PH

17.2 To open with cutting power device



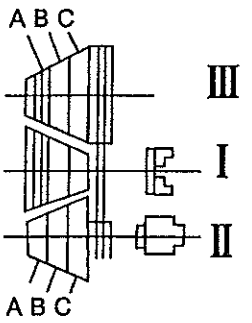

220V—440v/50-60Hz 3PH




110V—240v/50-60Hz 1PH

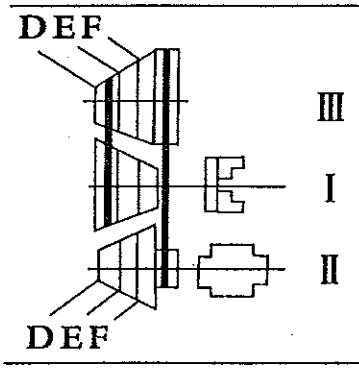
# 18. APPENDIX

## 18.1 HD250,HD210 Spindie Speeds Table




| | A | B | C |
|---|---|---|---|
| | r/min | | |
| Ⅱ - Ⅰ | 620 | 1000 | 2000 |
| Ⅲ - Ⅰ | 125 | 210 | 420 |

## 18.2 Cq6125 Spindle Speeds Table




| | D | E | F |
|---|---|---|---|
| | r/min | | |
| Ⅱ - Ⅰ | 620 | 1000 | 2000 |
| Ⅲ - Ⅰ | 125 | 210 | 420 |

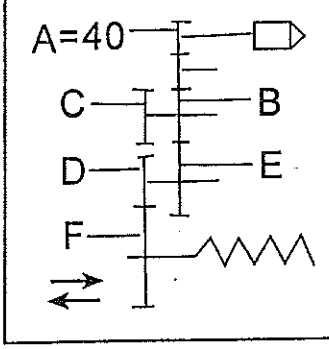
## 18.3 HD250,HD210 Threading Table For Lnch Leads

| ″/∩ | 8 | 9 | 10 | 11 | 12 | 14 |
|---|---|---|---|---|---|---|
| B | 80 | 90 | 70 | 70 | 70 | 70 |
| D E | 7540 | 60 40 | 72 40 | 72 40 | 72 | 60 40 |
| F | 50 | 45 | 60 | 66 | 40 | 70 |

| ″/∩ | 16 | 18 | 20 | 24 | 32 | 40 |
|---|---|---|---|---|---|---|
| B | 70 | 70 | 70 | 70 | 70 | 70 |
| D E | 60 40 | 60 80 | 60 80 | 50 40 | 45 80 | 30 40 |
| F | 80 | 45 | 50 | 100 | 60 | 100 |

| mm | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 1 |
|---|---|---|---|---|---|---|
| C B | 68 80 | 68 80 | 68 80 | 68 40 | 68 80 | 68 80 |
| D E | 72 30 | 72 35 | 72 45 | 72 35 | 72 48 | 60 |
| F | 75 | 70 | 75 | 100 | 60 | 72 |

| mm | 1.25 | 1.5 | 1.75 | 2 | 2.5 | 3 |
|---|---|---|---|---|---|---|
| C B | 68 72 | 75 72 | 68 72 | 68 72 | 68 60 | 90 80 |
| D E | 80 60 | 80 68 | 80 70 | 80 70 | 72 75 | 72 68 |
| F | 48 | 50 | 40 | 35 | 40 | 30 |




| ″/∩ | 0.005″ 0.010″ |
|---|---|
| C B | 35 80 50 80 |
| D E | 90 30 66 30 |
| F | 100 100 |

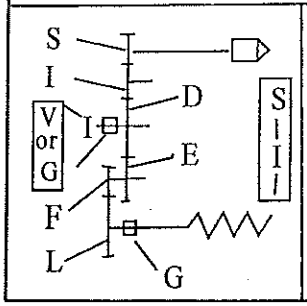
# 18.4 HD250,HD210 Threading Table For Metric Leadscrew

| mm | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 1 |
|---|---|---|---|---|---|---|
| G D | G 80 | G 80 | G 80 | G 80 | G 52 | G 66 |
| F E | 30 80 | 30 60 | 30 50 | 42 60 | 60 80 | 60 |
| L⇄G | 75 G | 80 G | 80 G | 80 G | 75 G | G 80 |

