

COPY MANUAL FOR :

**AJAX**

**AJT4/5**

# **Turret Milling Machine**

SERIAL NO 39036 B 80588

YEAR MANU 2000

WESTERMANS INTERNATIONAL LTD

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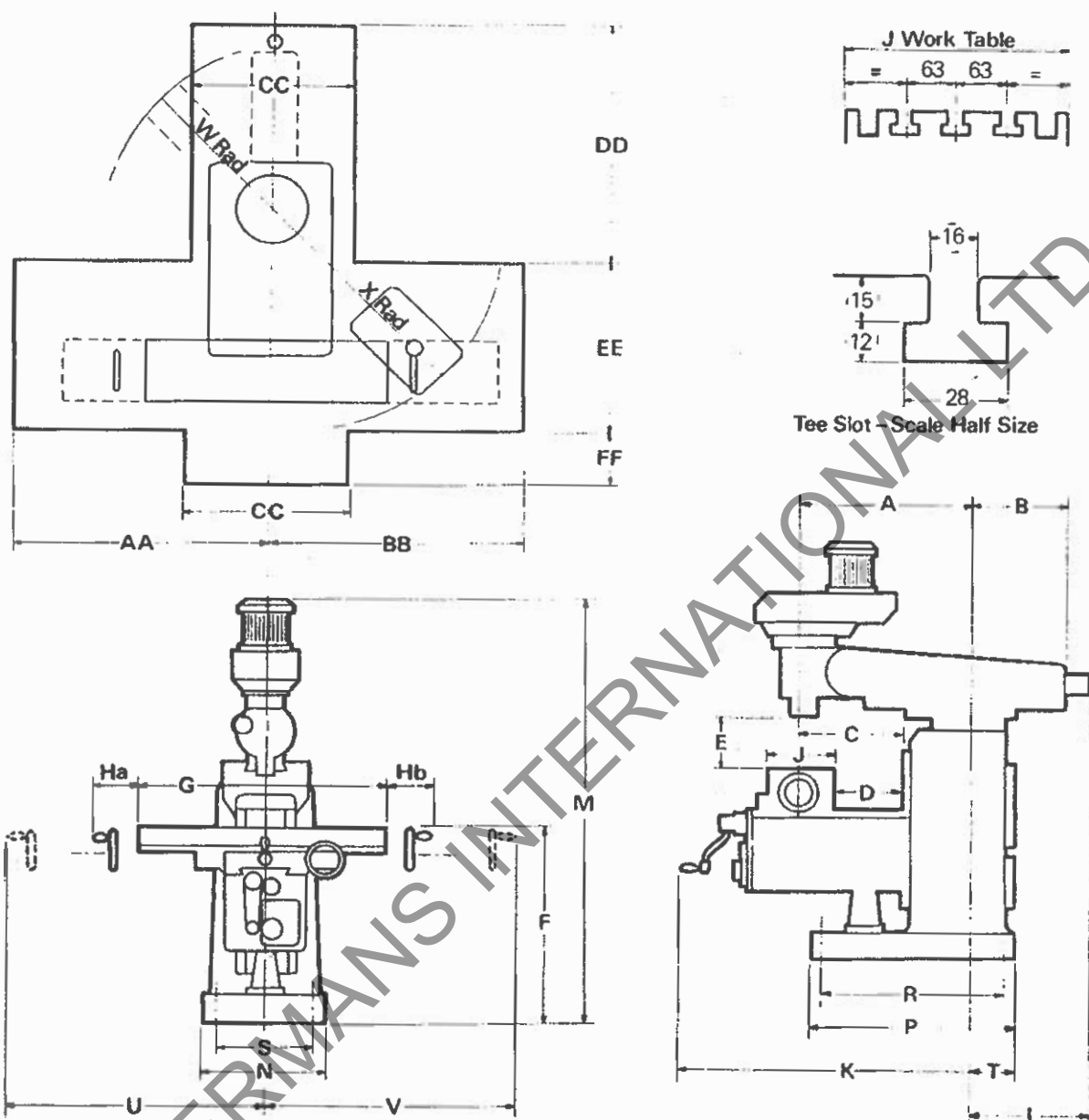
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# Specifications – AJT4/5

|                                      | AJT4                               |                    | AJT5           |                    |
|--------------------------------------|------------------------------------|--------------------|----------------|--------------------|
|                                      | Metric                             | English            | Metric         | English            |
| <b>TABLE</b>                         |                                    |                    |                |                    |
| Working Surface .....                | 1372x279                           | 54" x 11"          | 1372x280       | 54" x 11"          |
| Number of T-Slots .....              | 3                                  | 3                  | 3              | 3                  |
| Width of T-Slots .....               | 16                                 | 5/8"               | 16             | 5/8"               |
| Distance between Centres .....       | 63.5                               | 2 1/2"             | 63.5           | 2 1/2"             |
| <b>RANGE OF TABLE</b>                |                                    |                    |                |                    |
| Longitudinal .....                   | 800                                | 31 1/2"            | 800            | 31 1/2"            |
| Cross .....                          | 345                                | 13 1/2"            | 345            | 13 1/2"            |
| Vertical .....                       | 406                                | 16"                | 400            | 15 3/4"            |
| <b>SPINDLE</b>                       |                                    |                    |                |                    |
| Maximum Distance Spindle to Table .. | 395                                | 15 5/8"            | 420            | 16 1/2"            |
| Maximum Distance Spindle to Column   | 725                                | 28 1/2"            | 705            | 27 3/4"            |
| Minimum Distance Spindle to Column   | 135                                | 5 1/4"             | 145            | 5 3/4"             |
| Quill Traverse .....                 | 127                                | 5"                 | 150            | 6"                 |
| Main Spindle Taper .....             | ISO.40                             | ISO.40             | ISO.40         | ISO.40             |
| Number of Speeds } Standard Head     | 8                                  |                    | Not Applicable |                    |
| Range of Speeds } .....              | 49,85,145,260,450,780,1330,2440rpm |                    | 60–4,000rpm    |                    |
| Variable Speed Head Speed Range ..   | 45–3,500rpm                        |                    | 60–4,000rpm    |                    |
| Number of Feeds .....                | 3                                  | 3                  | 3              | 3                  |
| Range of Feeds .....                 | .04/.08/.16                        | .0015"/.003"/.006" | .04/.08/.16    | .0015"/.003"/.006" |
| <b>TABLE FEEDS</b>                   |                                    |                    |                |                    |
| Feeds .....                          | 12                                 | 12                 | 12             | 12                 |
| Longitudinal .....                   | 12-576mm/min.                      | 1/2"-22 1/16"/min. | 12-576mm/min.  | 1/2"-22 1/16"/min. |
| Cross .....                          | 12-576mm/min.                      | 1/2"-22 1/16"/min. | 12-576mm/min.  | 1/2"-22 1/16"/min. |
| Vertical .....                       | 3.6-173mm/min.                     | 1/8"-6 5/8"/min.   | 3.6-173mm/min. | 1/8"-6 5/8"        |
| <b>RAPID TRAVERSE</b>                |                                    |                    |                |                    |
| Longitudinal .....                   | 1650mm/min.                        | 65"/min.           | 1650mm/min.    | 65"/min.           |
| Cross .....                          | 1650mm/min.                        | 65"/min.           | 1650mm/min.    | 65"/min.           |
| Vertical .....                       | 500mm/min.                         | 19 1/2"/min.       | 500mm/min.     | 19 1/2"/min.       |
| <b>MOTORS</b>                        |                                    |                    |                |                    |
| Spindle Drive Motor .....            | 2.2kw                              | 3hp                | 4kw            | 5.5hp              |
| Feed Motor .....                     | 1.1kw                              | 1.5hp              | 1.1kw          | 1.5hp              |
| Coolant Pump .....                   | 0.06kw                             | 0.08hp             | 0.06kw         | 0.08hp             |
| <b>WEIGHTS &amp; DIMENSIONS</b>      |                                    |                    |                |                    |
| Net Weight .....                     | 1450kgs                            | 3200lbs            | 1600kgs        | 3540lbs            |
| Gross Weight .....                   | 1710kgs                            | 3800lbs            | 1900kgs        | 4200lbs            |
| Case Dimensions .....                | 1750x1700x1880                     | 69"x67"x74"        | 1750x1700x1880 | 69"x67"x74"        |
| Volume .....                         | 5.6 cu. metres                     | 197.6 cu. feet     | 5.6 cu. metres | 197.6 cu. feet     |

# Overall Dimensions Turret Milling Machines Model Nos. AJT4/5



| Model |        | A    |      | B    |      | C    |      | D    |      | E    |      | F    |      | G    | H   |     | J   | K    | L    |      |
|-------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|------|------|------|
|       |        | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |      | a   | b   |     |      | Min. | Max. |
| AJT4  | Inches | 16%  | 38   | 7⅛   | 29⅛  | 5%   | 30   | 1    | 15¼  | 0    | 15½  | 35⅛  | 51¼  | 54   | 11  | 11  | 11  | 52   | 13⅜  | 37⅜  |
|       | mm     | 430  | 965  | 180  | 740  | 135  | 735  | 25   | 387  | 0    | 394  | 892  | 1296 | 1372 | 280 | 280 | 280 | 1321 | 340  | 949  |
| AJT5  | Inches | 15%  | 38⅜  | 7⅞   | 29⅜  | 7¼   | 27¾  | 1    | 13¾  | ¾    | 16½  | 35⅞  | 51   | 54   | 11  | 11  | 11  | 52   |      |      |
|       | mm     | 395  | 975  | 200  | 745  | 145  | 705  | 25   | 350  | 20   | 420  | 892  | 1296 | 1372 | 280 | 280 | 280 | 1321 |      |      |

| Model |        | M      | N      | P      | R      | S      |        | T      | U      |        | V      |        | W      | X      | AA     | BB     | CC   | DD     | EE     | FF     |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|--------|--------|--------|
|       |        |        |        |        |        | Front  | Rear   |        | Min.   | Max.   | Min.   | Max.   |        |        |        |        |      |        |        |        |
| AJT4  | Inches | 87     | 23 3/8 | 43 3/8 | 40 3/8 | 20 3/8 | 20 3/8 | 10 3/4 | 22 3/8 | 55 1/4 | 22 3/8 | 55 1/4 | 26 1/2 | 44 3/4 | 51 1/4 | 53     | 40   | 47 1/4 | 29 1/2 | 12 1/2 |
|       | mm     | 2210   | 600    | 1100   | 1030   | 530    | 530    | 273    | 569    | 1404   | 569    | 1404   | 673    | 1137   | 1301   | 1346   | 1016 | 1200   | 749    | 317    |
| AJT5  | Inches | 94 7/8 | 23 3/8 | 43 3/8 | 40 3/8 | 20 3/8 | 20 3/8 | 10 3/4 | 22 3/8 | 55 1/4 | 22 3/8 | 55 1/4 | 29 3/8 | 48 1/4 | 55 1/4 | 55 1/4 | 40   | 47 1/4 | 29 1/2 | 12 1/2 |
|       | mm     | 2410   | 600    | 1100   | 1030   | 530    | 530    | 273    | 569    | 1404   | 569    | 1404   | 745    | 1225   | 1404   | 1404   | 1016 | 1200   | 749    | 317    |

Fig. 1

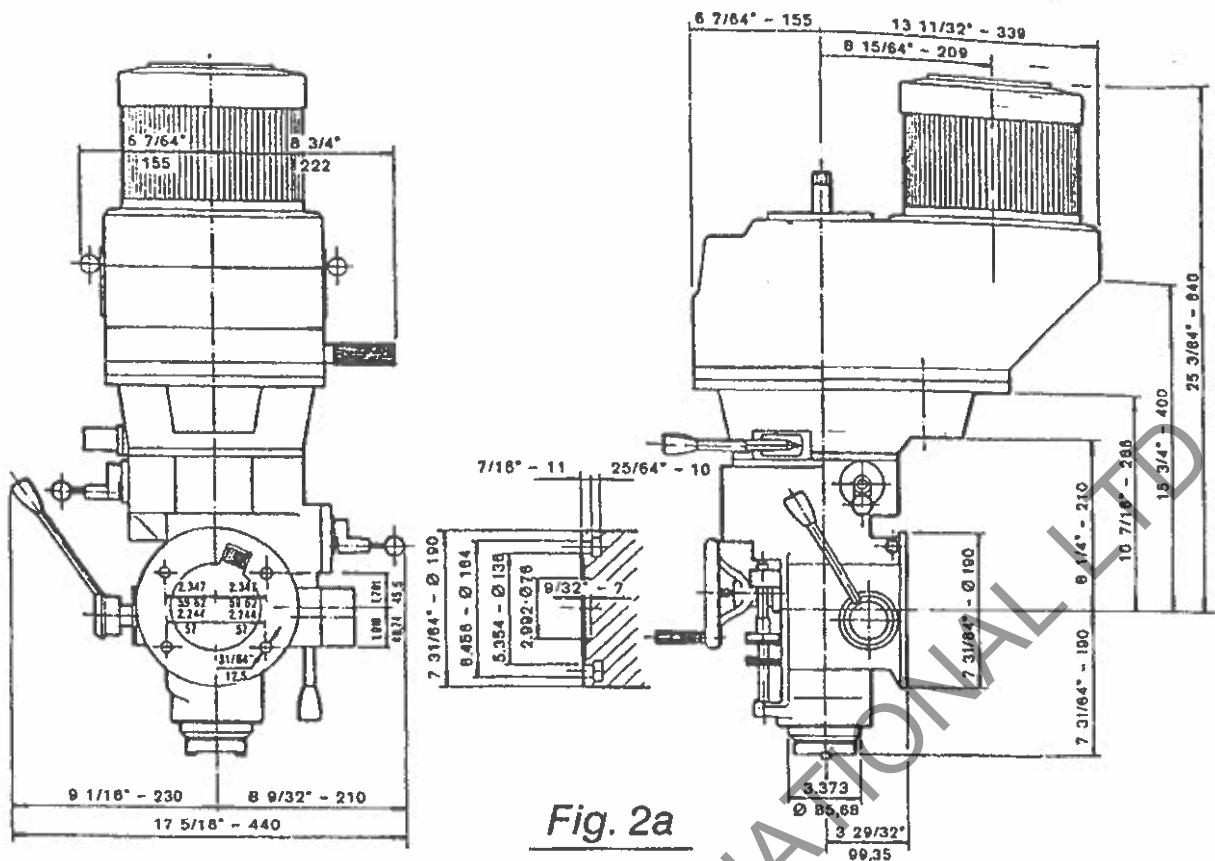


Fig. 2a

## Dimensions of Standard Head - Model AJT4

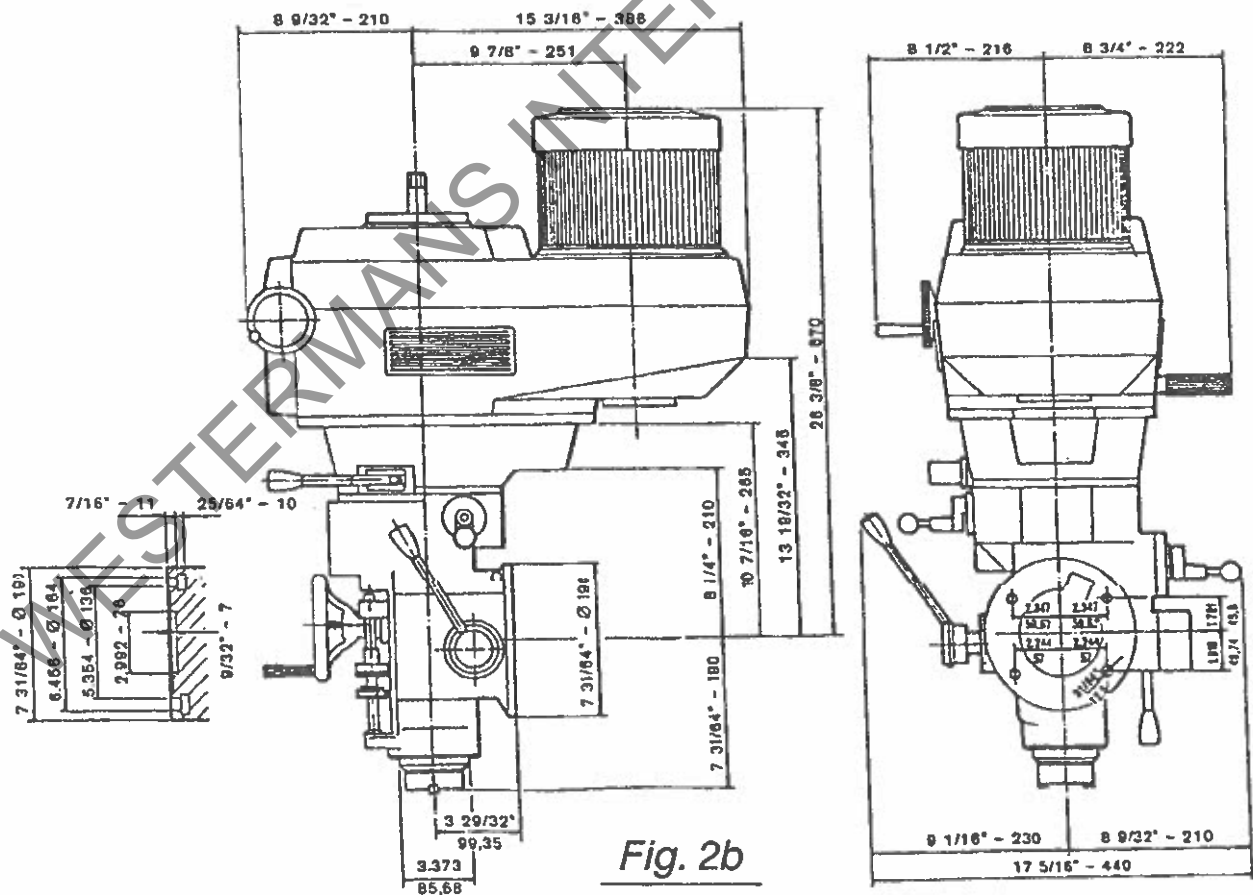
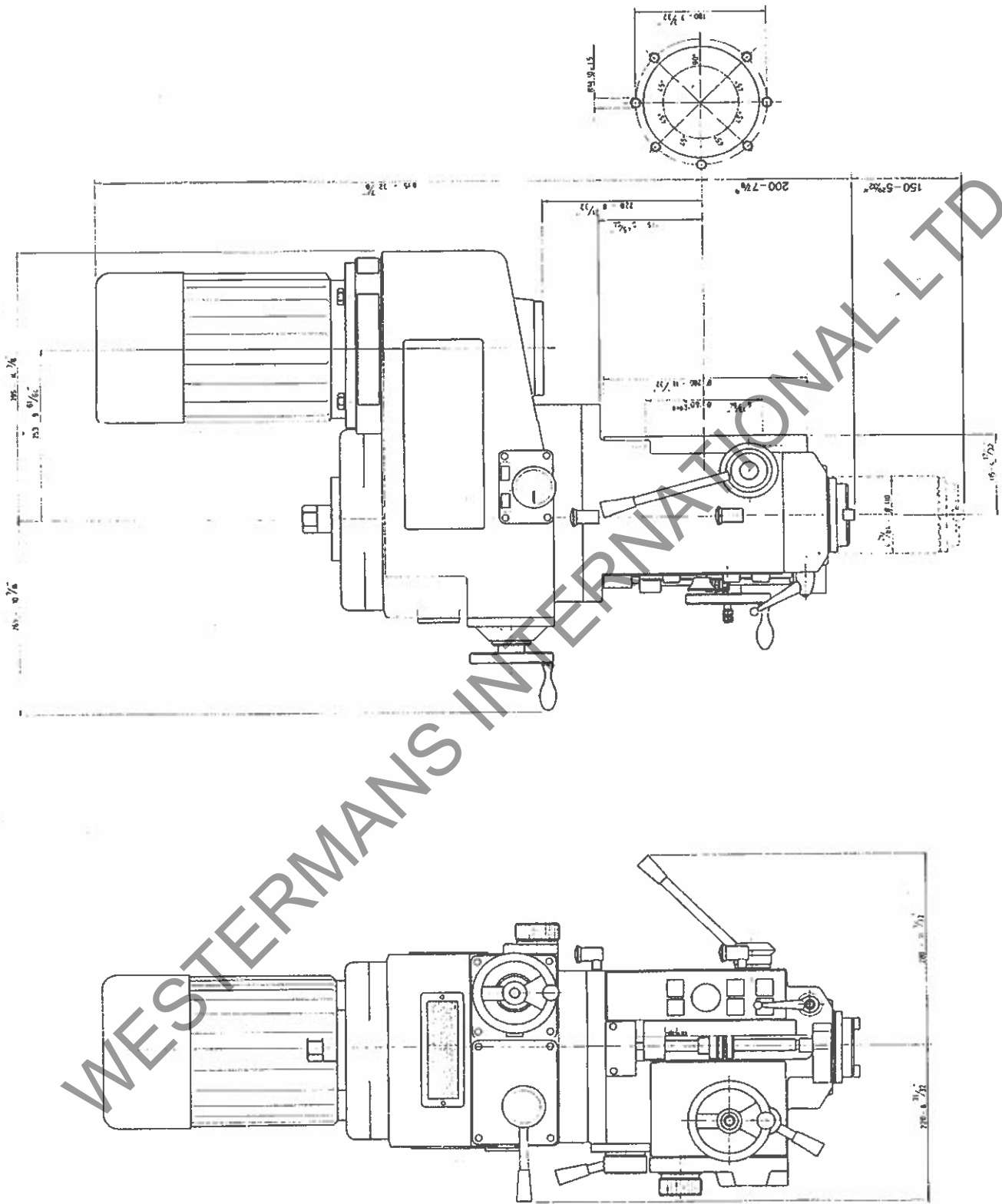
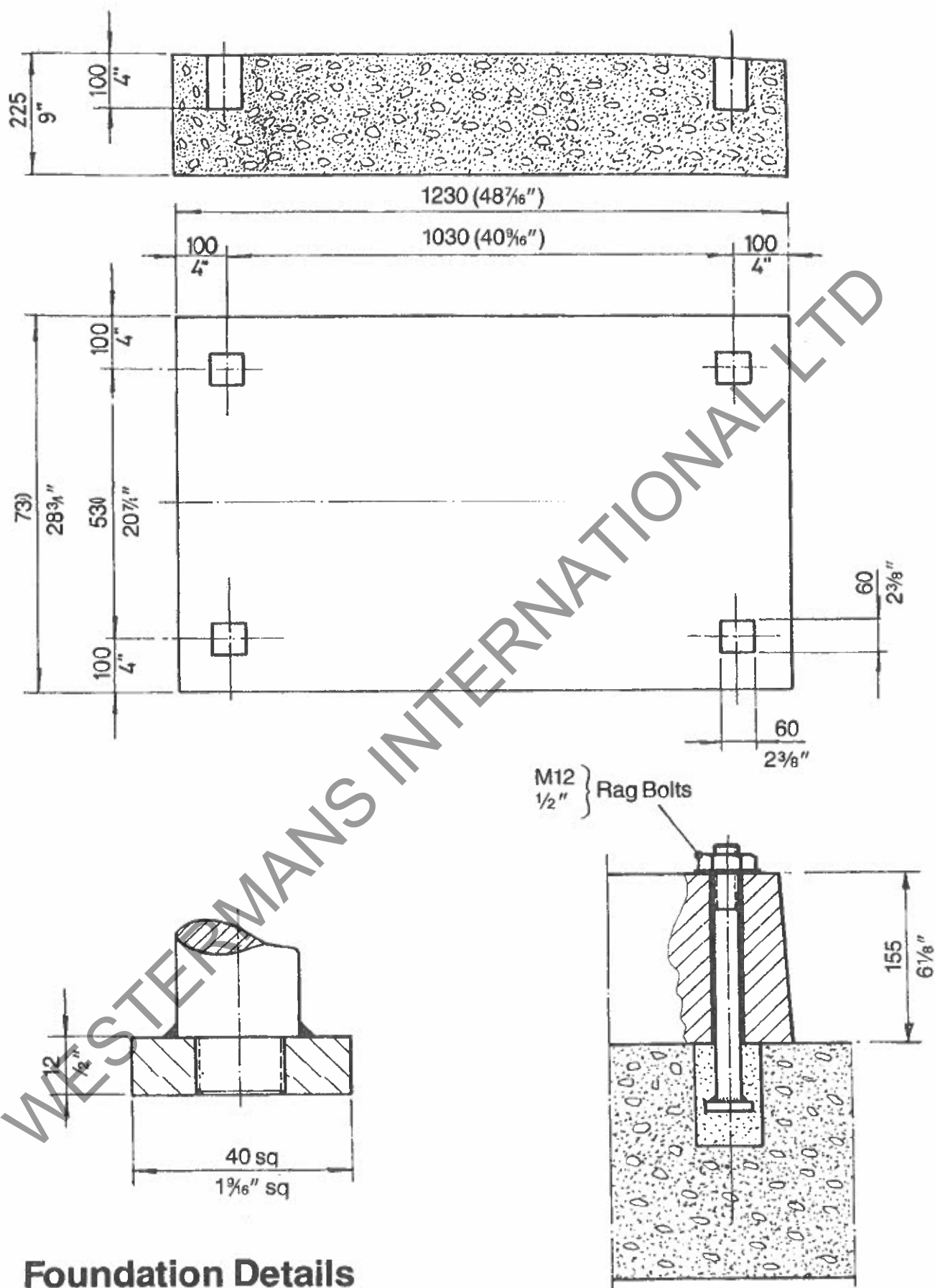


Fig. 2b

## Dimensions of Variable Speed Head - Model AJT4



Dimensions of Variable Speed Head – Model AJT5 Fig. 3



**Foundation Details  
Models AJT4/5**

**Fig. 4**

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# Installation of Machines – AJT4/5

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## LIFTING THE MACHINE

An eyebolt is fitted to the upper surface of the overarm and with this eyebolt in position the machine can be lifted by passing a wire sling through the eyebolt and looping the sling on to the crane hook.

Check to ensure that the lifting sling is of correct capacity to lift the weight of the machine and that the sling is in good condition.

## FOUNDATION

The foundation for the machine should be prepared to the dimensions given in Fig. 4. Ample sized holes should be provided in the foundation for the four rag-bolts. The minimum depth of concrete required for the foundation is 225mm but is dependent upon the customer's knowledge of local conditions of the ground on which the machine is going to stand. Some machine shop floors are designed to carry heavy machine weights but the best results are obtained from the preparation of a separate foundation.

## INSTALLATION

Lift the machine and, through each of the four holes provided in the base of the machine, fit a rag-bolt with a nut and washer, the nut being screwed on to the bolt so that the end of the bolt is just flush with the upper surface of the nut.

Lower the machine on to the foundation, guiding the rag-bolts into their appropriate holes in the foundation.

Clean the working surface of the machine table thoroughly.

With a precision level on the machine table, level the machine longitudinally and transversely by means of the use of varying thicknesses of metal packing pieces placed between the surface of the foundation and the underside of the machine frame.

Adjustment to the height of these packing pieces should be made until the level reads zero both longitudinally and transversely.

Grout should then be run into the rag-bolt holes and under the machine until the grout is approximately 20mm above the under surface of the machine frame. This procedure usually necessitates a wooden frame being placed around the base of the machine so that the grout is retained. The inside dimensions of the frame should be approximately 200mm larger than the overall dimensions of the machine base in each direction and of sufficient height to retain the grout to a depth of 20mm above the under surface of the machine frame.

A full 24 hours should be allowed for the grout to cure and, after this time has elapsed, the rag-bolt nuts should be tightened but very little movement should be experienced at the nuts if the grout is cured sufficiently and the metal packings were placed under the machine securely.

Check the level of the machine longitudinally and transversely.

## CLEANING

Machines are despatched from our works with a coating of rust preventative applied to the slideways and all bright parts. This preventative coating must be completely removed before the machine is put into service.

Removal of the preventative coating can be carried out by the use of white spirit on a soft cloth. After cleaning, the slideways should be coated with a film of lubricating oil.

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# Installation of the Machines – *continued*

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## ELECTRICS

Electrical Wiring Diagram Model Nos. AJT4/5 – Fig. 5.

Electrical Wiring Diagram for Power Draw Bar (AJT4/5) – Fig. 5a.

Alternative Wiring Diagram for Power Draw Bar (AJT4/5) – Fig. 5b.

An electrical control panel is provided at the right-hand side of the column. Access to the panel is gained by turning the isolator knob to the position marked zero and then rotating the lock situated in the panel door. Cable entry is through a pinching gland positioned in the lower face of the panel at the left-hand corner.

The three phase electrical supply cable should be threaded through the pinching gland.

It will be noted that the four terminals at the left-hand end of the connector strip are marked earth (↓), R, S and T. The earth lead of the supply cable should be connected to the earth terminal (↓) and the three phase leads should be connected to terminals R, S and T.

The electrical supply to the machine can now be switched on at the isolator positioned in the electrical panel door. To check the main spindle motor for correct direction of rotation carry out the following procedure:

- Turn spindle directional switch 2 Fig. 9 to position marked (1) on switch plate and set lever 104 Fig. 15 to position '1' standard head version or lever 51 Fig. 11 variable speed head version to position 'Red Rectangle' on indicating plate for Model AJT4.

*Note:* Lever 75 Fig. 13 can be in either of its two possible positions for Model AJT5.

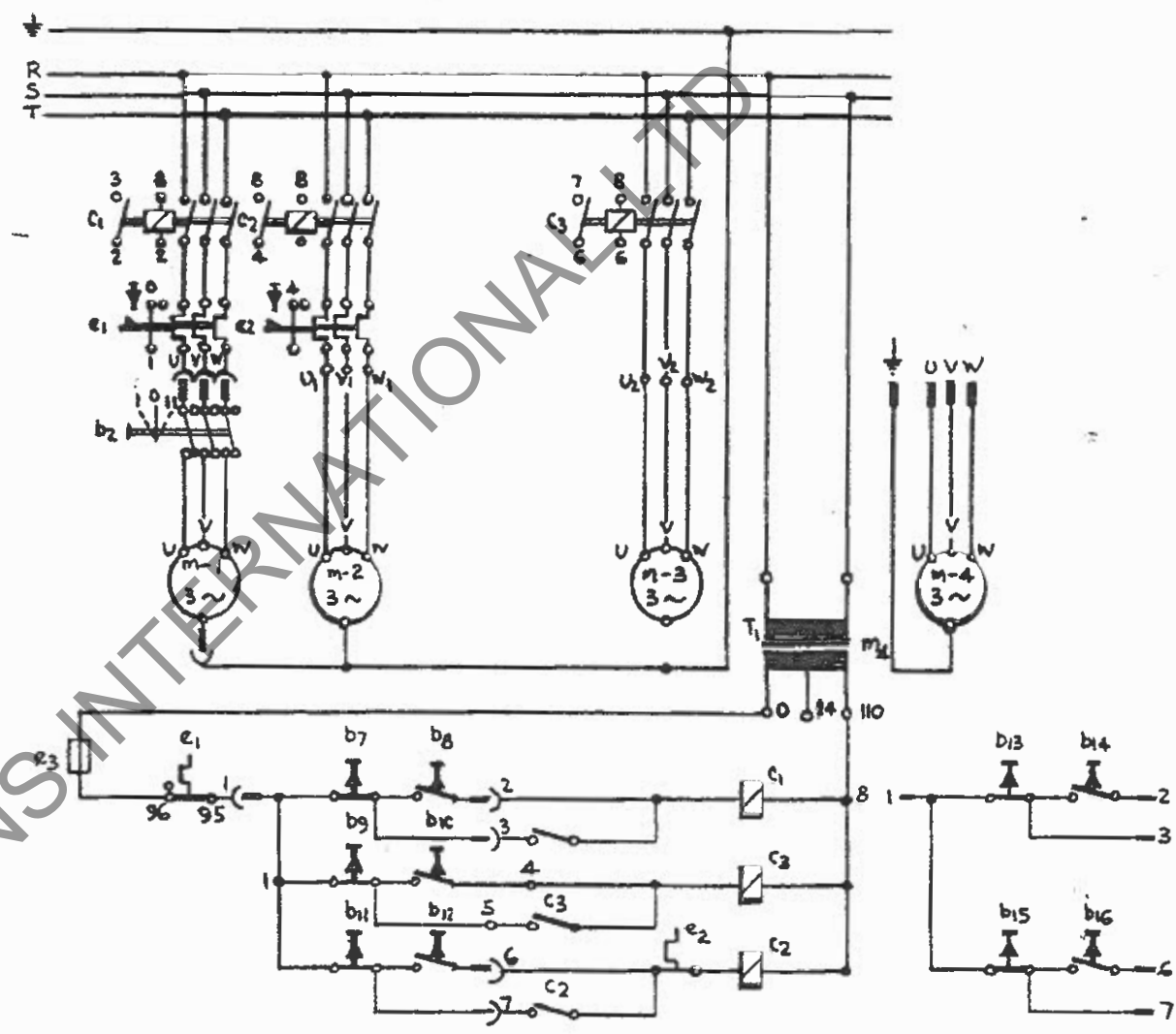
Press spindle start push button in control panel 1 Fig. 9. The main spindle should revolve in a clockwise direction when viewed from above the head. Should the direction of rotation of the main spindle be counter-clockwise any two of the three electrical phases should be reversed at terminals R, S and T in the main terminal block in the electrical component panel 10 Fig. 9.

It is important that the main motor runs in the correct direction as all the internal wiring for the feed motor and coolant pump motor has been 'phased' accordingly so that 'feeds' of the various elements move in the direction indicated by appropriate arrows on the various control levers.

