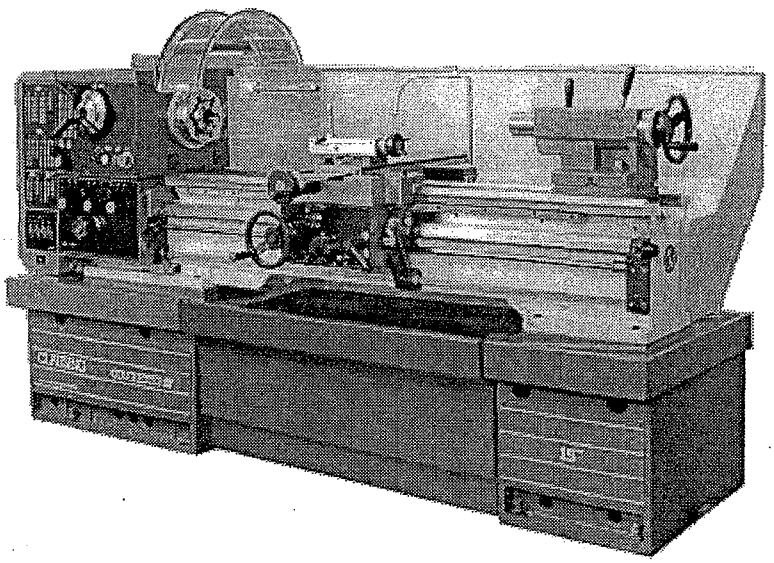
CLAUSING - COLCHESTER

15"

Geared Head Centre Lathes



This manual applies only to the machine having the serial number shown; this is stamped on the front of the lathe bed at the tailstock end and MUST be quoted in all communications.

Machine Serial Number ..... TH0031 .....

Year of Manufacture ..... 1996 .....

CE

CLAUSING INDUSTRIAL INC.
1819 North Pitcher Street, Kalamazoo, MI 49007, U.S.A.

Printed in England

CLC / M61 / JAN 1996 / ISSUE 4

EC Declaration of Conformity

The Responsible Person — **Dr Stuart K Cessford**

Business Name — **600 Lathes** (A trading name of 600 UK Ltd)

Address — **Union Street,**
Heckmondwike,
West Yorkshire,
WF16 OHN
England

Declares that the machinery described :

1. Make — **Colchester Lathe**

2. Model — Triumph GH

3. Serial Number — TH0031

Conforms to the following Directives: **EC MACHINERY DIRECTIVE 89/392/EEC AS AMENDED BY DIRECTIVE 91/368/EEC AND DIRECTIVE 93/44/EEC.**
CE MARKING DIRECTIVE 93/68/EEC.
ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 89/336/EEC AS AMENDED BY DIRECTIVE 91/263/EEC AND 92/31/EEC

and complies with — **The relevant essential health and safety requirements of the Machinery Directive, and the protection requirements of council directive 89/336/EEC (as amended) on the approximation of the laws of the member states relating to electromagnetic compatibilty**

Signature

General Manager

Position

(IF NOT SIGNED BY THE RESPONSIBLE PERSON, STATE HERE THE NAME OF THE PERSON SIGNING THE DECLARATION)

Signed by

Signed at — 600 LATHES
UNION STREET
HECKMONDWIKE
WEST YORKSHIRE
ENGLAND. WF16 OHN

Date — 23.3.96

CONTENTS PAGE

OPERATING SAFETY

HEALTH AND SAFETY

GUIDANCE NOTES

PLEASE READ CAREFULLY BEFORE OPERATION OF YOUR LATHE

OPERATOR SAFETY

These Lathes are fast, powerful machines which can be dangerous if used under improper circumstances.
Read the following Health and Safety Guidance Notes and observe before and during the use of the machine.

HEALTH AND SAFETY AT WORK ACT 1974 (U.K. ONLY)

In accordance with the requirements of the Health and Safety at Work etc. Act 1974 this manual contains the necessary information to ensure that the machine tool can be operated properly and with safety. It is assumed that the operator has been properly trained, has the requisite skill and is authorised to operate the machine, or, if undergoing training, is under the close supervision of a skilled and authorised person.

Attention is drawn to the importance of compliance with the various statutory regulations which may be applicable, such as "The Protection of Eyes Regulations". It is further stressed that good housekeeping, common sense and the maintenance of good established work shop practice is essential.

Adequate information is also provided to enable the machine to be properly serviced and maintained by persons with the necessary skills and authority.

ON MACHINES WITH VARIABLE SPEED DRIVE.

NOTE THAT THESE MACHINES ARE DESIGNED TO ALLOW FAST AND EASY CHANGE OF THE SPINDLE SPEED. TAKE CARE TO ENSURE THAT THE WORK PIECE IS SECURE AND THE MAXIMUM SAFE SPEED FOR ANY OPERATION IS NOT EXCEEDED.

ALL MACHINES

BECAUSE OF THE POSSIBILITY OF BODILY CONTACT AND WHIPPING, ESPECIALLY WHEN SMALL DIAMETERS OF MATERIAL ARE USED, BAR STOCK MUST NOT, UNDER ANY CIRCUMSTANCES, BE ALLOWED TO EXTEND BEYOND THE END OF THE HEADSTOCK SPINDLE WITHOUT THE USE OF SPECIAL GUARDING AND ADEQUATE SUPPORT.

OPERATING SAFETY PRECAUTIONS

1. Keep the machine and work area neat, clean and orderly.

2. Keep all guards and cover plates in place and all machine cabinet doors closed.

3. Never lay anything on the working surfaces of the machine, where it may foul with rotating or moving parts.

4. Do not touch or reach over moving or rotating machine parts.

5. ENSURE YOU KNOW HOW TO STOP THE MACHINE BEFORE STARTING IT.

6. Do not operate the machine in excess of its rated capacity.

7. Do not wear rings, watches, ties or loose sleeved clothing.

8. STOP MACHINE IMMEDIATELY ANYTHING UNEXPECTED HAPPENS.

9. DO NOT interchange chucks or other spindle mounting items without checking for correct locking.

10. Do not use other workholding devices without checking for compatability with 600 Lathes Ltd. and workholding manufacturer.

11. Check load capacity of revolving centres for current application.

12. Isolate machine when leaving it unattended.

OPERATING HAZARDS

When using the machine be FULLY AWARE of the following operating hazards detailed under the following instructions:

a) METAL CUTTING FLUIDS

Cancer of the skin may be produced by continuous contact with oil; particularly with straight cutting oils, but also with soluble oils. The following precautions should be taken:

1. Avoid unnecessary contact with oil.
2. Wear Protective clothing.
3. Use protective shields and guards.
4. Do not wear oil soaked or contaminated clothing
5. After work thoroughly wash all parts of the body that have come into contact with oils.
6. Avoid mixing different types of oils.
7. Change oils regularly.
8. Dispose of oils CORRECTLY.

b) SAFE OPERATION OF LATHE CHUCKS

Where details of operating speeds and of maximum recommended operating speeds are supplied these are intended only as a guide. Such details must be regarded as for general guidance only for the following reasons:

They apply only to chucks in sound condition.

If a chuck has sustained damage, high speeds may be dangerous. This applies particularly to chucks with grey cast iron bodies wherein fractures may occur.

The gripping power required for any given application is not known in advance.

The actual gripping power being used for any given application is not known by the chuck manufacturer.

There is the possibility of the workpiece becoming insecurely gripped due to the influence of centrifugal force under certain conditions. The factors involved include:-

(a) Too high a speed for a particular application.

(b) Weight and type of gripping jaws if non-standard.

(c) Radius at which gripping jaws are operating.

(d) Condition of chuck - inadequate lubrication.

(e) State of balance.

(f) The gripping force applied to the workpiece in the static condition.

(g) Magnitude of the cutting forces involved.

(h) Whether the workpiece is gripping externally or internally.

Careful attention must be paid to these factors. As they vary with each particular application, a manufacturer cannot provide specific figures for general use, the factors involved being outside his control.

GENERAL PRINCIPLES CONCERNING OPERATOR SAFETY FOR ALL TURNING MACHINES

(1) Do not grip a component with grease or oil on it.

Grip all components firmly.

Do not attempt to hold components that are too awkward or too difficult to hold. Do not hold components that are too heavy for the machine.

Know how to hold components properly when lifting.

(2) Be sure to clean oil or grease from hand tools, levers and handles.

Be sure there is enough texture on the surface of the hand tool or lever handle for proper safe hand contact.

(3) Grip hand tools and lever handles firmly.

Always choose the proper hand tool and appropriate grip position on the lever handle.

Do not use hand tools or lever handles in an awkward position.

Do not apply excessive force.

(4) Always use the recommended gripping position to grasp hand tools and lever handles.

(5) Do not allow turning or hand tools to be caught in the chuck or other holding device.

(6) Do not use broken, chipped or defective tools.

(7) Be sure work piece cannot move in chuck or other holding device.

(8) Beware of irregular shaped work pieces.

(9) Beware of large burrs on work pieces.

(10) Always select the correct tool for the job.

(11) Do not run the machine unattended.

(12) Do not use tools without handles.

(13) Always support the work piece as necessary using chucks, steadies and centres.

(14) Correctly locate tool in socket heads and screw slots.

(15) Beware of obstructions that prevent complete tightening of screws - ensure screw is tight.

(16) Do not rush work.

(17) Never substitute the wrong size tools if the correct sized tool is not available or cannot be located in the shop.

(18) Do not move guards while lathe is under power.

(19) Do not place hand or body in path of moving objects.

Beware of moving lathe parts that can fall.

Be aware of where you are moving your hand or body in relationship to the lathe.

Beware of holding a tool or other parts inserted in or attached to the chuck or work piece.

Be aware of hands or other parts of the body that may in position to be hit by a chuck or work piece.

(20) Beware of accidentally moving levers, clutches (where applicable) or turning the power on.

(21) Know the function of each and every control.

(22) Never place hand on chuck or work piece to stop rotation of the spindle.

(23) On machines with clutch drive make sure clutch is completely disengaged on stopping, and kept properly adjusted.

(24) Make sure power has been turned off when lathe is unused for sometime.

(25) Allow chuck to stop before operating it.

(26) Always check chuck area for chuck keys and loose iitems.

(27) Never start spindle with chuck key in the chuck.

(28) Do not allow distractions to interfere with lathe operations.

Do not operate lathe whilst talking.

(29) Beware of lathe dangers when attending to other aspects of lathe operation. eg. whilst operating tailstock.

(30) Beware of loose clothing near the rotating parts of the lathe.

(31) Beware of loose hair near the rotating parts of the lathe.

(32) Beware of performing another operation while in close proximity to rotating parts on the lathe.

(33) Always attend to filing and deburring operations.

Always pay attention to file or deburring tools close to the chuck.

Files and deburring tools may catch on chuck.

(34) Beware of clutch (where applicable) position when jogging the spindle to different positions for gauging .

(35) Beware of hands resting on clutch levers.

(36) Be sure lathe is in neutral position when placing gauges on components gripped in the chuck.

(37) Be sure motor (on machines with clutches) is not running when using gauges on the machine.

(38) Always wear protection before operating the lathe.

Always wear the correct protection before operating the lathe.

Never remove protection for even a short time when operating the lathe.

Wear protective devices correctly.

Know the correct way to wear protective devices.

(39) Beware of material flying from the lathes.

(40) Keep protective guards at the point of operation.

Know how to set or attach protective guards properly.

Never use the wrong protective guard.

Know how to select the proper guards.

(41) a) When the chuck and workpiece are in motion never reach over, under or around a work piece to make an adjustment.

b) Never reach over, under or around a work piece to retrieve anything.

c) Beware of where you leave your tools during set up.

d) Never reach over, under or around work piece to move hand tool/lathe to another position.

e) Never reach over, under or around the work piece to tighten a lathe part.

f) Never reach over, under or around work piece to remove swarf.

(42) Know the proper procedure for applying loads.

Never apply force from an awkward position.

(43) Never mount a work piece too large for the lathe.

(44) Never mount a workpiece too large for the operator to handle.

(45) Use the equipment necessary for handling workpieces.

(46) Never apply undue force on the accessory or control lever.

(47) Secure all work pieces.

(48) Secure all jaws, nuts, bolts and locks.

(49) Always use the correct equipment.

(50) Never take cuts beyond machine's capability.

(51) Never use excessive force in polishing, filling and deburring.

(52) Always use the proper hand tool to remove swarf.

Never hurry to remove swarf.

Beware of swarf wrapped around the chuck or workpiece.

(53) Never change gears by moving them with your hands.

(54) Beware of tools/lathe parts falling on controls.

CHUCK GUARDS

The lathe is supplied with a fully interlocked chuck guard which is suitable only for use with the standard chucks normally supplied with the machine.
This chuck guard must be in the fully closed position before the spindle is permitted to run.

a) In the event of larger chucks being fitted to the machine an alternative chuck guard must be used which is appropriate to the chuck diameter.

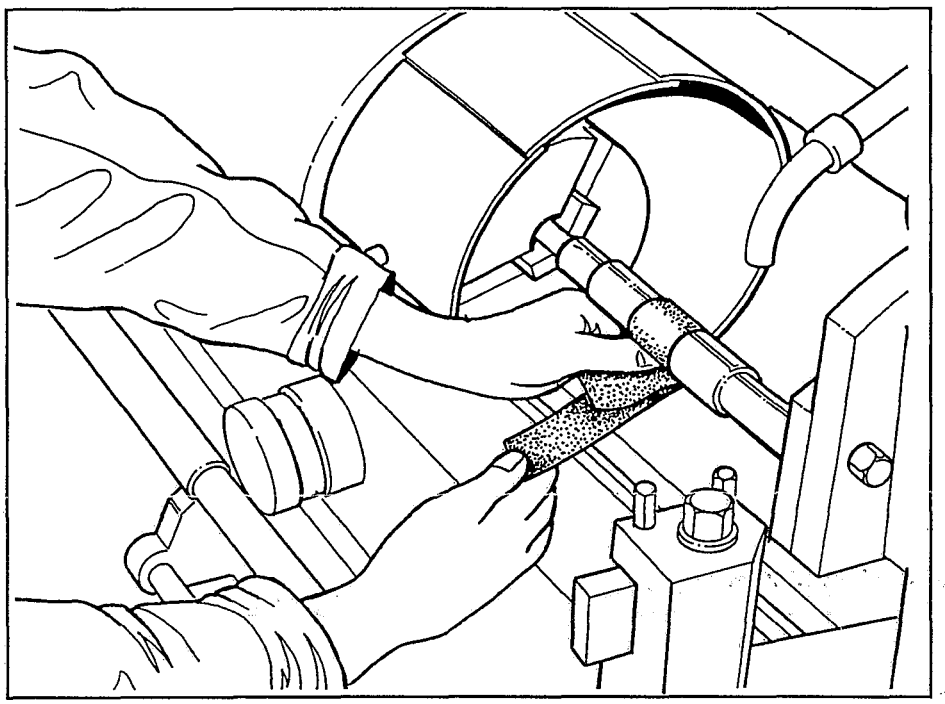
Note:
It is not recommended that chuck jaws extend beyond the outside diameter of the chuck and in these cases interference with chuck guards may occur.

For safe operating practices always ensure that chuck jaws do not extend beyond the outside diameter of the chuck.

b) In the event of a faceplate being used on the machine the normal chuck guard must be removed from it's mounting and if deemed necessary by the user alternative safe guarding facilities provided which are appropriate to the particular situation.

This can only be determined on a case by case basis when using faceplates and is therefore the responsibility of the user.

Accidents at Metalworking Lathes using Emery Cloth



Danger: *Even with long strips of cloth there is a danger of trapping.*

Hazards

A high proportion of all accidents at metalworking lathes involve the use of emery cloth and result in injuries such as broken and, occasionally, amputated fingers.

Emery cloth is used to deburr, polish or size a wide range of cylindrical, tapered and threaded metal components while they are rotating in lathes.

Most accidents happen when each end of a strip of emery cloth is held in separate hands and passed around the back of the component being linished. If the cloth is wrapped around the fingers and/or becomes snagged on the component while it is tightly gripped, then a serious injury is the likely result.

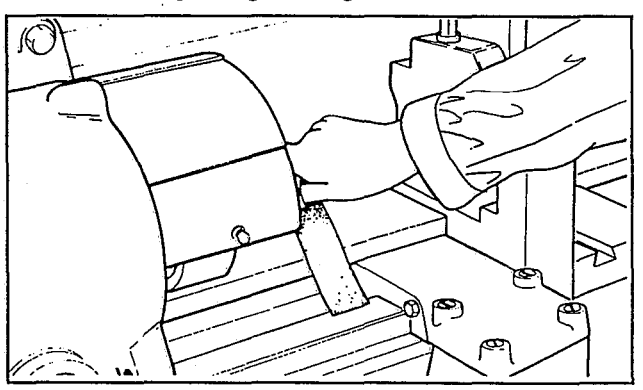
Precautions

Emery cloth should NEVER be used at CNC lathes. Employers should assess the need to use emery cloth on components rotating in a lathe.

Such operations may not be necessary if :-

(a) the finish being sought is only cosmetic. For such finishes the component may be held in one hand and polished by emery cloth held in the other. Alternatively a linishing belt or machine may be used;

(b) a sizing operation can be successfully performed either by turning or by further operations in a dedicated polishing, linishing or grinding machine.