| mm | 1.25 | 1.5 | 1.72 | 2 | 2.5 | 3 |
|---|---|---|---|---|---|---|
| G D | G 52 | G 66 | G 80 | G 70 | G 80 | G 80 |
| F E | 75 80 | 75 80 | 70 80 | 80 | 75 80 | 75 25 |
| L⇄G | 60 G | 50 G | 40 G | G 40 | 30 G | 80 G |

| I"/n | 10 | 11 | 14 | 19 |
|---|---|---|---|---|
| G D | G 80 | G 80 | G 80 | G 80 |
| F E | 66 40 | 60 40 | 75 50 | 50 40 |
| L G | 52 G | 52 G | 66 G | 75 G |

| I"/n | 20 | 22 | 40 | 44 |
|---|---|---|---|---|
| G D | G 60 | G 80 | G 80 | G 80 |
| F E | 66 80 | 60 80 | 33 52 | 30 52 |
| L G | 52 G | 52 G | 80 G | 80 G |




| mm | ⟷ |
|---|---|
| | 0.1 0.2 |
| V D | 33 80 50 80 |
| F E | 90 36 90 33 |
| G L | G 90 G 90 |

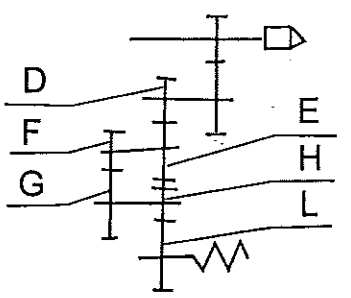
## 18.5 CQ6125 Threading Table for Inch Leadscrew

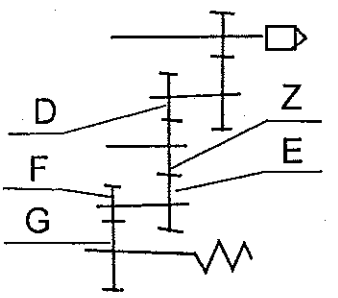
### Threading Table for Inch Leadscrew

| D | 40 | 40 | 48 | 40 | 40 | 40 | 40 |
|---|---|---|---|---|---|---|---|
| F Z | 90 75 | 80 70 | 80 70 | 80 70 | 80 70 | 80 70 | 80 68 |
| G E | 45 40 | 45 40 | 40 57 | 50 40 | 55 40 | 60 40 | 70 40 |
| B II | 8 | 9 | 9 1/2 | 10 | 11 | 12 | 14 |
| C II | 16 | 18 | 19 | 20 | 22 | 24 | 28 |
| A II | | | | 25 | | 30 | 35 |

| D | 40 | 48 | 40 | 40 | 40 | 40 | 48 |
|---|---|---|---|---|---|---|---|
| F Z | 75 70 | 60 70 | 60 70 | 60 70 | 48 80 | 50 72 | 60 50 |
| G E | 50 60 | 45 72 | 50 57 | 75 40 | 66 40 | 75 40 | 72 70 |
| C II | 32 | 36 | 38 | 40 | 44 | 48 | 56 |

| D/E | F/G | H/L | A I | A II | AIII | B I | BIII | C II | CIII |
|---|---|---|---|---|---|---|---|---|---|
| 35/70 | 68/72 | 30/90 | 0.175 | 0.1 | 0.25 | | | 0.125 | |
| 40/60 | 68/72 | 45/75 | | | 0.6 | | 1.5 | 0.3 | 0.75 |
| 40/60 | 68/72 | 48/60 | | | 0.8 | | 2 | 0.4 | 1 |
| 50/60 | 68/72 | 48/60 | 0.7 | 0.4 | 1 | 1.75 | 2.5 | 0.5 | 1.25 |