As a check for the correct feed motor direction carry out the following procedure:

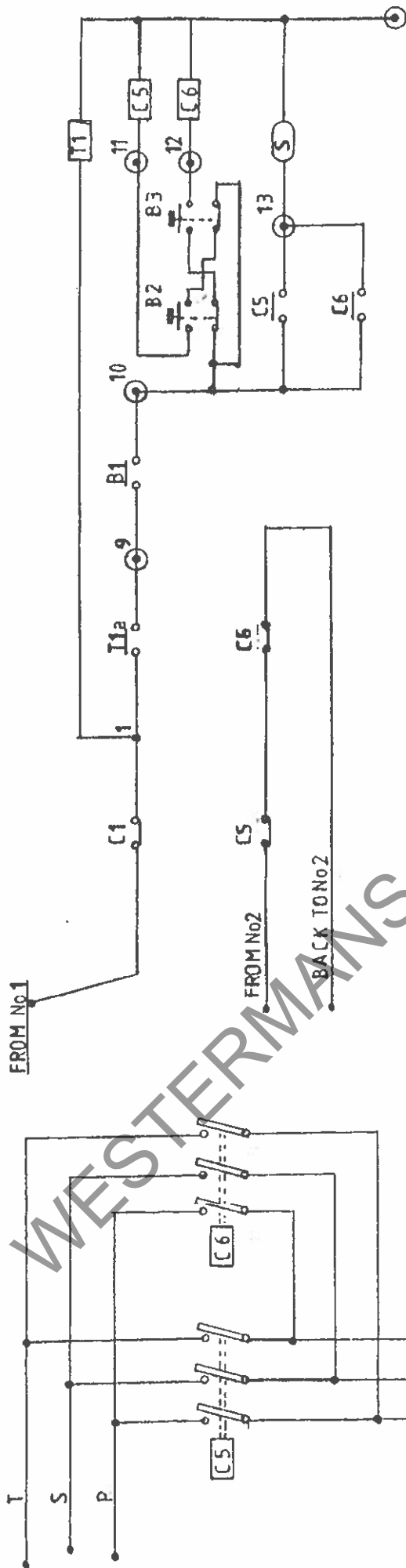
- Press feed motor start button in control panel 1 Fig. 9, raise lever 6 Fig. 9 from neutral position to normal feed position, move longitudinal feed engagement lever 29 Fig. 10 to the left and the table should traverse from right to left. Should the table feed in the reverse direction to that stated with longitudinal feed engagement lever 29 Fig. 10 moved to the left and the spindle rotation set as described above, reverse electrical leads marked U, and V, at terminal block in the electrical panel.

|                 |                     |                        |
|-----------------|---------------------|------------------------|
| M-1             | Spindle Motor       | AJT4-2.2kW<br>AJT5-4kW |
| M-2             | Feed Motor          | 1.1kW                  |
| M-3             | Coolant Pump Motor  | 0.06kW                 |
| M-4             | Slotting Head Motor | 0.55kW                 |
| C <sub>1</sub>  | Contactor           | Main Spindle Motor     |
| C <sub>2</sub>  | Contactor           | Feed Motor             |
| C <sub>3</sub>  | Contactor           | Coolant Pump Motor     |
| b <sub>2</sub>  | Reversing Switch    | Main Motor             |
| e <sub>1</sub>  | Thermal O/L         | Main Motor             |
| e <sub>2</sub>  | Thermal O/L         | Feed Motor             |
| b <sub>8</sub>  | Start Push Button   | Spindle Motor          |
| b <sub>10</sub> | Start Push Button   | Coolant Pump Motor     |
| b <sub>12</sub> | Start Push Button   | Feed Motor             |
| b <sub>14</sub> | Start Push Button   | Slotting Head Motor    |
| T <sub>1</sub>  | Transformer         |                        |
| e <sub>3</sub>  | Fuse                |                        |

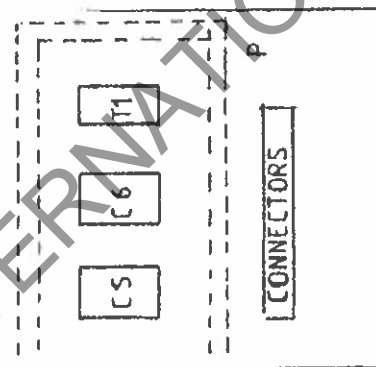


**Electrical Wiring Diagram  
AJT4/5 Turret Milling Machine**

*Fig. 5*



0-37 KW3000RPM



|     |                           |
|-----|---------------------------|
| C1  | Normally Closed Contact   |
| T1  | Timer SB205, 120V 360 Sec |
| T1a | Normally Open Contact     |
| B1  | Brake Switch              |
| B2  | Tool 'In' Push Button     |
| B3  | Tool 'Out' Push Button    |
| C5  | Tool 'In' Contactor       |
| C6  | Tool 'Out' Contactor      |
| S   | Air Solenoid 110V         |
| P   | Panel Case HL 1510        |

## Electrical Wiring Diagram for Power Drawbar AJT4/5

Note:  
Model AJT4 – Brake Switch B<sub>1</sub> Wired Normally Closed  
Model AJT5 – Brake Switch B<sub>1</sub> Wired Normally Open as shown

Fig. 5a



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# Lubrication – AJT4/5

---

## LUBRICATION

(See lubrication chart Fig. 6 and Fig. 6a for grade of lubricant and frequency of oiling.)

### ONE SHOT LUBRICATION SYSTEM

The one shot lubrication pump unit is situated at the right-hand side of the knee 8 Fig. 9.

This unit lubricates the following points:

- Vertical column slideways.
- Elevating screw, nut and associated gear drive.
- Cross slideways.
- Cross screw, nut and associated gear drive and bearings.
- Longitudinal screw, nut and associated gear drive and bearings.

The one shot pump unit should be operated approximately four times per eight hours working time. The oil reservoir for the system is fitted with a filler plug and an oil level sight.

### FEED GEARBOX

The feed gear box which is situated in the knee of the machine is 'splash' lubricated from an oil sump. All feed gears and bearings receive oil from this sump. The sump is provided with a filler plug, oil level sight and a drain plug.

### CROSS AND VERTICAL FEED CLUTCHES

These units are 'splash' lubricated from an oil sump. The oil sump is provided with a filler plug, oil level sight and drain plug.

### MILLING HEAD (Standard and Variable Speed Models) – Model AJT4

A small oil cup is provided at the left-hand side of the head which feeds oil to a felt ring at the top of the spindle assembly. Oil from the felt pad feeds the main bearings of the spindle. The cup should be topped up regularly but over oiling will only result in surplus oil draining down to the bottom of the main spindle and being thrown off at the spindle flange when the spindle is rotating.

A nipple is provided at the left-hand side of the head for the lubrication of the sleeve which carries the reduction gear assembly.

A nipple is provided at the rear of the head for the lubrication of reduction gear teeth.

### MILLING HEAD – Model AJT5

Two oil cups are provided at the right-hand side of the head which feed oil to the spindle bearings and quill. The cups should be topped up regularly but over oiling will only result in surplus oil draining down to the bottom of the main spindle and being thrown off at the spindle flange when the spindle is rotating.

A nipple is provided at the right-hand side of the head for lubrication of the high/low speed range mechanism.

## Lubrication Details

See Fig 6a for details relating to AJT5 Head

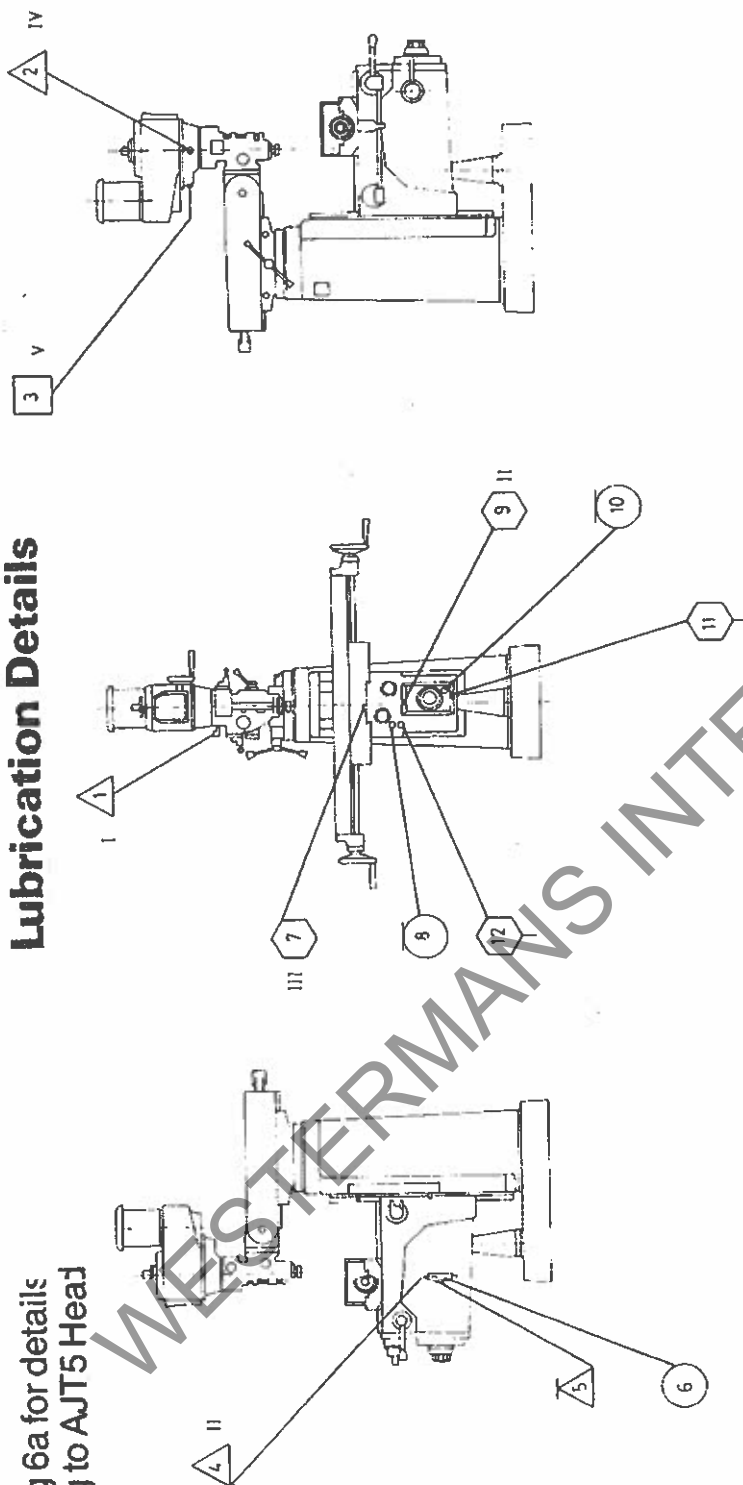
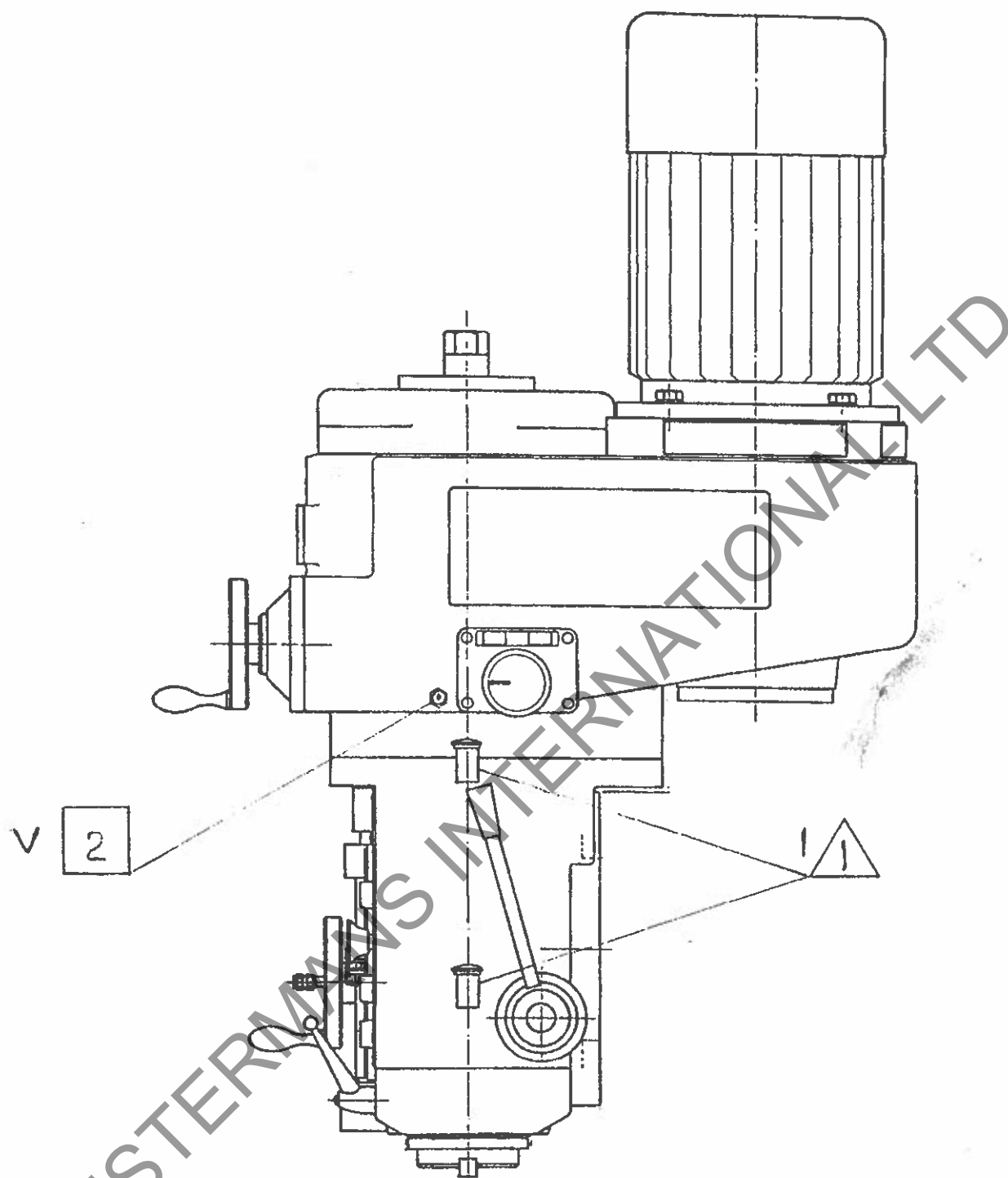


Fig. 6

| Oil Company | Oil                   |             |                 |                  | Grease                      |  |
|-------------|-----------------------|-------------|-----------------|------------------|-----------------------------|--|
|             | Group I               | Group I     | Group III       | Group IV         | Group V                     |  |
| Shell       | 20W/50 Engine Oil     | Tonna Tx-68 | Mobiloil R220   | Alvania R2       | Cardium Compound EP-Fluid H |  |
| Mobil       | Delvac Special 20W/50 | Vactre 2A   | Mobilgear 630   | Mobilux EP 2     | Mobilvac E                  |  |
| BP          | Vanellus M20/50       | Macurat 68  | Energol GRxP220 | Energrease LSEP2 | Energrease GG               |  |
| Kluber      |                       |             |                 |                  | Grafloscon AG 1             |  |
| Rocol       |                       |             |                 |                  | MTS 1000                    |  |

| Lubrication Symbols |   | Lubrication Symbols |
|---------------------|---|---------------------|
| ○                   | ○ |                     |
| △                   | △ | △                   |
| □                   | □ | □                   |
| ◇                   | ◇ | ◇                   |
| ◇                   | ◇ | ◇                   |
| ◇                   | ◇ | ◇                   |

| Number | Mechanism                   |
|--------|-----------------------------|
| 1      | Head                        |
| 2      | Head                        |
| 3      | Head                        |
| 4      | Table and Knee Transmission |
| 5      | Table and Knee Transmission |
| 6      | Table and Knee Transmission |
| 7      | Feed Box                    |
| 8      | Feed Box                    |
| 9      | Feed Box                    |
| 10     | Feed Box                    |
| 11     | Feed Box                    |
| 12     | Feed Box                    |



**Lubrication Details – AJT5 Head Only**  
(See Fig. 6 for other details)

Fig. 6a

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# Procedure for Ordering Spare Parts

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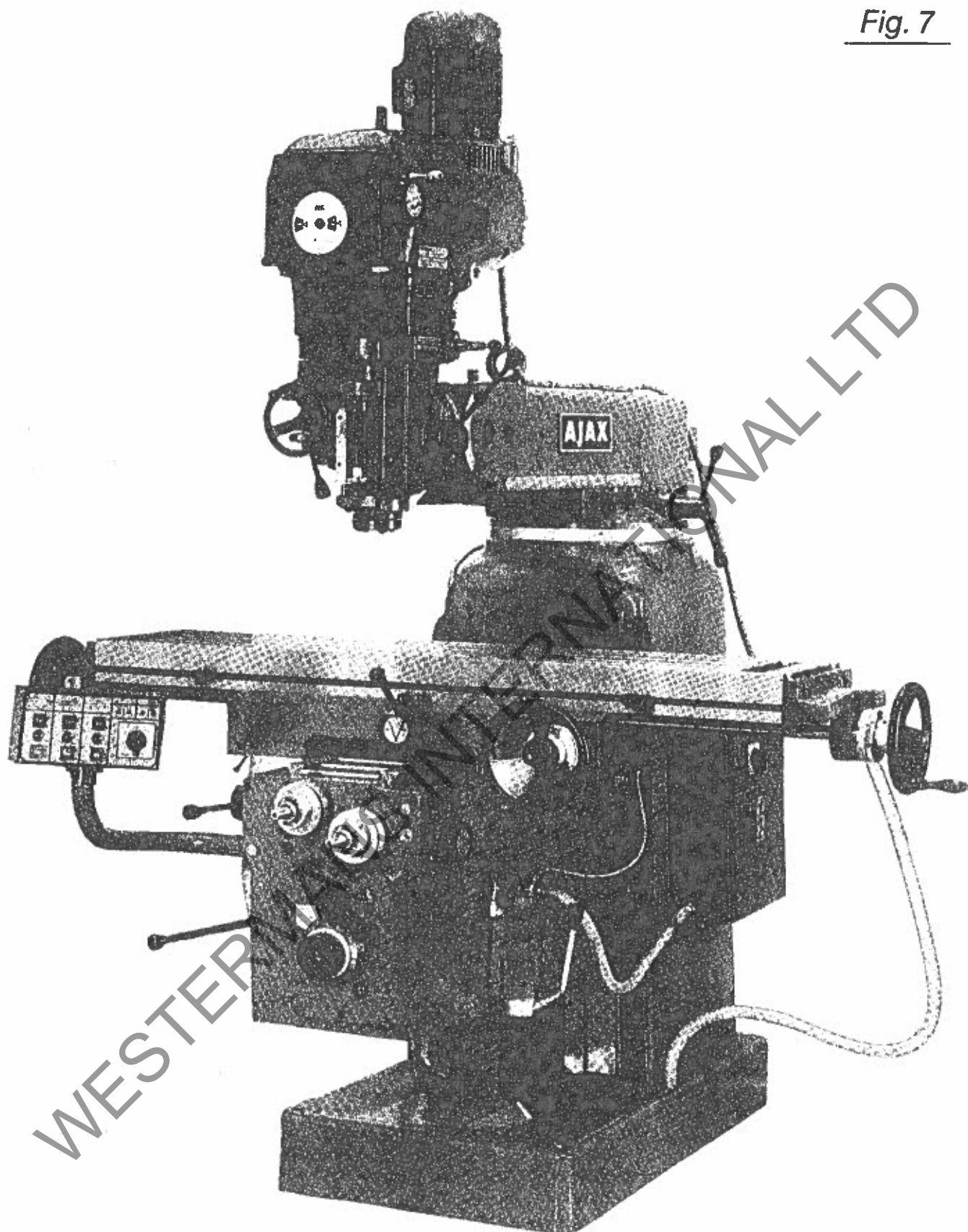
Included in this manual are a series of drawings showing sub-assemblies of the various units of the machines. On these plates each part is numbered and consequently the required Part or Parts can be identified by Part Number and Drawing Number.

**When ordering spare parts please quote:**

- 1 Model Number of Machine – ie. AJT4 or AJT5 Turret Milling Machine.
- 2 Serial Number of Machine – This Number will be found on the Ajax Serial Number Plate affixed to the rear face of the column.
- 3 (a) Part Number  
and  
(b) Corresponding Drawing No.
- 4 State whether Machine is calibrated to the Imperial or Metric System of Measurement.

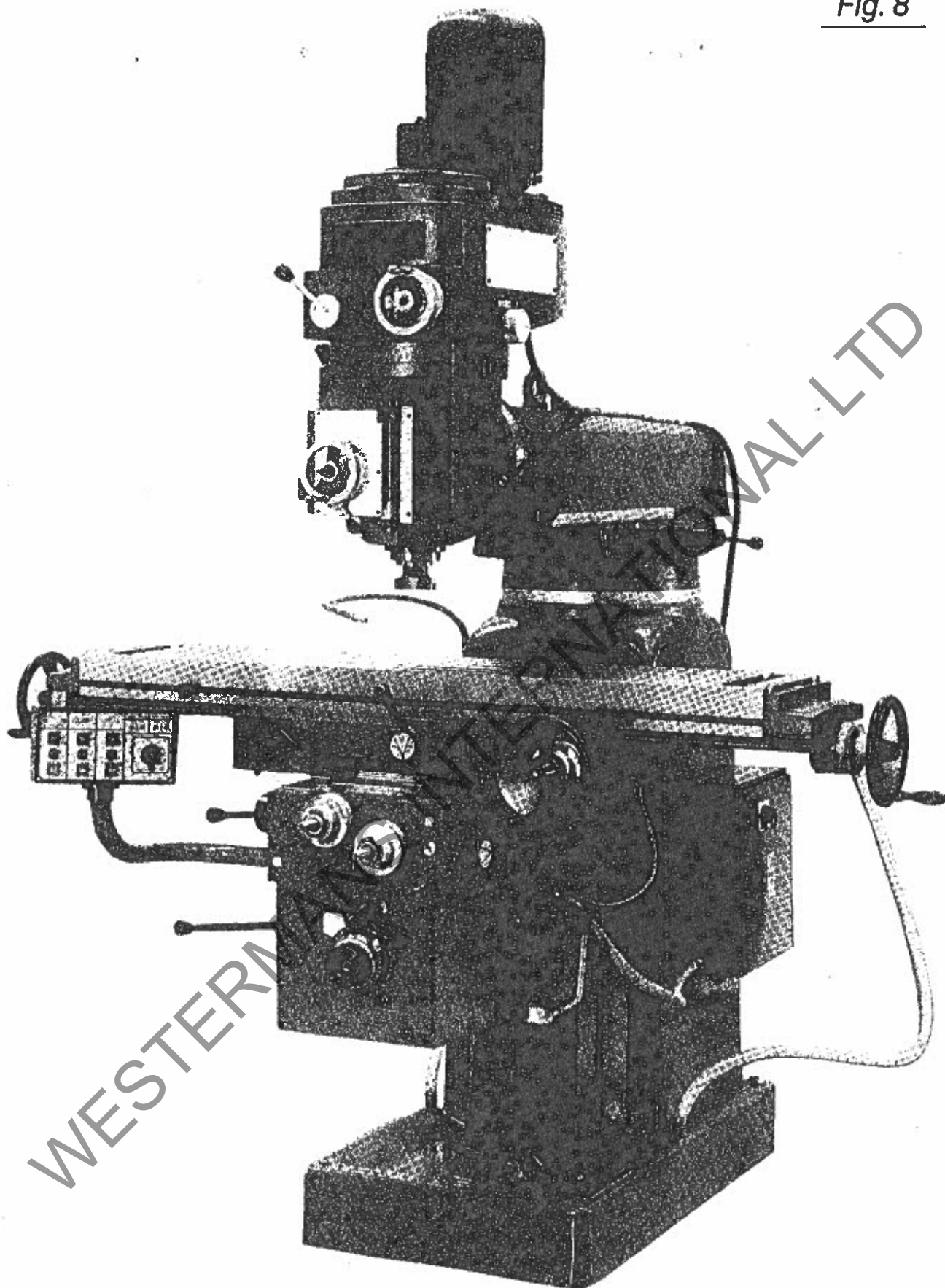
*Although the information given in this manual was correct at the time of printing, we are constantly working to improve the performance of the machines we produce and consequently reserve the right to make alterations to design and specification without notice.*

Fig. 7



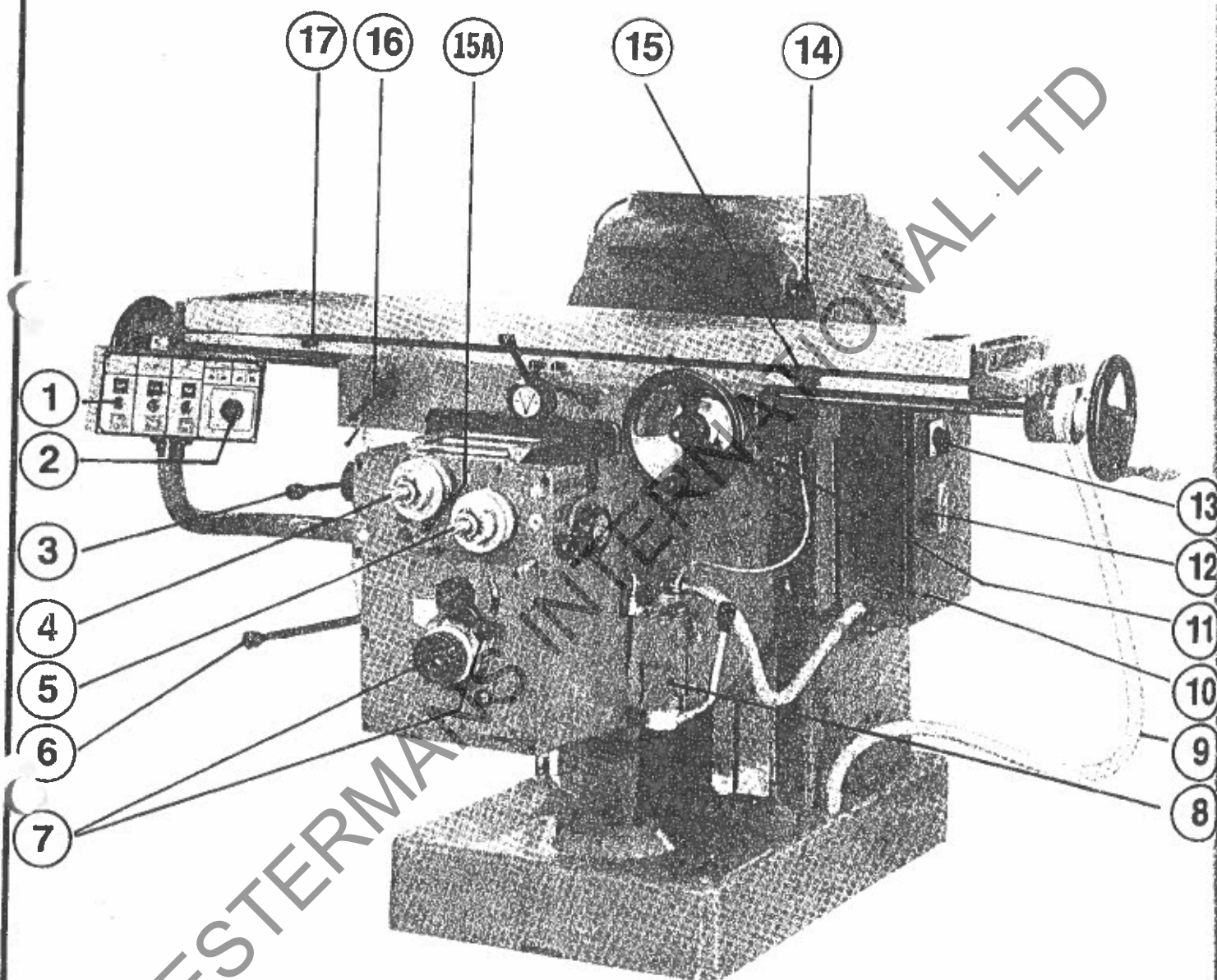
**Model AJT4 – Variable Speed Head Fitted**

Fig. 8



**Model AJT5**

Fig. 9



**Column, Knee and Table  
Models AJT4 and AJT5**

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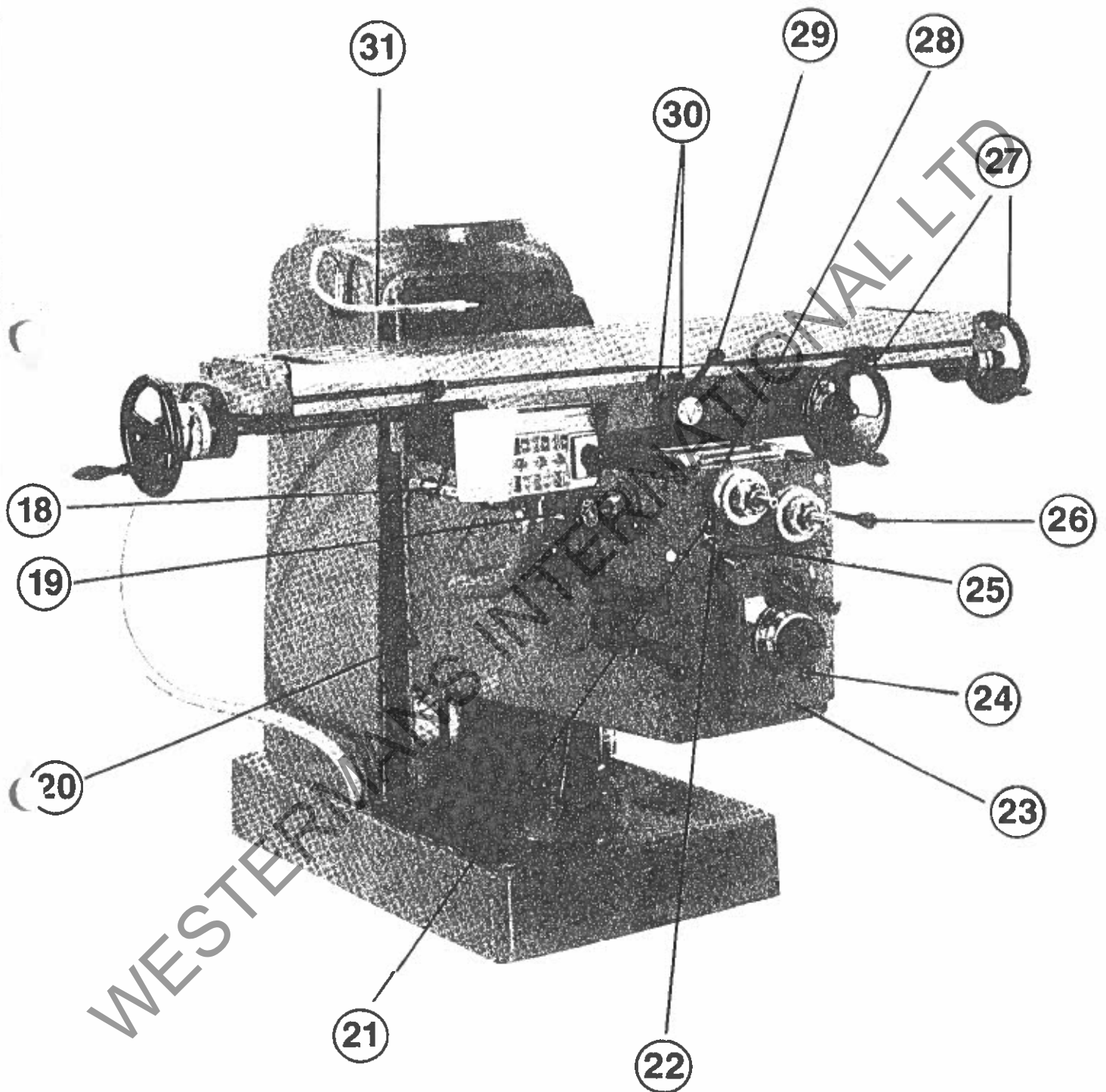
# Controls AJT4/5 (Fig. 9)

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- 1 Control panel.
- 2 Spindle directional switch.
- 3 Cross feed engagement lever.
- 4 Cross feed spindle.
- 5 Knee elevation spindle.
- 6 Normal feed/rapid traverse engagement lever.
- 7 Feed rate selection dial and lever.
- 8 One shot lubrication unit (fitted with oil level indicator).
- 9 Coolant return pipe.
- 10 Electrical component cabinet.
- 11 Vertical feed trip lever.
- 12 Electrical cabinet door lock.
- 13 Electrical mains isolation switch.
- 14 Adjustable trip dog (2) for knee feed.
- 15 Adjustable trip dog for table feed.
- 15A Clutch adjustment access plug.
- 16 Longitudinal table lock (2).
- 17 Maximum longitudinal travel trip dog (2).

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Fig. 10



**Column, Knee and Table  
Models AJT4 and AJT5**

---

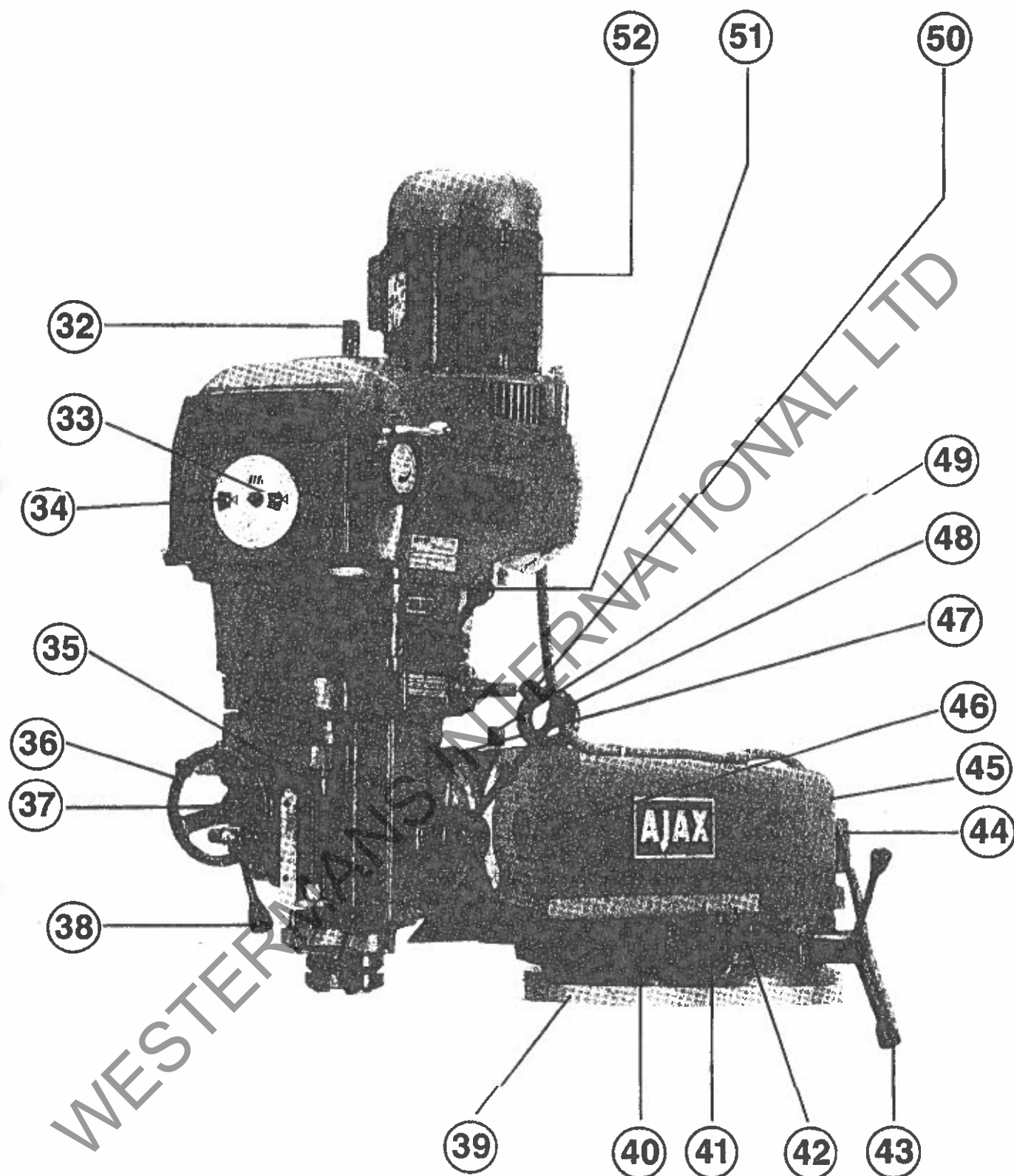
## Controls AJT4/5 (Fig. 10)

---

- 18 Cross slide lock (2).
- 19 Cross feed trip bar fitted with adjustable trip dog (2) and maximum trip stop pins (2).
- 20 Vertical knee slide lock (2).
- 21 Cross and vertical clutches oil level sight glass.
- 22 Cross and vertical clutches oil drain plug.
- 23 Feed gear box oil drain plug.
- 24 Feed gear box oil level sight.
- 25 Feed gear box oil filler plug.
- 26 Vertical feed engagement lever.
- 27 Longitudinal traverse handwheels.
- 28 Cross and vertical clutches oil filler plug.
- 29 Longitudinal feed engagement lever.
- 30 Longitudinal feed trips.
- 31 Coolant supply pipe with adjustable nozzle.