Danger : *Emery cloth should never be held loose in the hand.*

If the required tolerance is only achievable by the use of emery cloth against rotating components, then the emery cloth should be applied using either:

(a) a backing board of good quality wood;

or

(b) a tool post onto which the emery cloth may be placed;

or

(c) a 'nutcracker' consisting of two backing boards which are lined with emery cloth and joined at end and shaped so that they may encom pass the surface to be linished;

or

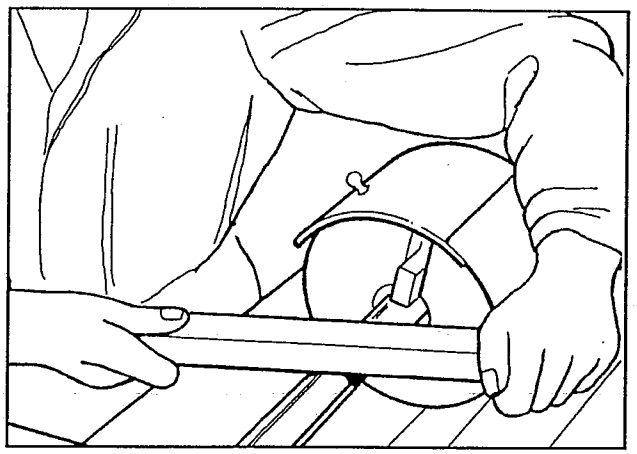
(d) hand-held, abrasive-impregnated wire brushes.

Where none of the above methods is reasonably practicable and it is necessary to use emery cloth for polishing the outside diameters of components, the emery cloth should be used in long strips with one end passed beneath the component.

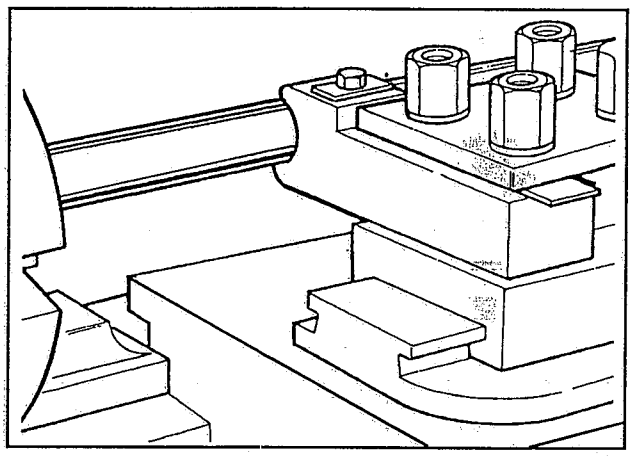
Force should be applied by pulling both ends of the cloth upwards, never allowing the cloth to go slack or to wrap around either the operator's finger or the components.

For polishing the ends of components, only very short lengths or pads of cloth should be used which are incapable of causing entanglements.

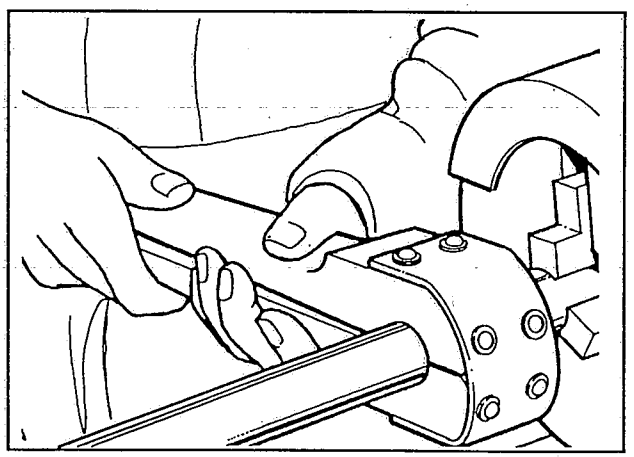
Gloves should never be worn when polishing is being carried out.



(a) *Sticks used in this way must be strong and of good material.*



(b) *The use of a toolpost completely removes all risk of injury to the hands.*



(c) *Using the 'nutcracker' method - a much better way of polishing.*

From the United Kingdom, health & safety executive Engineering Information Sheet No. 2

MACHINE SPECIFICATION

Centres	
Height	195mm (7.68")
Admits between	1250mm (50")

Swing	
Over bed (saddle wings)	400mm (15.7")
Over cross-slide	246mm (9.7")
In gap	585mm (23")
Width in front of faceplate	165mm (6.5")

Spindle	
Bored to pass	54mm (2.125")
Nose Type	D1-6" Camlock
Morse taper in bush	No.4 M.T.

Spindle Speeds

Selected in 4 ranges of 4 speeds in each range

25	33	45	60
80	108	140	190
260	350	470	625
840	1120	1500	2000

Motor (main)	5.5Kw (7.5HP)

Bed	
Width of ways	318mm (12.5")
Type of ways	Vee and flat

Cross-Slide	
Width and length	180mm (7") - 850mm (33.5")
Travel	250mm (9.8")

Top Slide	
Width	100mm (4")
Travel	130mm (5.1")
Tool section	25 x 25mm (1" x 1")
Quick change tooling	Dickson No.2 E

Tailstock	
Quill diameter (nominal)	73mm (2.8")
Travel	140mm (5.5")
Morse taper	No.5 M.T.
Set over	±10mm (0.4")

Leadscrew	
Diameter	32mm (1.25")
Thread	6mm pitch or 4 T.P.I.

Threads	
Metric pitches	0.2-14mm (51)
Imperial T.P.I.	2-56 (56)
Module pitches	0.2 - 3.5 (20)
Diametral pitches	8-56 (20)

Feeds	
Metric (R10) Series)	0.036 - 2.4mm/rev
Imperial (R10 Series)	0.0014 - 0.096in/rev

Cross feeds = half longitudinal values (approx.)

Height of Machine	
Floor to spindle centre	1070mm(42.1")

Overall Length	2500mm (98.4")

Overall Width	1100mm (43.3")

Overall Height	1300mm (51.2")

Weight	1500kg (3300 lb)

For other dimensions see foundation plan

Coolant Pump	
Flow	25 Litre/min @ 2 Metre Head

NOISE LEVEL

The maximum noise level at the operators position (Fig.1) is within **85 dB(A)** and the maximum mean noise level is within **85 dB(A).**

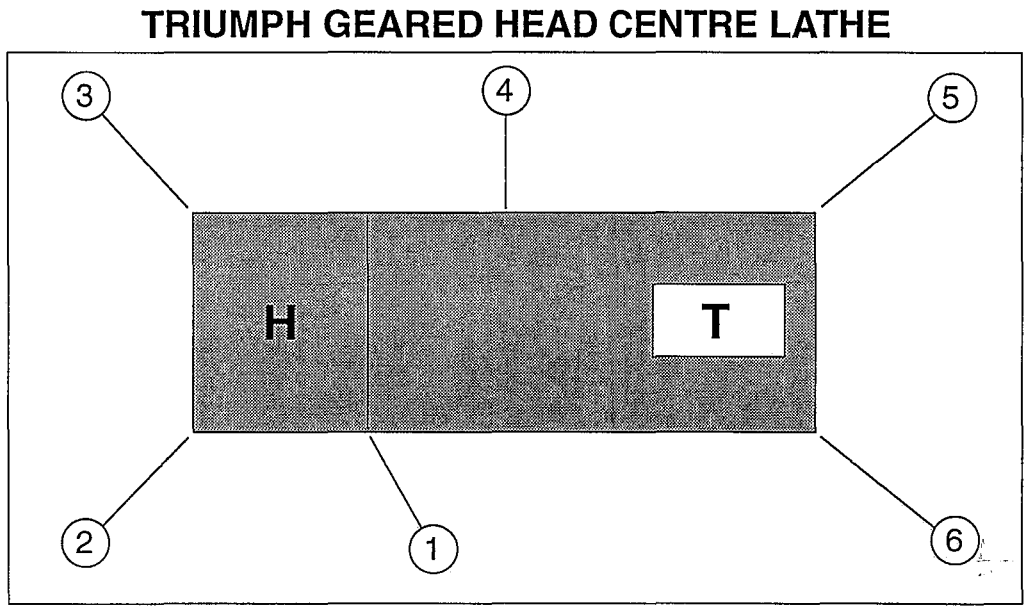


Fig.0

NOTE:
The operators position is position 1 and the mean is taken from the readings at all 6 positions.

The conditions of measurement are with the spindle running at top speed, with a standard chuck fitted, with no feed engagement.

These measurements are in accordance with **BS4813 : 1972**

INSTALLATION

The approximate weight of the machine is -

1250mm - 50" between centres 1500Kg - 3300 lb

Always ensure capacity of equipment is adequate before attempting lift.

Preparation and Safety Checks

1. Remove all items of loose equipment.
2. Clamp tailstock securely at the tailend of the bed.
3. Clamp saddle to bed.
4. Ensure eyebolts, shackle pins and securing screws of lifting equipment are correctly tightened.
5. Only use the correct equipment.
6. **DO NOT SLING AROUND BED.**
   Leadscrewscrew and splineshaft may be bent or damaged.

LIFTING

1. Position sling complete with protective sleeve into cutaway at the bottom of thefirst angled web nearest to the headstock. (Fig.1A)

   To ensure better balance the sling should be away from the front of the machine.

2. Carefully lift the lathe clear of ground and if necessary reposition the saddle to achieve better balance before lifting further.

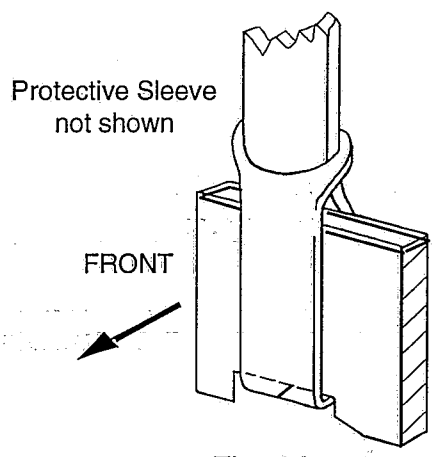


Fig. 1A

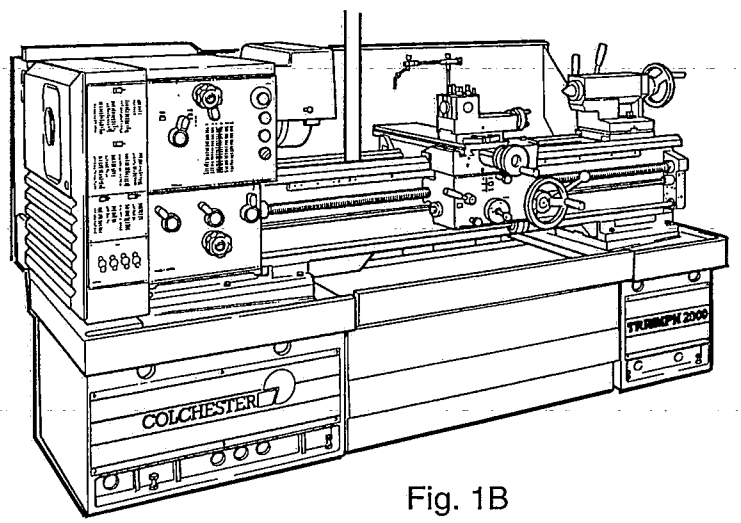


Fig. 1B

TEN RULES FOR SAFE LIFTING

1. Never overload the equipment.
2. Never use damaged slings.
3. Position the sling correctly. The sling must not be placed round sharp edges, do not let it slide over corners or along edges.
4. Do not drag goods in the sling.
5. Position sling correctly to ensure easy removal after use.
6. Use smooth-rounded hooks having an inside radius of not less than 50mm.
7. Avoid placing more than one sling on the same hook.
8. Keep away from alkalis and acids.
9. When lifting heavy loads with more than one sling,remember that the total weight may not be evenly distributed.
10. Remember that vibration during transport can cause friction between sling and machine - use protective sleeves.

Sling are made from 100% polyester.

Each sling is clearly labelled with the safe working load and the safety factor is 6:1.

All slings are colour coded for increased safety.

For lifting rough or sharp edged loads we recommend the use of protective sleeves.

SAFETY REQUIRES PERMANENT SUPERVISION

We recommend the following procedure

1. All equipment should be examined by one person only.
2. Lay sling on a flat surface in a well lit area.
3. Examine both sides of the sling.
4. Slings must be examined over the whole length and in the eyes.

INSTALLATION

INSTALLING

Locate the machine on a flat, level solid foundation, allowing sufficient area for easy working and maintenance. The lathe may be used when free standing but for maximum performance it should be bolted to the foundation.

FOUNDATION PLATES

Whether the machine is to be a free standing or fixed installation the eight jacking bolts **MUST BE POSITIONED** on eight steel plates.
The dimensions of the plates should be 15mm (5/8") depth and of approximately 50mm (2") diameter.

FREE STANDING

Position the lathe on the foundation and adjust each of the eight jacking bolts in the plinths to take an equal share of the load. Then level the machine using a precision level.

FIXED INSTALLATION

Position the lathe over eight bolts (5/8" or 16mm dia) set into the foundation corresponding to the dimensions in the plinths as shown on the foundation plan Fig.5.
Adjust each of the jacking bolts to take an equal share of the load, level the machine then tighten onto the holding down bolts. Re-check the bed level.

LUBRICATION CHECKS

Ensure that both the headstock lubrication system and gearbox are filled with Shell T37 (ISO VG 37) oil, to correct level and that the apron reservoir is filled to the level of the sight window with Shell Tonna TX 68 (ISO VGT 68) oil.

Oil compound slide and tailstock through oilers furnished.
Before each working shift, operate the manual lubrication pump to ensure adequate lubrication of carriage slideways.

Refer to Lubrication Chart in Service and Maintenance Section for further information.

CLEANING

Before operating the machine remove the anti - corrosion coating, from all slideways, the leadscrew feed shafts and the end train gear, (see Fig. 2) using only white spirit or parafin.

Do **NOT** use non-approved solvents i.e. Cellulose solvents or petrol; as they are hazardous and will damage the paint finish.
Oil all bright, machined surfaces immediately after cleaning; use heavy oil or grease on the end-train gears.

Operate the slideways lubrication pump, mounted on the front of the apron several times to ensure that the last traces of anti-corrosion coating are removed from under the bedway wipers and slide edges.

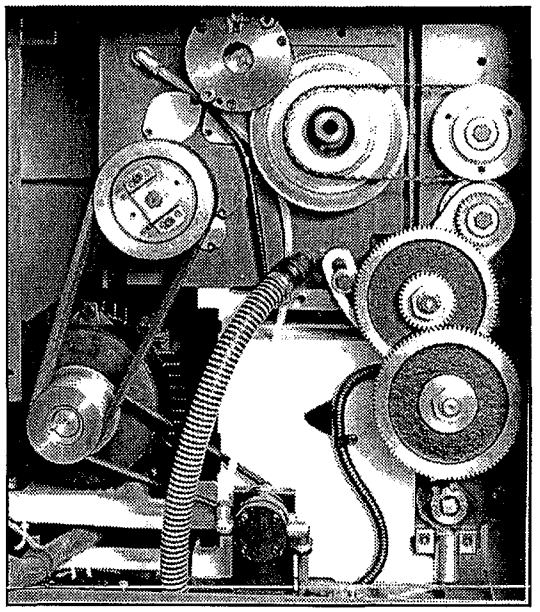


Fig. 2

LEVELLING

Using an engineers precision level (typical sensitivity 0.05mm/m) mounted on the cross-slide (Fig. 3) level the machine end-to-end and front-to-back by adjusting the relevant jacking bolts. Align transversly as shown in **Test No. G1** in the accuracy chart in order to eliminate "twist".

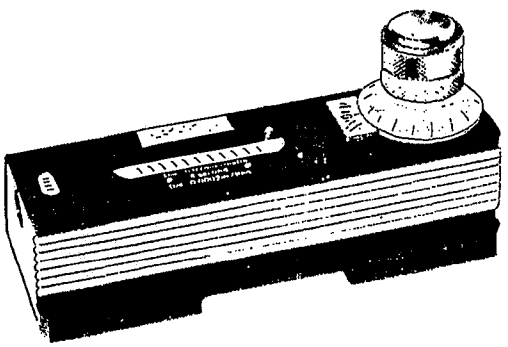
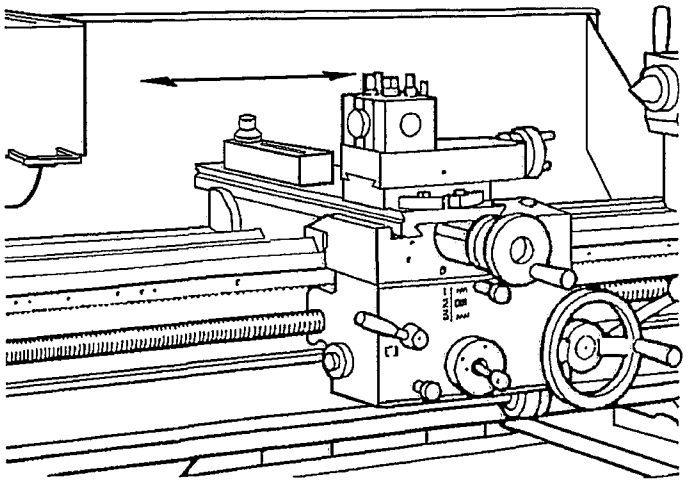


Fig. 3



ELECTRIC SUPPLY CONNECTIONS

INPUT VOLTAGES

Three phase 220/460vAC ±10% and 380/415 vAC ±10%, 50/60 Hz.