## 18.6 CQ6125 Threading Table for Metric Leadscrew

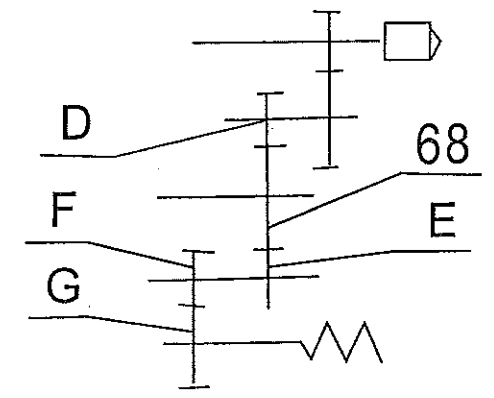
### Threading Table for METRIC Leadscrew

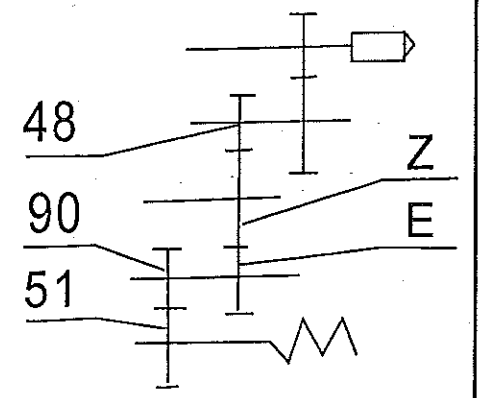
mm

| D/E | F/G | A I | A II | AIII | B I | BIII | C II | CIII |
|---|---|---|---|---|---|---|---|---|
| 40/80 | 30/90 | 0.175 | 0.1 | 0.25 | | | 0.125 | |
| 40/60 | 48/80 | | | 0.6 | | 1.5 | 0.3 | 0.75 |
| 30/75 | 60/45 | | | 0.8 | | 2 | 0.4 | 1 |
| 40/48 | 60/75 | 0.7 | 0.4 | 1 | 1.75 | 2.5 | 0.5 | 1.25 |

1″/n

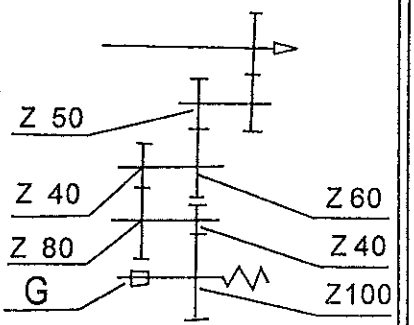
| Z | 75 | | 70 | | 55 | 50 |
|---|---|---|---|---|---|---|
| E | 40 | 45 | 50 | 55 | 60 | 70 |
| B II | 8 | 9 | 10 | 11 | 12 | 14 |
| C II | 16 | 18 | 20 | 22 | 24 | 28 |
| A II | | | 25 | | 30 | 35 |



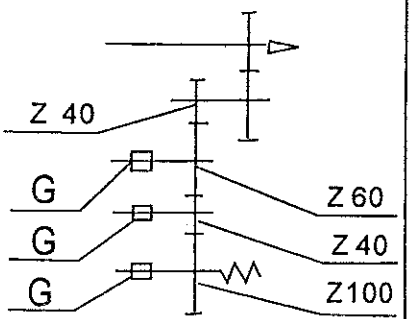



## 18.7 CQ6125 Threading Table for Metric Leadscrew

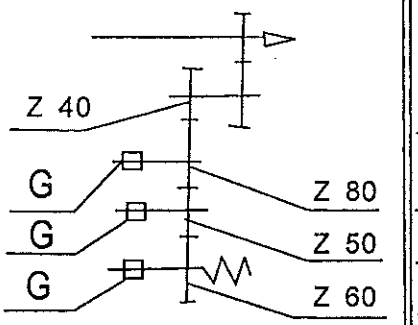
| | A | B | C |
|---|---|---|---|
| I | 0.175 | | 0.219 |
| II | 0.1 | 0.25 | 0.125 |
| III | | | |




| | A | B | C |
|---|---|---|---|
| I | | | |
| II | | 0.6 | 0.3 |
| III | | 1.5 | 0.75 |




| | A | B | C |
|---|---|---|---|
| I | 0.7 | 1.75 | |
| II | 0.4 | 1 | 0.5 |
| III | 1 | 2.5 | 1.25 |




| | A | B | C |
|---|---|---|---|
| I | | | |
| II | | 0.8 | 0.4 |
| III | 0.8 | 2 | 1 |