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Fig. 11



**Variable Speed Head and Overarm  
Model AJT4**

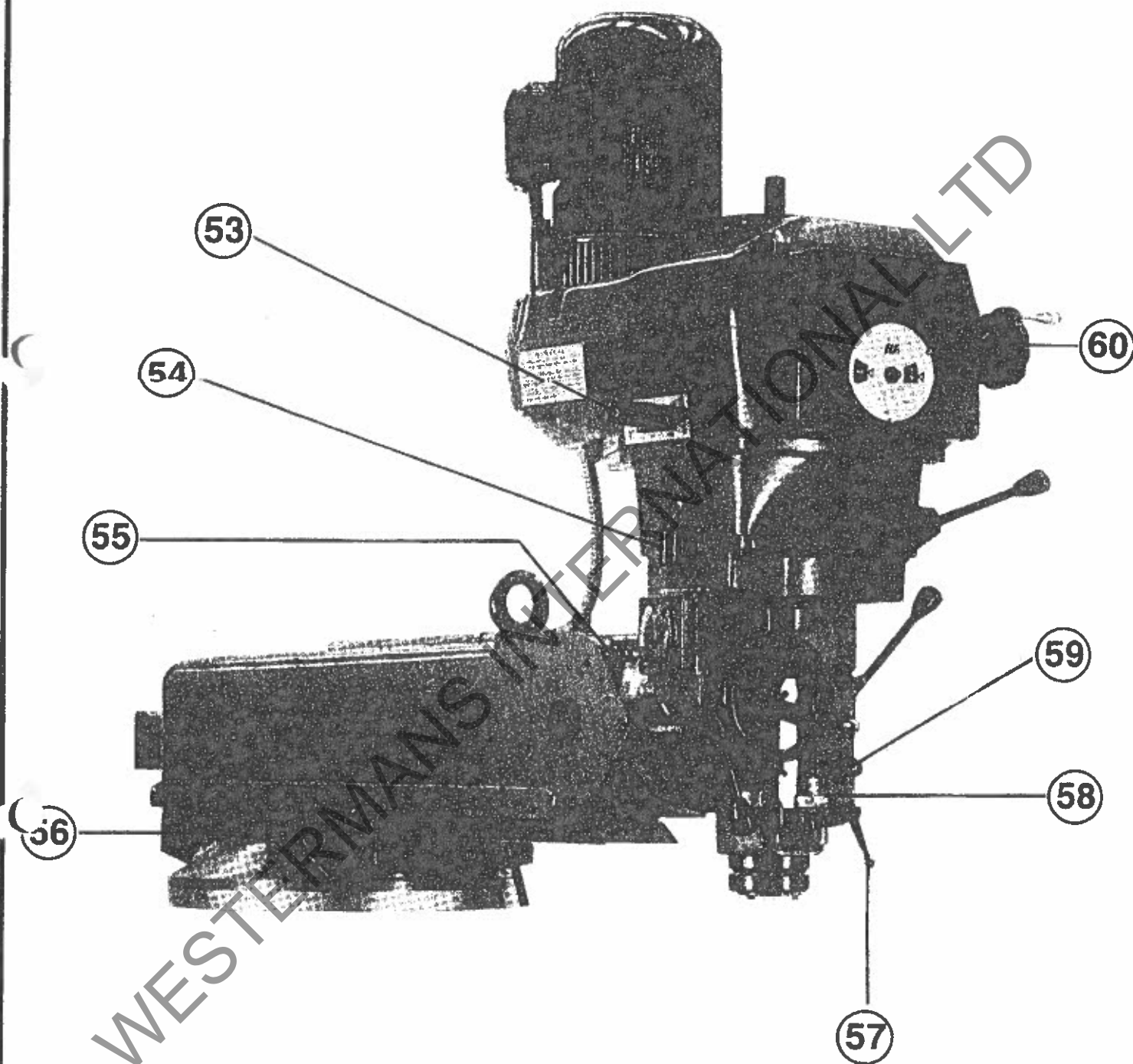
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# Controls AJT4 (Fig. 11)

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- 32 Draw bar.
- 33 Spindle speed indicator, low range (blue window).
- 34 Spindle speed indicator, high range (red window).
- 35 Quill feed trip dog.
- 36 Quill hand feed handwheel (fine boring/drilling).
- 37 Quill feed direction selection knob.
- 38 Quill feed engagement lever.
- 39 Angular displacement scale of overarm saddle.
- 40 Overarm saddle.
- 41 Overarm slide locking nuts (2).
- 42 Overarm positioning scale.
- 43 Overarm positioning handle.
- 44 Slotting head mounting.
- 45 Overarm.
- 46 Head knuckle clamping nuts (3).
- 47 Head swivel worm shaft extension.
- 48 Quill sensitive hand feed lever.
- 49 Head knuckle worm shaft extension.
- 50 Knob for power feed engagement to quill.
- 51 High/low range spindle speed selection lever.
- 52 Spindle motor.

Fig. 12



**Variable Speed Head and Overarm  
Model AJT4**

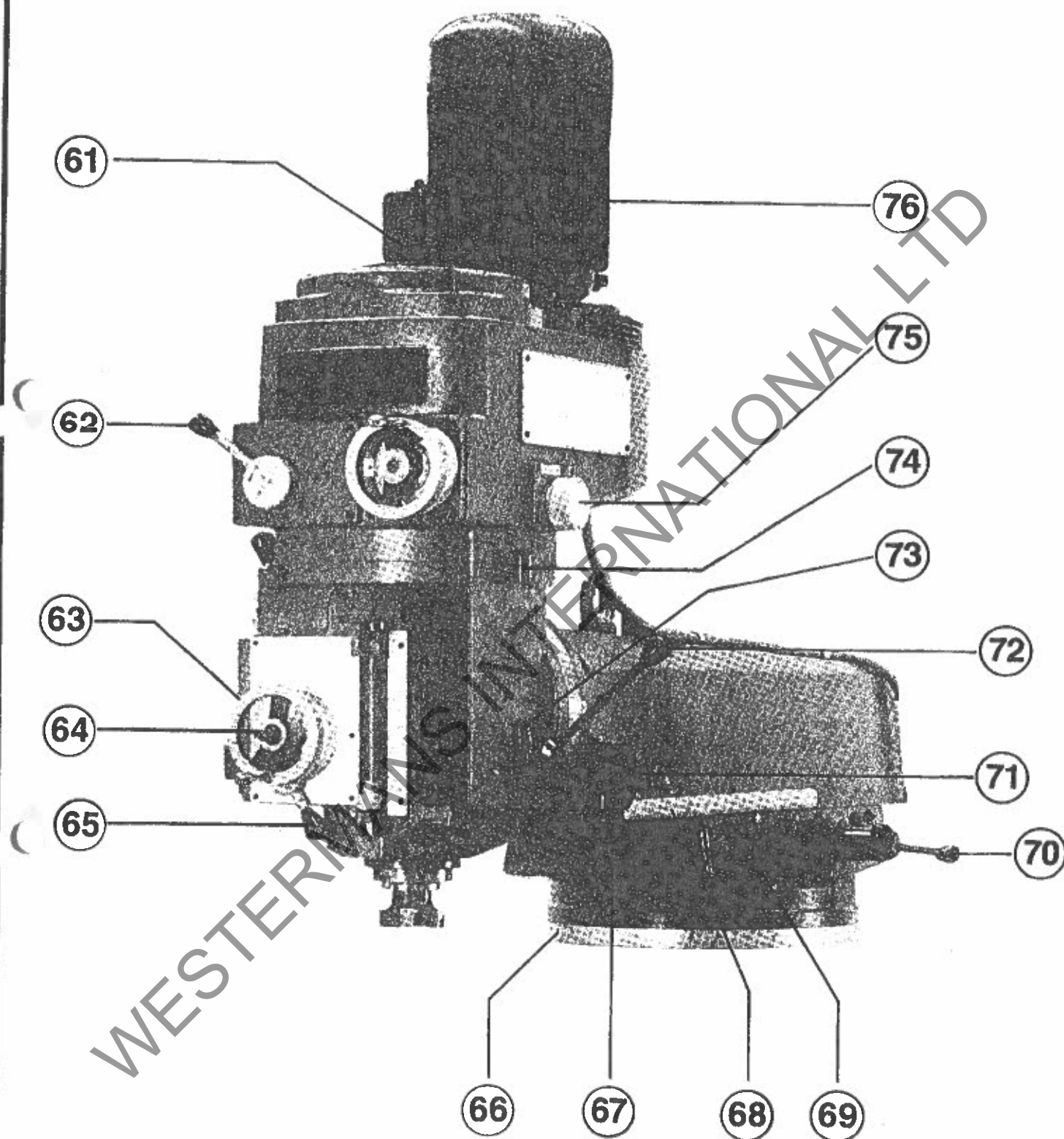
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## Controls AJT4 (Fig. 12)

---

- 53 Spindle brake lever.
- 54 Spindle bearing lubricator.
- 55 Quill feed rate selection knob.
- 56 Overarm saddle swivel locking bolts (4).
- 57 Quill lock lever.
- 58 Quill feed micrometer trip.
- 59 Head swivel clamp nuts (4).
- 60 Spindle speed adjustment handwheel.

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Head and Overarm  
Model AJT5

---

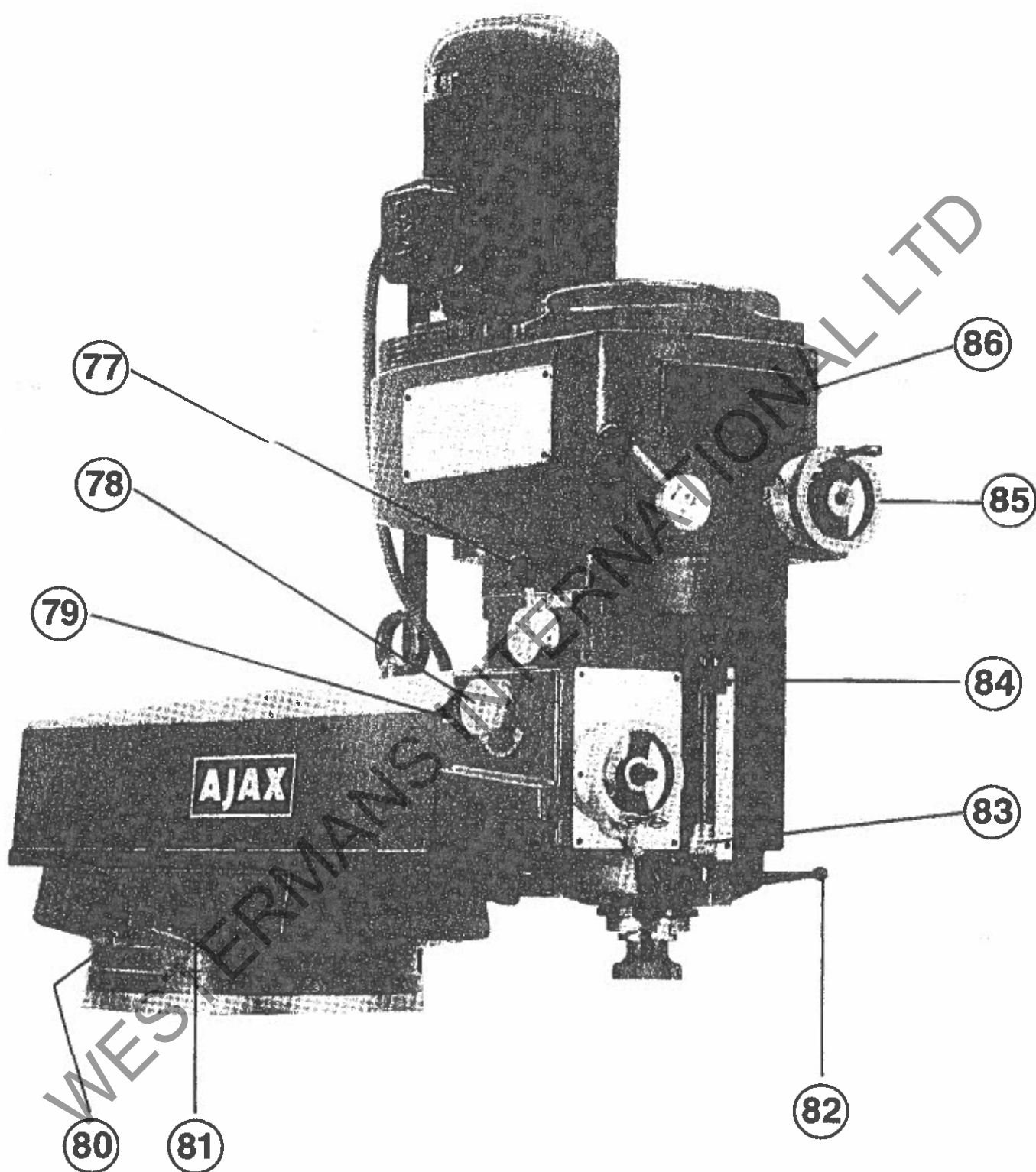
# Controls AJT5 (Fig. 13)

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- 61 Draw bar.
- 62 Spindle brake lever.
- 63 Quill hand feed handwheel (fine boring/drilling).
- 64 Quill feed direction selection knob.
- 65 Quill feed engagement lever.
- 66 Angular displacement scale of overarm saddle.
- 67 Overarm saddle.
- 68 Overarm positioning scale.
- 69 Overarm slide locking nuts (2).
- 70 Overarm positioning handle
- 71 Head swivel worm shaft extension.
- 72 Quill sensitive hand feed lever.
- 73 Quill sleeve lubricator.
- 74 Spindle bearing lubricator.
- 75 High/low range spindle speed selection knob.
- 76 Spindle motor.

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Fig. 14



**Head and Overarm  
Model AJT5**

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## Controls AJT5 (Fig. 14)

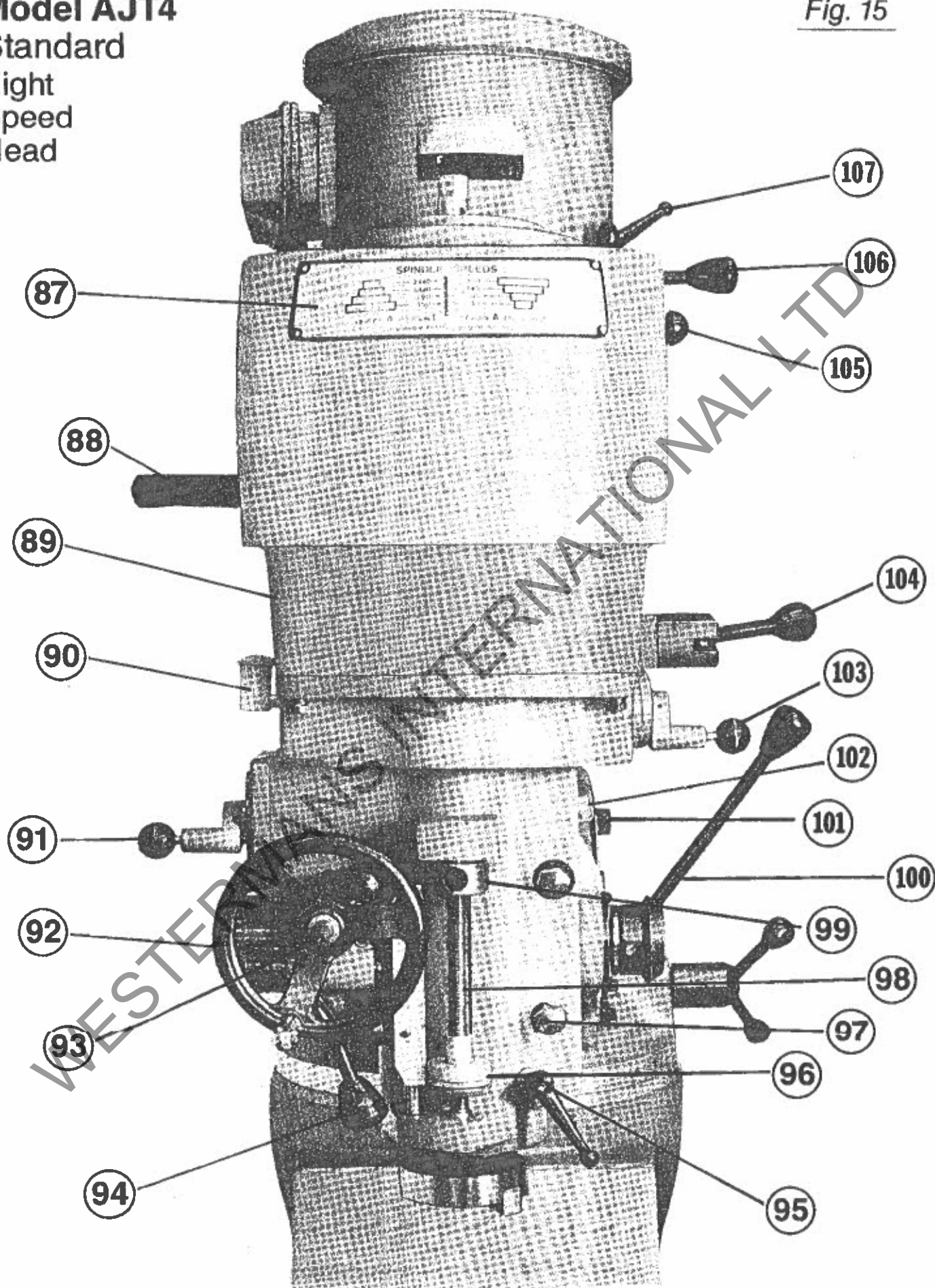
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- 77 Quill power feed box engagement lever.
- 78 Quill feed rate selection knob.
- 79 Head swivel clamp nuts (4).
- 80 Overarm saddle swivel taper location pin.
- 81 Overarm saddle swivel locking bolts (4).
- 82 Quill lock lever.
- 83 Quill feed micrometer trip.
- 84 Quill feed trip dog.
- 85 Spindle speed adjustment handwheel.
- 86 Spindle speed indicator dial.

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**Model AJT4**  
Standard  
Eight  
Speed  
Head

*Fig. 15*



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# Controls AJT4 Standard 8-Speed Head (Fig. 15)

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- 87 Spindle speed selection chart.
- 88 Spindle brake lever.
- 89 Lubricator (back gear).
- 90 Lubrication cup (spindle bearings and quill sleeve).
- 91 Quill feed rate selection knob.
- 92 Quill hand feed handwheel (fine boring/drilling).
- 93 Quill feed direction selection knob.
- 94 Quill feed engagement lever.
- 95 Quill lock lever.
- 96 Quill feed micrometer trip.
- 97 Head swivel clamp nuts (4).
- 98 Trip stop screw.
- 99 Quill feed trip dog.
- 100 Quill sensitive hand feed lever.
- 101 Head knuckle clamping nuts (3).
- 102 Head swivel worm shaft extension.
- 103 Knob for power feed engagement to quill.
- 104 High/low range spindle speed selection lever.
- 105 Removeable cover (spindle speed changing).
- 106 Belt tensioning lever.
- 107 Motor flange clamping lever (spindle speed changing).

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# Operating Instructions

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## AJT4 Turret Milling Machine Head

### HEAD (STANDARD AND VARIABLE SPEED VERSIONS)

When tightening or loosening the spindle drawbar it is necessary to lock the spindle. A spindle brake is provided for this purpose and is applied by moving lever 53 Fig. 12 towards rear of machine and the brake can be made to remain ON if the grip is rotated clockwise due to the teeth provided on the end of the lever grip 53 Fig. 12 engaging with the ratchet plate provided on the side of the head.

*Note:* It is most important that the spindle brake is released by pulling the grip of lever 53 Fig. 12 away from the side of the head and returning lever 53 Fig. 12 to its forward position before starting the spindle motor.

The spindle brake can be used for stopping the spindle when making a tool change but should only be applied after first switching off the spindle motor.

*Note:* Due to the construction of the back gear for obtaining the lower spindle speed range, direction of rotation of the spindle is reversed when the back gear is engaged to that when the back gear is disengaged for a given motor direction.

### STANDARD HEAD ONLY

#### Selection of High Spindle Speed Range

Move lever 'A' 104 Fig. 15 to position '1' marked on indicator plate.

The spindle should be rotated by hand whilst making this adjustment so that the drive dogs on the mating halves of the direct drive clutch engage with each other correctly.

*Note:* Engagement of high speed range must not be made when the spindle is running.

#### Selection of Low Spindle Speed Range

Move lever 'A' 104 Fig. 15 to position '2' marked on indicator plate.

The spindle should be rotated by hand whilst making this adjustment, so that the teeth in the mating gears of the back gear drive engage correctly.

*Note:* Engagement of low speed range must not be made when the spindle is running.

#### To select a particular Spindle Speed

Refer to 'Spindle Speeds' selection plate 87 Fig. 15 carried on the front of the milling head which depicts Vee rope cone pulleys, and the setting of lever 'A' 104 Fig. 15 to give any one of the eight spindle speeds indicated.

It should again be stressed that the spindle should be stationary when making any speed change.

- 1 Observe pulley combination to give spindle speed required on speed selection plate 87 Fig. 15 having selected high or low spindle speed range as previously described.
- 2 Remove side cover 105 Fig. 15 on head to gain access to the Vee belt drive.
- 3 Unlock motor clamp lever 107 Fig. 15.
- 4 Rotate motor clockwise in its mounting (mounting is eccentric) by means of lever 106 Fig. 15 to relieve belt tension.
- 5 Move belt to appropriate groove in each pulley, gaining access through aperture left by removal of side cover.
- 6 Rotate motor anti-clockwise by means of lever 106 Fig. 15 to tension belt.
- 7 Lock motor clamp lever 107 Fig. 15.
- 8 Replace side cover.

---

# Operating Instructions – *continued*

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## **VARIABLE SPEED HEAD ONLY**

### **Selection of High Spindle Speed Range**

Move lever 51 Fig. 11 to position of 'Red' rectangle shown on indicator plate.

The spindle should be rotated by hand whilst making this adjustment so that the drive dogs on the mating halves of the direct drive clutch engage with each other correctly.

*Note:* Engagement of high speed range must not be made when the spindle is running.

### **Selection of Low Spindle Speed Range**

Move lever 51 Fig. 11 to position of 'Blue' rectangle shown on indicator plate.

The spindle should be rotated by hand whilst making this adjustment so that the teeth in the mating gears of the back gear drive engage correctly.

*Note:* Engagement of the low speed range must not be made when the spindle is running.

### **To select a particular Spindle Speed**

Having selected high or low spindle speed range as previously described the following procedure should be carried out:

With the spindle running and to increase spindle speed, rotate handwheel 60 Fig. 12 clockwise.

With the spindle running and to decrease spindle speed rotate handwheel 60 Fig. 12 anti-clockwise.

When the high spindle speed range is engaged the speed of the spindle is indicated in the 'Red' window 34 Fig. 11 and handwheel 60 Fig. 12 should be rotated in the appropriate direction with the spindle running until the required spindle speed appears in the 'Red' window and aligns with the indicator arrow.

When the low spindle speed range is engaged the speed of the spindle is indicated in the 'Blue' window 33 Fig. 11 and handwheel 60 Fig. 12 should be rotated in the appropriate direction, with the spindle running, until the required spindle speed appears in the 'Blue' window and aligns with the indicator arrow.

*Note:* It is most important that at least once every day the variable speed mechanism should move through its complete range with the spindle running from the maximum to the minimum, but it does not matter whether the high or low speed range is engaged providing the full range is moved through.

This procedure ensures the variable speed pulley sheaves move freely on their shafts and remain correctly in contact with their driving belt and sensitive to small speed adjustments.

**Very Important:** It cannot be stressed sufficiently that no speed adjustment must be attempted by handwheel 60 Fig. 12 without the spindle running.

## **QUILL FEED (Standard and Variable Speed Versions)**

**HANDFEED:** The quill can be hand fed by two methods.

### **Method 1: Sensitive Lever Feed**

Hand feed lever 48 Fig. 11 is used for this method of feeding. Quill feed direction selection knob 37 Fig. 11 should be in neutral (mid) position. Movement of lever 48 Fig. 11 anti-clockwise feeds quill downwards.

For convenience of operation lever 48 Fig. 11 can be re-positioned by moving boss of lever to the right approximately 3mm thus disengaging the driving pin fitted to the boss, rotating the lever on its spindle to the required position and then re-engaging the driving pin by pushing boss of lever to the left.

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# Operating Instructions – *continued*

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## **Method 2: Handwheel Feed**

Handwheel 36 Fig. 11 is used for this method of feeding.

Quill feed direction selection knob 37 Fig. 11 should be in neutral (mid) position. Feed engagement lever 38 Fig. 11 should be engaged by moving this lever to the left. By rotating handwheel 36 Fig. 11 clockwise the quill will feed downwards and by rotating anti-clockwise the quill will feed upwards.

To disengage feed move feed engagement lever 38 Fig. 11 to the right.

## **POWER FEED**

The power feed drive to the quill is protected by a slipping clutch.

This clutch is set in the works to slip when the axial force on the spindle exceeds 100kgs and should not be altered.

A series of clicking noises will be heard should the quill feed drive be overloaded.

*Note:* Use manual feed for drills larger than 12mm diameter when drilling from the solid.

With the spindle engaged in either the high or low spindle speed range power feed can be engaged as follows:

Lever 50 Fig. 11 engages or disengages power feed wormwheel with worm on spindle.

To engage feed drive withdraw plunger fitted to lever 50 Fig. 11 and rotate lever in direction of arrow marked 'Engage' on indicator plate and engage plunger fitted to lever in location hole provided. This operation will be carried out easier if the spindle is rotated by hand.

To disengage feed drive withdraw plunger in lever 50 Fig. 11 and rotate lever in direction of arrow marked 'Disengage' on indicator plate and engage plunger fitted to lever in location hole provided.

*Note:* The spindle must not be under power when making the above adjustments.

## **FEED RATE SELECTION LEVER**

Lever 55 Fig. 12 is used to select the quill feed required. Feed rate selection is achieved by withdrawing the plunger fitted to lever 55 Fig. 12 rotating lever to required feed position indicated on feed rate plate and engaging plunger in appropriate location hole provided.

Feeds are more readily engaged when spindle is running.

## **QUILL FEED DIRECTION KNOB**

Quill feed direction knob 37 Fig. 11 is used to select the direction of quill movement. The knob has three positions:

- 1 Mid position is neutral.
- 2 Knob pulled out towards operator engages 'Down Feed' to quill.
- 3 Knob pushed in away from operator engages 'Up Feed' to quill.

## **QUILL FEED ENGAGEMENT LEVER**

To engage power feed to the quill move lever 38 Fig. 11 to the left and quill will feed either up or down, dependent upon position of knob 37 Fig. 11. To disengage feed manually, move lever 38 Fig. 11 to the right.

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# Operating Instructions –continued

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## **AUTOMATIC QUILL FEED TRIPPING SYSTEM**

Situated at the front of the head is a trip stop screw 96 Fig. 15. Fitted to this screwed spindle is an adjustable micrometer trip stop 58 Fig. 12 with locknut. With this micrometer trip stop set at the required position, the power feed will trip out when quill stop 35 Fig. 11 which moves with the quill comes into contact with the micrometer trip stop when the quill is feeding downwards.

When the quill is feeding upwards, power feed will trip out when quill stop 35 Fig. 11 comes into contact with the trip plunger at the top and to the right of the screw.

## **QUILL LOCK**

The quill can be locked in any vertical position by rotating quill lock lever 57 Fig. 12 clockwise. It is recommended that this lock be applied whenever quill movement is not required, such as for milling operations.

## **INCLINING SPINDLE TO TABLE**

The machine spindle can be inclined to the table to the left or right through 90° either side of the vertical centre line. Loosen four clamping nuts 59 Fig. 12 and turn worm shaft 47 Fig. 11 in the direction which rotates the head in the required direction of inclination. When the correct angle of inclination has been attained the four clamp nuts should be securely tightened.

The machine spindle can also be inclined whereby the spindle nose is moved towards the front, or away from the front of the machine. The maximum inclination to which the spindle can be inclined to the table in this manner is 45° either side of the vertical. Loosen three clamping nuts 46 Fig. 11 and turn knuckle worm shaft 49 Fig. 11 in direction required. When the correct angle of inclination has been attained the three clamping nuts should be secured.

## **OVERARM ADJUSTMENTS**

The distance the centre line of the spindle is from the column face can be adjusted by movement of the overarm 45 Fig. 11 in its slidway mounting.

To adjust the position of the overarm, loosen the two overarm locking nuts 41 Fig. 11 and rotate overarm positioning handle 43 Fig. 11 clockwise to decrease the distance from spindle to column and anti-clockwise to increase distance from spindle to column. When this adjustment has been completed the two overarm locking nuts 41 Fig. 11 must be tightened securely.

The overarm slideway is formed in a swivel mounting allowing movement of the spindle head in a circular arc about the vertical axis of the main machine column. Movement of this swivel is made by loosening the four overarm slide swivel locking nuts 56 Fig. 12 and rotating the head to the position required, and finally re-tighten the swivel locking nuts securely.

*Note:* If the overarm is required to be swivelled through 180° in order to bring an alternative head into position disconnect electrical lead at plug and socket on rear face of electrical component panel 10 Fig. 9 and release the four locking nuts 56 Fig. 12. Set overarm at the required position, and re-tighten locking nuts 56 Fig. 12, finally insert alternative head lead into previously mentioned electrical socket.

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# Operating Instructions

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## AJT5 Turret Milling Machine Head

### HEAD (VARIABLE SPEED)

When tightening or loosening the spindle drawbar it is necessary to lock the spindle. A spindle brake is provided for this purpose and is applied by rotating lever 62 Fig. 13 counter-clockwise. On release of this lever the spindle brake will be released.

*Note:* It is most important that the spindle brake is released before starting the spindle motor.

The spindle brake can be used for stopping the spindle when it is required to make a tool change but should only be applied after first switching off the spindle motor.

### SELECTION OF HIGH SPINDLE SPEED RANGE

With pointer on knob 75 Fig. 13 towards front of head (Gold rectangle) low spindle speed range is selected. With pointer on knob 75 Fig. 13 towards rear of head high spindle speed range is selected.

*Note:* Spindle speed range selection must not be made when spindle is running.

When selecting high or low spindle speed range rotating spindle by hand will facilitate this operation.

### TO SELECT A PARTICULAR SPINDLE SPEED

Having selected high or low spindle speed range as previously described the following procedure should be carried out:

With the spindle running and to increase spindle speed, rotate handwheel 85 Fig. 14 counter-clockwise.

With the spindle running and to decrease spindle speed rotate handwheel 85 Fig. 14 clockwise.

When the high spindle speed range is engaged the speed of the spindle is indicated on the inner band of figures engraved on speed indicator dial 86 Fig. 14 against the pointer to the left of this dial.

When the low spindle speed range is engaged the speed of the spindle is indicated on the outer band of figures engraved on speed indicator dial 86 Fig. 14 against the pointer to the left of this dial.

*Note:* It is most important that at least once every day the variable speed mechanism should be moved through its complete speed range with the spindle running from the maximum to the minimum or vice-versa, but it does not matter whether high or low spindle speed range is engaged providing the full range is moved through.

This procedure ensures the variable speed pulley sheaves move freely on their shafts and remain in contact with their driving belt and sensitive to small speed adjustments.

**Very Important:** It cannot be stressed sufficiently that no speed adjustment must be attempted by handwheel 85 Fig. 14 when the spindle is not running.

---

# Operating Instructions –continued

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## QUILL FEED

**HAND FEED:** The quill can be hand fed by two methods.

### Method 1: Sensitive Lever Feed

Hand feed lever 72 Fig. 13 is used for this method of feeding. Quill feed direction selection knob 64 Fig. 13 should be in neutral (mid) position. Movement of lever 72 Fig. 13 counter-clockwise feeds quill downwards.

For convenience of operation lever 72 Fig. 13 can be re-positioned by moving boss of lever to the right approximately 3mm thus disengaging the driving pin fitted to the boss, rotating the lever on its spindle to the required position and then re-engaging the driving pin by pushing boss of lever to the left.

### Method 2: Handwheel Feed

Handwheel 63 Fig. 13 is used for this method of feeding.

Quill feed direction selection knob should be in neutral (mid) position. Feed engagement lever 65 Fig. 13 should be engaged by moving this lever to the left. By rotating handwheel 65 Fig. 13 clockwise the quill will feed downwards and by rotating counter-clockwise the quill will feed upwards.

To disengage feed move feed engagement lever 65 Fig. 13 to the right.

## POWER FEED

The power feed drive to the quill is protected by a slipping clutch.

This clutch is set in the works to slip when the axial force on the spindle exceeds 100kgs and should not be altered.

A series of clicking noises will be heard should the quill feed drive be overloaded.

*Note:* Use manual feed for drills larger than 14mm diameter when drilling from the solid.

With the spindle engaged in either the high or low spindle speed range power feed can be engaged as follows:

Lever 77 Fig. 14 engages or disengages power feed.

To engage feed drive move lever 77 Fig. 14 to vertical position (as indicated on head).

To disengage feed drive move lever 77 Fig. 14 to horizontal position (as indicated on head).

*Note:* The spindle must not be under power when making the above adjustments.

## FEED RATE SELECTION LEVER

Knob 78 Fig. 14 is used to select the required feed rate. Rotate knob 78 Fig. 14 so that pointer on knob aligns with the required feed rate on feed rate plate. Feeds are more readily engaged when spindle is running.

## QUILL FEED DIRECTION KNOB

Quill feed direction knob 64 Fig. 13 is used to select the direction of quill movement. The knob has three positions:

- 1 Mid position in neutral.
- 2 Knob pulled out towards operator 'Down Feed' to quill.
- 3 Knob pushed in away from operator 'Up Feed' to quill.

---

# Operating Instructions – *continued*

---

## QUILL FEED ENGAGEMENT LEVER

To engage power feed to quill move lever 65 Fig. 13 to the left and quill will feed either up or down, dependent upon position of knob 64 Fig. 13. To disengage feed manually, move lever 65 Fig. 13 to the right.

## AUTOMATIC QUILL FEED TRIPPING SYSTEM

Situated at the front of the head is a trip stop screw. Fitted to this screwed spindle is an adjustable micrometer trip stop 83 Fig. 14 with locknut. With this micrometer trip stop set at the required position, the power feed will trip out when quill feed trip dog 84 Fig. 14 which moves with the quill comes into contact with the micrometer trip stop when the quill is feeding downwards.

When the quill is feeding upwards, power feed will trip out when quill feed trip dog 84 Fig. 14 comes into contact with the trip plunger at the top and to the right of the screw.

## QUILL LOCK

The quill can be locked in any vertical position by rotating quill lock lever 82 Fig. 14 clockwise. It is recommended that this lock be applied whenever quill movement is not required such as for milling operations.

## INCLINING SPINDLE TO TABLE

The machine spindle can be inclined to the table to the left or right through 90° either side of the vertical centre line. Loosen head swivel clamping nuts (4) 79 Fig. 14 and turn worm shaft 71 Fig. 13 in the direction which rotates the head in the required direction of inclination. When the correct angle of inclination has been attained the clamp nuts (4) should be securely tightened.

## OVERARM ADJUSTMENTS

The distance the centre line of the spindle is from the column face can be adjusted by movement of the overarm in its slidway mounting.

To adjust the position of the overarm, loosen the two overarm locking nuts 69 Fig. 13 and rotate overarm positioning handle 70 Fig. 13 clockwise to decrease the distance from spindle to column and counter-clockwise to increase distance from spindle to column. When this adjustment has been completed the two overarm locking nuts 69 Fig. 13 must be tightened securely.

The overarm slidway is formed in a swivel mounting allowing movement of the spindle head in a circular arc about the vertical axis of the main machine column. Movement of this swivel is made by removing taper pin 80 Fig. 14 and loosening the four overarm slide swivel locking nuts 81 Fig. 14 and rotating the head to the position required, and finally re-tighten the swivel locking nuts securely.

**Note:** If the overarm is required to be swivelled through 180° in order to bring an alternative head into position disconnect electrical lead at plug and socket on rear face of electrical component panel 10 Fig. 9 and release the four locking nuts 81 Fig. 14. Set overarm at the required position, and re-tighten locking nuts 81 Fig. 14, finally insert alternative head lead into previously mentioned electrical socket.

**Note:** It is most important when re-positioning the swivel of the overarm to its zero position taper pin 80 Fig. 14 is re-fitted so that the swivel is located in zero degree position.

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# Operating Instructions: AJT4/5

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## POWER FEED UNIT

The power feed unit is housed in the knee of the machine and provides power feed to the table, cross slide and vertical movement of the knee. Rapid traverse can also be engaged to all these three axes.

## TO SELECT A PARTICULAR FEED RATE

Start feed motor by pressing feed motor start button in panel 1 Fig. 9.

Rotate feed selection dial 7 Fig. 9 until the feed rate which is required aligns with the indicator plate adjacent to the feed dial. It will be noted that the feed dial has two rows of feed rates marked on it – one row on a 'Blue' background which is the low range, and one row on a 'Red' background which is the high range. Dependent on which row of feed rates the particular feed to be selected is situated, depends on which position lever situated above 7 Fig. 9 is moved to. If the high range is required, move this lever to align with 'Red' rectangle on indicator plate, and if the low range is required, move this lever to align with 'Blue' rectangle on indicator plate. Feed can now be engaged to either longitudinal, cross or vertical slide.