Recommended Fuses:-

220 volts supply - **35 amps**

380/415/460 volts supply - **20 amps**

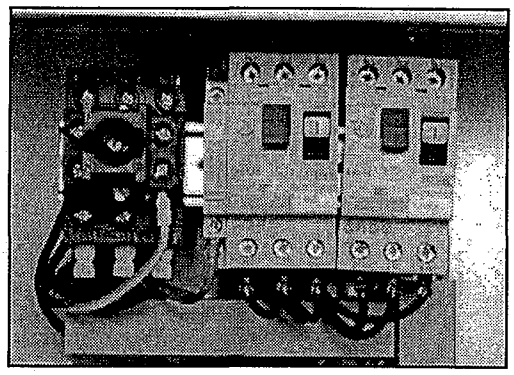


Fig. 4

Power should be supplied from a separate external fused isolator, the line entering the electrical cabinet at the base of the cabinet and connected to the terminals of the machine isolator. An earth lead must be used. (Fig. 4)

Main motor rotation must be clockwise, viewed from the pulley end. The correct direction of spindle rotation may also be comfirmed by engaging the forward clutch. With the clutch lever down the spindle should turn in the conventional forwards direction. should the motor be running in the wrong direction switch off mains at the external fused isolator and interchange any two of the three phase - lines into the machine isolator. A wiring diagram is included in the servicing and maintenance section.

The coolant motor is left electrically disconnected for transportation. This must be re-connected into the terminals marked U3,V3 and W3 in the electrical cabinet.

FOUNDATION PLAN

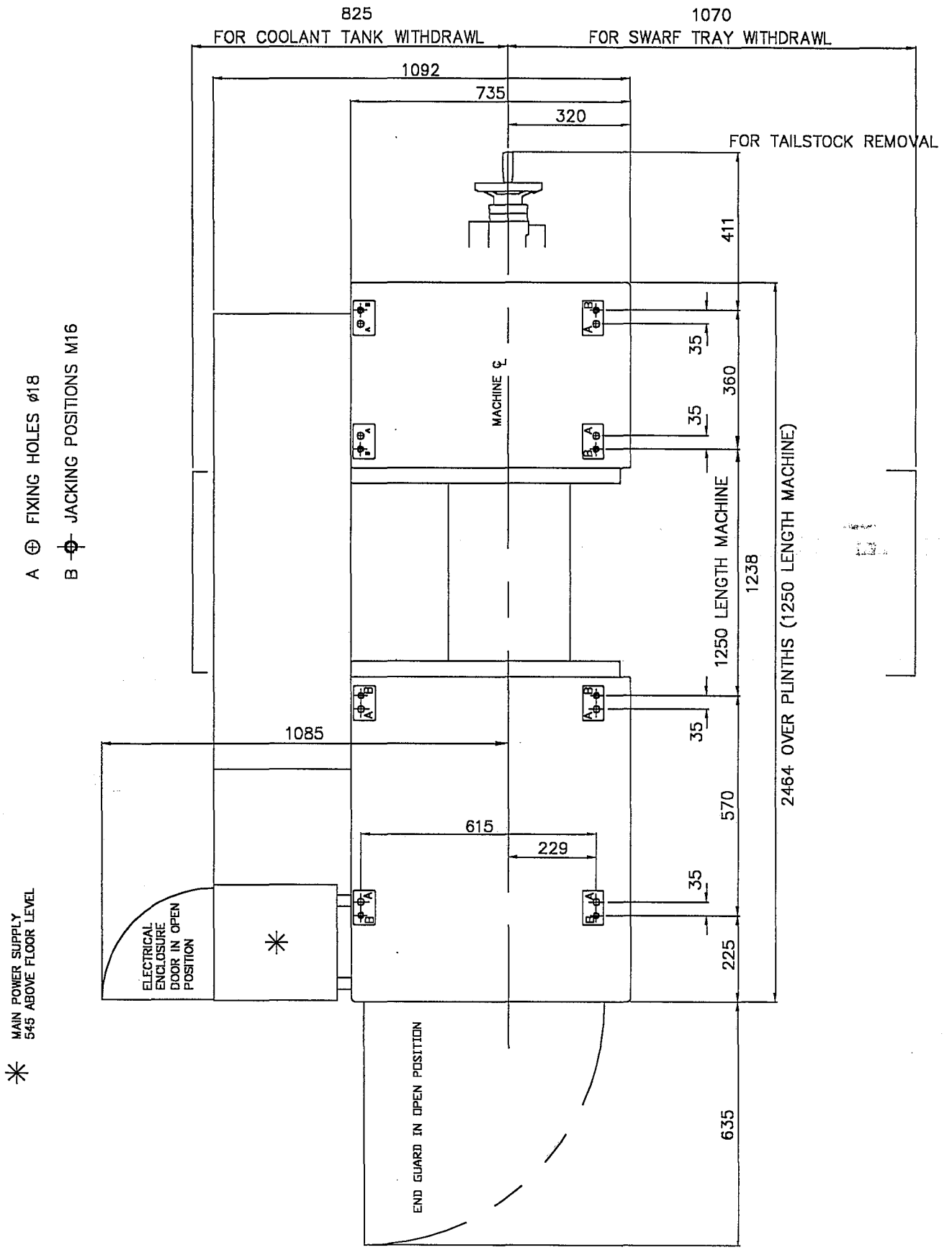


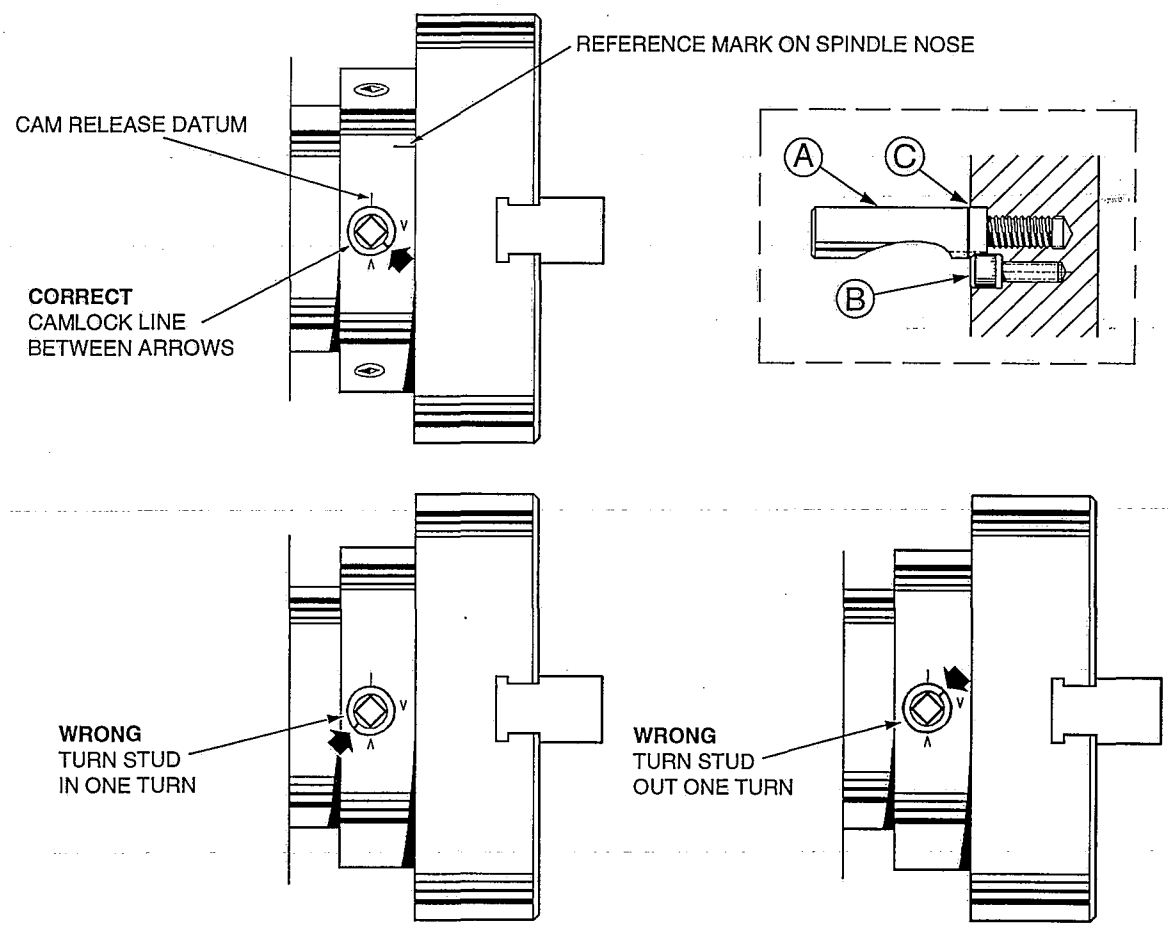
Fig. 5 DRAWING – SK2757

CHUCKS AND CHUCK MOUNTING

When fitting chucks or faceplates, first ensure that the spindle nose and chuck tapers are clean; mount the chuck and ascertain that the cams lock in the correct position. When mounting a new chuck it may be necessary to reset the camlock studs (A). To do this, remove the caphead locking screws (B) and set each stud so that the scribed ring (C) is flush with the rear face of the chuck and with the circular scallop in line with the locking screw hole (see inset).
Now remount the chuck or faceplate on the spindle nose and tighten the six cams in turn. When correctly tightened the camlock line on each cam should be between the two "V" marks on the spindle nose.
If any of the cams do not tighten fully within these marks, remove the chuck or faceplate and re-adjust the stud as indicated in the diagram.
Once a chuck has been correctly fitted it may be stamped to align with the spindle reference mark for subsequent re-mounting in the same position.

WARNING
Only high speed chucks to be used with this machine.

Take careful note of **speed limitations** when using face-plates. The 534mm (21") diameter face plate for gap bed use should not be run at more than 470 rev/min. and the 356mm (14") diameter faceplate should not be run at more than 670 rev/min.



LATHE SAFETY

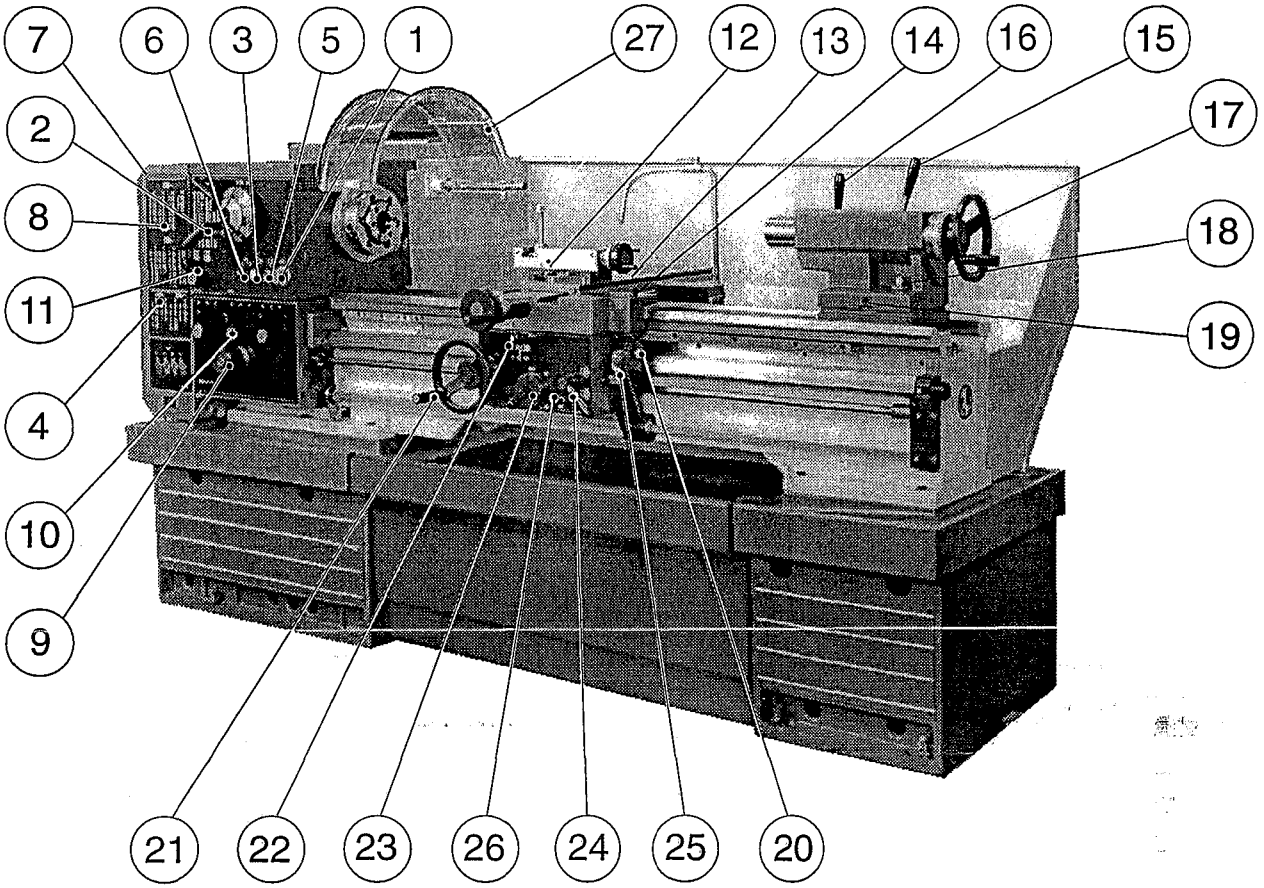
BEFORE ATTEMPTING TO START THE MACHINE READ CAREFULLY THE LATHE OPERATING INSTRUCTIONS ON PAGES 10 TO 17 OF THIS MANUAL.

IN THE INTERESTS OF SAFETY PLEASE READ THE OPERATOR HEALTH AND SAFETY GUIDANCE NOTES AT THE BEGINNING OF THIS MANUAL.

Some of the key points are:-

1. Ensure you know how to stop the machine before starting it.
2. Stop machine immediately anything unexpected happens.
3. Ensure speeds, feeds and depths of cut are compatible with the component and the holding devices.
4. Do not touch tooling, chuck or workpiece when spindle is revolving.
5. Wear and utilise suitable protective clothing and equipment.

CONTROL LAYOUT



1. Emergency Stop Button
2. Spindle Speed Selectors
3. Main Motor Push Button
4. Threading Data Plate
5. Brake Release Push Button
6. Coolant Pump ON/OFF Switch
7 Main Isolator (at rear of machine).
8. Feed Data Plate
9. Feed Selector Dial
10. Feed Selector Levers
11. Leadscrew/Feedshaft Reversing Lever
12. Top -Slide Locking Screw
13. Cross-Slide Locking Screw
14. Carriage Locking Bolt
15. Tailstock Locking Handle
16. Tailstock Barrel Locking Handle
17. Tailstock Handwheel
18. Tailstock Clamp Bolt
19. Tailstock Set Over Screws
20. Thread Dial Indicator
21. Saddle Traverse Handwheel
22. Feed Direction (Axis) Selector
23. Feed Engagement Lever
24. Leadscrew Engagement Lever
25. Spindle Control Lever
26. Manual Centralised Lubrication System
27. Interlocked Chuck Guard

ELECTRICAL CONTROLS (Fig.6)

Apart from the main isolator all electrical controls are fitted to the front face of the headstock. To start the main motor, switch on the main isolator, reset the emergency stop (A) then ensuring that the clutch lever is in neutral, press the main motor button (B). The motor will start running and the indicator lamp will light.

The spindle brake may be released by pressing the brake release button (C) continuously.
The coolant pump may be switched on by turning switch (D).
To stop the main motor, the emergency stop button is pushed in.
Reset to allow starting by normal sequence.

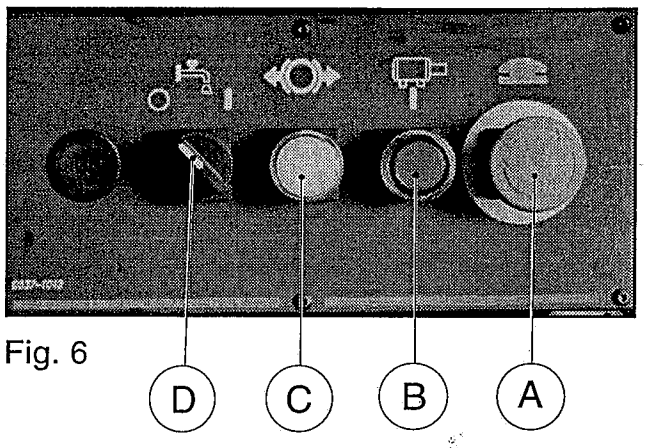


Fig. 6

SPINDLE ROTATION (Fig. 7)

Selected by means of the apron mounted clutch engagement lever is moved to the right and down for forward rotation. Returning to the neutral (central) position operates the spindle brake. Reverse spindle rotation is obtained by moving the lever upwards.

SPINDLE BRAKE

A fail safe electromagnetic brake is provided and braking is automatically provided when the clutch lever is returned to the neutral position or power is lost to the machine.