## TO ENGAGE LONGITUDINAL FEED TO TABLE

Move normal/rapid traverse selection lever 6 Fig. 9 to upper position from neutral position, where it will remain. For the table to move from right to left, move lever 29 Fig. 10 to the left and the table will feed at the rate selected from right to left.

For the table to move from left to right, move lever 29 Fig. 10 to the right.

To disengage table feed manually, move lever 29 Fig. 10 to neutral (mid) position.

## TABLE TRIP STOPS

Table trip stops are fitted to the front edge of the table and can be adjusted to suit the movement of the table as required, and operate trip plungers 30 Fig. 10 adjacent to lever 29 Fig. 10. When either of these trip stops contact their respective trip plunger, the table feed will be disengaged.

*Note:* At either end of the table a stop is fitted beyond which the adjustable trip stop will not pass. With the adjustable trip stops against these fixed stops, the extreme movement of the table is determined to either the left or right as the case may be. The adjustable trip stops **must not be removed** from the table. Serious damage will result if they are removed.

## TO ENGAGE CROSS FEED TO SADDLE

Move normal/rapid traverse selection lever 6 Fig. 9 to upper position from neutral position where it will remain. For the saddle to move towards the column (ie., away from operator) move lever 3 Fig. 9 upwards from neutral position and the saddle will feed away from the operator at the selected feed rate. For the saddle to move away from the column (ie., towards the operator) move lever 3 Fig. 9 downwards from neutral position and the saddle will feed towards the operator at the selected feed rate.

To disengage cross feed manually, move lever 3 Fig. 9 to neutral (mid) position.

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# Operating Instructions – *continued*

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## **SADDLE TRIP STOPS**

The side of the knee is fitted with a trip stop slide bar 19 Fig. 10. This bar is fitted with two adjustable trip stops and the movement of the adjustable trip stops is limited by two fixed pins which determine the maximum settings of the trip stops, thus preventing over-run of the saddle in either direction.

By setting the trip stops to suit the movement of the saddle as required, the cross feed will automatically be disengaged when the trip stop operating fork, which moves with the saddle, makes contact with either of the pre-set trip stops on the trip stop slide bar.

## **TO ENGAGE VERTICAL FEED TO KNEE**

Move normal/rapid traverse selection lever 6 Fig. 9 to upper position from neutral position where it will remain. For the knee to move upwards move lever 26 Fig. 10 upwards from neutral position and the knee will feed upwards.

For the knee to move downwards move lever 26 Fig. 10 downwards from the neutral position and the knee will feed downwards.

To manually disengage feed to knee return lever 26 Fig. 10 to neutral (mid) position.

## **VERTICAL TRIP STOPS**

The column is fitted with a slide carrying two adjustable trip stops 14 Fig. 9 and the movement of the adjustable trip stops is limited by two fixed pins which determine the maximum setting of the trip stops thus preventing over run of the knee in either direction.

By setting the trip stops to suit the movement of the knee as required the feed to the knee will automatically be disengaged when the trip stop operating lever 11 Fig. 9, which moves with the knee, makes contact with either of the pre-set trip stops on the trip stop bar.

*Note:* The vertical feed rate of the knee is 3/10th of that which is selected on the feed rate dial 7 fig. 9 in each instance.

## **RAPID TRAVERSE**

Rapid traverse can be engaged to longitudinal, cross or vertical axis. With the feed engaged to any of the above mentioned axes and it is required to engage rapid traverse to the same axis, move lever 6 Fig. 9 from upper normal feed position to the lower position and with slight pressure on lever 6 Fig. 9 the rapid traverse cone clutch will be engaged and the particular axis selected will continue in rapid motion until the pressure is released and lever 6 Fig. 9 is returned to the neutral position or is moved through the neutral position to normal feed position if it is required to continue in the selected feed.

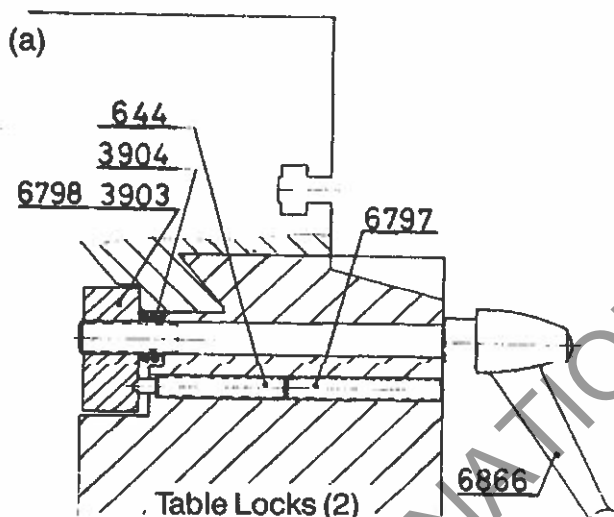
## **COOLANT SYSTEM**

The machine incorporates a coolant system, the sump for which is built into the base of the machine and can be filled by pouring coolant into the recess formed in the upper surface of the base and the coolant will run into the sump through the return provided. The electrical driven pump unit is mounted in the lower part of the column at the rear of the machine. The outlet from the pump is piped through the column to the coolant delivery pipe 31 Fig. 10. This delivery pipe is fitted with an adjustable nozzle which can be set to give the required coolant flow. The coolant is returned from the machine table by the coolant return pipes 9 Fig. 9 to the coolant sump in the base of the machine. Use a good quality coolant so that unnecessary sludge and corrosion conditions are eliminated.

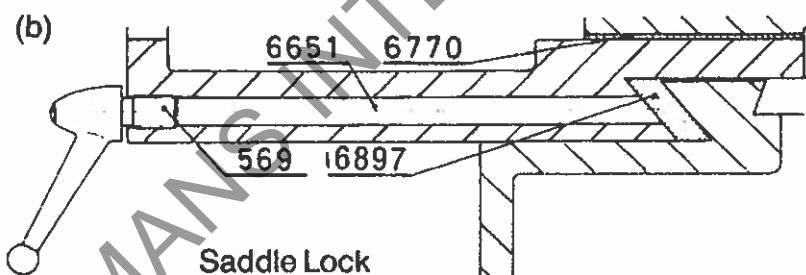
# Operating Instructions –continued

## SLIDEWAY LOCKS

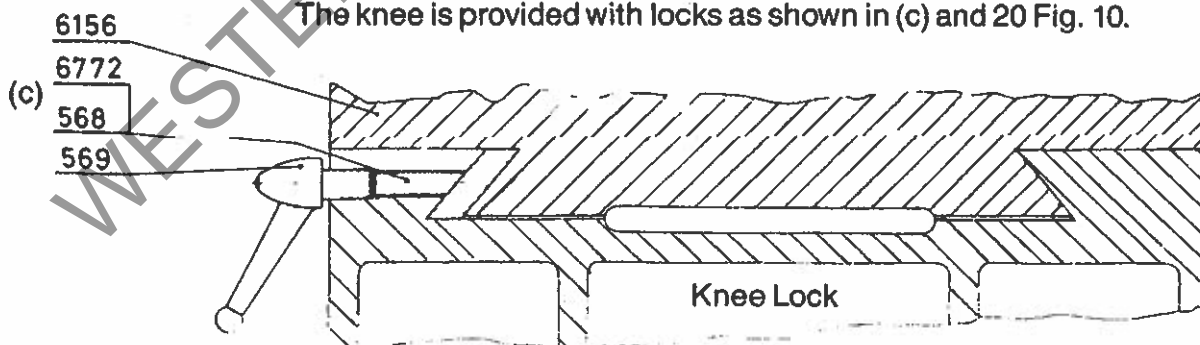
The table is provided with locks as shown in (a) and also 16 Fig. 9.



The saddle is provided with a lock as shown in (b) and also 18 Fig. 10.



The knee is provided with locks as shown in (c) and 20 Fig. 10.



When milling is taking place longitudinally it is suggested that locks (b) and (c) are applied firmly and locks (a) are applied lightly in order to add rigidity to the slideways and thus achieve good cutting conditions. When drilling, all the above mentioned locks should be applied firmly.

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# Maintenance – AJT4/5

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## SLIPPING CLUTCH ADJUSTMENT (POWER FEED)

The power feed gearbox is protected by means of an overload slipping clutch which is pre-set in our Works.

Should, after a time, it become necessary to adjust this clutch the following procedure should be carried out:

Remove drain plug 22 Fig. 10 with feed motor stopped to remove oil.

Remove clutch adjustment access plug 15A Fig. 9.

Engage cross feed in either direction by means of lever 3 Fig. 9 but normal/rapid traverse lever 6 Fig. 9 must be in neutral position. With crank handle on cross screw extension rotate cross screw and looking through clutch adjustment access plug hole a series of grub screws in the periphery of the clutch body will be seen to come into view. By means of an allen key turn each one of these grub screws (there are eight grub screws) half a turn clockwise.

This procedure increases the spring pressure exerted on the hardened steel balls which engage in vee grooves in the inner portion of the clutch thus increasing the torque which can be transmitted by the slipping clutch.

After completing the above adjustment replace drain plug 22 Fig. 10, replace clutch adjustment plug 15A Fig. 9.

## ADJUSTMENT OF LEAD SCREW NUTS TO REDUCE BACKLASH

The longitudinal screw and cross screw nuts are provided with a means of adjustment so that as wear takes place between the nut and screw backlash can be reduced. Each of these screws are provided with double nuts the gap between each part of the nut being equal to one pitch of the screw when initially manufactured and assembled in their housing. Provision is made in the nut housings so that as wear takes place one part of the nut can be moved closer to the other part of the nut thus reducing the clearance between the flanks of the screw and flanks of the nut and thus reducing the backlash.

## ADJUSTMENT OF LONGITUDINAL LEAD SCREW NUT

(Refer to Drg. No. 6640)

Move machine table to the left until access can be obtained to locking screw Part No. 578 and adjusting screw Part No. 579. Unlock screw Part No. 578 and rotate the lead screw by means of handwheel Part No. 6572 and rotate adjusting screw Part No. 579 clockwise until the backlash is eliminated but the lead screw can still be rotated smoothly by hand. Tighten locking screw Part No. 578 firmly against adjusting screw Part No. 579.

## ADJUSTMENT OF CROSS LEAD SCREW NUT

(Refer to Drg. Nos. 6720 and 6630)

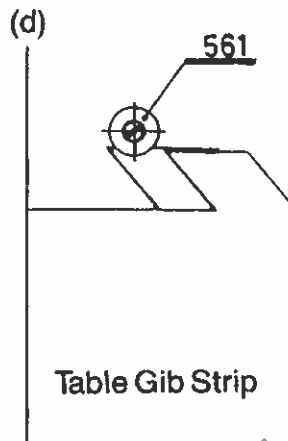
Remove louvred cover Part No. 6775N at left-hand side of knee. Through the aperture in the knee access can be gained to screw Part No. 554. By loosening this screw the locking plate Part No. 6783 is freed and whilst rotating cross lead screw Part No. 6616 by hand, half nut Part No. 6780/2 should be rotated clockwise until the backlash is eliminated but the lead screw can still be rotated smoothly by hand. Tighten screw Part No. 554 securely thus securing locking plate Part No. 6783 firmly in the serrations around the periphery of half nut Part No. 6780/2.

The slideways of this machine are provided with adjustable gib strips which are correctly adjusted prior to the machine leaving the works. After a prolonged period of use slight wear may take place at these points and the following procedure can be carried out to reduce slackness at the slideways.

# Maintenance –continued

## ADJUSTMENT OF TABLE GIB STRIP

Rotate gib strip adjusting screw 561 as shown in (d) clockwise whilst rotating the table lead screw by hand until only a slight increase in effort is required to rotate the table lead screw.

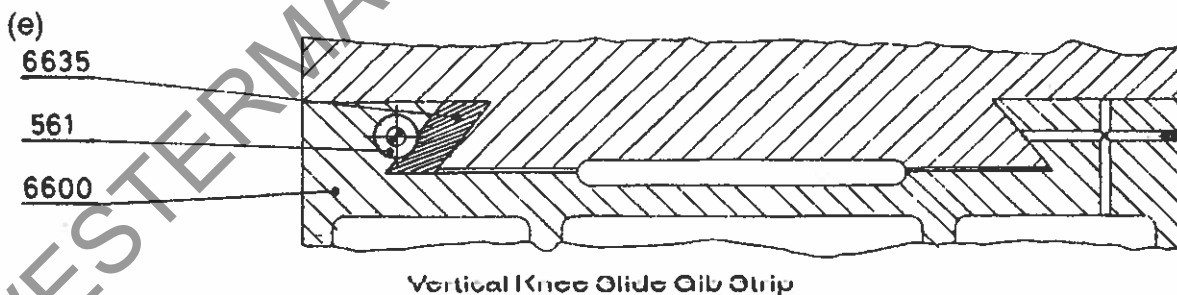


## ADJUSTMENT OF SADDLE GIB STRIP

Remove the front cross slide wiper. Rotate gib strip adjusting screw (which is situated at the left-hand side of the slideway) clockwise whilst rotating the cross slide lead screw by hand until only a slight increase in effort is required to rotate the cross slide lead screw. Replace wiper.

## ADJUSTMENT OF VERTICAL KNEE SLIDE GIB STRIP

Remove the left-hand column slide wiper. Rotate gib strip adjusting screw 561 as shown in (e) clockwise whilst rotating the elevating lead screw by hand until only a slight increase in effort is required to rotate the elevating lead screw. Replace wiper.

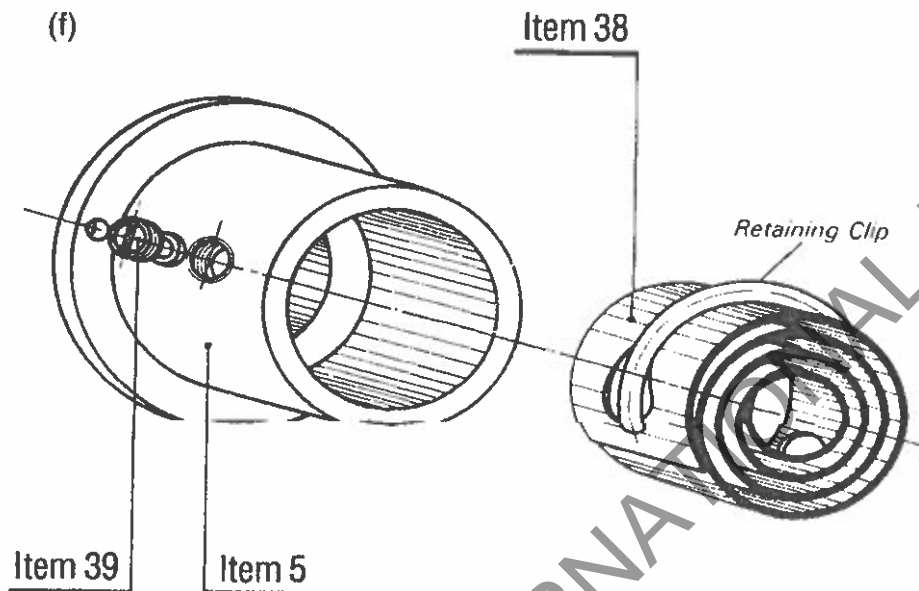


**Note:** To minimise wear to the slideways clean swarf and dirt from the ways and ensure there is a film of lubricant on the slideways before making any movement of the ways.

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# Maintenance: AJT4

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## REPLACEMENT OF QUILL/SPINDLE BALANCE SPRING

(Refer to Sketch (f) and Drg. No. 7211)

*Note:* The function of this spring is to balance the weight of the quill/spindle assembly and is not designed to return the quill/spindle assembly to its upper position.

- 1 Lock the quill in its upper position by means of the quill lock.
- 2 Remove screws Item 41 which secure spring case to head.
- 3 Remove spring case Item 5.
- 4 Remove damaged spring from spring case taking care as the spring is live.
- 5 Fit the new spring in the spring case by means of a little pressure thus forcing the retaining clip off the new spring. Rotate the spring clockwise in the spring case until the hole in the outer end of the spring locates on screw Item 39.
- 6 Fit assembly on to shaft Item 37 and rotate assembly anti-clockwise until hole in inner end of the spring locates on screw Item 40 in shaft Item 37.
- 7 Rotate the assembly a further half turn anti-clockwise and re-fit screws Item 41.

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# Maintenance: AJT5

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## REPLACEMENT OF QUILL/SPINDLE BALANCE SPRING

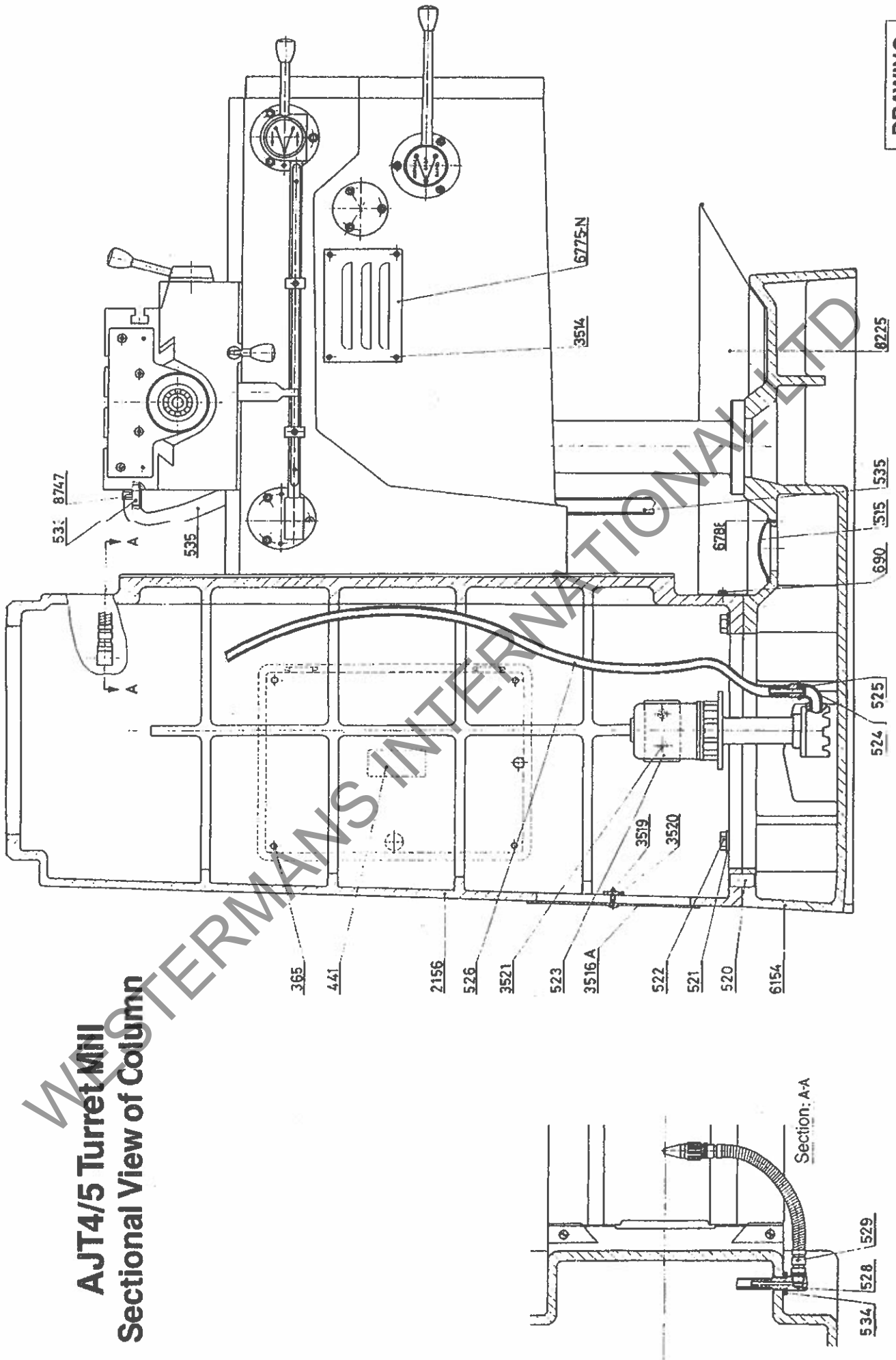
(Refer to Drg. No. A-2800)

*Note:* The function of this spring is to balance the weight of the quill/spindle assembly and is not designed to return the quill/spindle to its upper position.

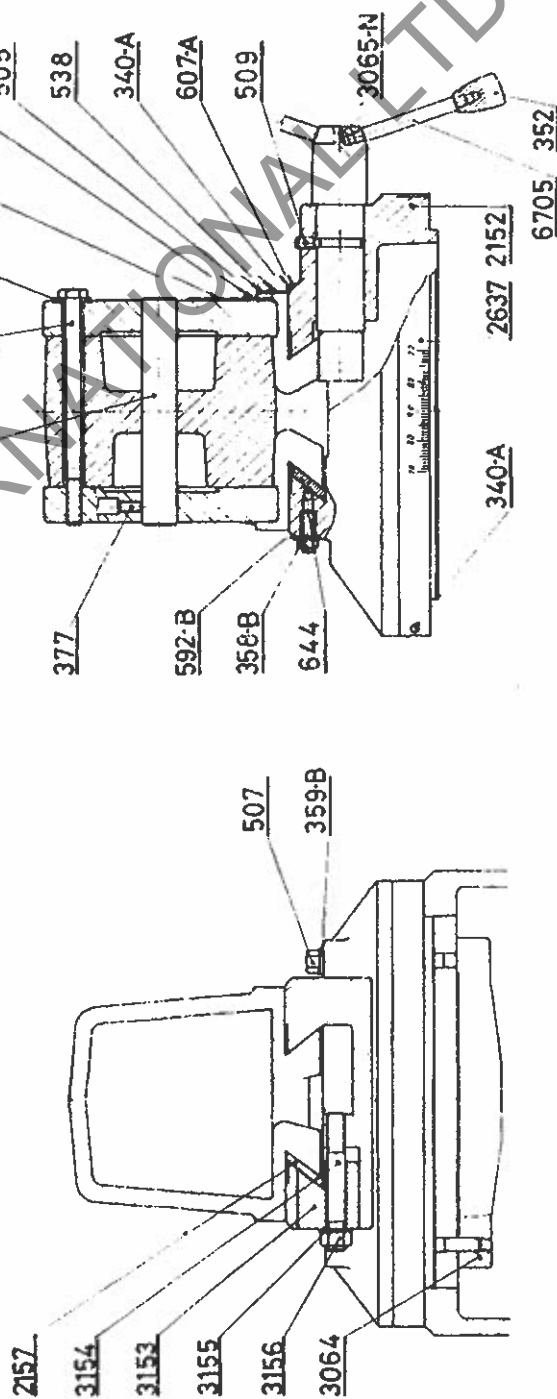
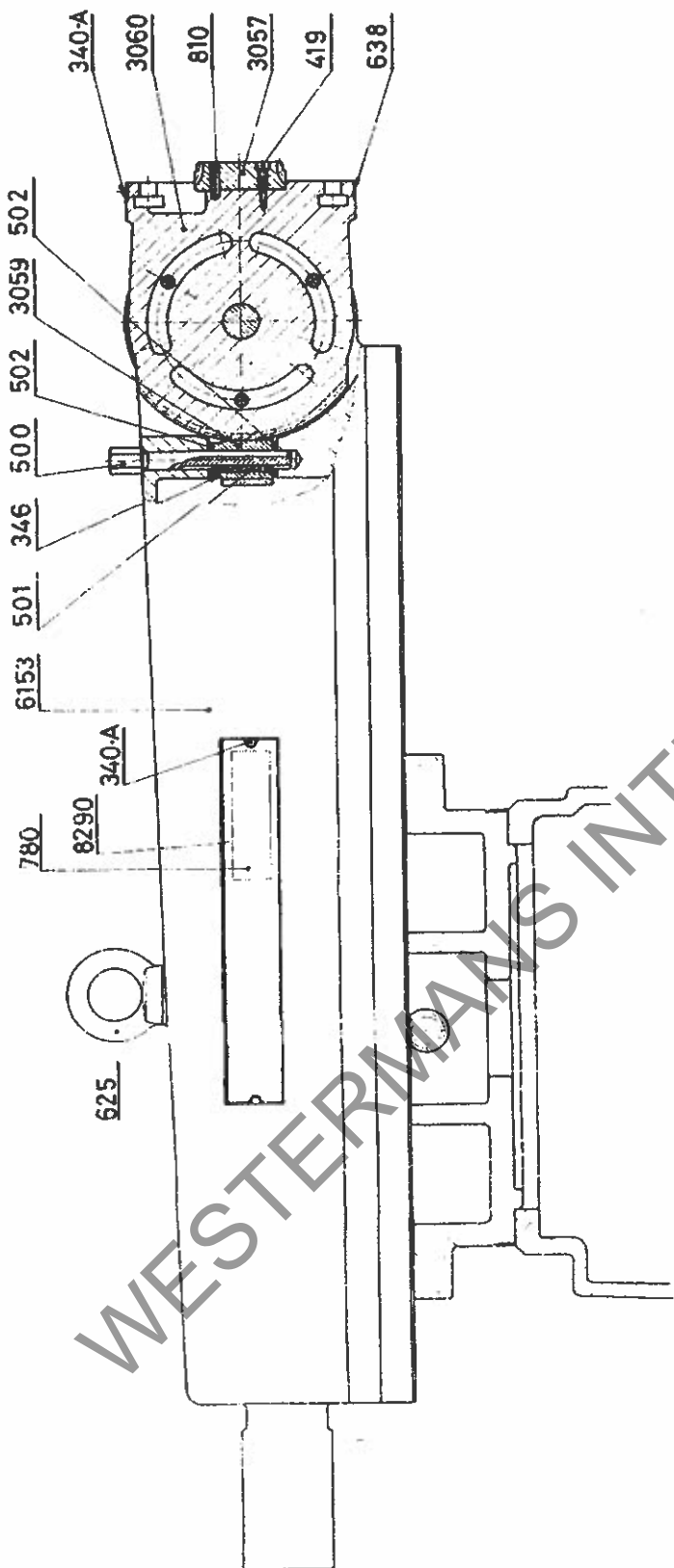
- 1 Lock the quill in its upper position by means of the quill lock.
- 2 Remove screws Item 87 which secure spring case to head.
- 3 Remove spring case Item 47.
- 4 Remove damaged spring from spring case taking care as the spring is live.
- 5 Fit the new spring in the spring case by means of a little pressure thus forcing the retaining clip off the new spring. Rotate the spring clockwise in the spring case until the hole in the outer end of the spring locates on screw Item 48.
- 6 Fit assembly on to shaft Item 51 and rotate assembly counter-clockwise until hole in inner end of the spring locates on inner spring anchorage Item 50 in shaft Item 51.
- 7 Rotate the assembly a further half-turn counter-clockwise and re-fit screws Item 87.

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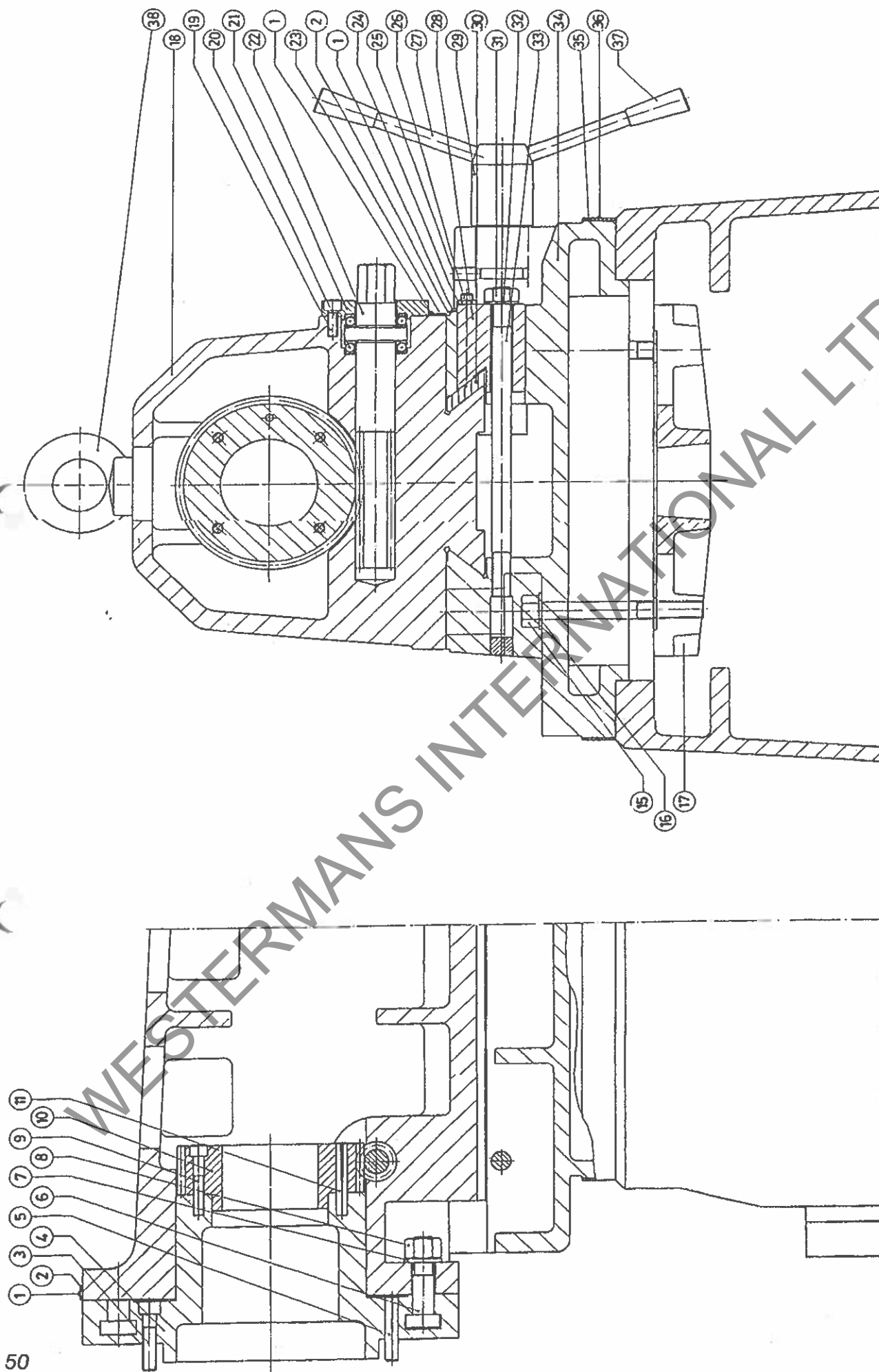
# AJT4/5 Turret Mill Sectional View of Column



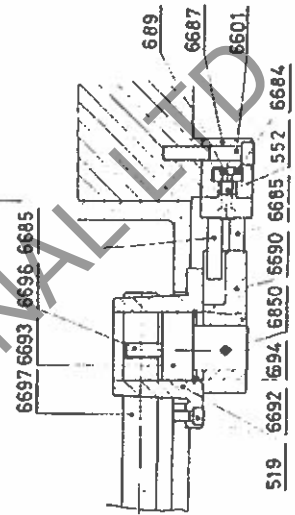
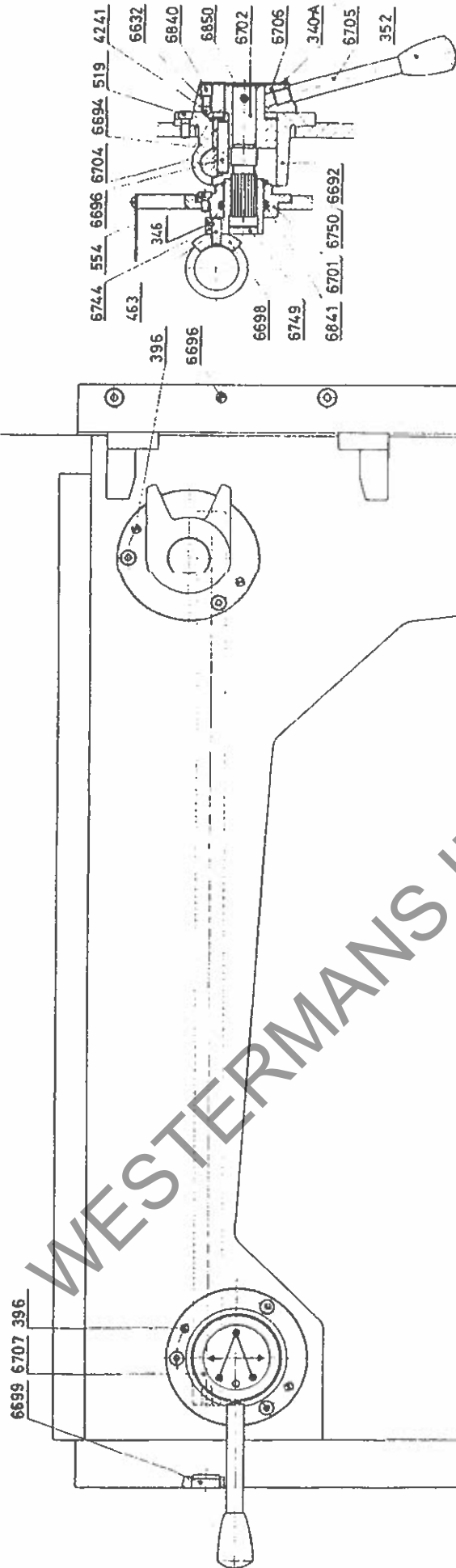
# AJT4 Turret Mill Overarm and Swivel Saddle



# AJT5 Turret Mill Overarm and Swivel Saddle



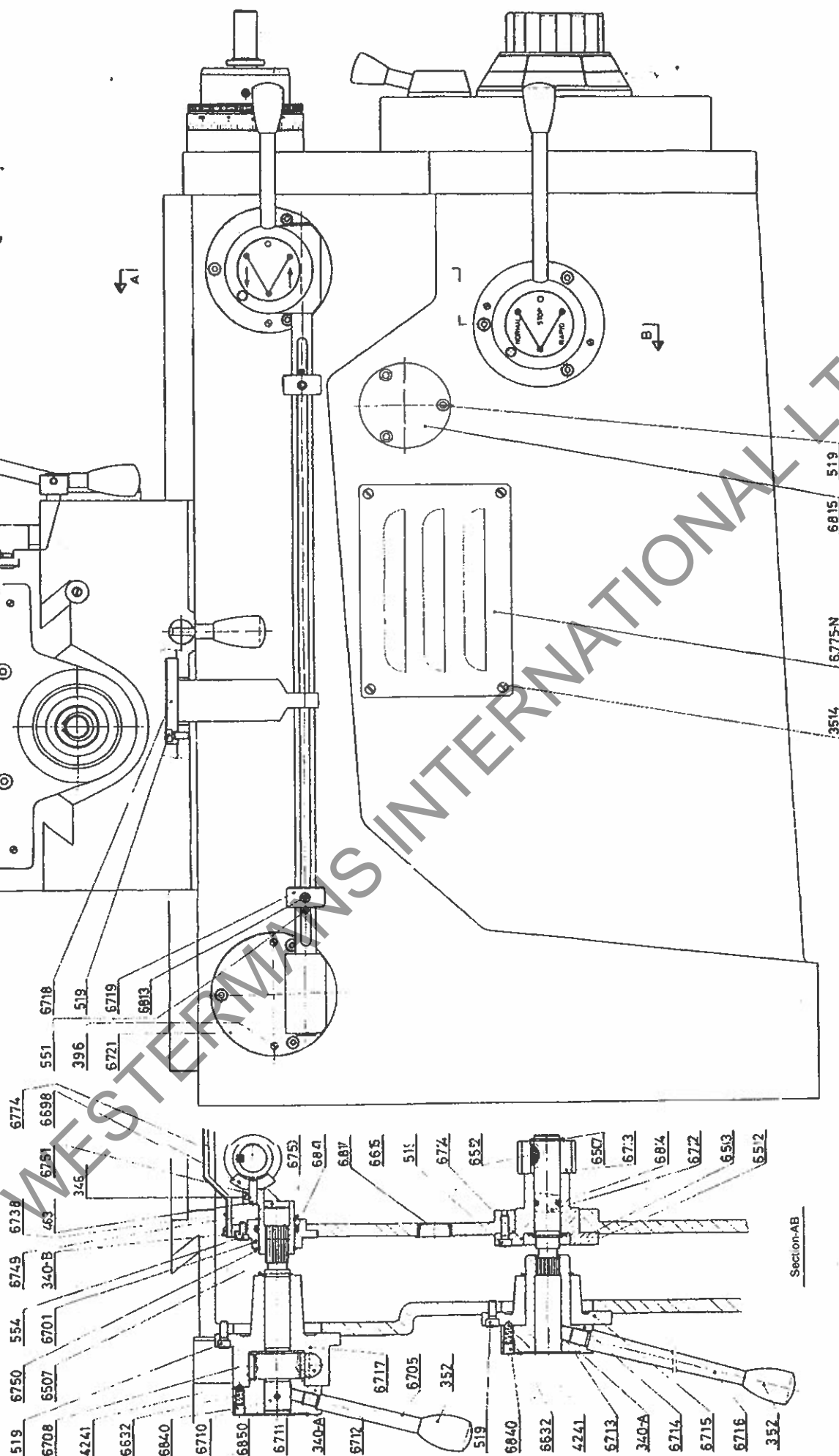
| Item | Part No. | Qty. | Description                          | DIN  |
|------|----------|------|--------------------------------------|------|
| 1    | 340-A    | 6    | Rivet 102x4,8                        |      |
| 2    | 763      | 2    | Pointer                              |      |
| 3    | 4424     | 7    | Allen screw M-10x45                  | 912  |
| 4    | 2797     | 1    | Head mounting                        |      |
| 5    | 810      | 1    | Dowel pin Ø9x45                      | 1472 |
| 6    | 2796     | 4    | Clamp bolt                           |      |
| 7    | 652      | 4    | Flat washer M-16                     | 125  |
| 8    | 331      | 4    | Hexagonal nut M-16                   | 934  |
| 9    | 6601     | 4    | Allen screw M-8x45                   | 912  |
| 10   | 2798     | 1    | Head worm wheel                      |      |
| 11   | 6573     | 1    | Dowel pin Ø6x45                      | 1472 |
|      |          |      |                                      |      |
|      |          |      |                                      |      |
| 15   | 2793     | 4    | Hexagonal-head screws M-16x165 120kg | 934  |
| 16   | 652      | 4    | Flat washer M-16                     | 125  |
| 17   | 2794     | 1    | Crosshead                            |      |
| 18   | 2795     | 1    | Ram                                  |      |
| 19   | 365      | 3    | Allen screw M-8x15                   | 912  |
| 20   | 8729     | 2    | Thurst bearing 51106                 |      |
| 21   | 2791     | 1    | Bearing cover                        |      |
| 22   | 2799     | 1    | Head swivel worm                     |      |
| 23   | 505      | 1    | Overarm scale                        |      |
| 24   | 358      | 2    | Hexagonal nut M-8                    | 934  |
| 25   | 509      | 1    | Allen grub screw M-10x20             | 915  |
| 26   | 8003     | 2    | Allen grub screw M-8                 |      |
| 27   | 6705     | 2    | Overarm positioning lever            |      |
| 28   | 8002     | 2    | Overarm lock                         |      |
| 29   | 3065-N   | 1    | Overarm pinion shaft                 |      |
| 30   | 2789     | 1    | Overarm gib                          |      |
| 31   | 3156     | 2    | Hexagonal nut M-14                   | 934  |
| 32   | 3155     | 2    | Flat washer M-14                     | 125  |
| 33   | 2792     | 2    | Locking bolt                         |      |
| 34   | 2790     | 1    | Overarm swivel saddle                |      |
| 35   | 637      | 1    | Graduated swivel scale               |      |
| 36   | 538      | 2    | Rivet 104x8                          |      |
| 37   | 352      | 2    | Bakelite knob M-8                    |      |
|      |          |      |                                      |      |
|      |          |      |                                      |      |
|      |          |      |                                      |      |
|      |          |      |                                      |      |



# **AJT4/5 Turret Mill** **Controls for Vertical Traverse of Knee**

**DRAWING**  
**No. 6700**

Rubber cover (Lear)  
S076832.

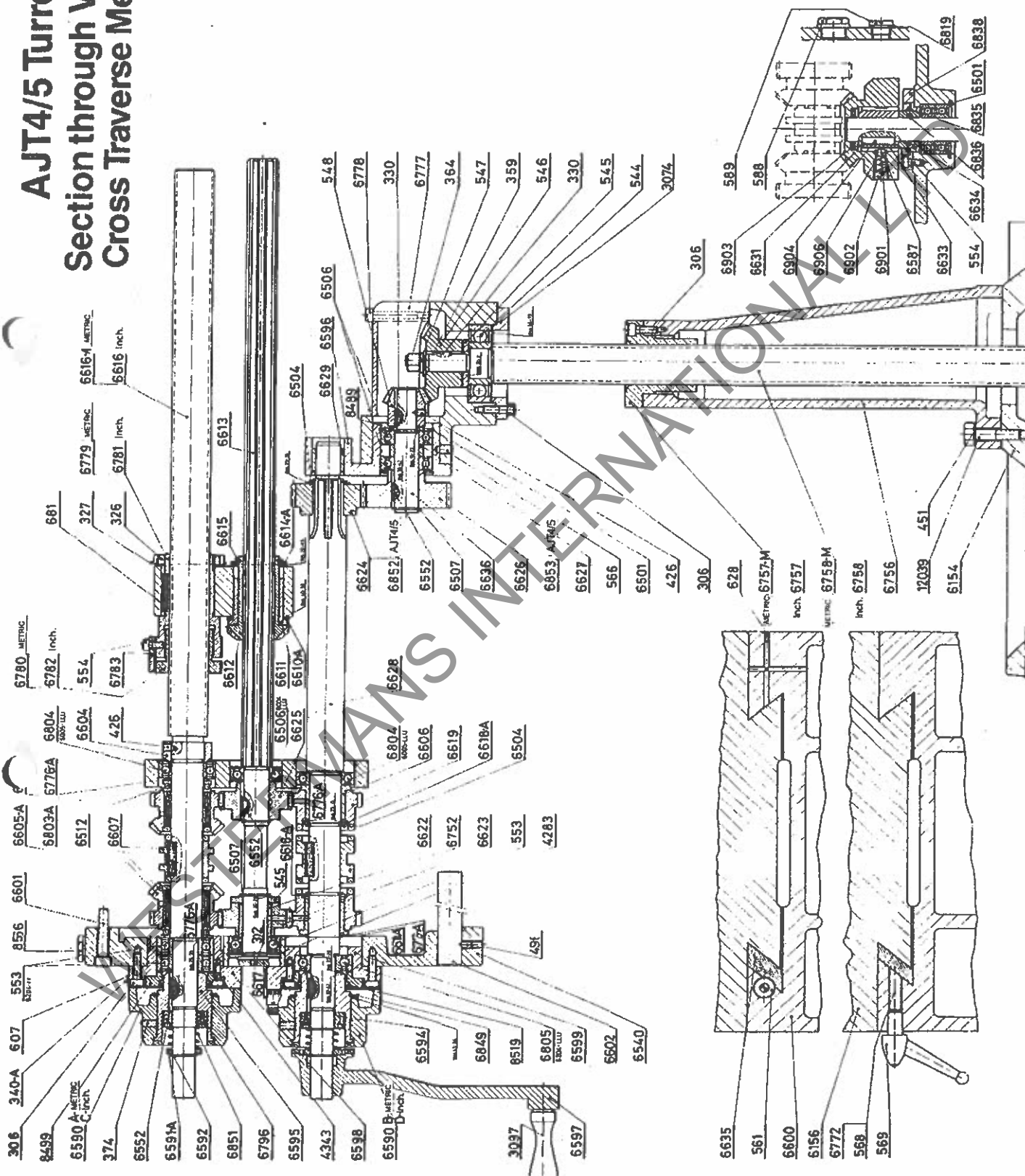


## AJT4/5 Turret Mill

Arrangement of Rapid and Normal Feed Control and Cross Traverse Control

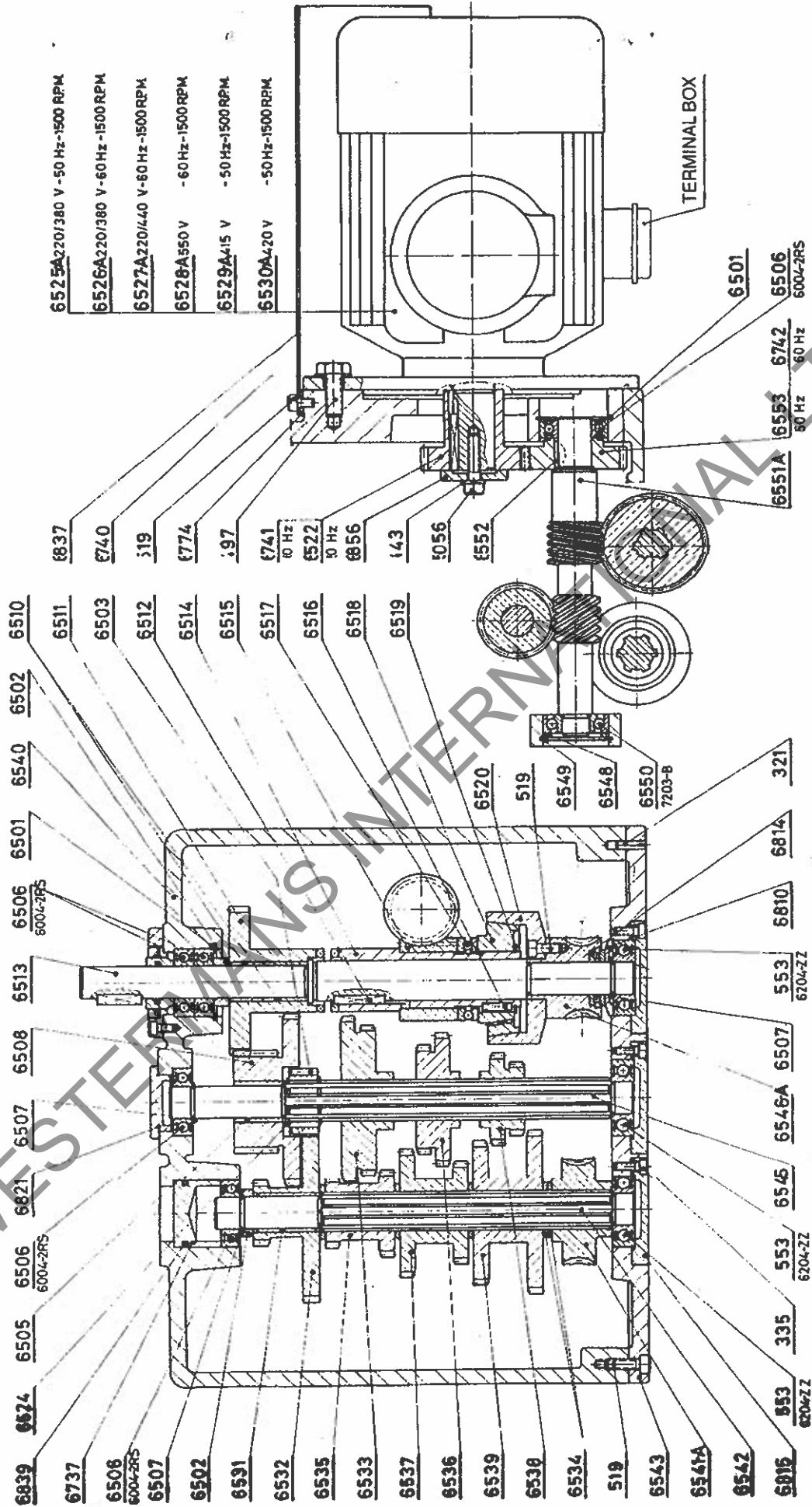
DRAWING  
No. 6720

## AJT4/5 Turret Mill Section through Vertical and Cross Traverse Mechanisms



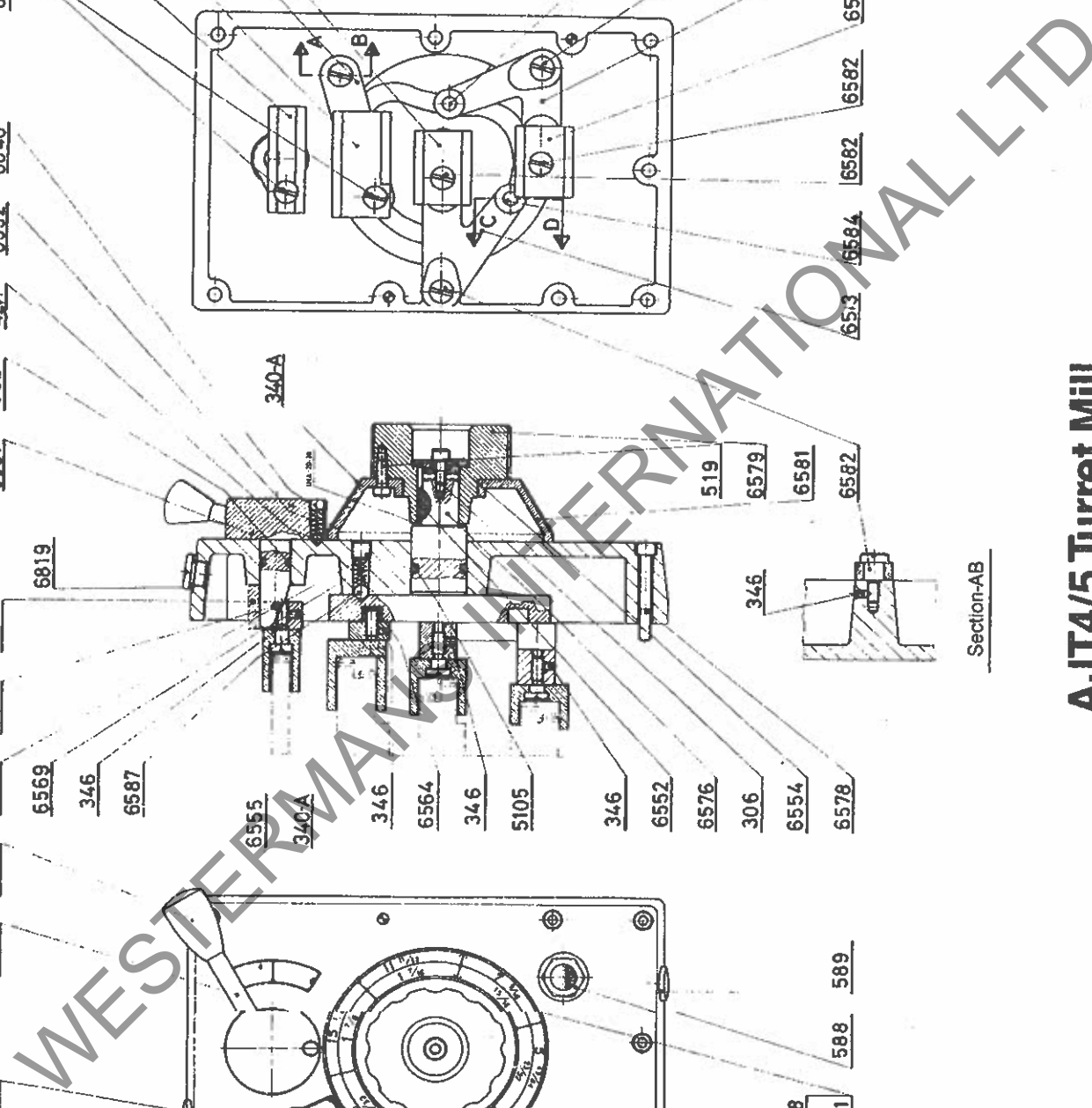
# AJT4/5 Turret Mill

## Section through Feed Gearbox and Drive from Feed Motor



**Important:**  
Always remove Terminal Box Cover of Feed Motor before attempting to remove the Feed Box Assembly

**DRAWING**  
**No. 6570**



German

6573

Metric 6588

inch

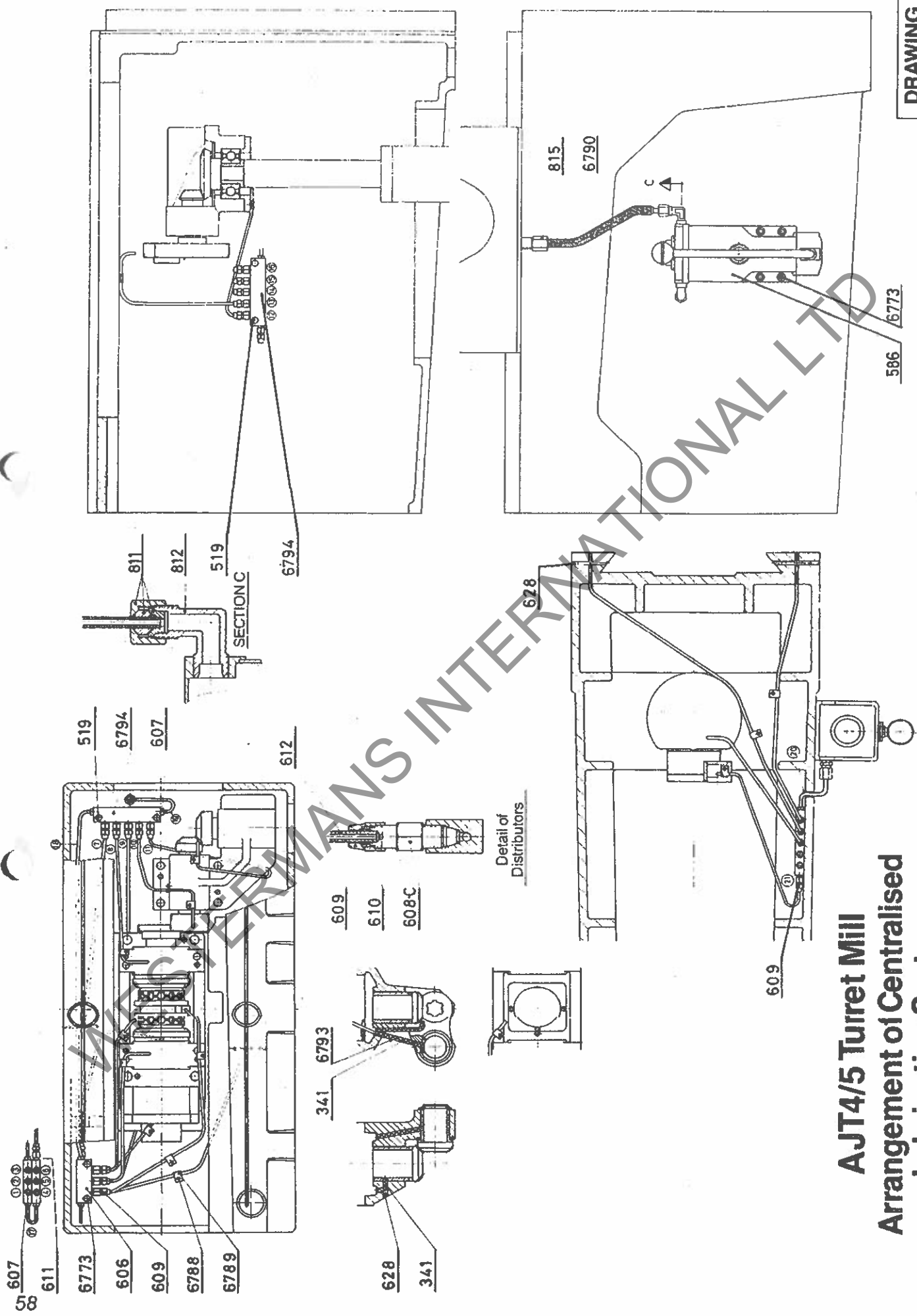
0859

588 589

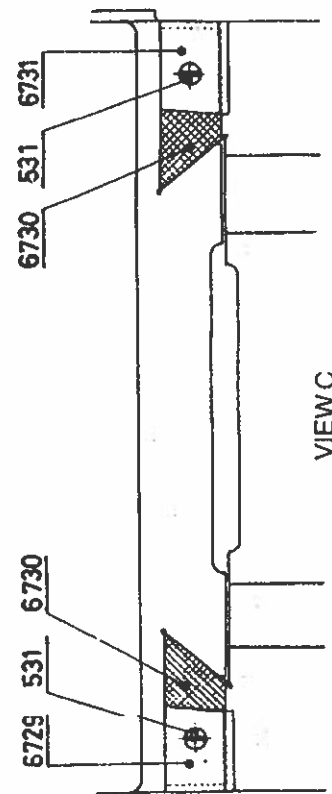
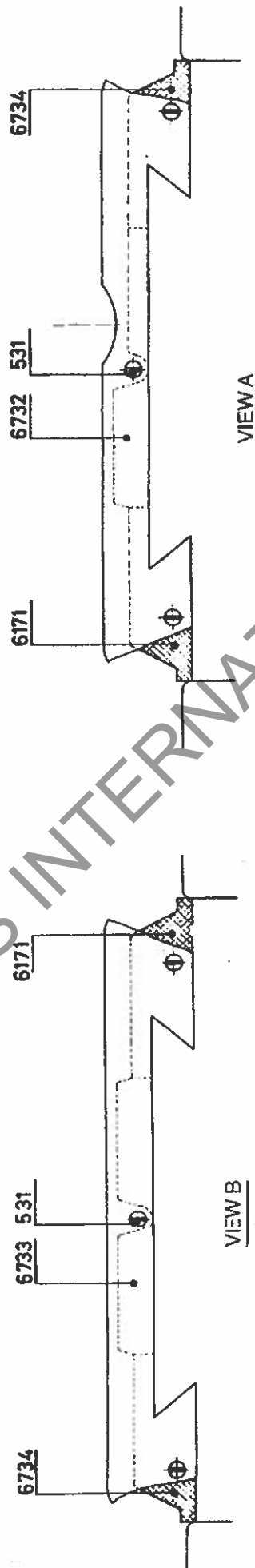
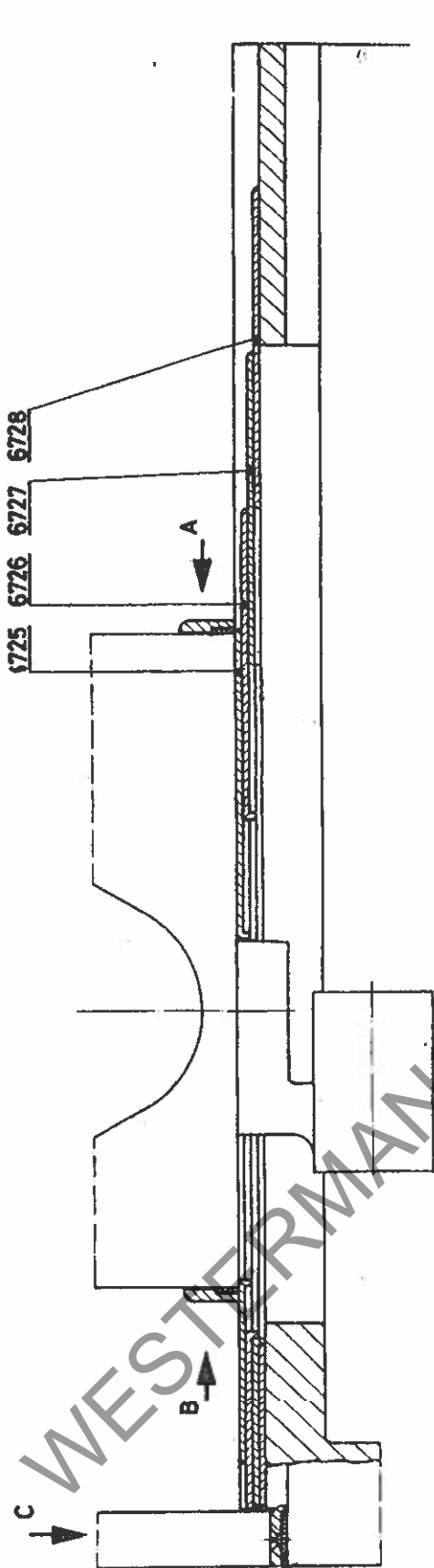
inch 6571

0859





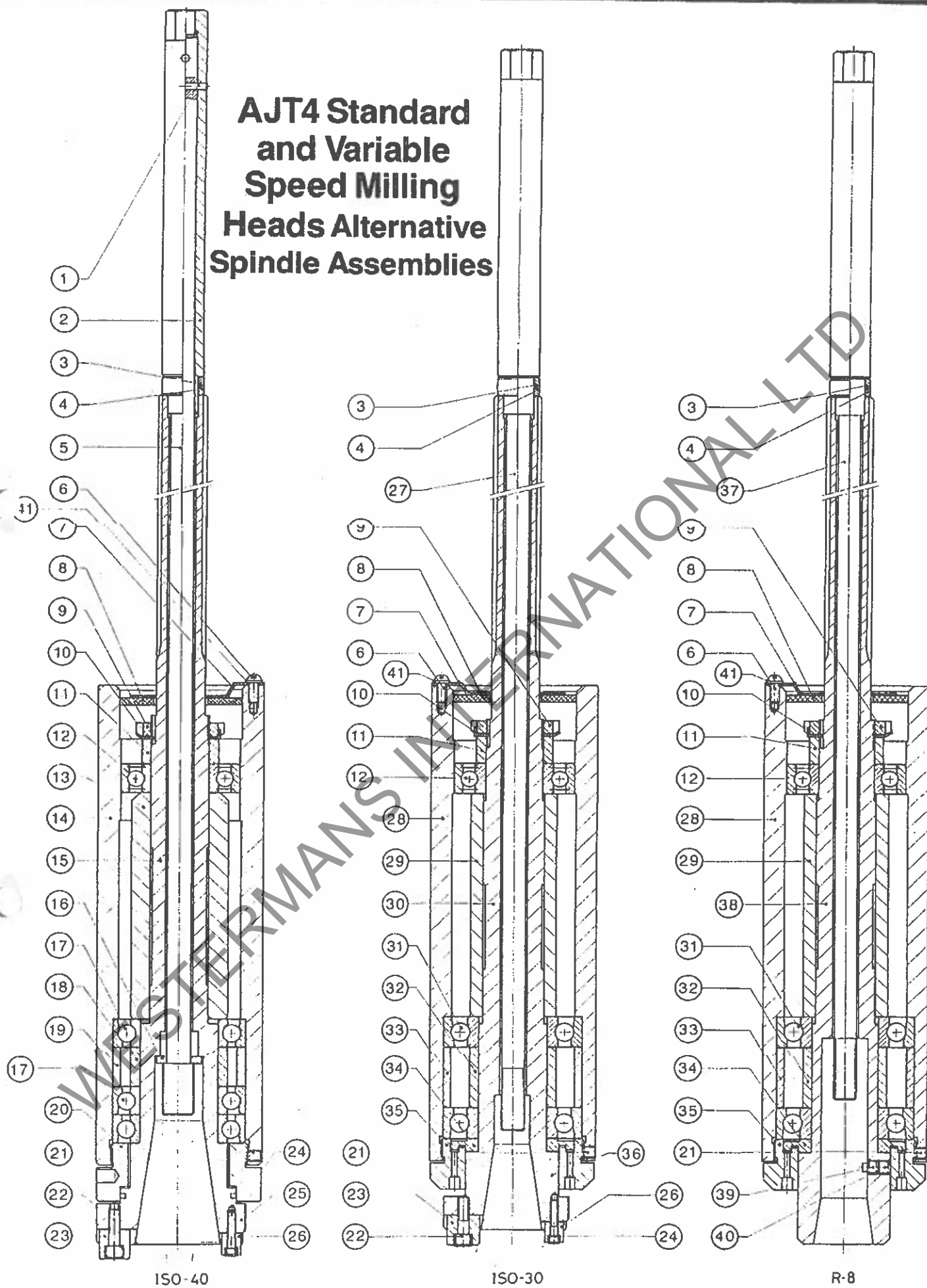
**AJT4/5 Turret Mill**  
**Arrangement of Centralised**  
**Lubrication System**



# **AJT4/5 Turret Mill** **Arrangement of Slideway Wipers**

**DRAWING**  
**No. 6735**

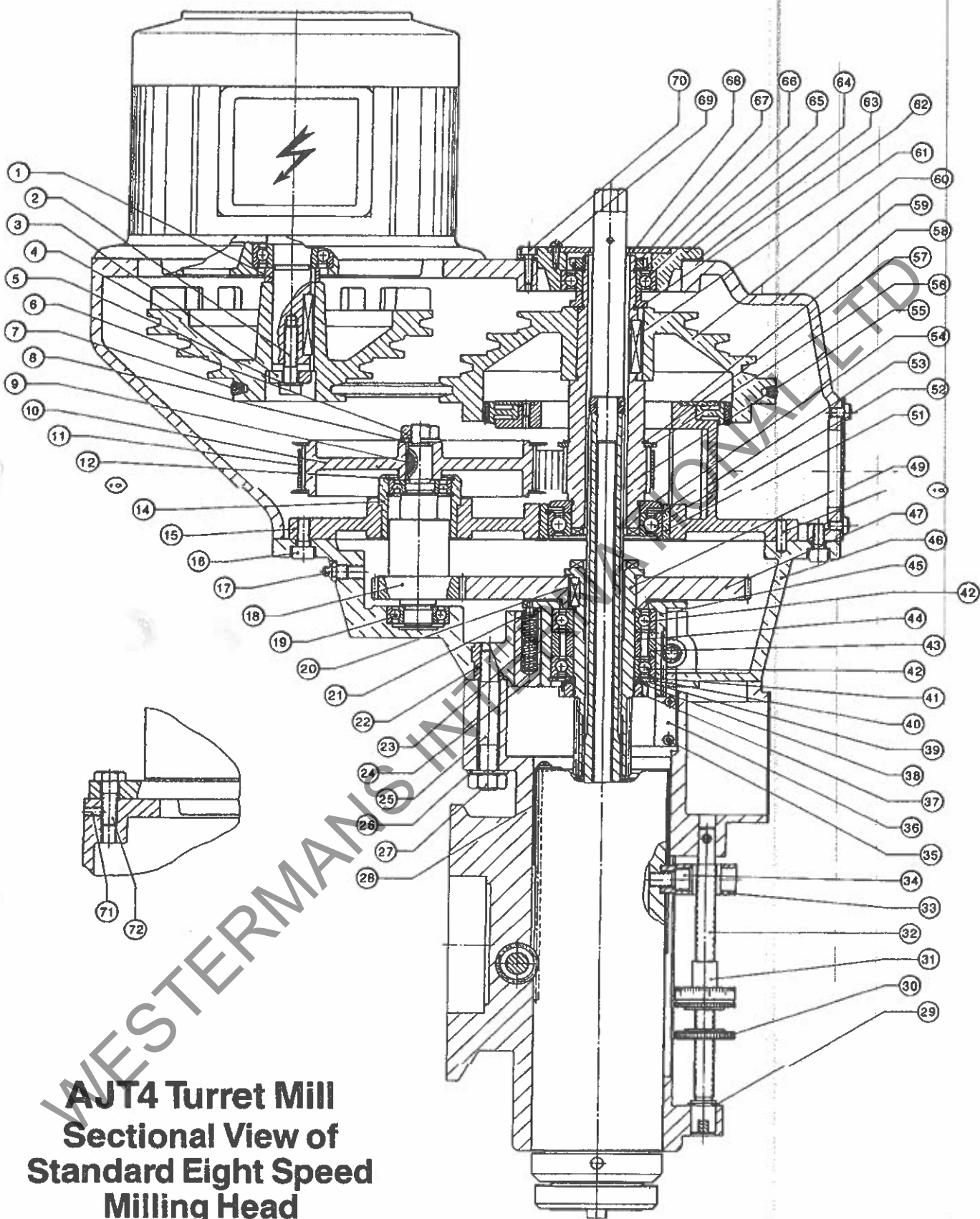
# **AJT4 Standard and Variable Speed Milling Heads Alternative Spindle Assemblies**



| Item | Part No. | Qty. | Description ISO-4)                 | DIN  |
|------|----------|------|------------------------------------|------|
| 1    | 398      | 2    | Spring Pin Ø4x16                   | 1481 |
| 2    | 939      | 1    | Drawbar head (8 speed)             |      |
| 2    | 940      | 1    | Drawbar head (variable speed)      |      |
| 3    | 950      | 1    | O-Ring Ø2x15                       |      |
| 4    | 949      | 1    | Rod locating bush                  |      |
| 5    | 3194     | 1    | Drawbar ISO-40 inch (var. speed)   |      |
| 5    | 3193     | 1    | Drawbar ISO-40 metric (var. speed) |      |
| 5    | 3196     | 1    | Drawbar ISO-40 inch (8 speed)      |      |
| 5    | 3195     | 1    | Drawbar ISO-40 metric (8 speed)    |      |
| 6    | 313      | 2    | Dome head screw M-5x10             | 86   |
| 7    | 311      | 1    | Washer                             |      |
| 8    | 762      | 1    | Felt disc                          |      |
| 9    | 309      | 1    | Nut KM 6                           |      |
| 10   | 308      | 1    | Washer MB 6                        |      |
| 11   | 3008     | 1    | Spacer                             |      |
| 12   | 307      | 1    | Bearing 6206-P6                    |      |
| 13   | 3190     | 1    | Bearing spacer bush                |      |
| 14   | 3185     | 1    | Quill                              |      |
| 15   | 3186     | 1    | Main spindle ISO-40                |      |
| 16   | 955      | 1    | Washer                             |      |
| 17   | 3191     | 3    | Bearing 7008-P4                    |      |
| 18   | 3189     | 1    | Inner bearing spacer bush          |      |
| 19   | 3188     | 1    | Outer bearing spacer bush          |      |
| 20   | 3187     | 1    | Bearing retainer nut               |      |
| 21   | 302      | 1    | Allen grub screw M-6x6             | 915  |
| 22   | 306      | 2    | Allen screw M-6x10                 | 912  |
| 23   | 305      | 2    | Driving dog                        |      |
| 24   | 7193     | 2    | Allen screw M-4x10 Erickson        | 912  |
| 25   | 3197     | 1    | Spindle ISO-40 Erickson            |      |
| 26   | 1        | 2    | Driving dog Erickson               |      |
| 41   | 312      | 2    | Washer Ø5                          | 125  |

| Item | Part No. | Qty. | Description ISO-30                 | DIN  |
|------|----------|------|------------------------------------|------|
| 3    | 950      | 1    | O-Ring Ø2x15                       |      |
| 4    | 949      | 1    | Rod locating bush                  |      |
| 6    | 313      | 2    | Dome head screw M-5x10             | 86   |
| 7    | 311      | 1    | Washer                             |      |
| 8    | 762      | 1    | Felt disc                          |      |
| 9    | 309      | 1    | Nut                                | KM 6 |
| 10   | 308      | 1    | Washer MB 6                        |      |
| 11   | 3008     | 1    | Spacer                             |      |
| 12   | 307      | 1    | Bearing 6206-P6                    |      |
| 24   | 7193     | 2    | Allen screw M-4x20 Erickson        | 912  |
| 26   | 1        | 2    | Driving dog Erickson               |      |
| 27   | 905      | 1    | Drawbar ISO-30 Metric (8 speed)    |      |
| 27   | 908      | 1    | Drawbar ISO-30 inch (8 speed)      |      |
| 27   | 910      | 1    | Drawbar ISO-30 UNC (8 speed)       |      |
| 27   | 906      | 1    | Drawbar ISO-30 Metric (var. speed) |      |
| 27   | 909      | 1    | Drawbar ISO-30 inch (var. speed)   |      |
| 27   | 911      | 1    | Drawbar ISO-30 UNC (var. speed)    |      |
| 28   | 3000     | 1    | Quill                              |      |
| 29   | 3005     | 1    | Bearing spacer bush                |      |
| 30   | 3002     | 1    | Spindle ISO-30                     |      |
| 31   | 300      | 2    | Bearing 6207-P4                    |      |
| 32   | 3004     | 1    | Inner bearing spacer bush          |      |
| 33   | 3003     | 1    | Outer bearing spacer bush          |      |
| 34   | 3006     | 1    | Labyrinth ring                     |      |
| 35   | 3007     | 1    | Bearing retainer nut               |      |
| 36   | 57       | 1    | Main spindle ISO-30 Erickson       | 125  |
| 41   | 312      | 2    | Washer Ø5                          |      |