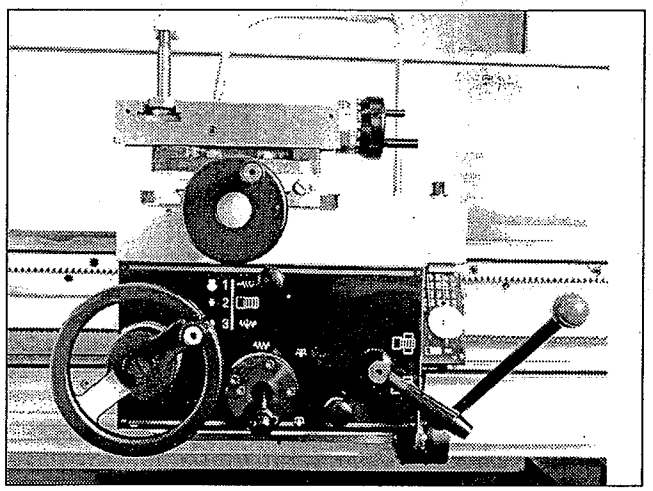


Fig. 7

SPINDLE SPEEDS (Fig. 8)

Spindle speeds are selected by means of the lever and knob Assembly mounted on the headstock, the 16 available speeds are shown directly on the dial face (A).

CAUTION : DO NOT MOVE SPEED SELECTOR CONTROLS WHILST THE SPINDLE IS MOVING.

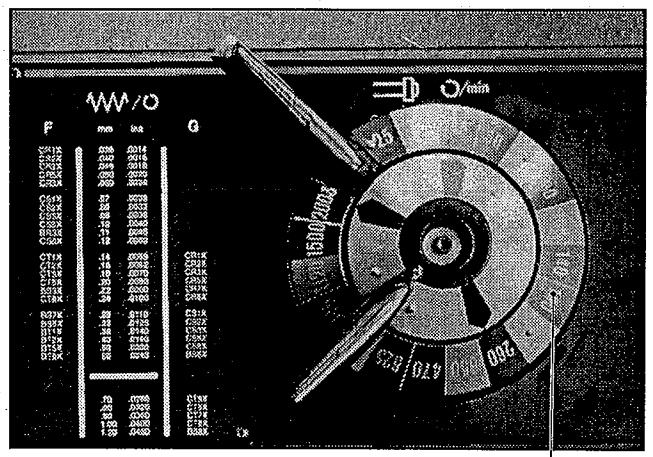


Fig. 8

THREAD AND FEED SELECTION

All threads and feeds directly available from the gearbox are shown on the data plates fitted to the headstock and change gear cover (Fig. 9) together with the relevant end gear train combinations and lever settings.

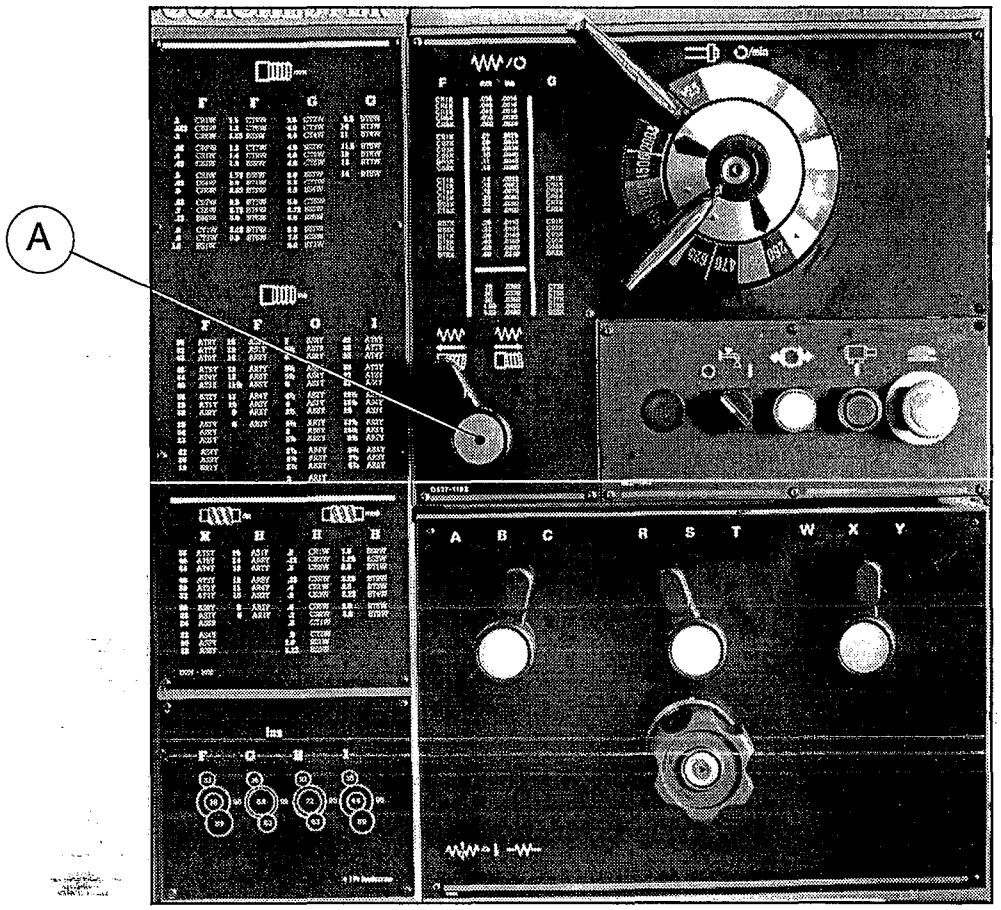


Fig. 9

CAUTION :

The coarse thread ranges of G and H should **not** be selected when using the high spindle speed range. The end gear trains should be arranged as in the diagrams shown on the data plate.

For any other threads or pitches not shown on the data plate our Technical Department is available to specify the most convenient change gearing required.

LEADSCREW REVERSING

Using lever (A) on the headstock (Fig. 9) the direction of rotation of both leadscrew and feedshaft may be reversed.

This allows the leadscrew nut to be permanently engaged during screw cutting and the direction of both feed and threads to be reversed whilst the spindle is running.

CAUTION :

When using the reversing lever the spindle speed should not exceed 175 R.P.M.

METRIC THREAD DIAL INDICATOR (Fig. 10)

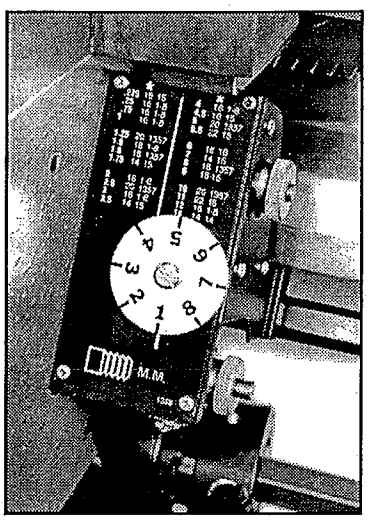


Fig. 10

This is supplied when the machine is fitted with a metric leadscrew and allows the majority of metric pitches shown on the data plate to be cut by engaging and disengaging the leadscrew nut for each pass.
The correct pinion must be meshed with the leadscrew and engagement of the leadscrew is made at the dial number to suit the pitch of thread to be cut.

Metric pitches not divisible into the pinions supplied, D.P., module and inch threads must be cut with the leadscrew left **permanently engaged** and changing direction by reversing the main spindle.

The information plate on the dial indicator shows:-

1. Pitch to be cut in mm.
2. The number of teeth on the pinion gear which engages with the leadscrew.
3. The dial lines at which the leadscrew may be engaged.

INCH THREAD DIAL INDICATOR (Fig. 11)

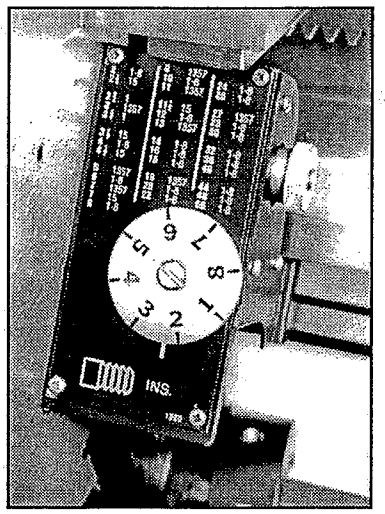


Fig. 11

This is supplied when the machine is fitted with an imperial leadscrew.
The plate (Fig. 11) shows the T.P.I. to be cut and the dial lines at which the leadscrew may be engaged. For metric threads, D.P., module and certain fractional inch threads the dial cannot be used. These threads must be cut with the leadscrew left **permanently engaged** and reversing direction by reversing the main spindle See previous section.

MULTI-START THREADS

A multistart thread can be cut on a lathe in three basic ways.

1. By repositioning the compound (top) slide one pitch forward for each start. Note the slide is normally set at 90 degrees to the axis of the cross-slide. The accuracy of this method depends on the skill of the operator
2. By using an accurately divided driver plate and turning the workpiece one division for each start.With camlock mounted chucks two three and six start threads may be cut by indexing the chuck on the camlock studs.
3. By advancing the driver gear a calculated amount to advance the spindle by one pitch of the thread to be cut.

APRON AND SLIDE CONTROLS

Apron and slide controls (Fig. 12). In addition to the manual operation of the saddle by rotating apron handwheel (A), the cross-slide handwheel (B) and the topslide by handwheel (C), power feed is available to the saddle and cross-slide, by engaging lever (E).

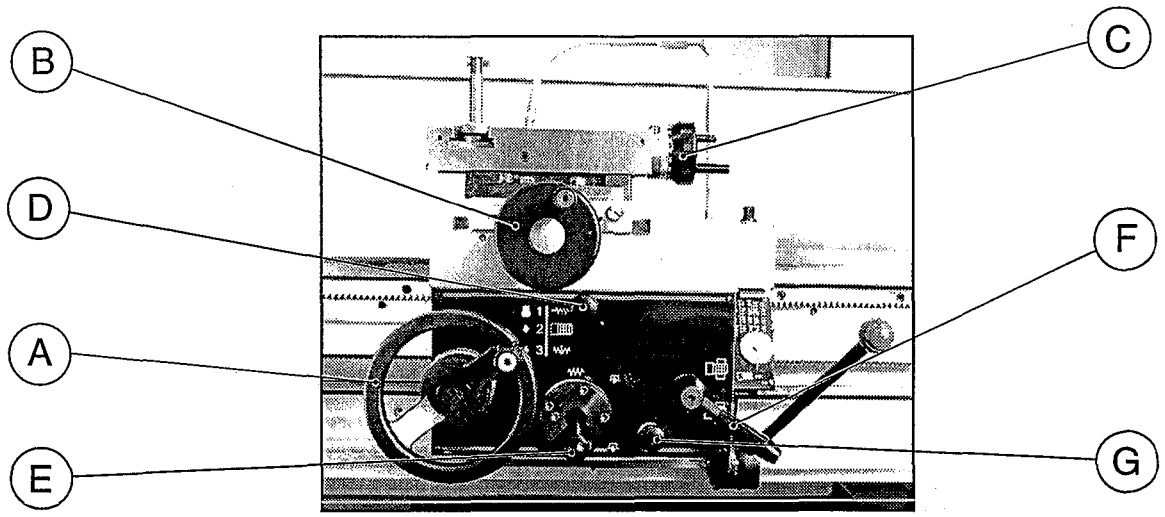


Fig. 12

1. Push pull knob (D) selects surfacing or sliding feeds.
   Push in for surfacing and pull out for sliding feeds.
2. Feed engage lever (E) is raised to engage whichever direction of feed is selected.
3. Lever (F) is used to engage the leadscrew nut for screw cutting.
4. For reversal of feed and thread directions there is a lever mounted on the headstock.

FEED TRIP ADJUSTMENT

A trip mechanism is incorporated in the apron enabling the saddle to power feed up to fixed stops.The loading at which the apron trips out has been pre-set during construction and should not be altered.

The apron handwheel (A) can be disengaged from its gearing during power operation or when screwcutting by pulling the handwheel out.

SADDLE LUBRICATION

Knob (G) operates the apron and slideways lubrication pump, which ensures that the bedways, cross-slide ways and nut are adequately lubricated.To ensure that the system is primed operate the pump until oil can be seen on the bedways and small tell-tale hole on the saddle. Under normal use the pump should be operated twice before commencing work.

CROSS-SLIDE AND TOPSLIDE

The handwheels carry dials graduated in either inch or metric dimensions. The cross-slide dial is graduated to indicate changes in workpiece diameter and topslide is graduated to indicate actual movement.

SADDLE LOCK SCREW

This enables the saddle to be locked to the bed for facing or parting off operations.

CROSS-SLIDE LOCK SCREW

This enables the cross-slide to be locked in a fixed position.

TOP-SLIDE LOCK SCREW

This enables the top-slide to be locked in position.

TAILSTOCK (Fig. 13)

The tailstock may be clamped to the bed by means of clamp lever (A) additional clamping may be obtained by tightening nut (B) located in the tailstock casting. This clamping nut should be released before attempting to move the tailstock and after the need for additional clamping.The tailstock barrel is locked by means of lever (C).

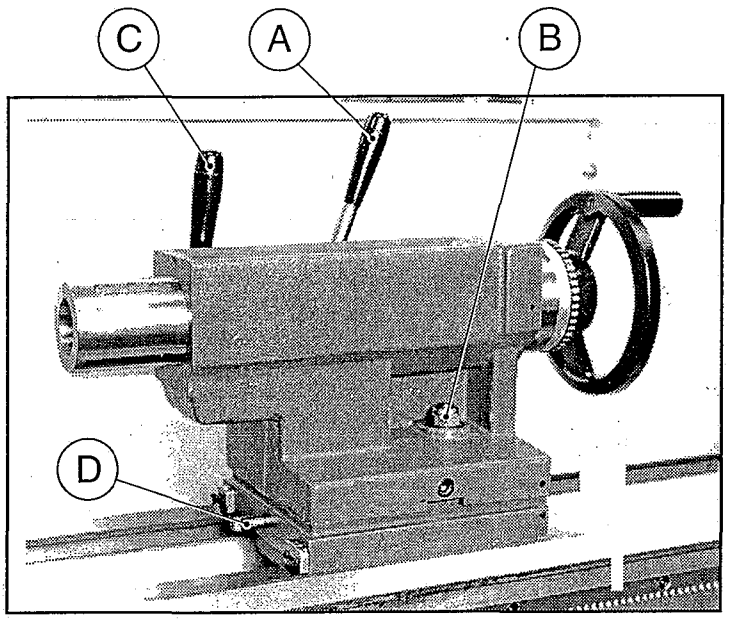


Fig.13

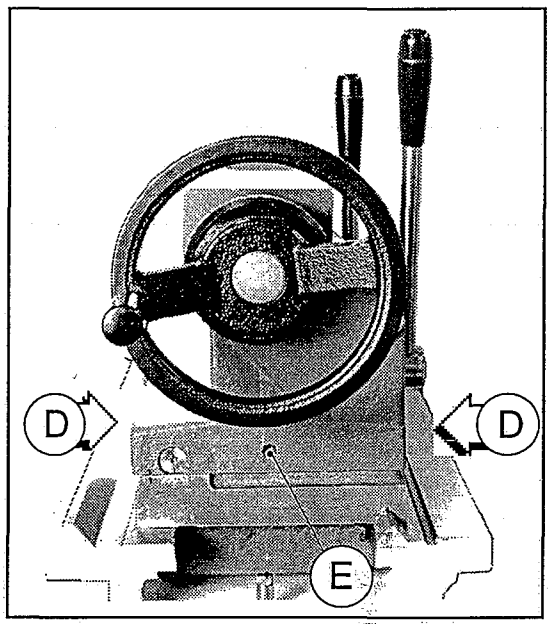


Fig.14

The tailstock can be set over for the production of shallow tapers or for re-alignment.
Set over adjustment is achieved by unclamping tailstock lever (A) and nut. Slacken rear location screw (E) one turn (Fig. 14). Adjust screws (D) at each side of base by slackening one and tightening the other to laterally move tailstock across the base.
Re-tighten the rear location screw.
The barrel is graduated in inch and metric dimensions.
The dial on the tailstock handwheel is graduated in either inch or metric dimensions.

COOLANT

The coolant pump is operated by an ON and OFF switch located on the headstock.
The flow of coolant is controlled by means of the tap fitted to the standpipe.
The coolant tank is located at t he back of the machine and has a capacity of 32 litres (8.5 US gallons).
Any commercially available coolant may be used - suitable for the tooling and type of material being cut.