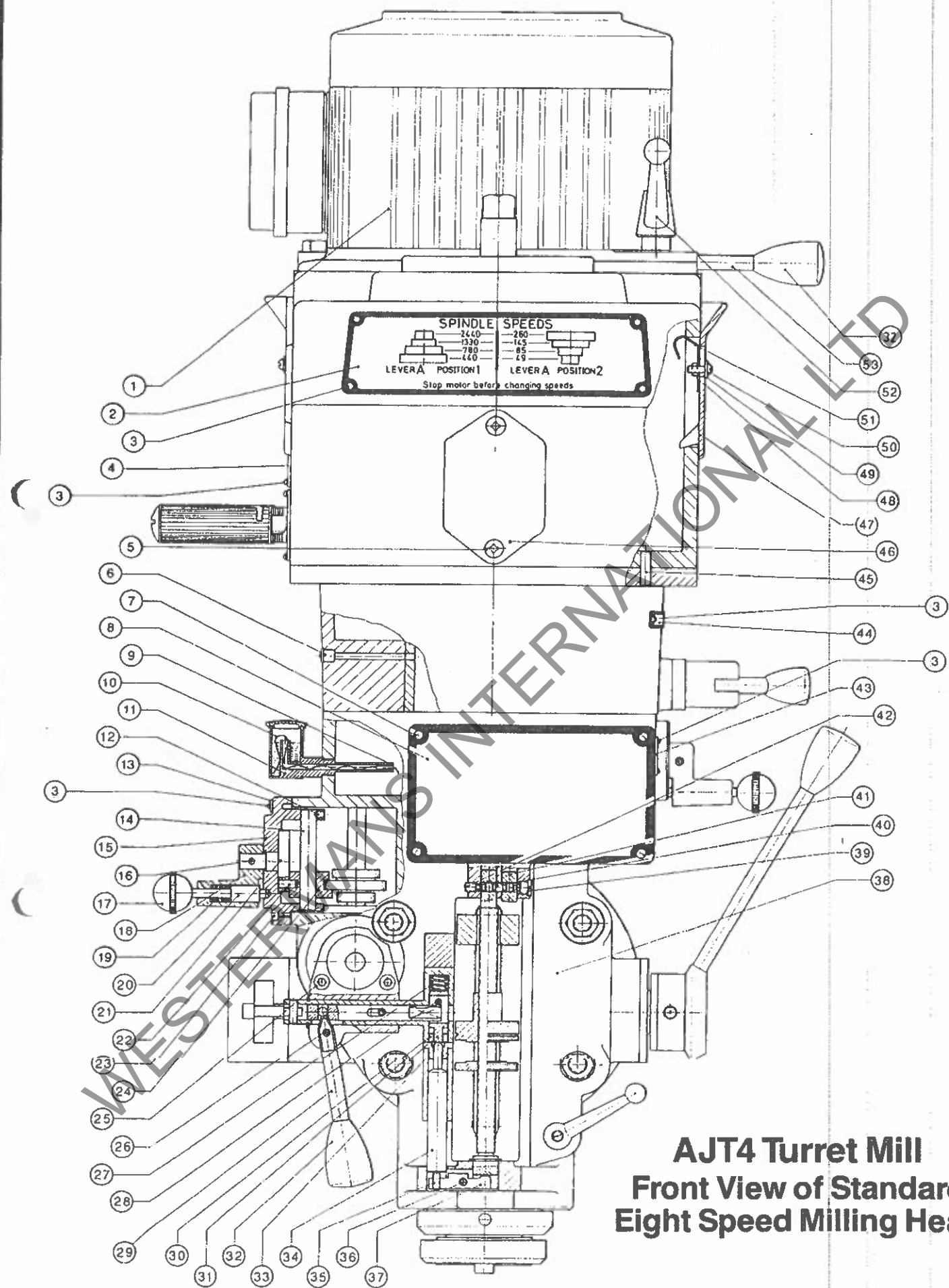
| Item | Part No. | Qty. | Description R-8              | DIN |
|------|----------|------|------------------------------|-----|
| 3    | 950      | 1    | O-Ring Ø2x15                 |     |
| 4    | 949      | 1    | Rod locating bush            |     |
| 6    | 313      | 2    | Head screw M-5x10            | 86  |
| 7    | 311      | 1    | Washer                       |     |
| 8    | 762      | 1    | Felt disc                    |     |
| 9    | 309      | 1    | Nut KM 6                     |     |
| 10   | 308      | 1    | Washer MB 6                  |     |
| 11   | 3008     | 1    | Spacer                       |     |
| 12   | 307      | 1    | Bearing 6206-P6              |     |
| 21   | 302      | 1    | Allen stud M-6x6             | 915 |
| 28   | 3000     | 1    | Quill                        |     |
| 29   | 3005     | 1    | Bearing spacer bush          |     |
| 31   | 300      | 2    | Bearing 7207-P4              |     |
| 32   | 3004     | 1    | Inner bearing spacer bush    |     |
| 33   | 3003     | 1    | Outer bearing spacer bush    |     |
| 34   | 3006     | 1    | Labyrinth ring               |     |
| 35   | 3007     | 1    | Bearing retainer nut         |     |
| 37   | 956      | 1    | Drawbar R-8 (8 speed)        |     |
| 37   | 958      | 1    | Drawbar R-8 (variable speed) |     |
| 38   | 3001     | 1    | Spindle R-8                  |     |
| 39   | 303      | 1    | Allen grub screw M-8x8       | 913 |
| 40   | 304      | 1    | Allen grub screw M-8x3.5     |     |
| 42   | 312      | 2    | Washer Ø5                    | 125 |



**AJT4 Turret Mill**  
**Sectional View of**  
**Standard Eight Speed**  
**Milling Head**

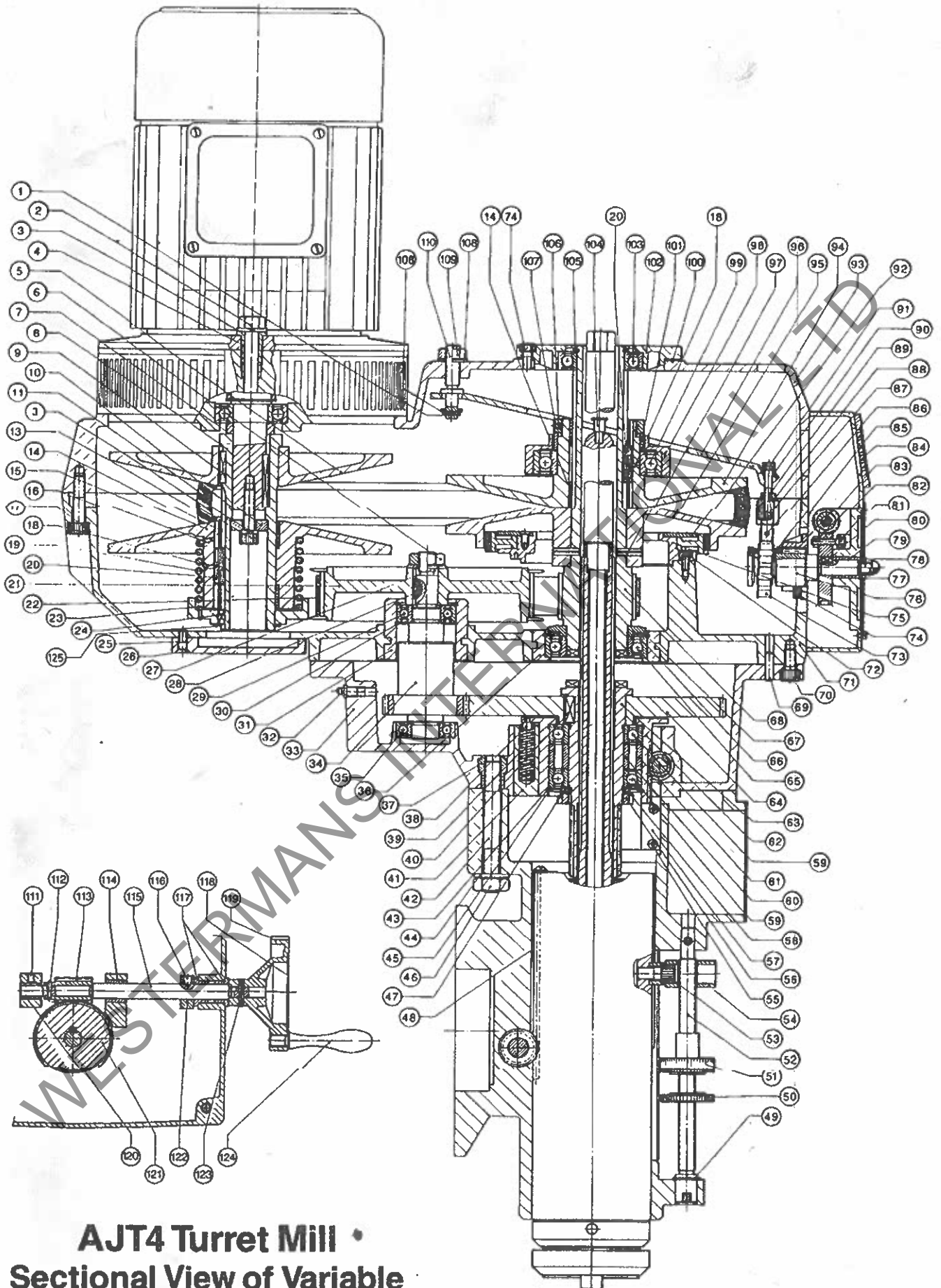
| Item | Part No. | Qty. | Description                                     | DIN   |
|------|----------|------|-------------------------------------------------|-------|
| 1    | 3306     | 1    | Spacer                                          |       |
| 2    | 419      | 1    | Allen screw RM 8x35                             | 912   |
| 3    | 3324     | 1    | Washer                                          |       |
| 4    | 3303     | 1    | Driving pulley                                  |       |
| 5    | 643      | 1    | Spring washer RM 8                              | 7980  |
| 6    | 331      | 1    | Hexagonal nut RM 16                             | 934   |
| 7    | 367      | 1    | Belt SPZ-900                                    |       |
| 8    | 334      | 1    | Washer RM 16                                    | 6798  |
| 9    | 330      | 1    | Key Ø16x65x5                                    | 6888  |
| 10   | 7018     | 1    | Toothed pulley (back gear)                      |       |
| 11   | 366      | 1    | Belt UNIROYAL HTD-600-8M-30                     |       |
| 12   | 6501     | 2    | Circlip I-42                                    | 472   |
| 13   | 7059     | 1    | Bearing NTN-6004-LLB                            |       |
| 14   | 7133     | 1    | Bearing sleeve                                  |       |
| 15   | 7131     | 1    | Sleeve mounting                                 |       |
| 16   | 5056     | 7    | Allen screw RM 8x20                             | 912   |
| 17   | 540      | 1    | Grease nipple RM10                              | 71412 |
| 18   | 7048     | 1    | Reduction gear shaft back gear shaft and pinion |       |
| 19   | 7059     | 1    | Bearing NTN-6004-LLB                            |       |
| 20   | 344      | 1    | Key A-8x7x20                                    | 6885  |
| 21   | 7105     | 3    | Guide pin for spring                            |       |
| 22   | 7117     | 3    | Housing fixing sleeve                           |       |
| 23   | 7042     | 3    | Spring 85x10x1,5                                |       |
| 24   | 7020     | 1    | Boss                                            |       |
| 25   | 7055     | 2    | Stud                                            |       |
| 25   | 7084     | 1    | Stud                                            |       |
| 26   | 640      | 3    | Washer RM-12                                    | 125   |
| 27   | 364      | 3    | Hexagonal nut RM-12                             | 934   |
| 28   | 3030     | 1    | Guard                                           |       |
| 29   | 413      | 1    | Circlip ring E-16                               | 471   |
| 30   | 403      | 1    | Lock nut inch                                   |       |
| 30   | 5        | 1    | Lock nut metric                                 |       |
| 31   | 402      | 1    | Inch dial                                       |       |
| 31   | 4        | 1    | Metric dial                                     |       |
| 32   | 404      | 1    | Quill stop micro screw inch                     |       |
| 32   | 6        | 1    | Quill stop micro screw metric                   |       |
| 33   | 3031     | 1    | Trip dog                                        |       |
| 34   | 369      | 1    | Allen screw RM 10x1x16                          |       |
| 35   | 492      | 4    | Allen countersink screw RM 4x15                 | 7991  |
| 36   | 7102     | 2    | Guide block                                     |       |
| 37   | 326      | 1    | Nut KM-8                                        | 1804  |

| Item | Part No. | Qty. | Description                      | DIN  |
|------|----------|------|----------------------------------|------|
| 38   | 327      | 1    | Washer MB-8                      |      |
| 39   | 7101     | 1    | Washer                           |      |
| 40   | 7072     | 1    | Circlip I-68                     | 472  |
| 41   | 1185     |      | Washer Ø55x Ø68x0,1              |      |
| 41   | 1186     |      | Washer Ø55x Ø68x0,2              |      |
| 41   | 1187     |      | Washer Ø55x Ø68x0,3              |      |
| 41   | 1188     |      | Washer Ø55x Ø68x0,5              |      |
| 42   | 7066     | 1    | Bearing NTN-6008-LLB             |      |
| 43   | 7043     | 1    | Bearing spacer                   |      |
| 44   | 7044     | 1    | Bearing separating washer spacer |      |
| 45   | 7010     | 1    | Bearing housing                  |      |
| 46   | 3326     | 1    | Lower housing                    |      |
| 47   | 7019     | 1    | Gear                             |      |
| 48   | 420      | 1    | Pin GO-5 Ø6x26                   | 1475 |
| 49   | 7013     | 1    | Drive sleeve                     |      |
| 51   | 7132     | 1    | Liner                            |      |
| 52   | 7083     | 1    | Bearing NTN-6009-LLB             |      |
| 53   | 7082     | 1    | Circlip I-75                     | 472  |
| 54   | 7045     | 1    | Spacing washer                   |      |
| 55   | 3310     | 1    | Pulley sleeve                    |      |
| 56   | 3309     | 1    | Pulley flange                    |      |
| 57   | 3314     | 1    | Circlip E-48                     | 471  |
| 58   | 7141     | 1    | Brake shoe control washer        |      |
| 59   | 3301     | 1    | Upper housing                    |      |
| 60   | 3302     | 1    | Driven pulley                    |      |
| 61   | 6646     | 1    | Key A-8x7x40                     |      |
| 62   | 3005     | 1    | Bearing spacer                   |      |
| 63   | 7090     | 1    | Gasket                           |      |
| 64   | 3304     | 1    | Upper bearing housing            |      |
| 65   | 7073     | 1    | Bearing NTN-6007-LLB             |      |
| 66   | 3313     | 1    | Washer MB-7                      |      |
| 67   | 3312     | 1    | Nut KM-7                         | 1804 |
| 68   | 3315     | 1    | Cover                            |      |
| 69   | 665      | 1    | Round head screw RM 4x10         | 86   |
| 70   | 306      | 1    | Allen screw RM 6x20              | 912  |
| 71   | 496      | 1    | Allen grub screw stud RM 6x10    | 914  |
| 72   | 3318     | 1    | Hexagonal head screw RM 10x30    | 933  |
|      |          |      |                                  |      |
|      |          |      |                                  |      |
|      |          |      |                                  |      |
|      |          |      |                                  |      |



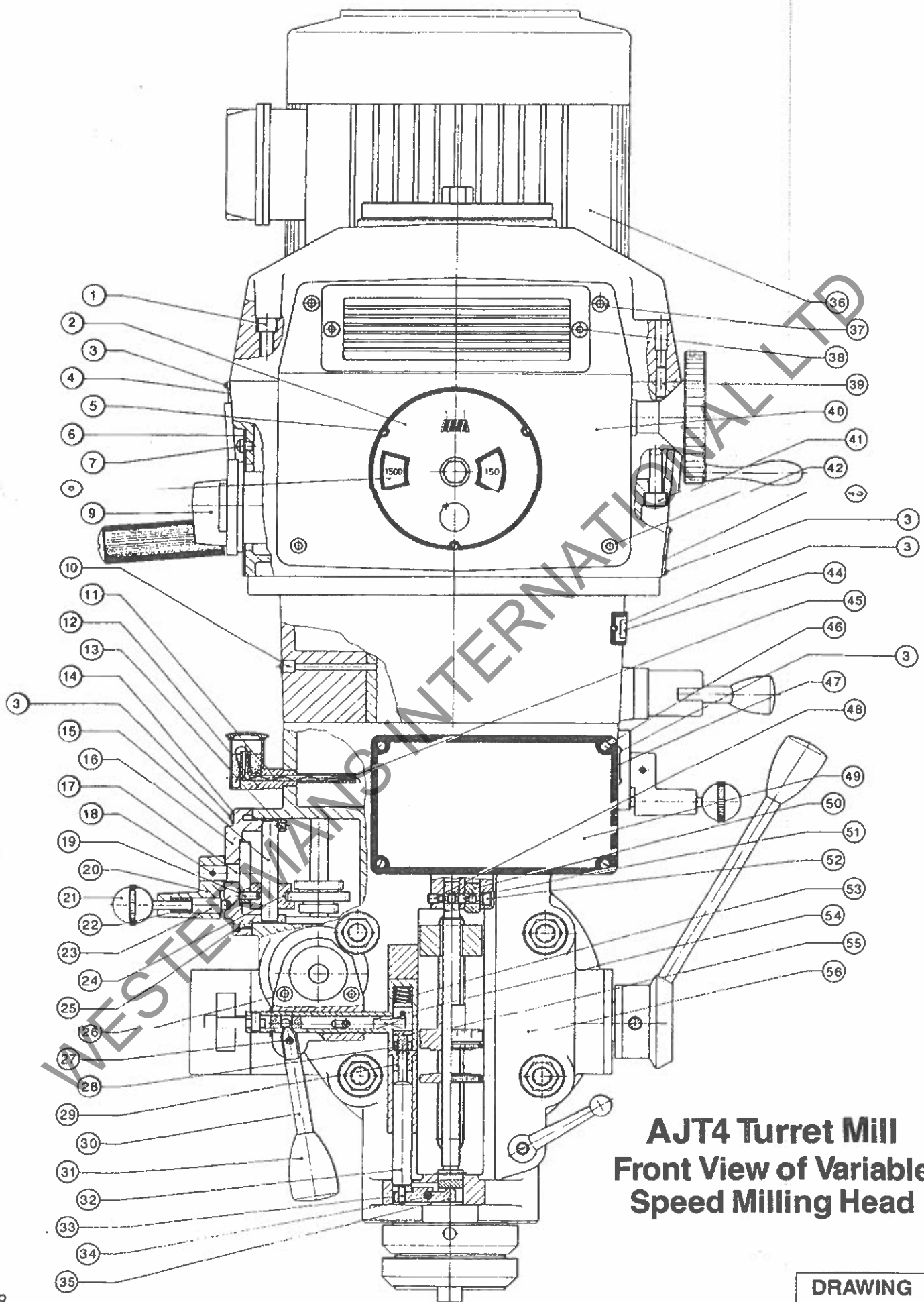
**AJT4 Turret Mill**  
**Front View of Standard**  
**Eight Speed Milling Head**





**AJT4 Turret Mill**  
**Sectional View of Variable**  
**Speed Milling Head**





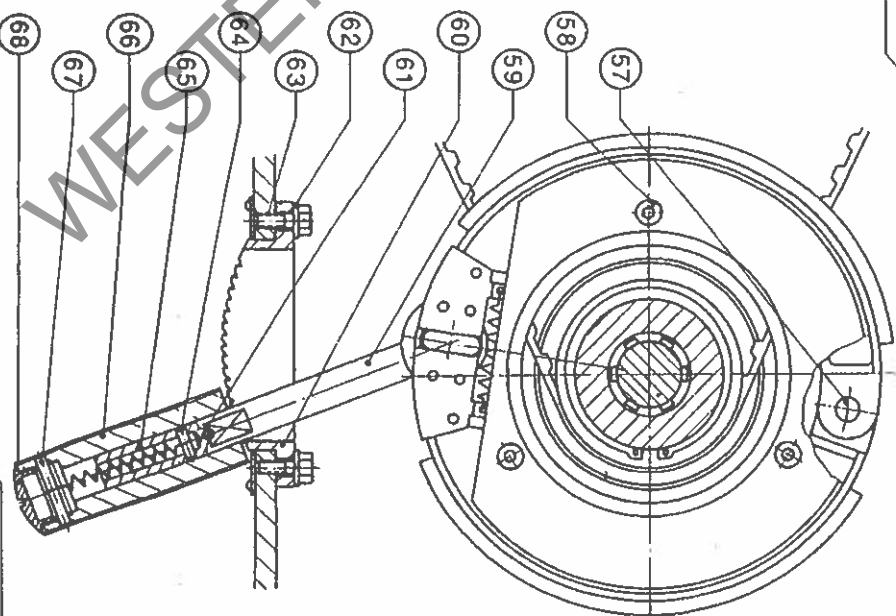
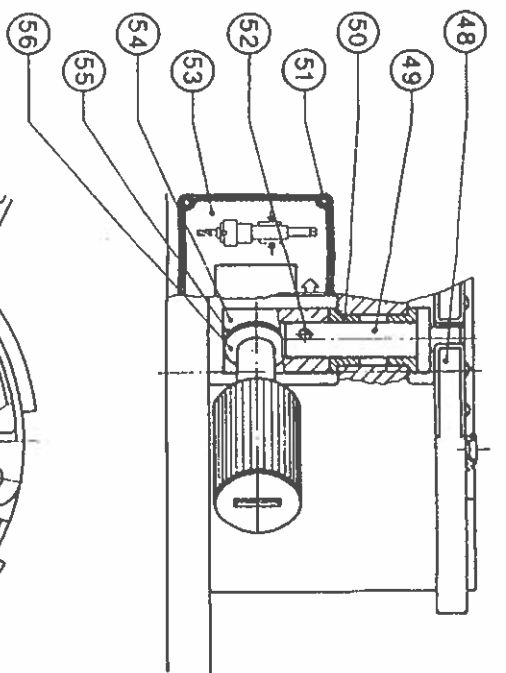
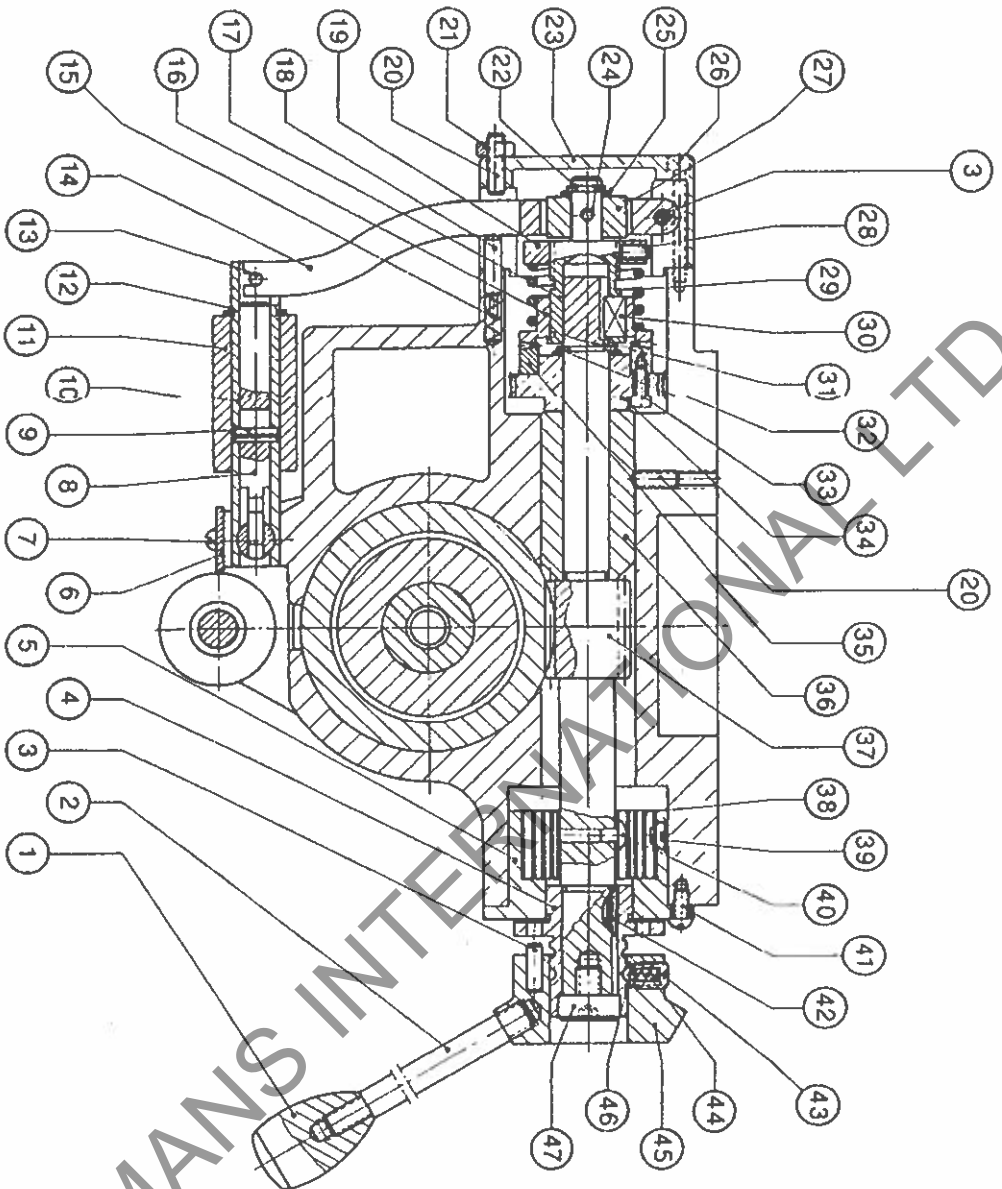
**AJT4 Turret Mill**  
**Front View of Variable**  
**Speed Milling Head**

**DRAWING**  
**No. 7210**

| Item | Part No. | Qty. | Description                                  | DIN  |
|------|----------|------|----------------------------------------------|------|
| 1    | 6601     | 2    | Allen screw M 6 x 45                         | 912  |
| 2    | 7052     | 1    | Dial cover                                   |      |
| 3    | 340      | 16   | Rivet 102 x 4,8                              |      |
| 4    | 7103     | 1    | Instruction plate                            |      |
| 4    | 7171     | 1    | Instruction plate                            |      |
| 4    | 7172     | 1    | Instruction plate                            |      |
| 4    | 7173     | 1    | Instruction plate                            |      |
| 4    | 7174     | 1    | Instruction plate                            |      |
| 4    | 7175     | 1    | Instruction plate                            |      |
| 4    | 7199     | 1    | Instruction plate                            |      |
| 5    | 6788     | 3    | Self-tapping screw 3 x 6                     | 84   |
| 6    | 806      | 1    | Switch fixing plate. Not applicable AJT4     |      |
| 7    | 8377     | 2    | Phillips screw M 6 x 10. Not applicable AJT4 | 7985 |
| 8    | 7168     | 1    | Plate 50177054 N                             |      |
| 8    | 7169     | 1    | Plate 50177054 NR                            |      |
| 9    | 74       | 1    | Switch 16A 600V. Not applicable AJT4         |      |
| 10   | 7104     | 1    | Oil nipple Ø 8                               | 3405 |
| 11   | 341      | 1    | Wick                                         |      |
| 12   | 493      | 1    | Lubricator                                   |      |
| 13   | 346      | 1    | Allen grub screw M 4 x 6                     | 914  |
| 14   | 661      | 1    | Quill feed plate                             |      |
| 15   | 400      | 1    | Guide pin Ø 10 x 63                          |      |
| 16   | 3050     | 1    | Gearbox cover                                |      |
| 17   | 399      | 1    | Feed selector control                        |      |
| 18   | 322      | 1    | Spring pin Ø 3 x 20                          | 1481 |
| 19   | 728      | 1    | Pin GO-5 Ø 5 x 12                            | 1475 |
| 20   | 3009     | 1    | Selector lever                               |      |
| 21   | 324      | 1    | Bakelite knob M 6 Ø 25                       |      |
| 22   | 323      | 1    | Spring 19 x Ø 9 x Ø 0,8                      |      |
| 23   | 325      | 1    | Selector plunger                             |      |
| 24   | 3051     | 1    | Gear shifter                                 |      |
| 25   | 335      | 4    | Allen screw M 5 x 12                         | 912  |
| 26   | 306      | 2    | Allen screw M 6 x 20                         | 912  |
| 27   | 396      | 1    | Pin GO-2 Ø 5 x 16                            | 1472 |
| 28   | 395      | 1    | Upper pin guide                              |      |
| 29   | 408      | 1    | Lower pin guide                              |      |
| 30   | 407      | 1    | Feed trip lever                              |      |
| 31   | 352      | 1    | Bakelite knob M 8                            |      |
| 32   | 409      | 1    | Trip pin                                     |      |
| 33   | 92       | 1    | Allen grub screw M 4 x 16                    | 913  |
| 34   | 412      | 1    | Fulcrum pin                                  |      |

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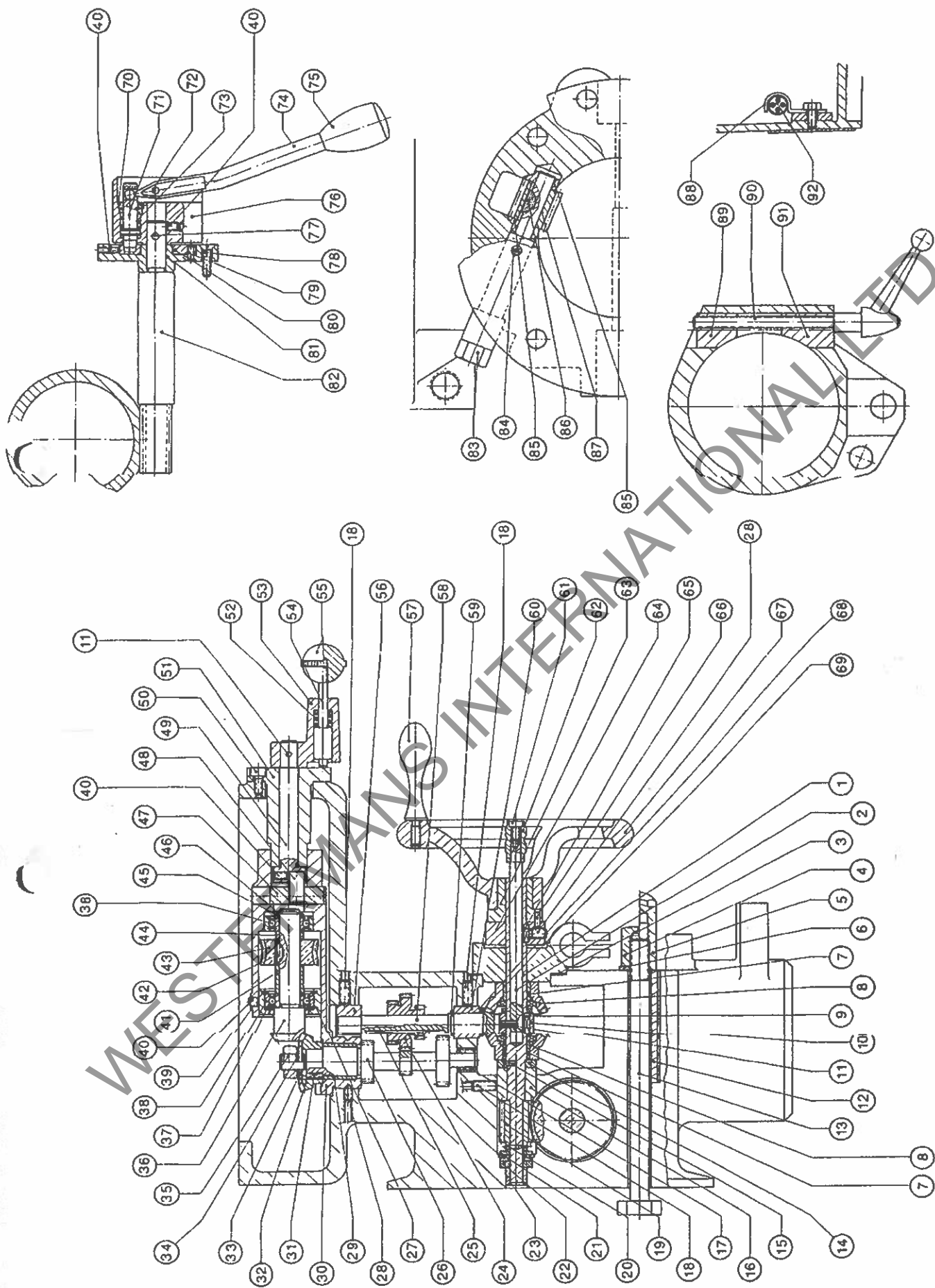
# **AJT4 Standard and Variable Speed Milling Heads** **View of Quill Feed Mechanism 'A'**



**DRAWING**  
**No. 7211**

| Item | Part No. | Qty. | Description               | DIN  |
|------|----------|------|---------------------------|------|
| 1    | 352      | 1    | Bakelite knob M8          |      |
| 2    | 388      | 1    | Quill handle              |      |
| 3    | 375      | 2    | Pin GO-6 Ø5 x 8           | 1476 |
| 4    | 3044     | 1    | Pinion shaft sleeve       |      |
| 5    | 3043     | 1    | Return spring cap         |      |
| 6    | 7        | 1    | Quill rule metric         |      |
| 6    | 405      |      | Quill rule inch           |      |
| 7    | 406      | 2    | Round head screw M 4 x 5  | 86   |
| 8    | 3046     | 1    | Automatic control pin     |      |
| 9    | 398      | 1    | Spring pin Ø4 x16         | 1481 |
| 10   | 3049     | 1    | Cover                     |      |
| 11   | 3052     | 1    | Clutch handle mounting    |      |
| 12   | 413      | 1    | Circlip E-16              | 471  |
| 13   | 396      | 1    | Pin GO-2 Ø5 x 6           |      |
| 14   | 3032     | 1    | Automatic trigger fork    |      |
| 15   | 380      | 1    | Spring Ø3,4 x 23          |      |
| 16   | 3036     | 1    | Clutch ring               |      |
| 17   | 3034     | 1    | Clutch ring boss          |      |
| 18   | 379      | 1    | Clutch return pin         |      |
| 19   | 3035     | 1    | Spring compression nut    |      |
| 20   | 377      | 2    | Allen grub screw M 6 x 20 | 916  |
| 21   | 480      | 1    | Hexagonal nut M6          | 934  |
| 22   | 372      | 1    | Circlip E-10              | 471  |
| 23   | 3037     | 1    | Clutch cover              |      |
| 24   | 376      | 2    | Fork fulcrum pin          |      |
| 25   | 1040     |      | Washer Ø 10 x 216 x 0,1   |      |
| 25   | 1041     |      | Washer Ø 10 x 216 x 0,2   |      |
| 25   | 1042     |      | Washer Ø 10 x 216 x 0,3   |      |
| 26   | 378      | 2    | Allen screw M 5 x 40      |      |
| 27   | 3033     | 1    | Bearing                   |      |
| 28   | 374      | 1    | Allen grub screw M 6 x 10 | 913  |
| 29   | 373      | 1    | Spring 1 Ø32 x 7          |      |
| 30   | 371      | 1    | Key 5 x 8 x 14            |      |
| 31   | 382      | 1    | Circlip E-15              | 471  |
| 32   | 1060     |      | Washer Ø 15 x 221 x 0,1   |      |
| 32   | 1061     |      | Washer Ø 15 x 221 x 0,2   |      |
| 32   | 1062     |      | Washer Ø 15 x 221 x 0,3   |      |
| 32   | 1063     |      | Washer Ø 15 x 221 x 0,5   |      |
| 33   | 722      | 3    | Allen screw M 4 x 15      | 912  |
| 34   | 3040     | 1    | Worm wheel                |      |
| 35   | 3041     | 1    | Clutch ring               |      |

| Item | Part No. | Qty. | Description                     | DIN    |
|------|----------|------|---------------------------------|--------|
| 36   | 3039     | 1    | Quill shaft bearing             |        |
| 37   | 3042     | 1    | Quill pinion shaft              |        |
| 38   | 387      | 1    | Balance spring 0,5 x 25         |        |
| 39   | 385      | 1    | External spring locator         |        |
| 40   | 386      | 1    | Inner spring locator            |        |
| 41   | 313      | 2    | Round head screw M 5 x 10       | 86     |
| 42   | 330      | 1    | Key Ø 16 x 6,5 x 5              | 6888   |
| 43   | 390      | 1    | Ball cup screw                  |        |
| 44   | 392      | 1    | Spring 1 Ø3,25 x 9              |        |
| 45   | 3045     | 1    | Quill lever boss                |        |
| 46   | 391      | 1    | Steel ball Ø3/16"               |        |
| 47   | 389      | 1    | Control fix. screw              |        |
| 48   | 7142     | 2    | Spindle brake                   |        |
| 49   | 7138     | 1    | Boit                            |        |
| 50   | 7061     | 2    | Oilite bush B-12x17x10/22x3     |        |
| 51   | 340      | 2    | Rivet 102x4,8                   |        |
| 52   | 54       | 1    | Spring pin Ø4x22                | 7344-S |
| 53   | 7140     | 1    | Brake plate                     |        |
| 54   | 7137     | 1    | Brake lever sleeve              |        |
| 55   | 1040     |      | Washer Ø 10 x Ø 16 x 0,1        |        |
| 55   | 1043     |      | Washer Ø 10 x Ø 16 x 0,5        |        |
| 56   | 7200     | 2    | Spring washer A-20              | 2093   |
| 57   | 7204     | 1    | Cylinder pin Ø8x10,5            | 6325   |
| 58   | 7144     | 1    | Countersunk head screw M 5 x 10 | 7991   |
| 59   | 7135     | 1    | Brake lever                     |        |
| 60   | 7139     | 1    | Brake lock                      |        |
| 61   | 410      | 1    | Allen grub screw M 4 x 12       | 913    |
| 62   | 542      | 1    | Washer M 6                      | 125    |
| 63   | 7192     | 1    | Hexagonal head screw M 6 x 12   | 933    |
| 64   | 759      | 1    | Pin GO-2 Ø3 x 8                 | 1472   |
| 65   | 350      |      | Spring                          |        |
| 66   | 7134     |      | Brake lever sleeve              |        |
| 67   | 7063     |      | Pin GO-1 Ø3 x 24                | 1471   |
| 68   | 494      |      | Plug PG-13,5                    |        |

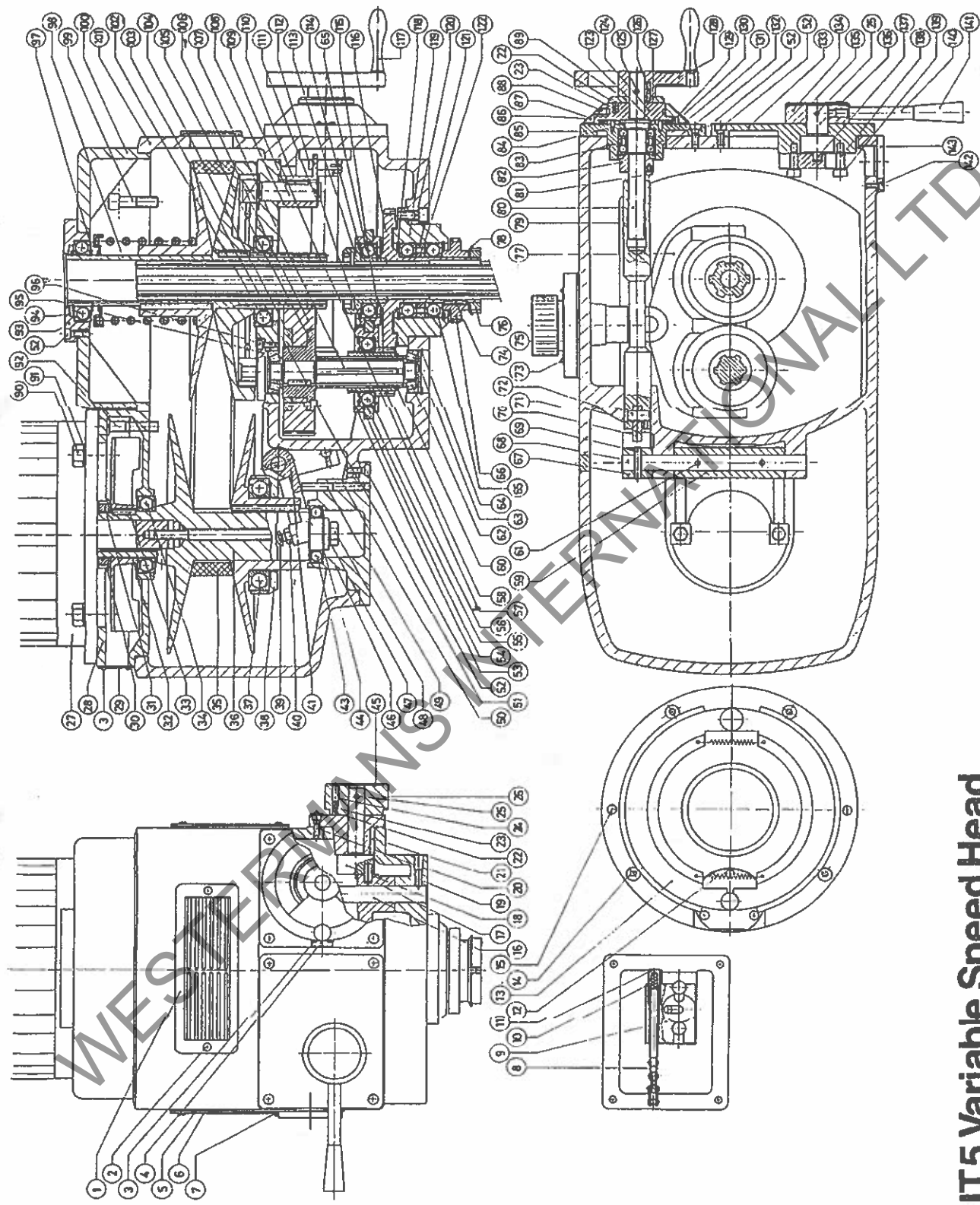


**AJT4 Standard and Variable Speed Milling Heads**  
**View of Quill Feed Mechanism 'B'**

| Item | Part No. | Qty. | Description                    | DIN  |
|------|----------|------|--------------------------------|------|
| 77   | 7115     | 1    | Pin GO-1 Ø4x30                 | 1471 |
| 78   | 492      | 2    | Allen countersunk screw M 4x15 | 7991 |
| 79   | 575      | 2    | Spring pin Ø3x10               | 1481 |
| 80   | 7094     | 2    | Anchoring block                |      |
| 81   | 7095     | 1    | Anchoring cover                |      |
| 82   | 7024     | 1    | Gear shaft                     |      |
| 83   | 477      | 1    | Head worm shaft                |      |
| 84   | 75       | 1    | Allen grub screw M 6x8         | 915  |
| 85   | 649      | 2    | Adjusting washer               |      |
| 86   | 647      | 1    | Key Ø16x4x6,5                  | 6888 |
| 87   | 478      | 1    | Head tilting worm              |      |
| 88   | 836      | 1    | Clips                          |      |
| 89   | 473      | 1    | Quill lock sleeve              |      |
| 90   | 474      | 1    | Quill lock screw               |      |
| 91   | 475      | 1    | Quill lock sleeve              |      |
| 92   | 837      | 1    | Cable 1,13 Mts. 6x2,5          |      |
| 92   | 838      |      | Cable 1,13 Mts. 4x2,5          |      |
| 92   | 840      |      | Cable "CSA" 1,13 Mts. 4x2,5    |      |

| Item | Part No. | Qty. | Description             | DIN  |
|------|----------|------|-------------------------|------|
| 42   | 460      | 1    | Key Ø13x5x4             | 6888 |
| 43   | 3054     | 1    | Pinion shaft worm wheel |      |
| 44   | 461      | 1    | Spacer bush             |      |
| 45   | 1050     |      | Washer Ø12x Ø18x0,1     |      |
| 45   | 1051     |      | Washer Ø12x Ø18x0,2     |      |
| 45   | 1052     |      | Washer Ø12x Ø18x0,3     |      |
| 45   | 1053     |      | Washer Ø12x Ø18x0,5     |      |
| 46   | 458      | 1    | Circlip E-12            | 471  |
| 47   | 464      | 1    | Shifter                 |      |
| 48   | 760      | 1    | Pin GO-5 Ø8x18          | 1474 |
| 49   | 462      | 1    | Shifter shaft           |      |
| 50   | 335      | 2    | Allen screw M 5x12      | 912  |
| 51   | 3056     | 1    | Selector support bush   |      |
| 52   | 323      | 1    | Spring I Ø7,4x19        |      |
| 53   | 3009     | 1    | Selector lever          |      |
| 54   | 325      | 1    | Lever plunger           |      |
| 55   | 324      | 1    | Bakelite knob M 6 Ø25   |      |
| 56   | 465      | 1    | Upper bearing support   |      |
| 57   | 421      | 1    | Wheel handle            |      |
| 58   | 467      | 1    | Cluster gear spindle    |      |
| 59   | 470      | 1    | Circlip E-14            | 471  |
| 60   | 471      | 1    | Oilite bush A 14x22x15  |      |
| 61   | 819      | 1    | Allen screw M 4x8       | 912  |
| 62   | 428      | 1    | Direction selector knob |      |
| 63   | 423      | 1    | Wheel bush              |      |
| 64   | 425      | 1    | Spring holder bush      |      |
| 65   | 427      | 1    | Key A 4x3,5x10          |      |
| 66   | 444      | 1    | Pin GO-5 Ø3x10          | 1474 |
| 67   | 422      | 1    | Wheel                   |      |
| 68   | 472      | 1    | Washer Ø14x Ø20x1,5     |      |
| 69   | 1595     |      | Washer Ø14x Ø20x0,1     |      |
| 89   | 1596     |      | Washer Ø14x Ø20x0,2     |      |
| 69   | 1597     |      | Washer Ø14x Ø20x0,3     |      |
| 69   | 1598     |      | Washer Ø14x Ø20x0,5     |      |
| 70   | 7108     | 1    | Washer                  |      |
| 71   | 7096     | 1    | Engagement plunger      |      |
| 72   | 7099     | 1    | Pin GO-8 Ø4x30          |      |
| 73   | 7118     | 1    | Spring I Ø8,8x20        |      |
| 74   | 7097     | 1    | Control handle          |      |
| 75   | 352      | 1    | Bakelite knob M 8x45x28 |      |
| 76   | 7050     | 1    | Driving con rod         |      |

| Item | Part No. | Qty. | Description               | DIN  |
|------|----------|------|---------------------------|------|
| 1    | 3053     | 1    | Worm shaft                |      |
| 2    | 431      | 1    | Feed direction selector   |      |
| 3    | 58       | 1    | Support regulation washer |      |
| 4    | 9        | 2    | Clamping nut              |      |
| 5    | 432      | 2    | Clamping nut              |      |
| 6    | 359      | 2    | Washer M 12               | 125  |
| 7    | 436      | 2    | Oilite bush A 12x16x12    |      |
| 8    | 435      | 2    | Feed reverse bevel gear   |      |
| 9    | 437      | 1    | Key A 4x3,5x16            |      |
| 10   | 438      | 1    | Clutch bobbin             |      |
| 11   | 322      | 2    | Spring pin Ø3x20          | 1481 |
| 12   | 434      | 2    | Head tightening bush      |      |
| 13   | 433      | 4    | Head clamping bol         |      |
| 14   | 439      | 1    | Spacer washer             |      |
| 15   | 758      | 1    | Spring pin Ø3x6           | 1481 |
| 16   | 440      | 1    | Bush                      |      |
| 17   | 445      | 1    | Bearing HK-10/10          |      |
| 18   | 377      | 3    | Allen grub screw M5x20    | 916  |
| 19   | 442      | 1    | Worm                      |      |
| 20   | 76       | 1    | Taper pin Ø4x40           | 1    |
| 21   | 726      | 1    | Bearing AX 816 + Q2-816   |      |
| 22   | 725      | 1    | Bearing collar            |      |
| 23   | 443      | 1    | Oilite bush A 8x12x15     |      |
| 24   | 468      | 1    | Gear cluster              |      |
| 25   | 469      | 1    | Key A 3x3,5x45            |      |
| 26   | 448      | 1    | Gearing shaft             |      |
| 27   | 455      | 1    | Bearing cup               |      |
| 28   | 496      | 2    | Allen grub screw M6x10    | 914  |
| 29   | 4256     | 1    | Oilite bush A 18x22x20    |      |
| 30   | 3055     | 1    | Gearing support           |      |
| 31   | 449      | 1    | Key A 5x5x9               |      |
| 32   | 450      | 1    | Bevel gear                |      |
| 33   | 451      | 1    | Washer M-10               | 125  |
| 34   | 452      | 1    | Washer M-10               | 6798 |
| 35   | 453      | 1    | Nut M-10                  | 934  |
| 36   | 454      | 1    | Shaft and bevel pinion    |      |
| 37   | 741      | 1    | Washer M-28               |      |
| 38   | 456      | 2    | Bearing 6001-ZZ           |      |
| 39   | 457      | 1    | Circlip I-28              | 472  |
| 40   | 346      | 4    | Allen grub screw M 4x6    | 914  |
| 41   | 459      | 1    | Spacer bush               |      |



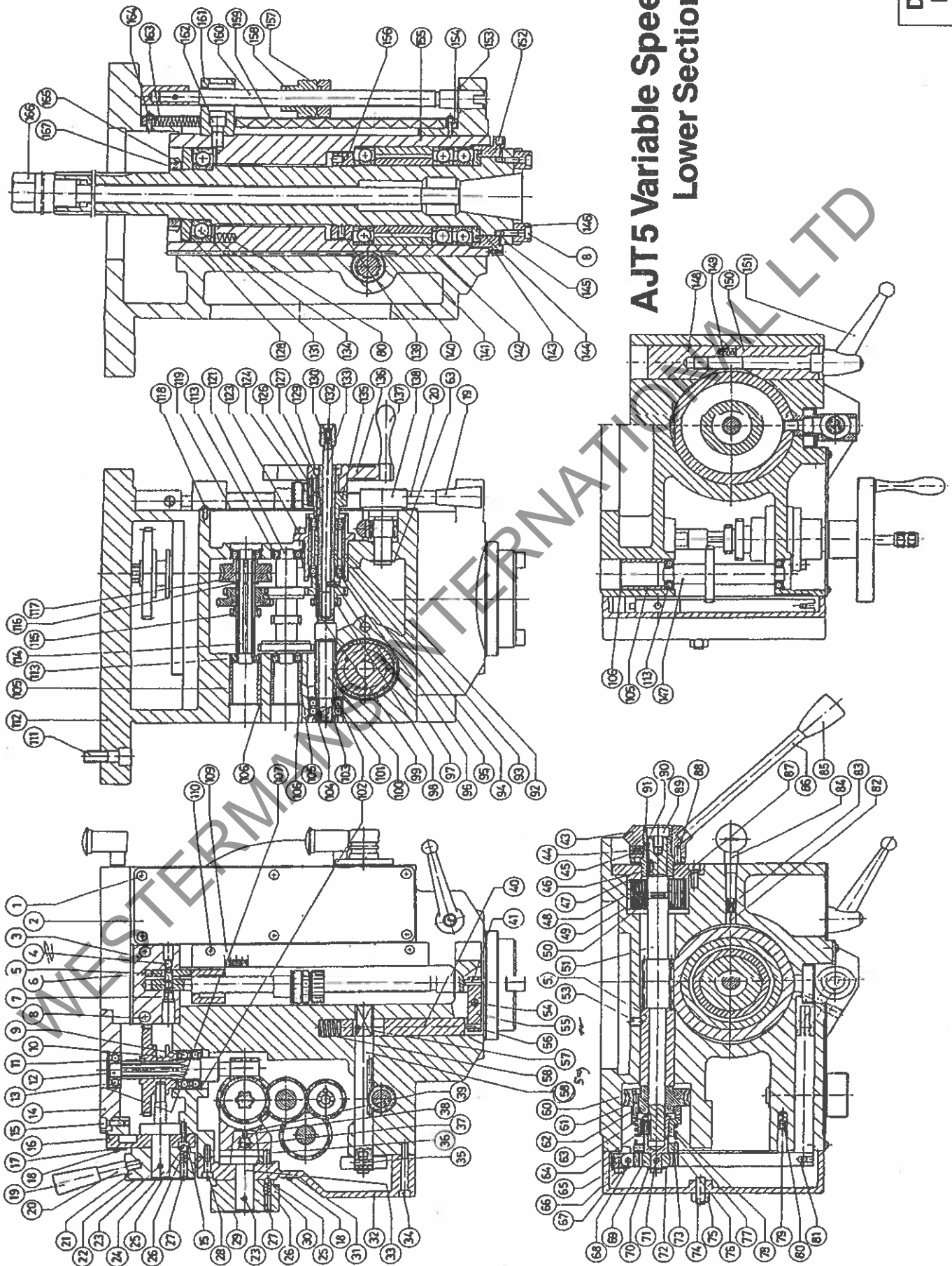
**AJT5 Variable Speed Head**  
**Upper Section**

| Item | Part No. | Qty. | Description                          | DIN  |
|------|----------|------|--------------------------------------|------|
| 1    | 7143     | 1    | Cover                                |      |
| 2    | 8142     | 2    | Screw M 4 x 10                       | 7991 |
| 3    | 340A     | 14   | Rivets 102x4.8                       |      |
| 4    | 2571     | 1    | Index                                |      |
| 5    | 2517     | 2    | Rubber gasket                        |      |
| 6    | 2510     | 2    | Plate                                |      |
| 7    | 665      | 8    | Roundhead screw M 4 x 10             | 86   |
| 8    | 2533     | 1    | Brake chain                          |      |
| 9    | 2550     | 1    | Brake guideways                      |      |
| 10   | 6632     | 1    | Spring                               |      |
| 11   | 2551     | 1    | Brake regulator                      |      |
| 12   | 2557     | 2    | Brake spring                         |      |
| 13   | 2558     | 2    | Brake shoes                          |      |
| 14   | 552      | 4    | Allen screw M 8 x 2                  | 912  |
| 15   | 563A     | 2    | Pin GO-2 Ø8 x 30                     | 1473 |
| 16   | 2542     | 1    | Fork guiding shaft                   |      |
| 17   | 760A     | 1    | Pin GO-5 Ø8 x 16                     | 1474 |
| 18   | 2537     | 1    | Shifting shaft                       |      |
| 19   | 496      | 1    | Allen grub screw M 3 x 10            | 914  |
| 20   | 4343     | 4    | Allen screw M 5 x 15                 | 912  |
| 21   | 2536     | 1    | Spindle boss                         |      |
| 22   | 4246     | 2    | Steel ball Ø5                        |      |
| 23   | 392      | 2    | Spring                               |      |
| 24   | 495      | 1    | Grub screw M 6 x 15                  | 913  |
| 25   | 1280A    | 2    | Spring pin Ø6 x 33                   | 7343 |
| 26   | 2538     | 1    | Knob                                 |      |
| 27   | 2520     | 1    | 5.5 HP motor 1500rpm LS-112M type B5 |      |
| 28   | 2530     | 1    | Fan frame                            |      |
| 29   | 2544     | 3    | Fan frame guard                      |      |
| 30   | 5014     | 1    | Washer MB-9                          |      |
| 31   | 5013     | 1    | Nut KM-9                             |      |
| 32   | 2543     | 1    | Fan                                  |      |
| 33   | 4322     | 1    | Key 6x6x22                           | 6885 |
| 34   | 5001     | 1    | Radial bearing 6009-Z (45x75x16)     |      |
| 35   | 2519     | 1    | Belt 1000 W-40                       |      |
| 36   | 2534     | 1    | Motor pulley assembly                |      |
| 37   | 2535     | 1    | Radial bearing 6014 LLB (70x115x20)  |      |
| 38   | 2531     | 1    | Motor pulley bearing cup             |      |
| 39   | 2582     | 2    | Supporting screw                     |      |
| 40   | 358      | 2    | Hexagonal screw M 8                  | 933  |
| 41   | 2581     | 1    | Variator fork                        |      |
| 42   |          |      |                                      |      |
| 43   | 4235     | 1    | Radial bearing 6006-Z (30x55x13)     |      |
| 44   | 8045     | 1    | Circlip E-30                         | 471  |
| 45   | 2539     | 1    | Variable speed gear plate            |      |
| 46   | 2533     | 1    | Pulley support cover                 |      |
| 47   | 6740     | 1    | Spring washer M 11                   | 7980 |
| 48   | 2526     | 1    | Hexagonal screw M 10 x 165           | 934  |
| 49   | 818      | 2    | Allen grub screw M 9 x 30            | 913  |
| 50   | 818      | 2    | Allen grub screw M 9 x 30            | 913  |

| Item | Part No. | Qty. | Description                        | DIN   |
|------|----------|------|------------------------------------|-------|
| 51   | 641      | 4    | Allen screw M 6 x 25               | 912   |
| 52   | 519      | 15   | Allen screw M 6 x 15               | 912   |
| 53   | 2527     | 1    | Back gear support                  |       |
| 54   | 7072     | 1    | Circlip I-68                       | 472   |
| 55   | 4236     | 1    | Circlip E-40                       | 471   |
| 56   | 7066     | 1    | Radial bearing 6008 LLB (40x68x15) |       |
| 57   | 2508     | 1    | Bearing plate                      |       |
| 58   | 2525     | 1    | Back gear pinion                   | SMALL |
| 59   | 2581     | 1    | Variator fork                      |       |
| 60   | 8045     | 1    | Circlip E-30                       |       |
| 61   | 1280     | 2    | Spring pin Ø4 x 33                 | 7343  |
| 62   | 2529     | 2    | Taper roller bearing 30302A        |       |
| 63   | 2528     | 1    | Cover                              |       |
| 64   | 6501     | 1    | Circlip I-42                       | 472   |
| 65   | 7083     | 3    | Radial bearing 6009 LLB (45x75x16) |       |
| 66   | 2804     | 1    | Feed gear box driving gear         |       |
| 67   | 2579     | 1    | Variator support                   |       |
| 68   | 2580     | 1    | Fork axis                          |       |
| 69   | 563      | 1    | Cylindric pin Ø6x28 hardened       |       |
| 70   | 2578     | 1    | Variator centre pin                |       |
| 71   | 346      | 2    | Allen grub screw M 4 x 6           | 914   |
| 72   | 2583     | 2    | Tilting shaft                      |       |
| 73   | 340A     | 2    | Rivets 102x4.8                     |       |
| 74   | 4311     | 1    | Key AB x 5 x 22                    | 6885  |
| 75   | 2540     | 1    | Speed gear plate                   |       |
| 76   | 5013     | 1    | Nut KM-9                           |       |
| 77   | 2541     | 1    | Change fork                        |       |
| 78   | 5014     | 1    | Washer MB-9                        |       |
| 79   | 2577     | 1    | Variator driving arbor             |       |
| 80   | 2564     | 1    | Variator driving arbor shaft       |       |
| 81   | 5099     | 1    | Allen screw M 4 x 12               | 912   |
| 82   | 2476     | 1    | Bearings locator                   |       |
| 83   | 2572     | 1    | Bearing spacer                     |       |
| 84   | 444      | 4    | Pin GO-5 Ø3 x 10                   | 1475  |
| 85   | 2570     | 1    | Variator drive cover               |       |
| 86   | 2569     | 1    | Variator drive dial                |       |
| 87   | 2566     | 1    | Driven gear                        |       |
| 88   | 426      | 1    | Allen grub screw M 6 x 10          | 915   |
| 89   | 2567     | 1    | Washer                             |       |
| 90   | 8830     | 4    | Hexagonal head screw M 12 x 40     | 934   |
| 91   | 8005     | 4    | Spring washer M 12                 | 7980  |
| 92   | 4424     | 4    | Allen screw M 10 x 45              | 912   |
| 93   | 2502     | 1    | Upper cover                        |       |
| 94   | 2506     | 1    | Radial bearing 6010 LLB (50x80x16) |       |
| 95   | 2556     | 1    | Supporting cover                   |       |
| 96   | 335      | 3    | Allen screw M 5 x 12               | 912   |
| 97   | 3217     | 2    | Circlip E-50                       | 471   |
| 98   | 2505     | 1    | Driven pulley sleeve               |       |
| 99   | 5085     | 4    | Allen screw M 10 x 35 12-K         | 912   |
| 100  | 2501     | 1    | Upper cover                        |       |

| Item | Part No. | Qty. | Description                        | DIN  |
|------|----------|------|------------------------------------|------|
| 101  | 2500     | 1    | Upper casing                       |      |
| 102  | 2507     | 1    | Radial bearing 6011 LLB (55x90x18) |      |
| 103  | 4322     | 1    | Key A 6x6x22                       | 6885 |
| 104  | 2523     | 1    | Washer                             |      |
| 105  | 2522     | 1    | Support bushing                    |      |
| 106  | 2524     | 1    | Reduction gear                     |      |
| 107  | 2521     | 1    | Backgear shaft                     |      |
| 108  | 2554     | 1    | Brake support                      |      |
| 109  | 2555     | 1    | Brake shaft                        |      |
| 110  | 4322     | 1    | Key A 6x6x22                       | 6885 |
| 111  | 6592     | 1    | Circlip E-18                       | 471  |
| 112  | 2511     | 1    | Gear plate                         |      |
| 113  | 2509     | 1    | Gear                               |      |
| 114  | 7082     | 1    | Circlip I-75                       | 472  |
| 115  | 6849     | 1    | Circlip E-45                       | 471  |
| 116  | 2513     | 1    | Reduction gear                     |      |
| 117  | 4211     | 1    | Handle                             |      |
| 118  | 7082     | 1    | Circlip I-75                       | 472  |
| 119  | 2518     | 1    | Bearing housing                    |      |
| 120  | 5056     | 4    | Allen screw M 8 x 20               | 912  |
| 121  | 2516     | 1    | Bearing spacer                     |      |
| 122  | 2515     | 1    | Bearing spacer                     |      |
| 123  | 2566     | 1    | Actuator gear                      |      |
| 124  | 2568     | 1    | Drum holder                        |      |
| 125  | 4386     | 1    | Spring pin Ø3x30                   | 7343 |
| 126  | 322      | 1    | Spring pin Ø3x20                   | 1481 |
| 127  | 2567     | 1    | Washer                             |      |
| 128  | 2562     | 1    | Variator operating handwheel       |      |
| 129  | 758A     | 2    | Spring pin Ø3x8                    | 1481 |
| 130  | 2573     | 1    | Bearing stop bushing               |      |
| 131  | 4553     | 2    | Radial bearing 6003 2RS (17x35x10) |      |
| 132  | 5044     | 1    | Circlip I-35                       | 472  |
| 133  | 2545     | 1    | Brake spindle mounting             |      |
| 134  | 2547     | 1    | Brake lever boss                   |      |
| 135  | 2548     | 1    | Brake plate                        |      |
| 136  | 2546     | 1    | Brake shaft                        |      |
| 137  | 760      | 1    | Pin GO-5 Ø8x18                     | 1475 |
| 138  | 2552     | 2    | Screw                              |      |
| 139  | 592B     | 2    | Flat washer Ø8                     | 125  |
| 140  | 2549     | 1    | Brake lever                        |      |
| 141  | 4580     | 1    | Knob M-109 M-8                     |      |
| 142  | 819      | 2    | Allen screw M-4 x 8                | 912  |
| 143  | 2559     | 1    | Cover                              |      |

# AJT5 Variable Speed Head Lower Section

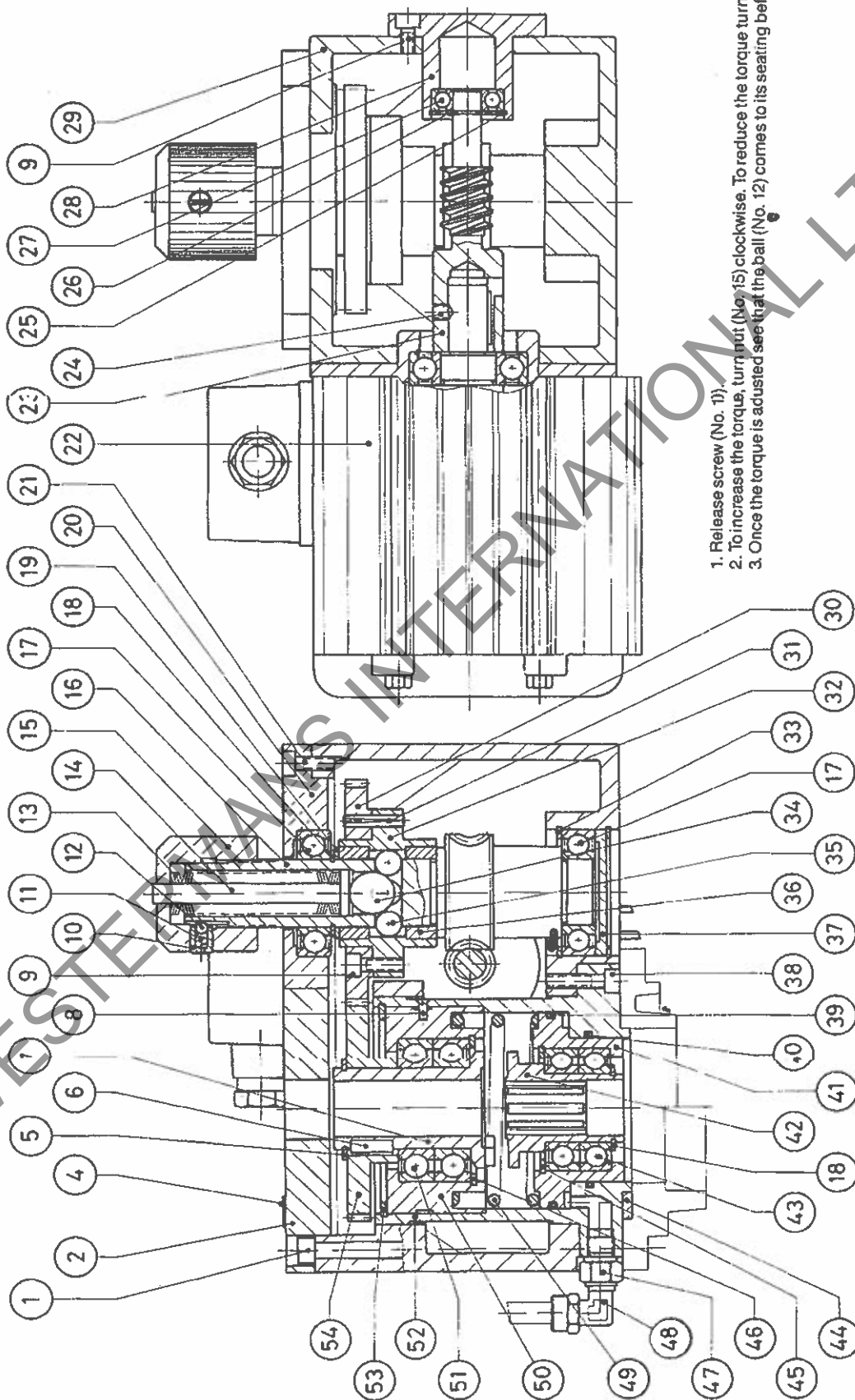


| Item | Part No. | Qty. | Description                       | DIN  |
|------|----------|------|-----------------------------------|------|
| 1    | 406      | 6    | Roundhead screw M4x5              | 86   |
| 2    | 2814     | 1    | Blanking plate                    |      |
| 3    | 2887     | 1    | Trip mechanism block              |      |
| 4    | 426      | 1    | Stud M6x10                        | 915  |
| 5    | 2886     | 1    | Screw                             |      |
| 6    | 417      | 1    | Tilting bar                       |      |
| 7    | 418      | 1    | Upper tilter plug                 |      |
| 8    | 306      | 4    | Allen screw M6x20                 |      |
| 9    | 722      | 4    | Allen screw M4x15 ISO 40 Erickson | 912  |
| 10   | 4553     | 2    | Radial bearing 6003 2RS           |      |
| 11   | 8173     | 1    | Circlip E-17                      |      |
| 12   | 2818     | 1    | Driven gear of the feed box       |      |
| 13   | 2817     | 1    | Driving shaft of the feedbox      |      |
| 14   | 2816     | 1    | Radial bearing 6201 2RS           |      |
| 15   | 2815     | 1    | Driven gear cover                 |      |
| 16   | 335      | 7    | Allen screw M5x12                 | 912  |
| 17   | 2820     | 1    | Feed clutch cover                 |      |
| 18   | 2821     | 1    | Feed clutch indicator plate       |      |
| 19   | 340A     | 4    | Rivet 102x4.8                     |      |
| 20   | 4580     | 1    | Bakelite knob M-8                 |      |
| 21   | 2828     | 2    | Lever                             |      |
| 22   | 2823     | 1    | Lever boss                        |      |
| 23   | 2824     | 1    | Indicator plate                   |      |
| 24   | 1280     | 2    | Spring pin Ø4x33                  | 7343 |
| 25   | 4246     | 2    | Feed clutch shaft                 |      |
| 26   | 4243     | 2    | Steel ball Ø5                     |      |
| 27   | 495      | 2    | Spring                            |      |
| 28   | 641      | 3    | Grubscrew M6x15                   | 913  |
| 29   | 2539     | 1    | Allen screw M6x25                 | 912  |
| 30   | 2538     | 1    | Feed change plate                 |      |
| 31   | 2861     | 1    | Feed change knob                  |      |
| 32   | 2860     | 1    | Feed plate                        |      |
| 33   | 2862     | 1    | Feed box cover                    |      |
| 34   | 7148     | 1    | Feed change shaft                 |      |
| 35   | 396      | 1    | Allen screw M6x45                 | 912  |
| 36   | 728      | 1    | Pin GO-2 Ø5x16                    | 1472 |
| 37   | 2863     | 1    | Pin GO-5 Ø5x12                    | 1475 |
| 38   | 346      | 1    | Fork guide shaft                  |      |
| 39   | 2864     | 1    | Allen grubscrew M4x6              | 914  |
| 40   | 2877     | 1    | Feed change fork                  |      |
| 41   | 396      | 1    | Vertical shaft trip               |      |
| 42   | 3045     | 1    | Pin GO-2 Ø5x16                    | 1472 |
| 43   | 392      | 1    | Quill down feed boss              |      |
| 44   | 390      | 1    | Spring                            |      |
| 45   | 330      | 1    | Stud                              |      |
| 46   | 330      | 1    | Key W Ø16x6.5x5                   | 6888 |
| 47   | 2866     | 1    | Spring cup                        |      |
| 48   | 385      | 1    | Outer spring grip                 |      |
| 49   | 2867     | 1    | Quill balance spring              |      |
| 50   | 386      | 1    | Inner spring grip Ø5x1LD6         |      |
| 51   | 2865     | 1    | Downfeed quill gear shift         |      |
| 52   | 2868     | 1    | Quill traverse shaft bush         |      |
| 53   | 682      | 1    | Allen grubscrew M8x5              | 914  |
| 54   | 6759     | 1    | Tilting fulcrum pin               |      |
| 55   | 2878     | 1    | Lower tilting lever               |      |
| 56   | 410      | 1    | Stud M4x10                        | 913  |
| 57   | 398      | 1    | Spring pin Ø4x16                  | 1481 |

| Item | Part No. | Qty. | Description                               | DIN  |
|------|----------|------|-------------------------------------------|------|
| 58   | 2876     | 1    | Trip spring                               |      |
| 59   | 2874     | 1    | Automatic control shaft                   |      |
| 60   | 722      | 3    | Allen screw M4x15                         | 912  |
| 61   | 2869     | 1    | Quill shaft worm wheel                    |      |
| 62   | 3041     | 1    | Clutch ring                               |      |
| 63   | 382      | 1    | Circlip E-15                              | 471  |
| 64   | 371      | 1    | Key                                       |      |
| 65   | 2871     | 1    | Fork trip support                         |      |
| 66   | 375      | 1    | Pin GO-6 Ø5x18                            | 1476 |
| 67   | 4348     | 2    | Allen screw M5x20                         | 912  |
| 68   | 374      | 1    | Stud M6x10                                | 913  |
| 69   | 3033     | 1    | Bearing                                   |      |
| 70   | 372      | 1    | Circlip E-10                              | 471  |
| 71   | 376      | 2    | Fork pin                                  |      |
| 72   | 1041     | 1    | INA washer Ø10x16x0.2                     |      |
| 73   | 3035     | 1    | Spring adjusting nut                      |      |
| 74   | 818      | 1    | Stud M8x30                                | 913  |
| 75   | 358      | 1    | Hexagonal nut M-8                         | 934  |
| 76   | 3034     | 1    | Spring collar                             |      |
| 77   | 2870     | 1    | Clutch spring                             |      |
| 78   | 3036     | 1    | Clutch ring                               |      |
| 79   | 2873     | 1    | Trip stop                                 |      |
| 80   | 8901     | 5    | Spring                                    |      |
| 81   | 2872     | 1    | Trigger fork                              |      |
| 82   | 341      | 2    | Wick                                      |      |
| 83   | 77       | 2    | Lubricator sleeve                         |      |
| 84   | 493      | 2    | Lubricator                                |      |
| 85   | 4580     | 1    | Bakelite knob M-8                         |      |
| 86   | 388      | 1    | Quill feed lever                          |      |
| 87   | 519      | 3    | Allen screw M6x15                         | 912  |
| 88   | 375      | 1    | Pin GO-6 Ø5x18                            | 1476 |
| 89   | 389      | 1    | Handle fixing screw                       |      |
| 90   | 391      | 1    | Steel ball Ø3/16"                         |      |
| 91   | 3044     | 1    | Quill lever boss                          |      |
| 92   | 2851     | 1    | Shaft reverse bearing                     |      |
| 93   | 2853     | 1    | Bearing spacer                            |      |
| 94   | 2852     | 1    | Bearing spacer                            |      |
| 95   | 2850     | 2    | Radial bearing 6002 2RS                   |      |
| 96   | 5015     | 2    | Circlip I-32                              | 472  |
| 97   | 7063     | 1    | Spring pin Ø3x24                          | 1471 |
| 98   | 2854     | 1    | Reverse gearing                           |      |
| 99   | 2856     | 1    | Key A4x3.5x30                             | 6885 |
| 100  | 2845     | 1    | Reverse shaft                             |      |
| 101  | 2858     | 1    | Angular contact bearing 3201 (12x32x15.9) |      |
| 102  | 5044     | 3    | Circlip I-35                              | 472  |
| 103  | 4438     | 1    | Washer MB-1                               | 472  |
| 104  | 4437     | 1    | Nut KM-1                                  |      |
| 105  | 2839     | 3    | Bush                                      |      |
| 106  | 457      | 6    | Circlip I-28                              | 472  |
| 107  | 5015     | 1    | Circlip I-32                              | 472  |
| 109  | 2892     | 1    | Downfeed quill metric rule                |      |
| 109  | 2893     | 1    | Downfeed quill inch rule                  |      |
| 110  | 406      | 2    | Roundhead screw ØM4x5                     | 86   |
| 111  | 5085     | 4    | Allen screw M10x35                        | 912  |
| 112  | 2800     | 1    | Standard headstock casting                |      |
| 113  | 2838     | 6    | Radial bearing 6001 2RS                   |      |
| 114  | 2835     | 1    | Splined cluster shaft                     |      |