GAP PIECE REMOVAL (Fig. 15)

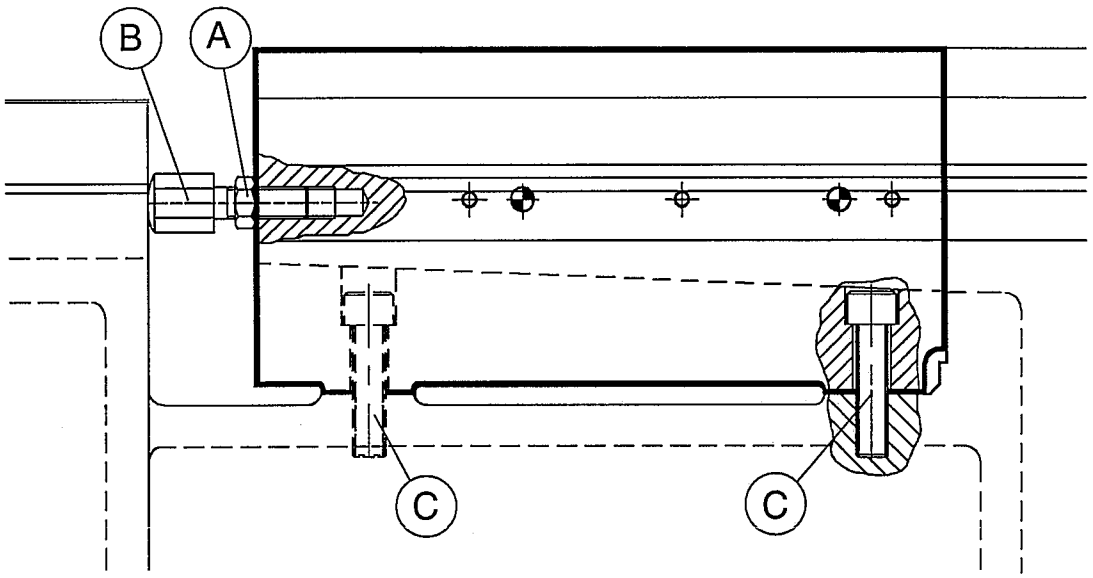


Fig. 15

REMOVAL PROCEDURE

1) Clean area around gap.

2) Remove chuck or any work holding device.

3) Release alignment bolt locknuts (A).

4) Fully retract alignment bolts (B).

5) Release holding down bolts (C).

6) Protect leadscrew

7) Carefully remove the gap piece avoiding damaging the leadscrew and gap piece mating surfaces.

REFITTING PROCEDURE

1) Clean area around gap.

2) Ensure machine is level.

3) Ensure all mating surfaces are clean.

4) Carefully slide gap piece back into position.

5) Lightly bolt into position, aligning the ways by hand and lightly tapping the gap with a hide hammer.

6) Finally position the gap by means of the alignment bolts (B), being careful not to overtighten (maximum torque 5 ft-pounds or 7 NM).

7) Tighten holding down bolts (C).

LATHE ALIGNMENT

With the lathe installed and in running condition we recommend a check on machine alignments before commencing work. Check alignment and levelling at regular periods to assure continued accuracy.

HEADSTOCK CHECK (Fig. 16)

(Only to be carried out after checking machine level). Take a light cut over a 150mm (6") length of 50mm (2") diameter steel bar held in a chuck (but not supported at the free end). Micrometer readings at each end of the turned bar A and B should be within 0.01 mm.(0.0004").

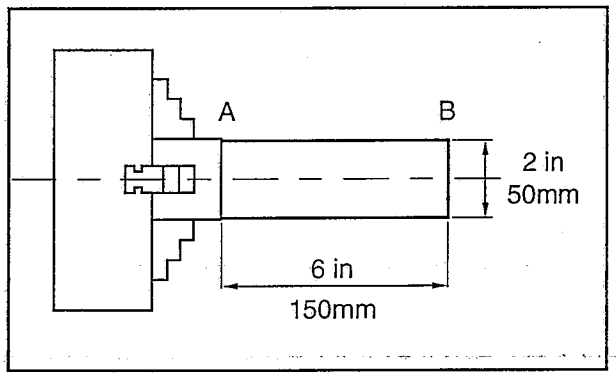


Fig. 16

To correct a greater difference in readings loosen the four headstock screws (A) shown in **Fig. 17** then adjust the set over pad C to pivot the headstock about the dowel B. Tighten all securing screws after each adjustment. Repeat the test cut and alignment check until the micrometer readings are within tolerancel.

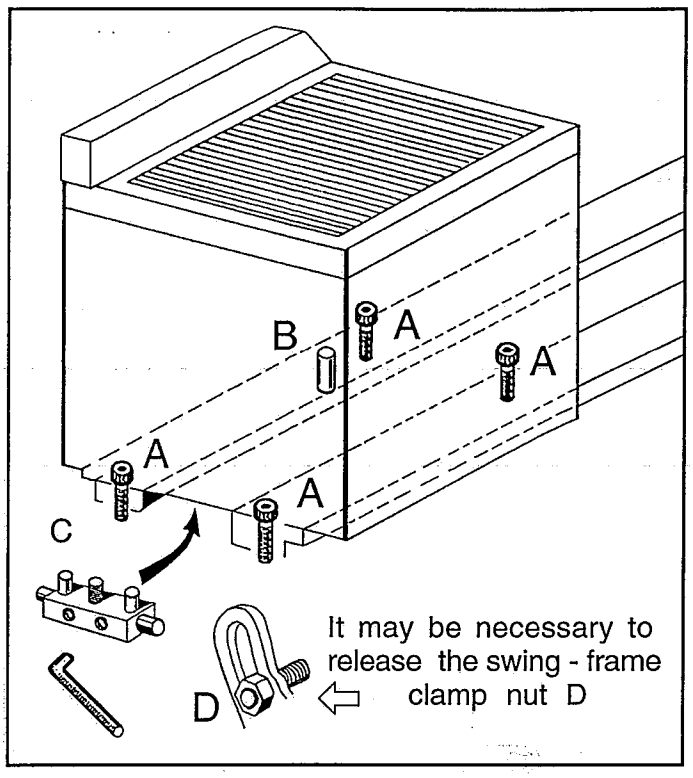


Fig. 17

TAILSTOCK CHECK (Fig.18)

Using a 300mm (12") long ground steel bar mounted between centres, check the tailstock alignment by traversing a dial test indicator along the centre line of the bar.

To correct any error use the set over adjustment procedure as shown in Figs. 13 and 14 on page 15 of this manual

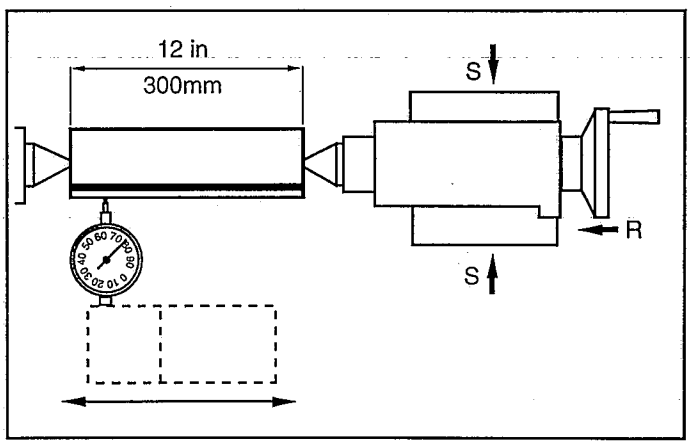


Fig. 18

END GEAR TRAIN (Fig. 19)

Drive from the Headstock to the Gearbox is transmitted through a Gear train enclosed by the Headstock End Guard. Intermediate Gears are carried on the adjustable Swing Frame (A). Gears must be thoroughly cleaned before fitting and backlash should be maintained at 0.127mm (0.005 in.) for correct mesh.
Lubricate Gears regularly with thick Machine Oil and apply Oil Can to the intermediate Gear Spindle.

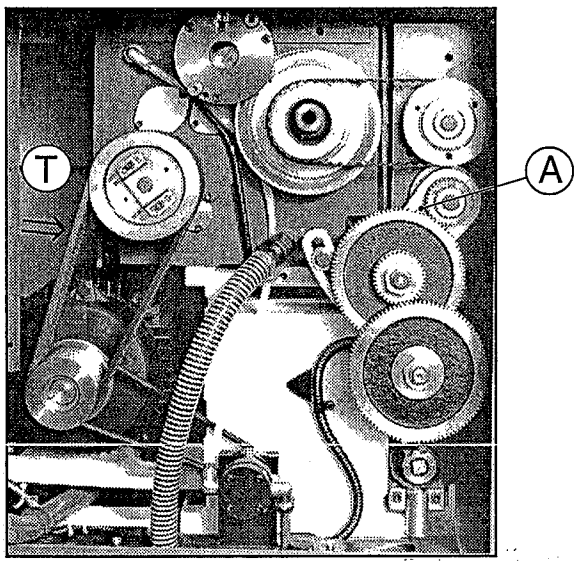


Fig. 19

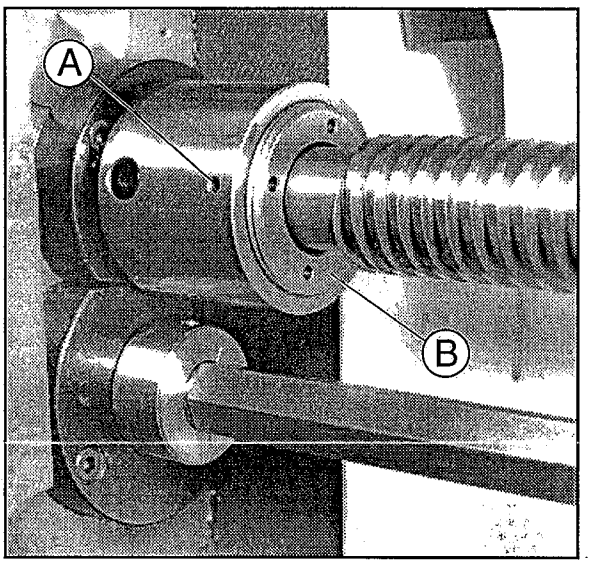


Fig. 20 (without leadscrew cover)

DRIVING BELT

The Vee Belt tension may be assessed by applying finger pressure to each belt in turn at point T midway between the two pulleys (Fig.19).
For correct tension a deflection of about 10mm should be possible in each Belt.
To adjust the Vee Belt tension - release the Lock Nuts on the Motor Platform Adjusting Screws and alternatively slacken one Screw and tighten the other against the Motor Platform until the correct tension is obtained then re-tighten the two Lock Nuts.

LEADSCREW TORQUE LIMITING DEVICE (Fig. 20)

The transmission is protected against severe overload by a torque limiting device fitted to the left hand end of the leadscrew. This is set to a pre-determined slipping torque before the machine leaves our works. In normal usage the user is advised not to alter this setting but to to consult our Service Department in case of a problem.

Adjustment may be achieved by:

1. Loosening the two locking screws (A) on the O.D. of the device.
2. Turning the inner adjusting ring (B) (by means of the two holes in the R.H.face of the unit) clockwise to increase slipping torque.
3. Re-tightening the two locking screws.

To "feel" the slipping torque hold the apron handwheel to stop saddle movement whilst the leadscrew is engaged.

CAUTION :

Keep cutting tool well clear of workpiece and spindle at a low number of rev/min, when making adjustments.

DRIVE CLUTCHES

Two multi-plate clutches on the headstock clutch shaft provide provide drive for forward and reverse spindle rotation.

When correctly set, clutches should accelerate the spindle from rest to 2000 rev/min. within 3 to 4 seconds when fitted with the standard 250mm(10 in.) diameter 3-jaw chuck

Before adjusting clutches ensure that the main drive belts are correctly tensioned.

ACCESS

1. Switch off power supply at Mains Isolator.
   Disengage Clutches with Spindle Forward/ReverseControl Lever in neutral position.
2. Remove Headstock Cover as follows:-
   Remove Rubber Mat.
   Remove Fixing Screws.

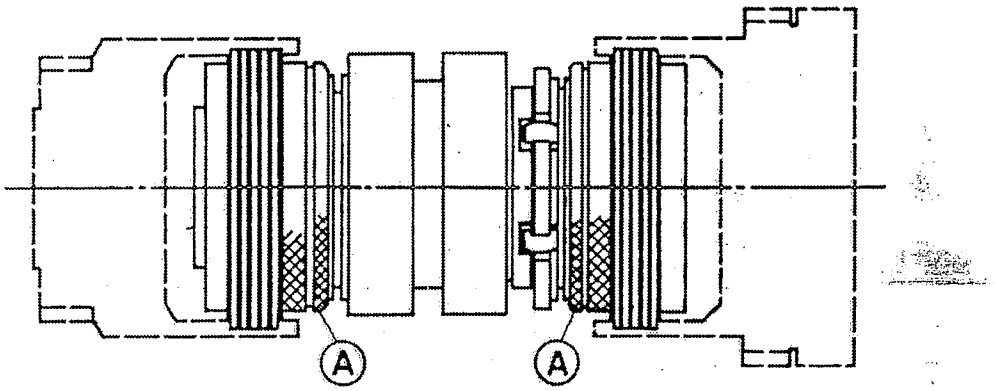


Fig. 21

ADJUSTMENT (Fig. 21 and 22)

1. Select Clutch to be adjusted, i.e. R.H. for forward L.H. for reverse.
2. Slide back Knurled Lock Ring (A) and rotate one notch at a time in direction of arrow to tighten.
3. Reset lock ring.

NOTE: OVER ADJUSTMENT MAY CAUSE SERIOUS DAMAGE TO CLUTCHES.

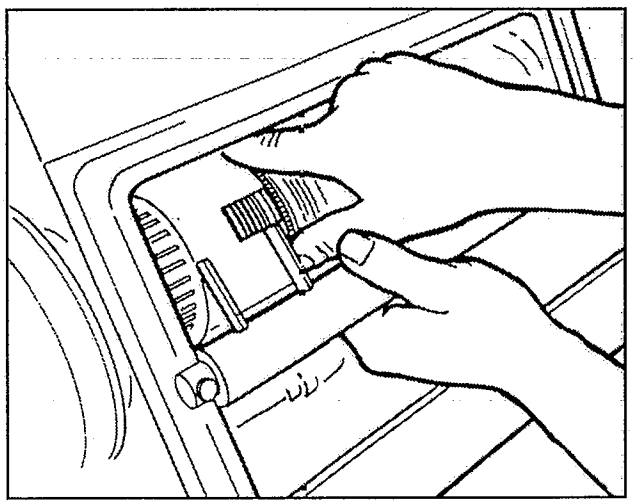


Fig. 22

CALIPER BRAKE UNIT

A considerable life expectancy is assured from the fail to safety caliper operated spindle brake, depending on the duty cycle imposed upon it, and the attention to prescribed maintenance.

BRAKE MAINTENANCE

The two most important features being the Air Gap Setting and the Free Floating condition of the brake on its two mounting pins (B).

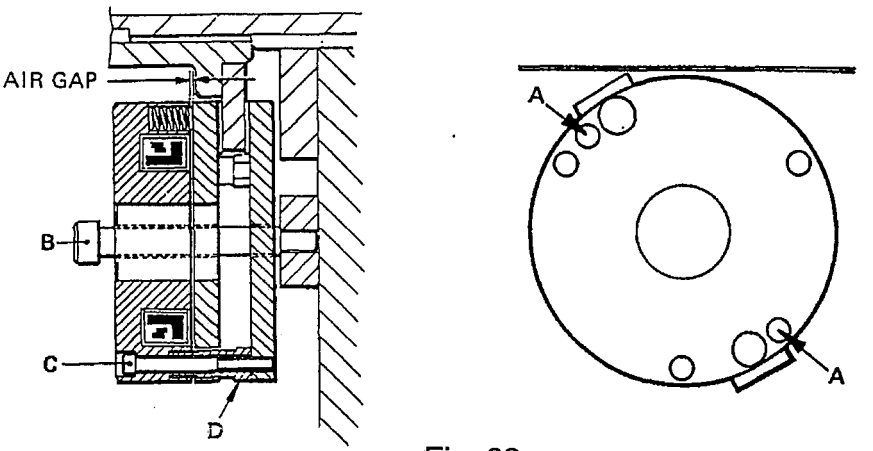


Fig. 23

The Air Gap is factory set at 0.25mm (0.010"). This gap should be checked at regular intervals of approximately 3 months. As the brake pads wear this gap will gradually increase, when the gap has reached 0.75mm (0.030") the brake should be adjusted as follows:—

ADJUSTING AIR GAP (Fig. 23)

(a) Stop spindle and isolate machine.

(b) Remove change wheel guard.

(c) Check air gap
If adjustment is required proceed as follows:—

(d) Fit two M6 x 45mm socket head transit screws (A) in position shown and tighten.

(e) Before proceeding, take note of brake body float on mounting pins (B).
This should be of an easy rattle fit.

(f) Release by two turns, each of the three brake body locking screws (C).
Next turn each of the hexagon spacers (D) anti-clockwise by equal amounts,
i.e. screw pitch = 1.75mm, 1/6 turn (one flat) = approx. 0.3mm.
Retighten locking screws, slacken transit screws and check gap. This should be between 0.2 and 0.3mm. If not repeat the process.
Finally tighten all three locking screws (C) to 9NM.

(g) Check that the brake is still a free floating fit on its mounting pins (B) and has not been misaligned when retightening the three locking screws.
If necessary release screws and re-align.
This is IMPORTANT, check again for free play of brake on mounting pins.

(h) Remove the transit screws (A).

CHANGE GEAR SHEAR PIN (Fig. 24)

Additional protection is provided by means of a shear pin fitted between the final driven change gear and the gearbox input shaft.

To replace shear pin isolate electrical supply and open end guard.
Remove driven gear A exposing bushes B and C. Withdraw pin head and push remainder of shear pin through bush D. Replace bush B, insert new pin and refit driven gear.