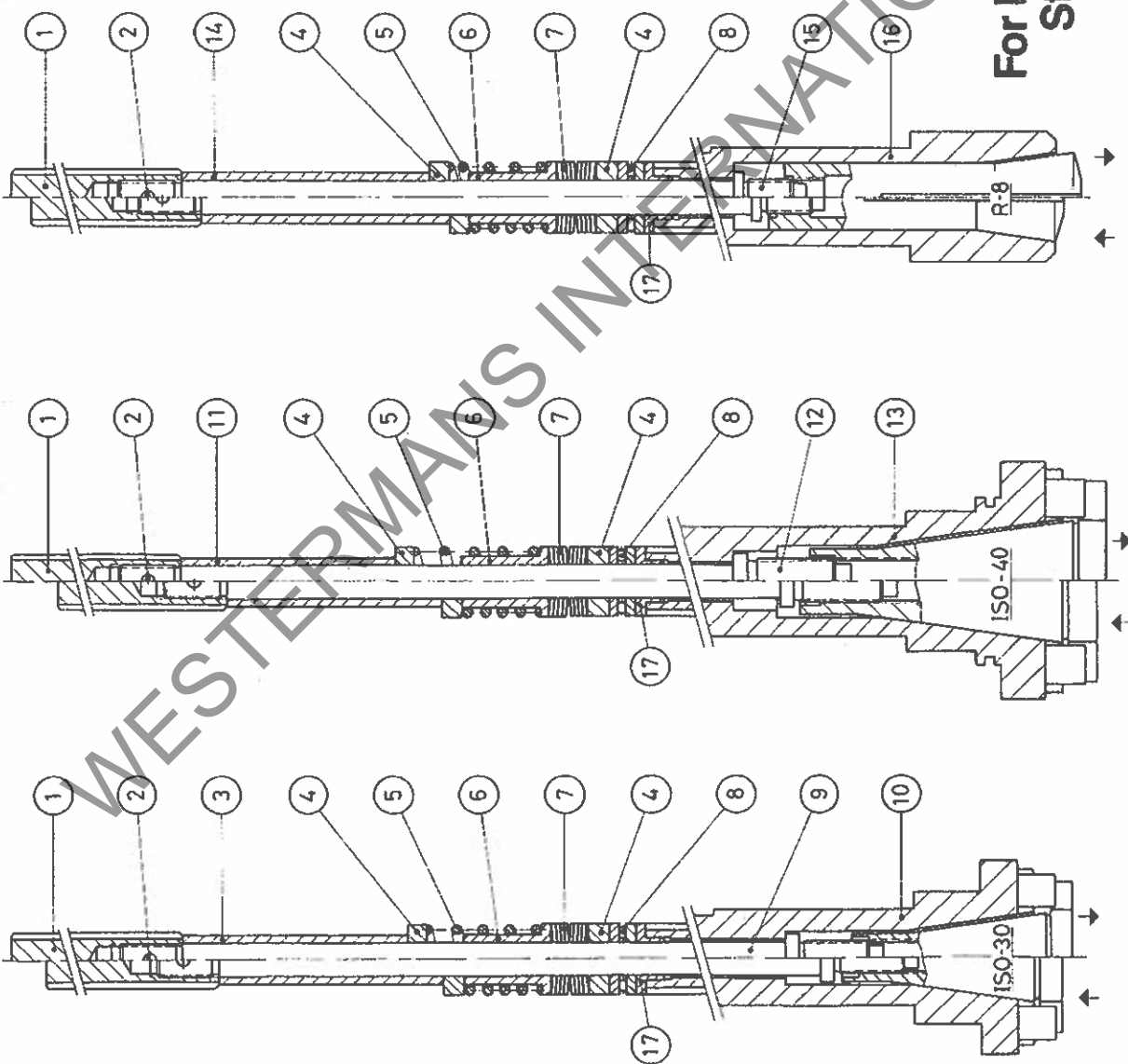
| Item | Part No. | Qty. | Description                | DIN  |
|------|----------|------|----------------------------|------|
| 115  | 2837     | 1    | Feed cluster gear          |      |
| 116  | 413      | 1    | Circlip E-16               | 471  |
| 117  | 2836     | 1    | Wormwheel                  |      |
| 118  | 406      | 6    | Roundhead screw M4x5       | 86   |
| 119  | 2855     | 1    | Handwheel plate            |      |
| 121  | 2841     | 1    | Gearing shaft              |      |
| 123  | 335      | 3    | Allen screw M5x12          | 912  |
| 124  | 437      | 1    | Key A4x3.5x16              | 6885 |
| 126  | 322      | 1    | Spring pin Ø3x20           | 1481 |
| 127  | 2857     | 1    | Oilite bush A 15x20x15     |      |
| 128  | 2610     | 1    | Bearing sealing washer     |      |
| 129  | 382      | 2    | Circlip E-15               | 471  |
| 130  | 2846     | 1    | Feed reversing knob        |      |
| 131  | 2613     | 1    | Radial bearing 6209        |      |
| 132  | 819      | 1    | Allen screw M4x8           | 912  |
| 133  | 2847     | 1    | Feed reverse shaft         |      |
| 134  | 2615     | 1    | Bearing locking washer     |      |
| 135  | 2849     | 1    | Driving bush               |      |
| 136  | 2848     | 1    | Feed handwheel             |      |
| 137  | 421      | 1    | Handle                     |      |
| 138  | 2875     | 1    | Tripping shaft             |      |
| 139  | 302      | 2    | Grubscrew M6x5             | 915  |
| 140  | 2612     | 3    | Bearings 7011 (55x90x18)   |      |
| 141  | 2607     | 1    | Spacing bush               |      |
| 142  | 2608     | 1    | Spacing bush               |      |
| 143  | 2819     | 1    | Grubscrew M4x10            | 914  |
| 144  | 2606     | 1    | Labyrinth ring             |      |
| 145  | 2801     | 1    | Standard main shaft ISO-40 |      |
| 146  | 305      | 2    | Erickson ISO-40 main shaft |      |
| 147  | 305R     | 2    | Standard shaft key         |      |
| 148  | 2842     | 1    | Erickson shaft key         |      |
| 149  | 2898     | 1    | Intermediate shaft         |      |
| 150  | 6632     | 1    | Quill lock                 |      |
| 151  | 2897     | 1    | Spring                     |      |
| 152  | 3905     | 1    | Quill lock lever           |      |
| 153  | 2803     | 1    | Standard shaft bearing nut |      |
| 154  | 2614     | 1    | Erickson shaft bearing nut | 471  |
| 155  | 6592     | 1    | Circlip E-18               |      |
| 156  | 28899    | 1    | Cover collar               |      |
| 157  | 2802     | 1    | Quill                      |      |
| 158  | 2609     | 1    | Bearing nut                |      |
| 159  | 2884     | 1    | Metric lock nut            |      |
| 160  | 2882     | 1    | Inch lock nut              |      |
| 161  | 2883     | 1    | Metric micro nut           |      |
| 162  | 2880     | 1    | Inch micro nut             |      |
| 163  | 2880     | 1    | Quill cover                |      |
| 164  | 2881     | 1    | Micrometer metric screw    |      |
| 165  | 2881     | 1    | Micrometer inch screw      |      |
| 166  | 2888     | 1    | Dog                        |      |
| 167  | 369      | 1    | Quill stop screw           |      |
| 168  | 2891     | 1    | Belows                     |      |
| 169  | 383      | 2    | Roundhead screw M4x15      | 86   |
| 170  | 5014     | 1    | Washer MB-9                |      |
| 171  | 2807     | 1    | ISO-40 metric drawbar      |      |
| 172  | 2808     | 1    | ISO-40 inch drawbar        |      |
| 173  | 5013     | 1    | Nut KM-9                   |      |

# AJT4/5 Turret Mill Optional Power Drawbar Unit (All Heads)

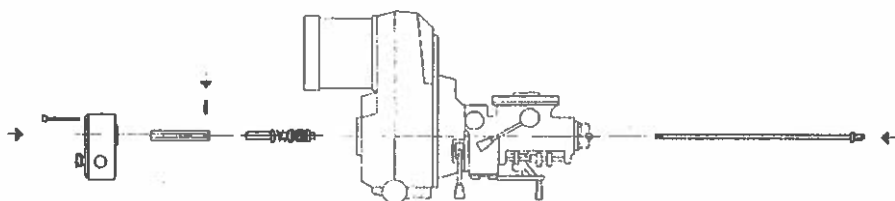


1. Release screw (No. 1).
2. To increase the torque, turn nut (No. 15) clockwise. To reduce the torque turn the nut counter-clockwise.
3. Once the torque is adjusted see that the ball (No. 12) comes to its seating before tightening screw (No. 10).





Method of Assembly



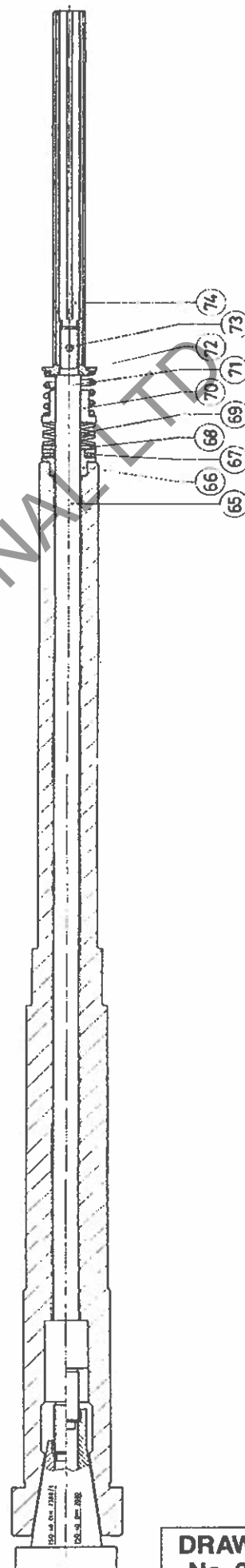
**AJT4 Turret Mills**  
For Heads fitted with Power Drawbar Unit  
Standard and Variable Speed Heads  
Alternative Drawbar Assemblies  
dependent on Spindle Taper



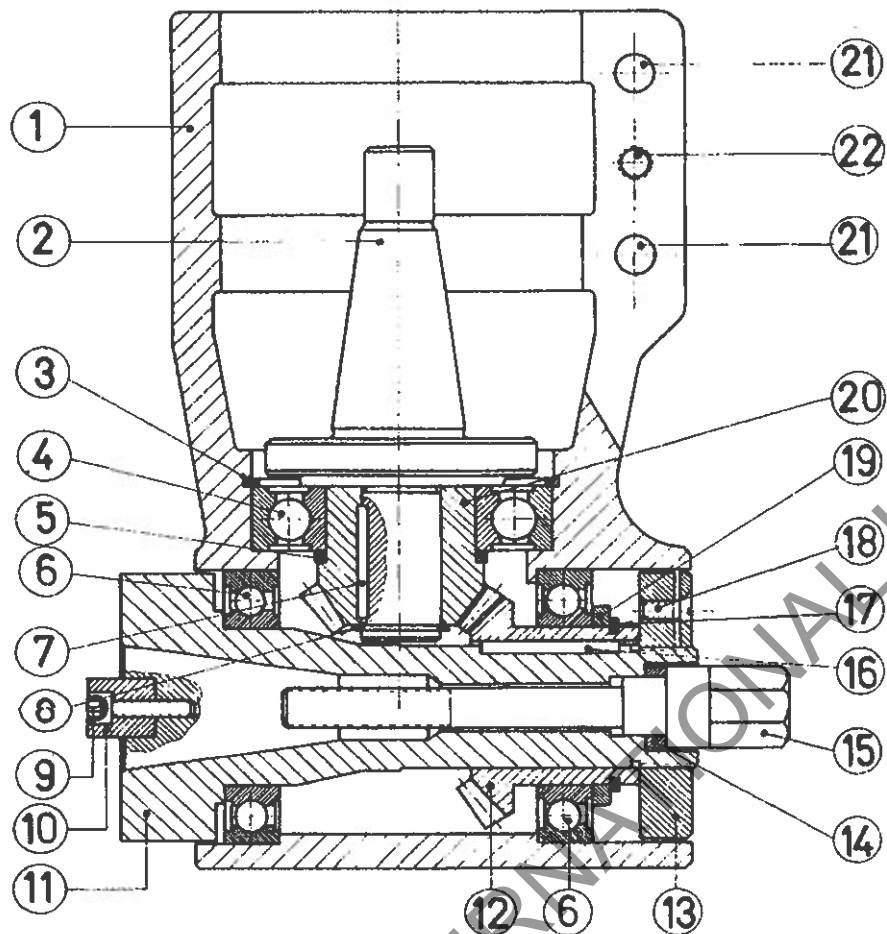
| Item | Part No. | Qty. | Description                                 |
|------|----------|------|---------------------------------------------|
| 65   | 2635     | 1    | Drawbar ISO-40 metric thread                |
| 65   | 2636     | 1    | Drawbar ISO-40 imperial thread              |
| 66   | 2628     | 1    | Bush                                        |
| 67   | 2629     | 1    | INA thrust bearing AXK-2035-AS-2035-LS-2035 |
| 68   | 2630     | 1    | Washer                                      |
| 69   | 2707     | 4    | Belleville washers 16.3I/D x 340/D x 2      |
| 70   | 2632     | 1    | Bush                                        |
| 71   | 2633     | 1    | Spring                                      |
| 72   | 2634     | 1    | Spring retaining washer                     |
| 73   | 398      | 1    | Spring pin 4 diam. x 20                     |
| 74   | 2631     | 1    | Splined drive shaft                         |

## AJT5 Turret Head

Drawbar Assembly suitable for use with  
Power Drawbar Unit

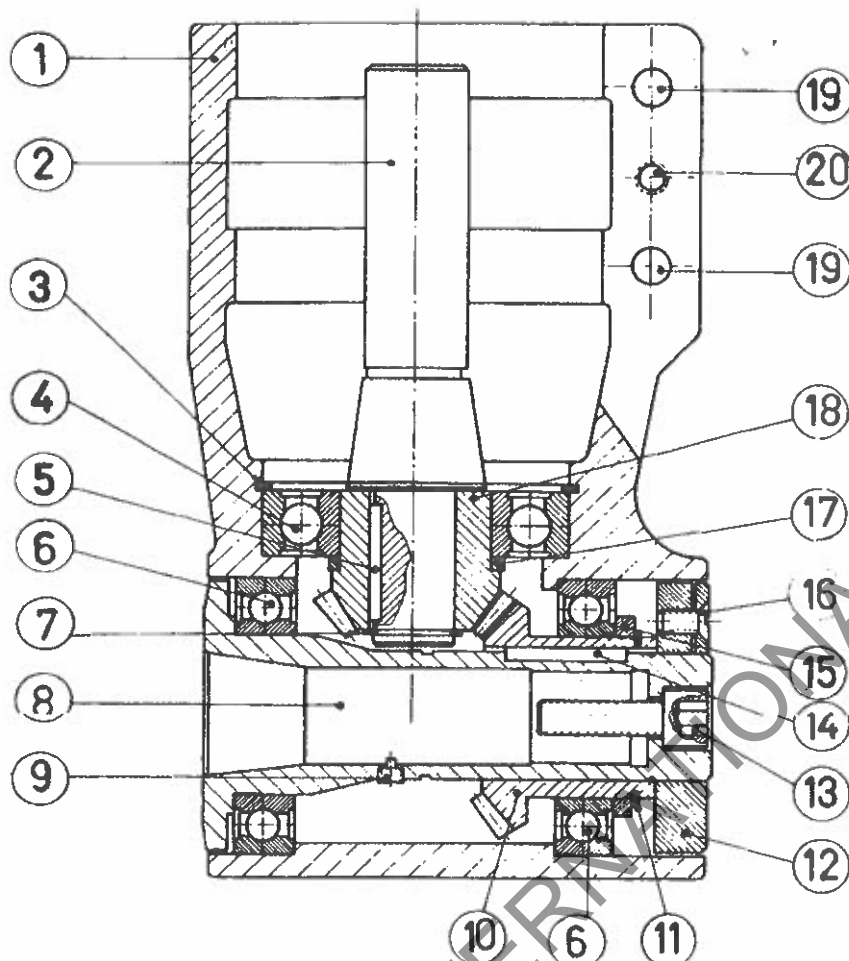


**DRAWING**  
**No. 2700**



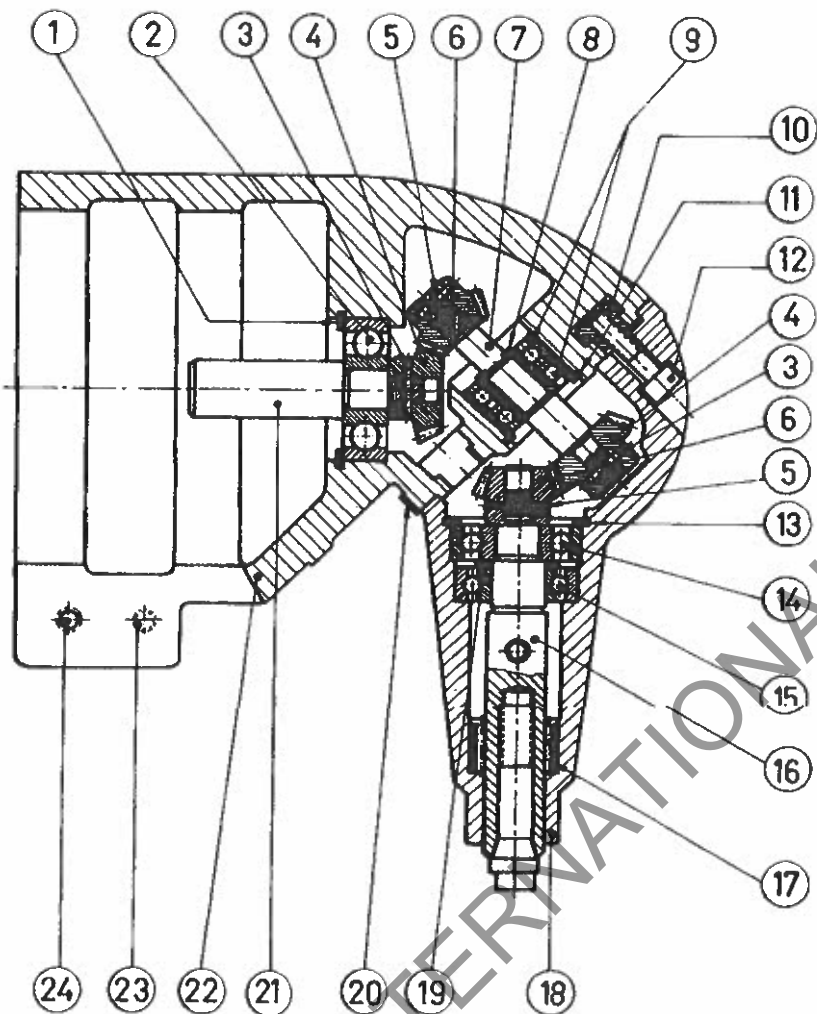
| Item | Qty. | Description                      |
|------|------|----------------------------------|
| 1    | 1    | Body                             |
| 2    | 1    | Drive shaft                      |
| 3    | 1    | Circlip I-75 DIN-472             |
| 4    | 1    | Bearing 6207-Z                   |
| 5    | 1    | Spacer washer                    |
| 6    | 2    | Bearing 6008-2Z                  |
| 7    | 1    | Key 4x4x28 DIN-6885-A            |
| 8    | 1    | Circlip DIN-471 E-19             |
| 9    | 2    | Allen screw M 6x18 DIN-912       |
| 10   | 2    | Driving dog DIN-2079             |
| 11   | 1    | ISO-30 spindle                   |
| 12   | 1    | Bevel gear                       |
| 13   | 1    | Nut                              |
| 14   | 1    | Washer                           |
| 15   | 1    | Drawbar                          |
| 16   | 1    | Key 4x4x28 DIN-6885-A            |
| 17   | 1    | Circlip E-40 DIN-471             |
| 18   | 1    | Countersunk screw M 6x8 DIN      |
| 19   | 1    | Spacer washer                    |
| 20   | 1    | Bevel gear                       |
| 21   | 2    | Allen screw M 10x35 DIN-912      |
| 22   | 1    | Allen grub screw M 10x30 DIN-913 |
| 23   | 1    | Ball lubricator M 10 DIN         |
|      |      |                                  |
|      |      |                                  |

## AJT4 Turret Mill Right Angle Attachment ISO-30 Taper



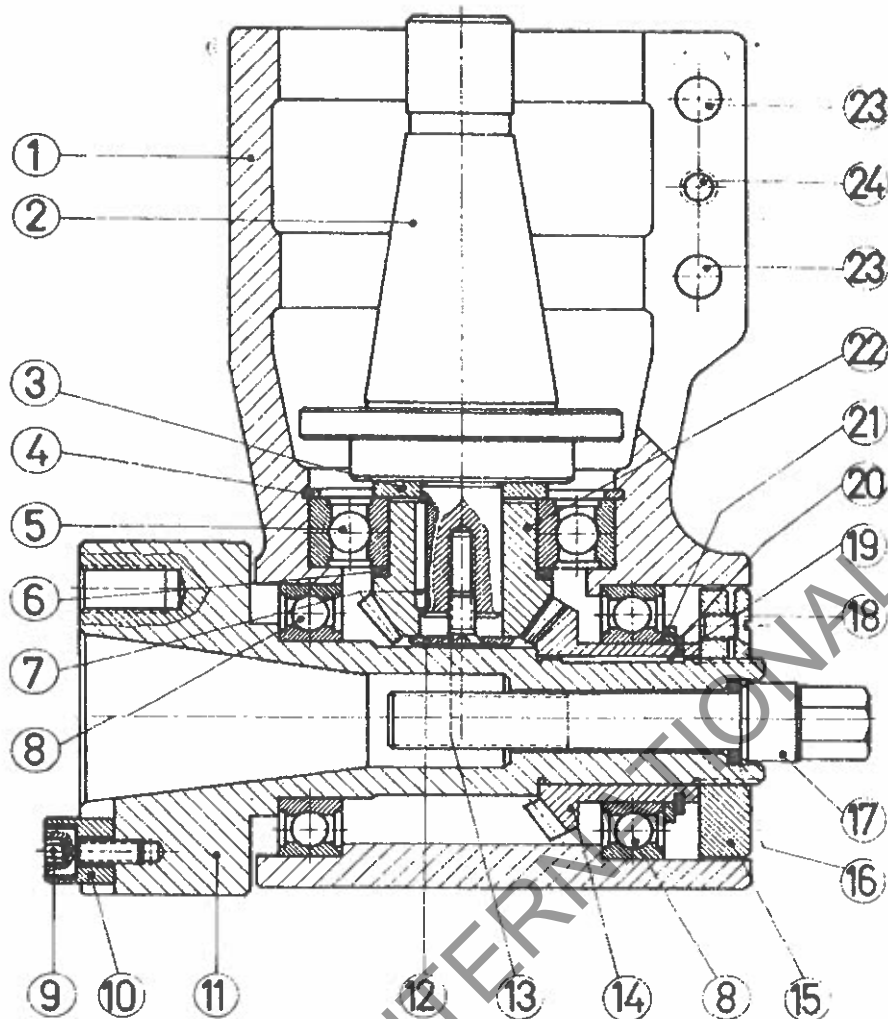
| Item | Qty. | Description                      |
|------|------|----------------------------------|
| 1    | 1    | Body                             |
| 2    | 1    | Drive shaft                      |
| 3    | 1    | Circlip I-75 DIN-472             |
| 4    | 1    | Bearing 6207-Z                   |
| 5    | 1    | Key 4x4x28 DIN-6885-A            |
| 6    | 2    | Bearing 6008-2Z                  |
| 7    | 1    | Circlip E-19 DIN-471             |
| 8    | 1    | R-8 spindle                      |
| 9    | 1    | Allen grub screw DIN-915         |
| 10   | 1    | Bevel gear                       |
| 11   | 1    | Circlip E-40 DIN-471             |
| 12   | 1    | Nut M 32                         |
| 13   | 1    | Allen screw DIN-912              |
| 14   | 1    | Key 4x4x28 DIN-6885-A            |
| 15   | 1    | Washer                           |
| 16   | 1    | Countersunk screw M 6x8 DIN      |
| 17   | 1    | Spacer washer                    |
| 18   | 1    | Bevel gear                       |
| 19   | 2    | Allen screw M 10x35 DIN-912      |
| 20   | 1    | Allen grub screw M 10x30 DIN-912 |
| 21   | 1    | Ball lubricator M 10             |
|      |      |                                  |
|      |      |                                  |
|      |      |                                  |
|      |      |                                  |

**AJT4 Turret Mill  
Right Angle Attachment  
R-8 Taper**



| Item | Qty. | Description                               |
|------|------|-------------------------------------------|
| 1    | 1    | Circlip I-37 DIN-472                      |
| 2    | 1    | Bearing 6300                              |
| 3    | 2    | Pin $\varnothing 2,25 \times 13$ DIN-1481 |
| 4    | 2    | Bevel gear                                |
| 5    | 2    | Pin $\varnothing 2,25 \times 13$ DIN-1481 |
| 6    | 2    | Bevel gear                                |
| 7    | 1    | Shaft                                     |
| 8    | 1    | Circlip E-76 DIN-471                      |
| 9    | 2    | Bearing 608                               |
| 10   | 3    | Fixing nut DIN-508                        |
| 11   | 1    | Circlip I-23 DIN-472                      |
| 12   | 3    | Allen screw M 6x12 DIN-912                |
| 13   | 1    | Circlip I-33 DIN-472                      |
| 14   | 1    | Bearing 6200                              |
| 15   | 1    | Bearing 6001                              |
| 16   | 1    | Spindle                                   |
| 17   | 1    | Bearing INA HK-14/2                       |
| 18   | 1    | Lower body                                |
| 19   | 1    | Spacer washer                             |
| 20   | 1    | Graduated scale                           |
| 21   | 1    | Drive shaft                               |
| 22   | 1    | Upper body                                |
| 23   | 1    | Allen grub screw M 6x20 DIN-913           |
| 24   | 1    | Allen screw M 8x30 DIN-912                |

## AJT4 Turret Mill Quillmaster

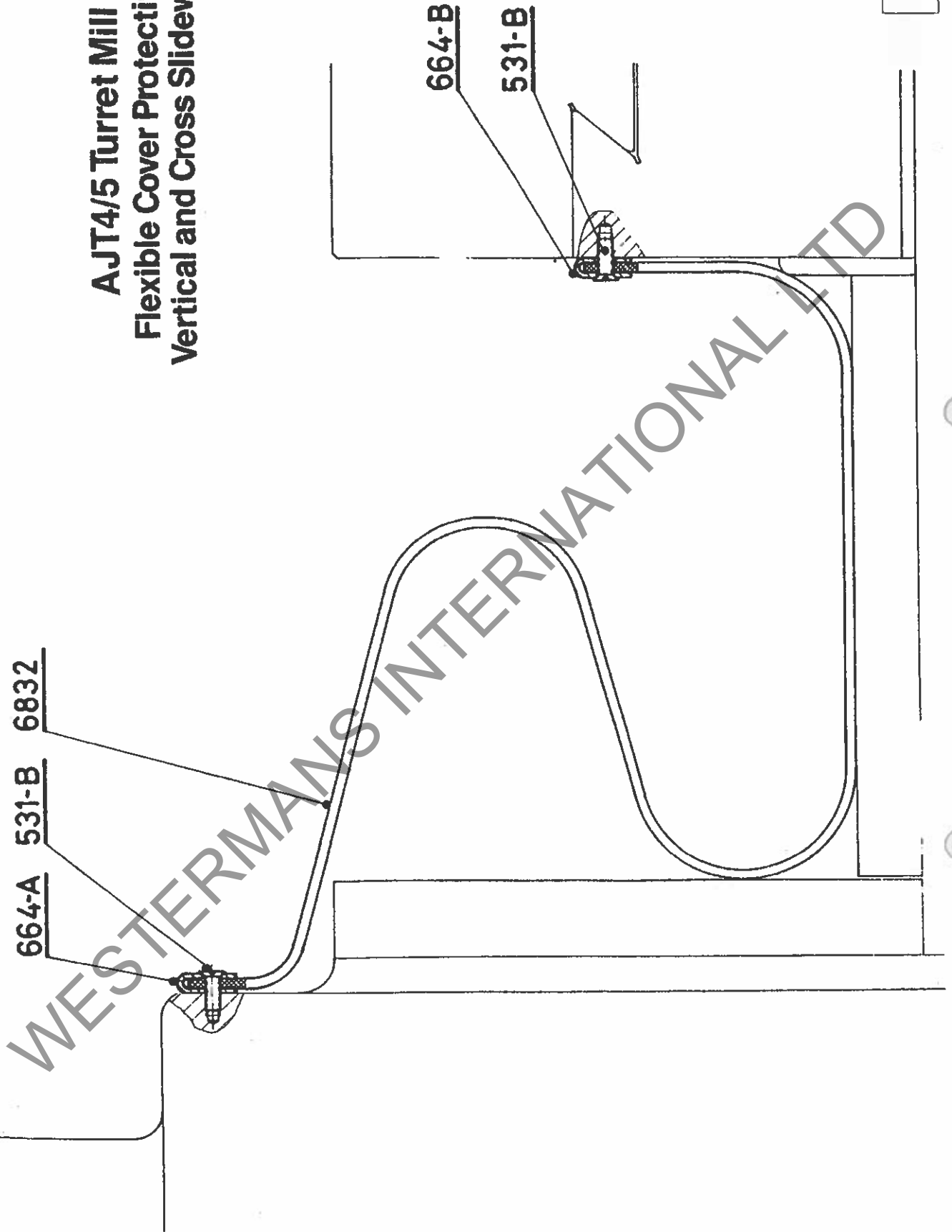


| Item | Qty. | Description                      |
|------|------|----------------------------------|
| 1    | 1    | Body                             |
| 2    | 1    | Drive shaft                      |
| 3    | 1    | Spacer washer                    |
| 4    | 1    | Circlip I-75 DIN-472             |
| 5    | 1    | Bearing 6207-Z                   |
| 6    | 1    | Spacer washer                    |
| 7    | 1    | Key 4x4x28 DIN-6885-A            |
| 8    | 2    | Bearing 8008-Z                   |
| 9    | 2    | Allen screw M 6 DIN-912          |
| 10   | 2    | Driving dog DIN-2079             |
| 11   | 1    | ISO-40 spindle                   |
| 12   | 1    | Washer                           |
| 13   | 1    | Countersunk screw M 6 DIN-7991   |
| 14   | 1    | Bevel gear                       |
| 15   | 1    | Nut M 32                         |
| 16   | 1    | Washer                           |
| 17   | 1    | Drawbar                          |
| 18   | 1    | Countersunk screw M 6 DIN        |
| 19   | 1    | Key 4x4x28 DIN-6885-A            |
| 20   | 1    | Circlip DIN-471 E-40             |
| 21   | 1    | Spacer washer                    |
| 22   | 1    | Bevel gear                       |
| 23   | 2    | Allen screw M 10x35 DIN-912      |
| 24   | 1    | Allen grub screw M 10x30 DIN-913 |
| 25   | 1    | Ball lubricator M 10             |

## AJT4 Turret Mill Right Angle Attachment ISO-40 Taper

**AJT4/5 Turret Mill**  
**Flexible Cover Protecting**  
**Vertical and Cross Slideways**

**DRAWING**  
**No. 6846**



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# Servicing

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When servicing the machine, first open mains isolator. Check the earthing at regular intervals. Keep the motors clean. Grease in the bearings is to be replaced every 2000 hours of operation. Replacement fuses should be of the same nominal value.

After repairs, test the function of the mechanisms at no load.

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AJAX MILL

BELOW THE MOTOR  
DETAIL.

WESTERMANS INTERNATIONAL LTD



650

679

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A JAT MILL

WESTERMANS INTERNATIONAL LTD

A black and white photograph of a mechanical component, likely a mill, with a central circular opening. A screw is visible at the top. The text "WESTERMANS INTERNATIONAL LTD" is overlaid diagonally across the image.

WESTERMANS INTERNATIONAL LTD