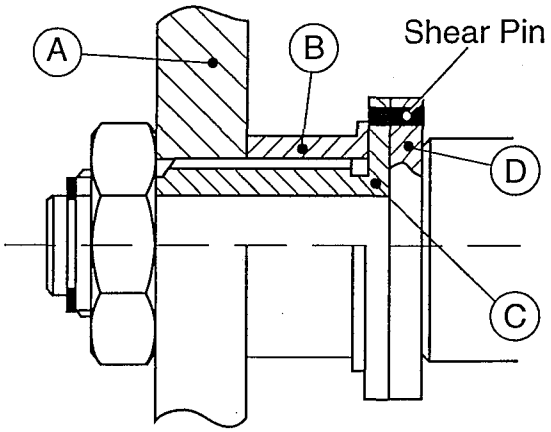


Fig. 24

CAUTION:-
Use only replacement shear pins of 3.175mm(1/8") dia. mild steel, 45kg/ ^{2}mm. (30 tons / ^{2} in.) tensile strength.

SLIDEWAYS (Fig.25)

Tapered gib strips are fitted to the slideways of the cross and compound slides to eliminate the effects of wear.

To adjust the cross-slide, slacken the rear screw and then tighten the front screw A, making only slight alterations at a time, and constantly check for a smooth action. Finally re-tighten rear screw.
The topslide is adjusted by means of a single screw B.

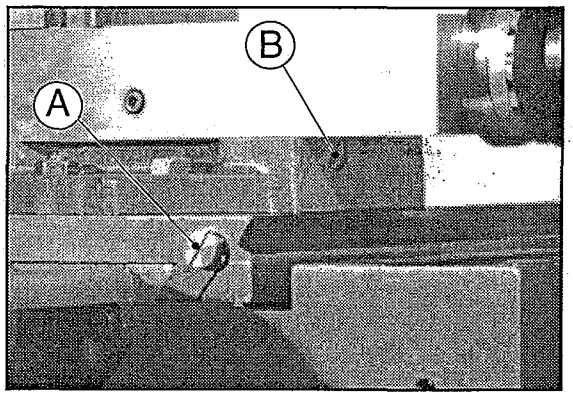


Fig. 25

Tapered gibs are fitted to each wing of the saddle and are adjusted by means of the single screws front and back.
Ensure that the slideways are cleaned and lubricated before making any adjustment.
Turn screws clockwise to take up any play avoiding over adjustment, which will result in stiff jerky action on the slide.

CROSS-SLIDE NUT (Fig. 26)

The cross-slide nut is of the backlash eliminator type.
To remove undue slackness or backlash in the nut assembly first remove the socket head grubscrew G adjacent to the nut fixing screws on the top face of the slide. Insert a strong screwdriver through the grubscrew hole and carefully turn the nut adjusting worm in a clockwise direction until tight.
Slacken back slightly, and operate the cross-slide repeatedly through full travel, making small adjustments until smooth action is obtained.
Replace grubscrew into top of cross-slide to prevent ingress of dirt and swarf.

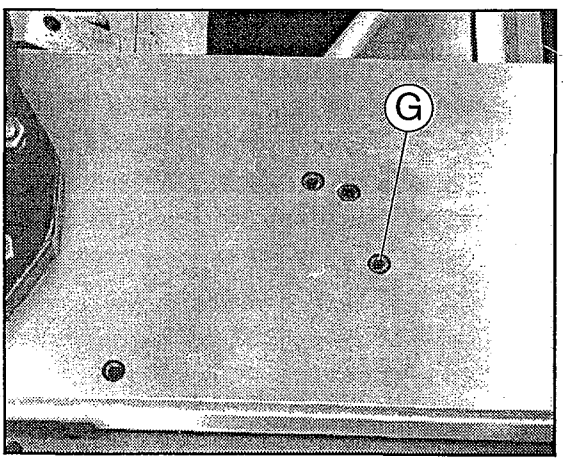


Fig. 26

LUBRICATION

HEADSTOCK (Fig. 27)

Spindle Bearings, Headstock Gearing and Shafts are lubricated continuously from a distributor Box located beneath the Headstock top Cover. This is supplied by a Pump driven by the main Motor and is not related to spindle speed. Evidence of supply is shown in an Oil Sight Glass located on the Headstock front face.

N.B. The Lathe should not be operated unless oil can be seen to be flowing.

A Pipe returns oil from the bottom of the Headstock to the oil Pump. Ensure that the oil level in the system is kept topped up, through the filler (A) in the Oil Tank. **Do not fill through Headstock Cover.** Check oil level weekly and change the oil every year using Shell Tellus oil 37 (ISO VG 37). The headstock may be drained via the drain plug on the headstock face just below the return pipe (B) Fig. 27. System capacity is approximately 16 litres (28 pints).

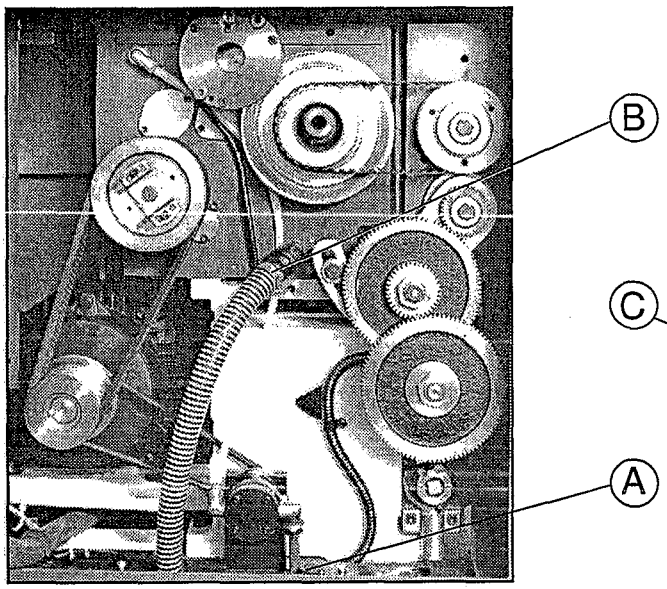


Fig. 27

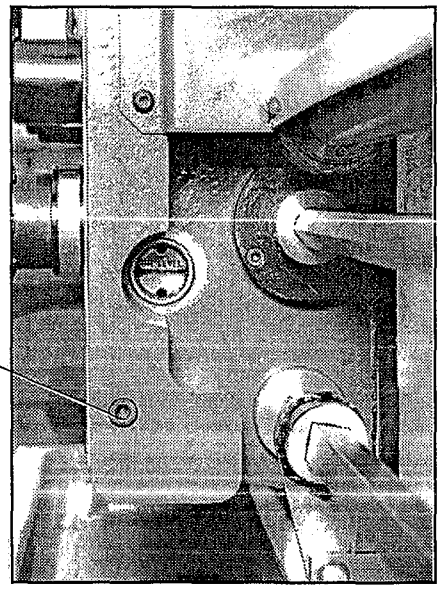


Fig. 28

GEARBOX (Fig. 28)

All gears are splash lubricated from an integral oil bath. An oil sight window is situated on the right hand end face of the gearbox. Top up or refill gearbox with Shell Tellus T37 (ISO VG 37) through filler elbow on L.H. side of gearbox casting. To drain the gearbox unscrew drain plug C in the gearbox casting. The capacity of the gear box is approximately 2.6 litres (4.5 pints).

APRON (Fig. 29)

The apron gears are splash lubricated from an integral oil bath. The apron also acts as a reservoir for the oil for the manually operated pump, which lubricates the bedways, cross slide ways and nut. When the oil level falls below the mark on the oil sight glass the system should be topped up through the filler plug in the saddle with Shell Tonna TX68 (ISO VGT 68). The capacity is approximately 1.2 litres (2.8 pints). A drain plug is provided underneath the apron casting.

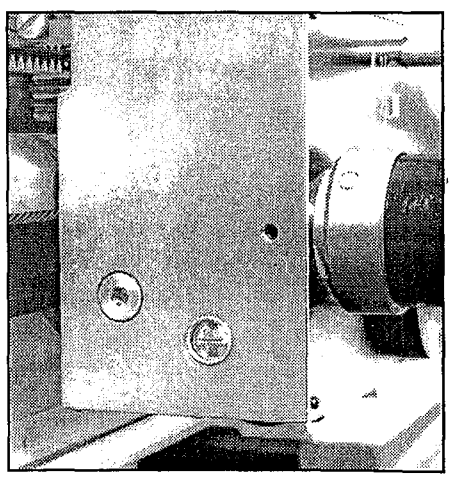
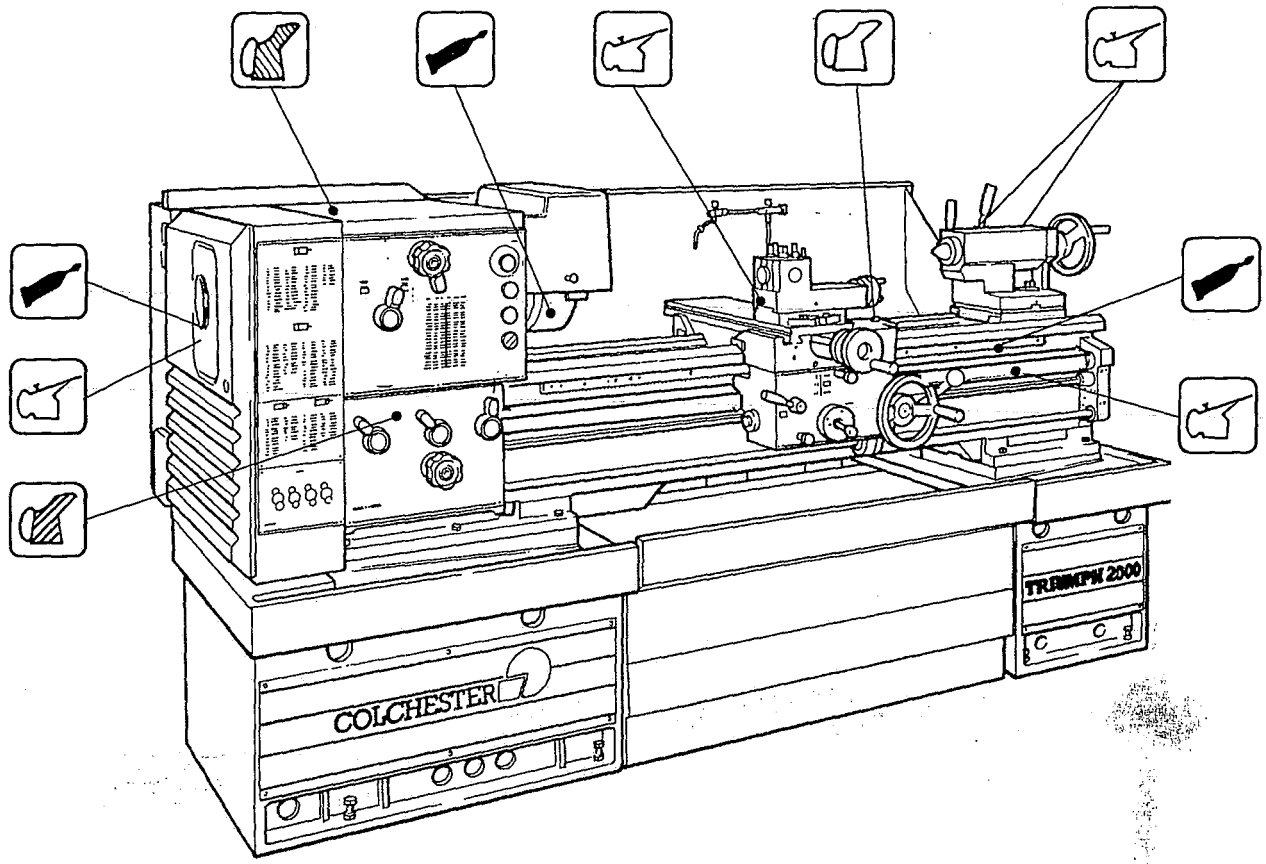


Fig. 29

LUBRICATION CHART



Grease Each Week - Rack and End Train Gears (Change wheels). Shell Alvania RA.
- Chuck (manual). Molycote "D"

Oil Each Week - Tailstock, Leadscrew, Endgear Bushes and Topslide. Shell Tellus T37 (ISO VG 37)

Apron. Check Level and top up Each Week - Shell Tonna TX68 (ISO VGT 68). Total Capacity 1.2 litres.

Headstock. Check Level and top up Each Week - Shell Tellus T 37 (ISO VG 37). Total Capacity 16 litres.

Gearbox. Check Level and top up Each Week - Shell Tellus T 37 (ISO VG 37) Total Capacity 2.6 litres.

REGULAR ATTENTION

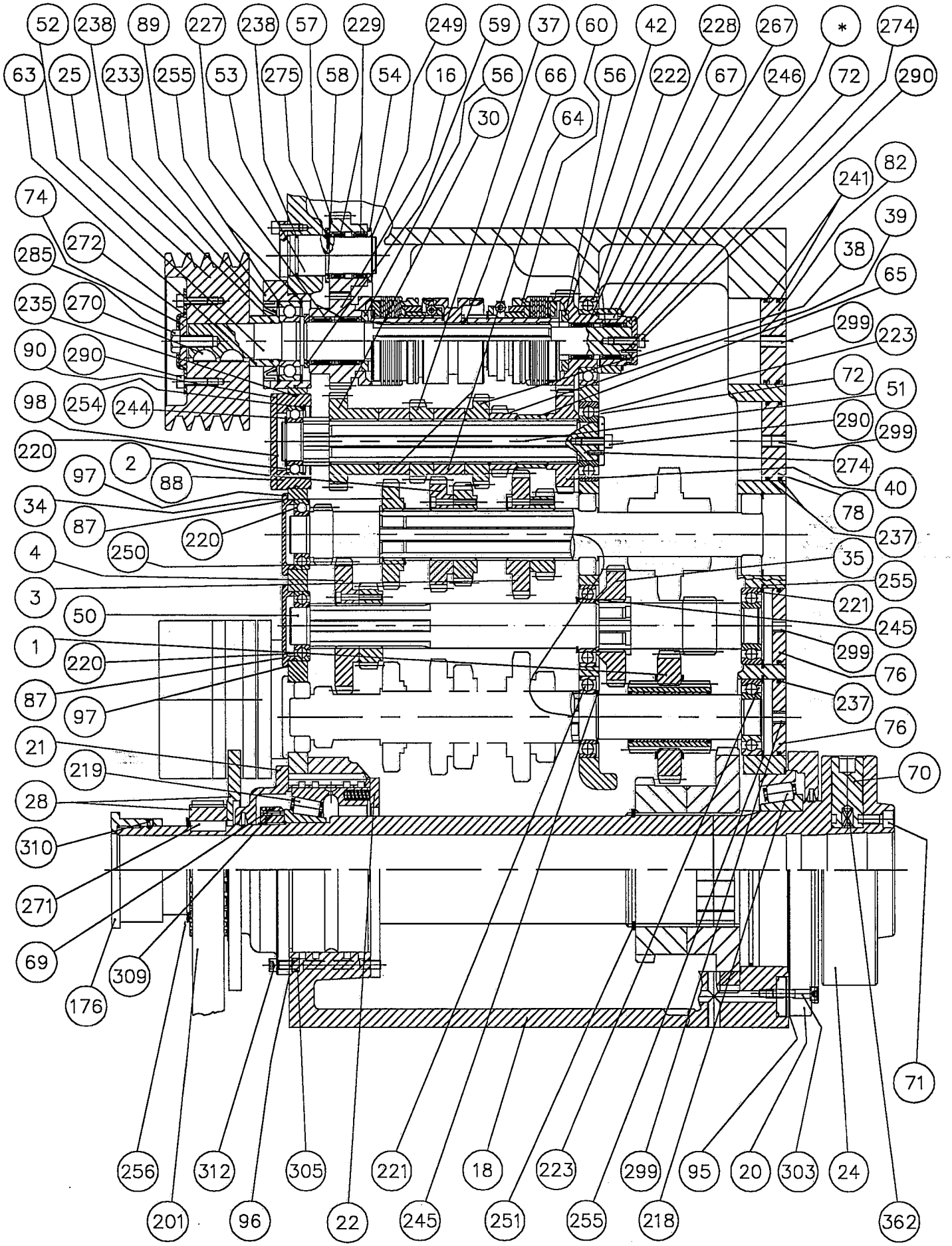
For trouble free operation keep the lathe clean and regulary maintained.
Where Oil Nipples are provided lubrication should be carried out as indicated on the Lubrication Chart.

DO NOT MIX LUBRICANTS.–

When alternative lubricants are to be used, the system or reservoir should be drained and flushed out before refilling with the equivalent grade

CONTENTS PAGE

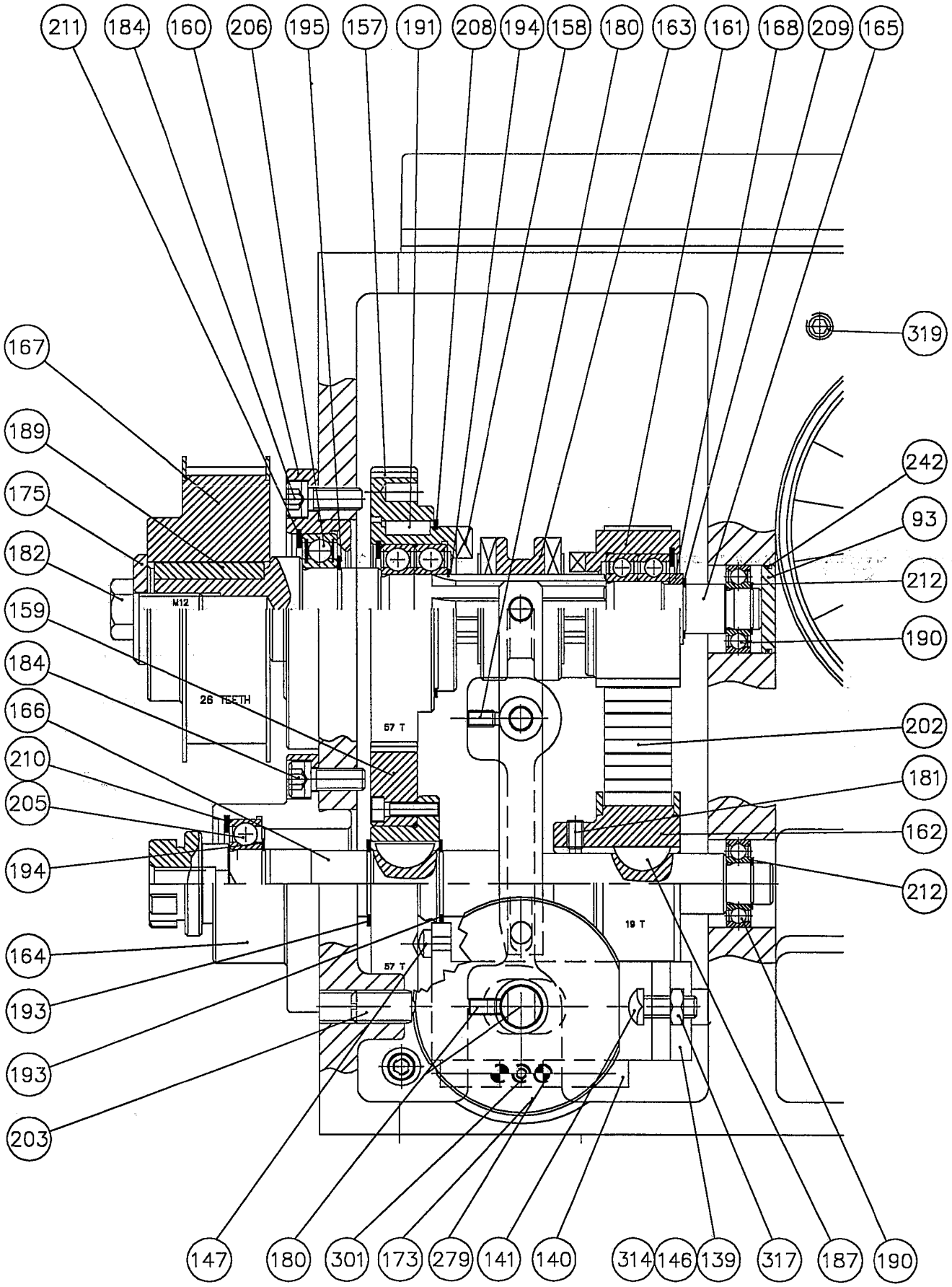
HEADSTOCK ASSEMBLY (1)



A100 - 0512A
HEADSTOCK ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	40T & 21T GEAR SUB - ASSEMBLY	A806 - 0590A
2	30/34T GEAR SUB - ASSEMBLY	A832 - 0060A
3	26/38T GEAR SUB - ASSEMBLY	A832 - 0059A
4	25/40T GEAR SUB - ASSEMBLY	A832 - 0061A
5	RH BRACKET GEAR SHIFT SUB - ASSEMBLY	A879 - 0008A
6	LH GEARSHIFT BRACKET SUB - ASSEMBLY	A879 - 0006A
7	RH GEAR SHIFT LEVER SUB - ASSEMBLY	A879 - 0005A
8	LH LEVER GEAR SHIFT SUB - ASSEMBLY	A879 - 0007A
9	RH ROD SUB - ASSEMBLY	A879 - 0009A
10	LH ROD SUB - ASSEMBLY	A879 - 0004A
11	CLUTCH SHIFT LEVER SUB - ASSEMBLY	A852 - 0095A
16	27T CLUTCH GEAR SUB - ASSEMBLY H 070	A832 - 0018A
18	HEADSTOCK CASTING	D384 - 0053
19	HEADSTOCK COVER	D132 - 0892
20	COVER FRONT BRG. H 070	D132 - 0353
21	BACK BEARING COVER	D132 - 0610
22	COVER INNER BACK BEARING	D132 - 0691
23	FRAME LEVERS	D297 - 0052
24	SPINDLE	D709 - 0061
25	PULLEY	D570 - 0383
28	26T PULLEY / BRAKE	A824 - 0043A
29	CALIPER BRAKE	JB - 0060
30	27T GEAR HEADSTOCK 070	D344 - 0926
31	75T SPINDLE GEAR H 070	D344 - 0709
32	56T SPINDLE GEAR H 070	D344 - 0710
34	32T GEAR HEADSTOCK 070	D344 - 0937
35	35T GEAR HEADSTOCK 070	D344 - 0936
37	23T GEAR HEADSTOCK 070	D344 - 0935
38	27T GEAR HEADSTOCK 070	D344 - 0722
39	19T GEAR HEADSTOCK 070	D344 - 0831
40	31T GEAR HEADSTOCK 070	D344 - 0724
42	31T CLUTCH	D344 - 1352
44	LUBE PIPE HEADSTOCK	D562 - 0178
45	LUBE PIPE HEADSTOCK	D562 - 0177
46	OIL SIGHT FEED PIPE	D562 - 0176
47	ADAPTOR	D004 - 0093
49	2ND SHAFT	D699 - 0855
50	3RD SHAFT	D699 - 0854
51	SHAFT HEADSTOCK	D699 - 0853
52	SHAFT CI.DRIVING	D699 - 0852
53	SHAFT IDLER.	D699 - 0851
54	WASHER THRUST HEADSTOCK 070	D931 - 0215
56	WASHER THRUST CLUTCH H 070	D931 - 0226
57	26T GEAR IDLER H 070	D344 - 0927

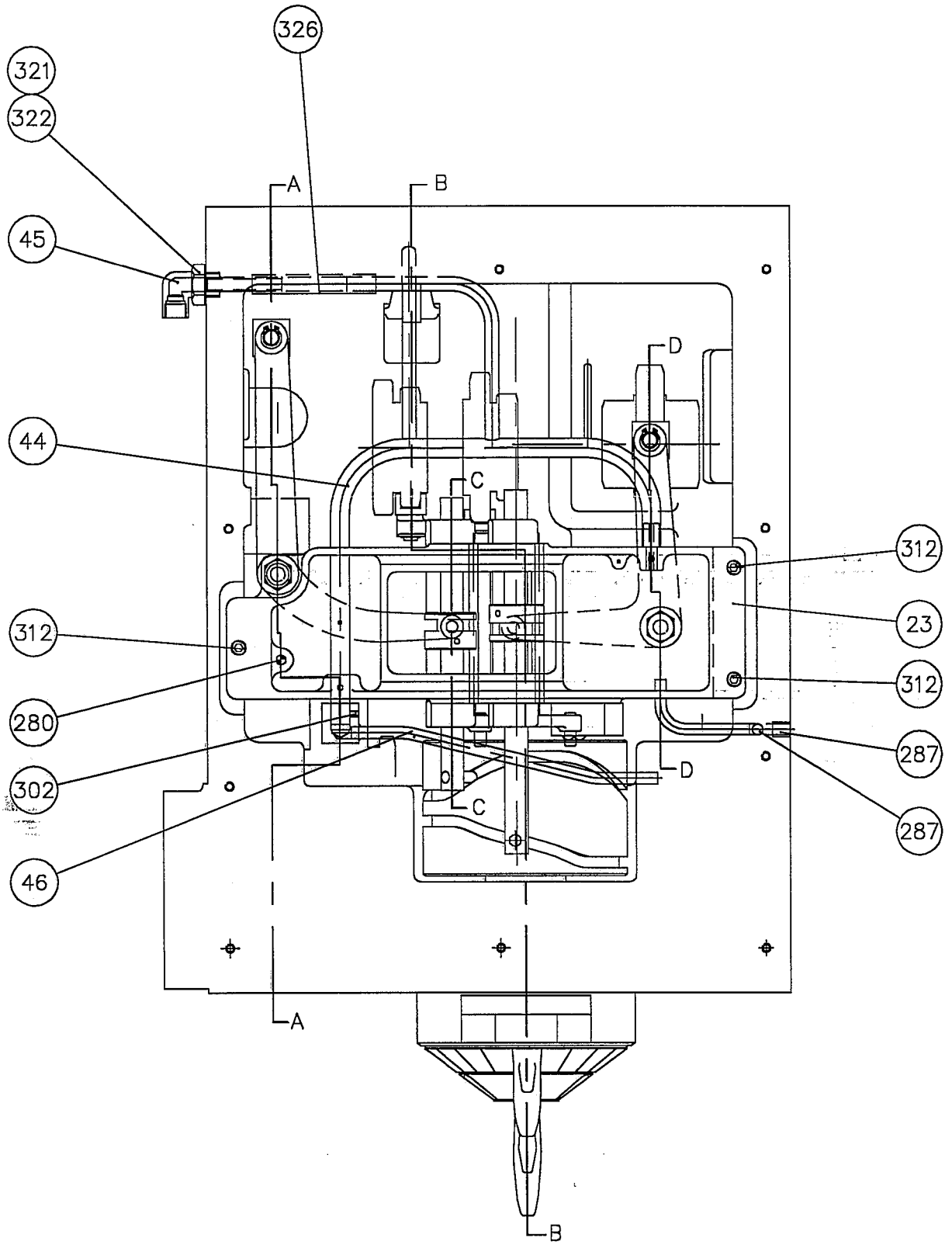
HEADSTOCK ASSEMBLY (2)



A100 - 0512A
HEADSTOCK ASSEMBLY

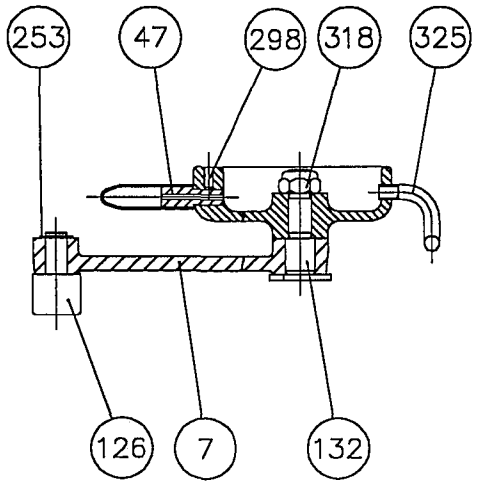
ITEM NO.	DESCRIPTION	PART NO.
58	R WASHER THRUST H/ST.070	D931 - 0236
59	R WASHER THRUST H/ST.760	D931 - 0240
60	CLUTCH - MATRIX DGDW/04	D129 - 0023
63	PULLEY SPACER	D708 - 0543
64	R SPACER 2 X I-1/4" H 070	D708 - 0150
65	R SPACER 1-5/8 X I-3/16" 070	D708 - 0151
66	R SPACER CLUTCH H 760	D708 - 0152
67	SPACER	D708 - 0544
69	NUT BACK BEARING.	D536 - 0341
70	CAM (D702H041.1)	CE - 0090
71	HEXAGON SOCKET CAP HEAD SCREW (D702H042.1)	FS - 0254
72	WASHER RETAINING	D931 - 0362
74	R WASHER 1-1/2X7/16"4,6&7	D931 - 0282
76	PLUG 62MM DIA	D566 - 0212
78	PLUG 62MM DIA.	D566 - 0211
82	PLUG	D566 - 0187
87	COVER - SMALL BEARING	D132 - 0767
88	BEARING HOUSING	D388 - 0153
89	BEARING HOUSING	D388 - 0152
90	BEARING HOUSING COVER	D132 - 0175
93	PLUG	D566 - 0186
95	GASKET FRONT BEARING COVER	D343 - 0111
96	GASKET REAR BEARING COVER	D343 - 0164
97	GASKET X FIBRE NO 2	D343 - 0048
98	GASKET TRI H/STOCK	D343 - 0049
103	C CAM DRUM	D123 - 0123
104	R CAM FACE	D123 - 0122
105	LEVER CLUTCH CTR	D452 - 0285
106	PIVOT PLATE	D565 - 1142
107	BAR EXT.SPRING	D041 - 0254
108	BUSH / CLUTCH LEVER	D049 - 0354
109	BUSH LEVER PIVOT	D049 - 0352
111	ROLLER HEADSTOCK	D647 - 0029
112	HINGE PIN H/STOCK	D560 - 0332
115	PIN.SPRING HSTK	D560 - 0336
119	SHAFT DRUM CAM	D699 - 0856
120	SHAFT FACE CAM	D699 - 0850
122	R ROD GUIDE H 070	D648 - 0050

HEADSTOCK ASSEMBLY (3)

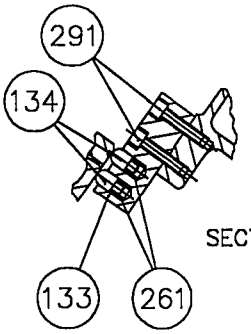


A100 - 0512A
HEADSTOCK ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
124	PAD CLUTCH SHIFT	D557 - 0158
125	FORK GEAR SHIFTER.	D299 - 0077
126	FORK RH GEAR SHIFT	D299 - 0078
127	FORK LH GEAR SHIFT	D299 - 0079
128	R WASHER THR.(AS REQ) 769	D931 - 0228
129	R WASHER THR.(AS REQ)769	D931 - 0229
130	R WASHER THR.(AS REQ) 769	D931 - 0230
132	STUD PIVOT HSTK	D711 - 0209
133	BRKT.PLUNGER	D050 - 0801
134	PLUNGER CAMS HDSTK	D567 - 0062
135	SLEEVE CLUTCH SHIFT	D704 - 0139
136	GASKET TRI HSTOCK	D343 - 0056
137	SPEED SELECTOR	D726 - 0043
138	R WASHER GBLHS 4 6&7	D931 - 0194
139	BLOCK REV. BOX TRIMASTER	D047 - 0104
140	BLOCK REV. BOX TRIMASTER	D047 - 0105
141	ADJUSTING SCREW - REV BOX	D697 - 0360
142	COVER DIAL (STEEL)	D132 - 0176
143	BLOCK - DISC BRAKE MOUNTING	D047 - 0147
144	SET OVER PAD	D557 - 0142
145	PIN SET OVER	D560 - 0297
146	PIN - REVERSE BOX	D560 - 0303
147	PIN - REVERSE BOX	D560 - 0304
148	SPEED SELECT DIAL	D232 - 0038
149	NAMEPLATE INDICATOR	D537 - 0582
150	NAMEPLATE SPEED RANGE	D537 - 0583
151	NAMEPLATE SPEED SELECTOR	D537 - 0584
152	ADAPTOR	D004 - 0094
153	COVER CLUTCH ACCESS	D132 - 0701
154	GASKET CLUTCH COVER	D343 - 0180
157	GEAR REVERSE BOX	D344 - 1257
158	SPACER SUB - ASSEMBLY REV BOX	A806 - 0558A
159	GEAR SUB - ASSEMBLY REVERSE BOX	A806 - 0560A
160	HOUSING INPUT SHAFT REVERSE BOX	D388 - 0127
161	HOUSING ASY REVERSE BOX	A806 - 0559A
162	I9T PULLEY SASSY REVERSE BOX	A824 - 0031A
163	CLUTCH BOBBIN REVERSE BOX	D051 - 0006
164	HOUSING OUTPUT SHAFT REVERSE	D388 - 0128
165	INPUT SHAFT	D699 - 0788
166	OUTPUT SHAFT	D699 - 0789
167	26T PULLEY SASSY REVERSE BOX	A824 - 0028A
168	SPACER SHAFT A REVERSE BOX	D708 - 0459
169	SHIFTER PAD REVERSE BOX	D299 - 0067
170	SHIFTER BAR REVERSE BOX	D041 - 0230
171	SHIFTER PIVOT SHAFT	D699 - 0779
172	SHIFTER REVERSE LEVER	D699 - 0781
173	SHIFTER DISC REVERSE BOX	D233 - 0023
174	SHIFTER PIN REVERSE BOX	D560 - 0295
175	SPACER REVERSE BOX	D708 - 0468



SECTION D–D



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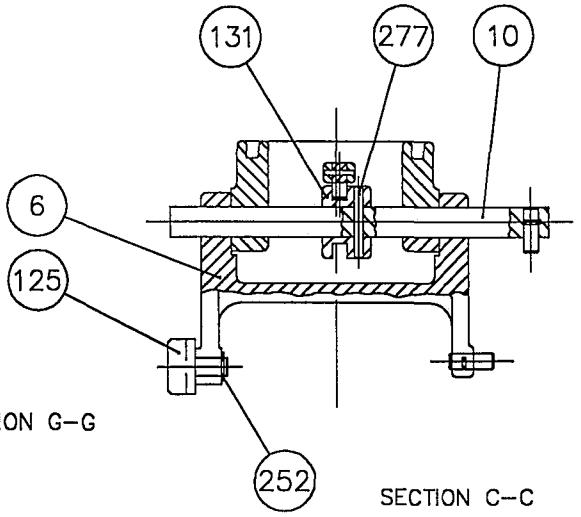

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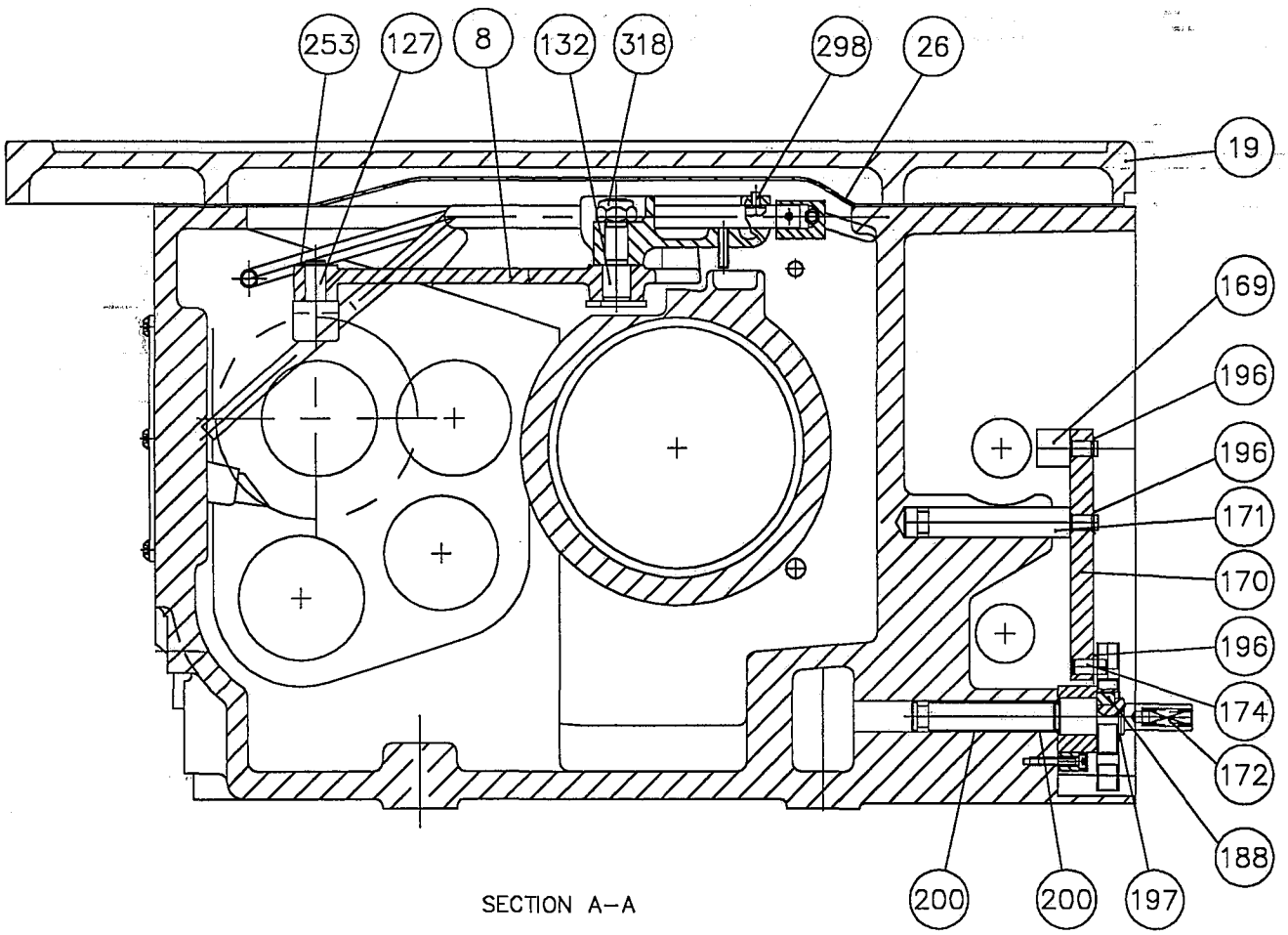
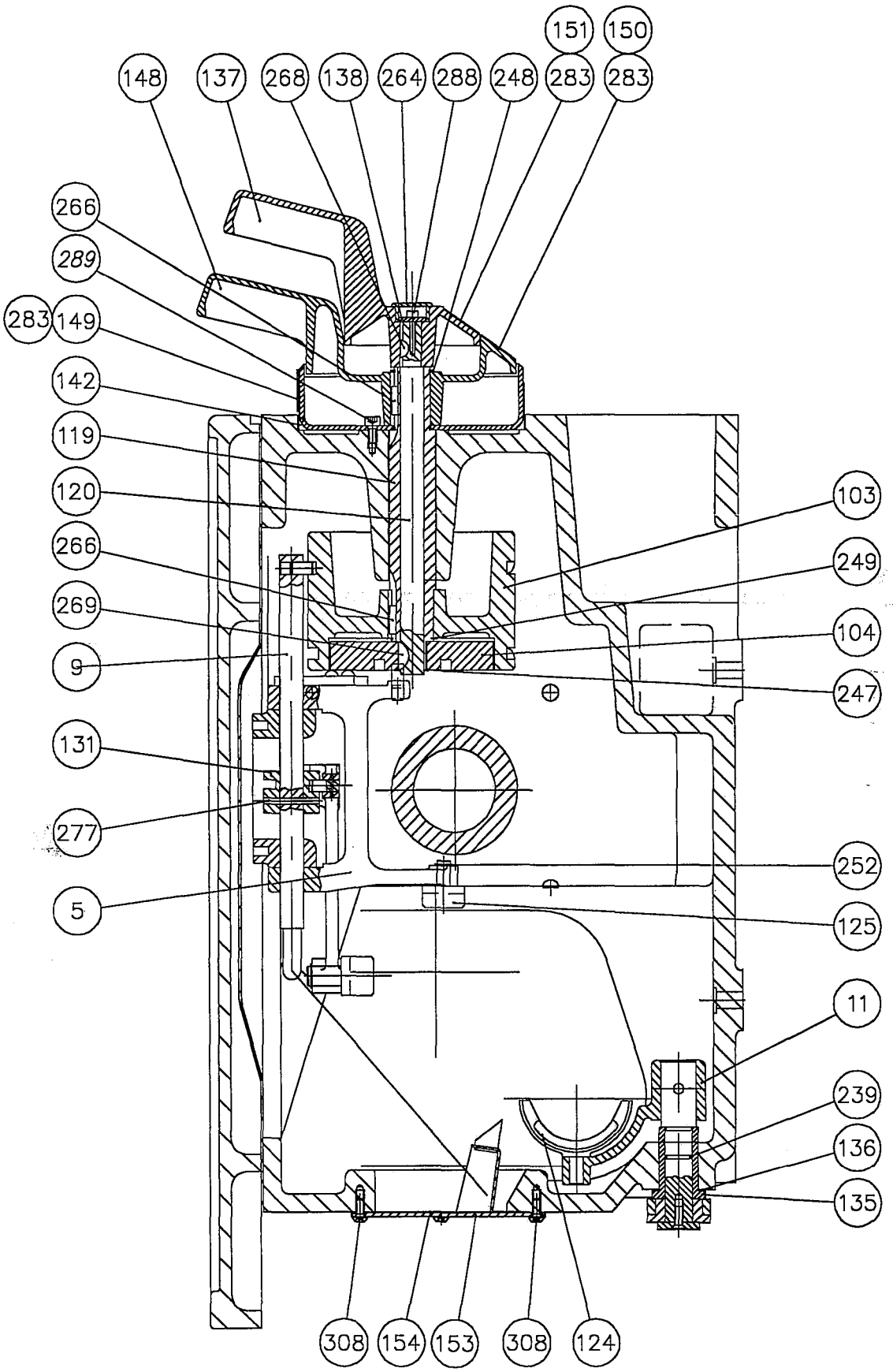


SECTION A–A

A100 - 0512A
HEADSTOCK ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
176	COOLANT THROWER	D646 - 0067
179	HEXAGON SOCKET SET SCREW M12 X 16	B163 - 1781
180	HEXAGON SOCKET DOG POINT SCREW M6 X 8	FS - 0346
181	HEXAGON SOCKET CUP POINT SCREW M6 X 10	FS - 0500
182	HEXAGON HEAD SCREW M12 X 25 HIGH TENSILE	FS - 0600
184	HEXAGON SOCKET CAP HEAD SCREW M8 X 20	FS - 0162
185	HEXAGON SOCKET CAP HEAD SCREW M4 X 10	FS - 0092
187	WOODRUFF KEY 6 X 9 X 22	KA - 0190
188	KEY 6 X 6 X 10	B343 - 5041
189	ROUND END KEY 8 X 7 X 40	KA - 0340
190	BEARING 6002 2Z	BG - 0275
191	ROUND ENDS KEY 5 X 5 X 16	B343 - 5031
193	CIRCLIP EXTERNAL 1400-24	RA - 0160
194	CIRCLIP EXTERNAL 1400-25	RA - 0170
195	CIRCLIP EXTERNAL 1400-30	RA - 0190
196	CIRCLIP EXTERNAL 1400-8	RA - 0070
197	CIRCLIP EXTERNAL 1400-20	RA - 0140
200	MB14 20 DU	BF - 0010
201	TIMING BELT REF 270H100	B346 - 1338
202	BELT TIMING REF 150L100	B346 - 1337
203	SP996 DETENT SCREW M12	FS - 0050
205	BEARING 6005-2Z	BG - 0465
206	BEARING 6006-2Z	BG - 0470
208	CIRCLIP EXTERNAL 1400-60	B363 - 0060
209	CIRCLIP EXTERNAL 1400-18	RA - 0125
210	CIRCLIP INTERNAL 1300-47	B363 Y0447
211	CIRCLIP TYPE 1300-55	B363 - 0455
212	CIRCLIP EXTERNAL 1400-15	RA - 0110
218	BEARING 131093X/131152XC	B336 - 1228
219	BEARING 133075/133130P	B336 - 1322
220	BEARING 6006 RIGID BALL	B313 - 0416
221	BEARING 6007 RIGID BALL	B313 - 0418
222	BEARING 6008	BG - 0340
223	BEARING 6206	BG - 0090
227	BEARING NEEDLE HK3020	BC - 0280
228	BEARING NEEDLE ROLLER HK222	B337 - 1150
229	BEARING INA SHELL SC188	B337 - 7640
233	O/SEAL WB244/157/39/R4	B414 - 3224
235	O RING 200/039/4470	B412 - 3013
237	O RING 200/140/4470	B412 - 0140
238	O RING 200/024/4470	B412 - 0024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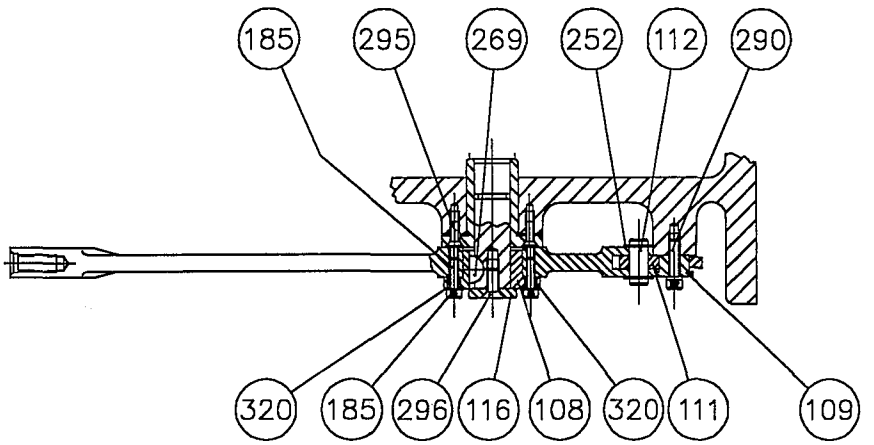
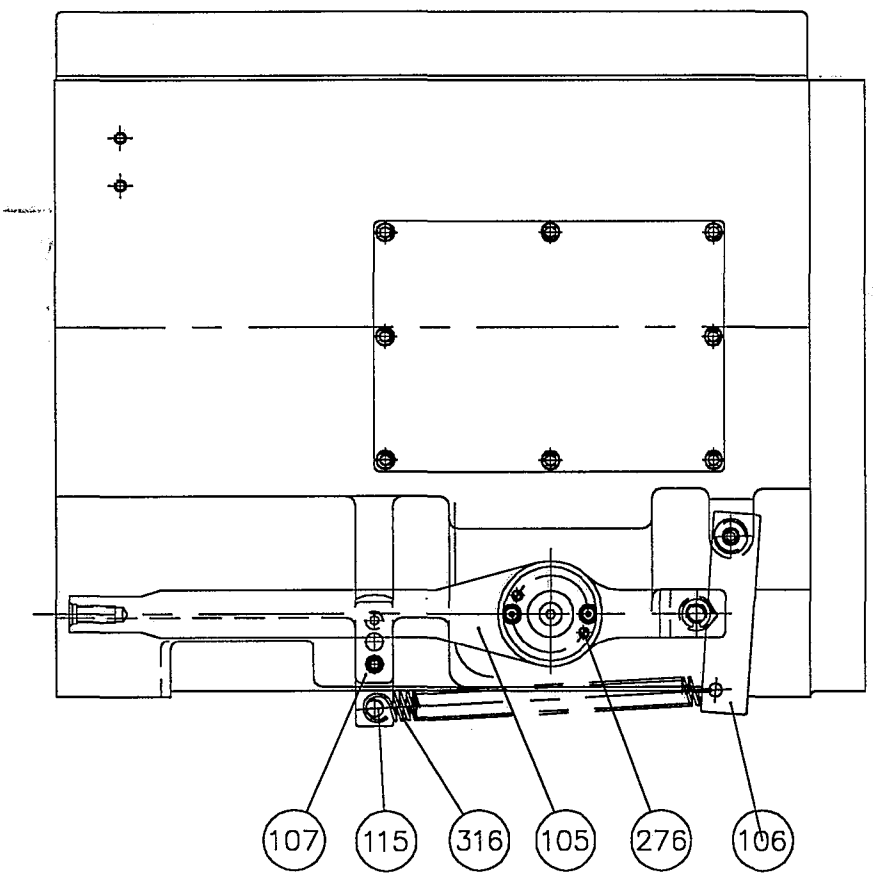
A100 - 0512A
HEADSTOCK ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
239	O RING 200/016/4460	B412 - 0016
241	O RING PP52C LIST 3 MK7	B412 - 0229
242	O RING RM0291-16	OA - 0170
244	CIRCLIP EXTERNAL 1400-30	RA - 0190
245	CIRCLIP EXTERNAL 1400-35	RA - 0260
246	CIRCLIP 1400-38	B363 - 0038
247	CIRCLIP EXTERNAL 1400-16	RA - 0120
248	CIRCLIP EXTERNAL 15/16"	B362 - 0024
249	CIRCLIP EXTERNAL 1 1/8"	B362 - 0028
250	CIRCLIP 1 5/8" (USE 363-0042)	B362 - 0036
251	CIRCLIP 1400-9OM	B362 - 5070
252	CIRCLIP EXTERNAL 1400-0100	RA - 0085
253	CIRCLIP EXTERNAL 1400-12	RA - 0090
254	CIRCLIP INTERNAL 55MM BORE	B361 - 5046
255	CIRCLIP INTERNAL 62MM BORE	B361 - 5052
256	CIRCLIP EXTERNAL 1400-72	B363 - 0072
261	SPRING FLEXO 123204	B365 - 1171
262	SPRING FLEXO 123306	B365 - 1176
264	PLUG	D566 - 0213
266	PARALLEL KEY 5 X 5 X 18	KA - 0012
267	KEY 3/16 X 3/16 X 5/8"	B343 - 0012
268	WOODRUFF KEY 3 X 5 X 13	KA - 0170
269	WOODRUFF KEY 4 X 6.5 X 16	KA - 0320
270	WOODRUFF KEY 5 X 7.5 X 19	KA - 0180
271	RECTANGULAR KEY 12 X 8 X 28	B343 - 5130
272	TAB WASHER	D931 - 0370
274	SPIROL PIN 1/8" X 1/2"	B111 - 2440
275	SPIROL PIN-DIA 2.5 X 10 LG	B111 - 5039
276	SPIROL PIN 3/16 X 3/4	B111 - 2486
277	SPIROL PIN M4 X 35 MBK	B111 - 5082
278	SPIROL PIN M5 X 12 HBK	FT - 0200
279	SPIROL PIN M6 X 30 MBK	FT - 0374
280	SPIROL PIN 1/4 X 7/8	B111 - 2516
281	SPIROL PIN M10 X 40	B111 - 5160
283	SCREW SELF TAPPING R/HD.HMR.U2 X 3	B123 - 2267
284	HEXAGON SOCKET CUP POINT SCREW M6 X 12	FS - 0502
285	HEXAGON HEAD SCREW M10 X 20 HIGH TENSILE.	FS - 0584
288	HEXAGON SOCKET CAP HEAD SCREW M5 X 10	FS - 0110
289	HEXAGON SOCKET CAP HEAD SCREW M6 X 12	FS - 0132
290	HEXAGON SOCKET CAP HEAD SCREW M6 X 20	FS - 0136
291	HEXAGON SOCKET CAP HEAD SCREW M6 X 25	FS - 0138
293	HEXAGON SOCKET CAP HEAD SCREW M8 X 25	FS - 0164
294	HEXAGON SOCKET COUNTERSUNK SCREW M5 X 12	FS - 0436
295	HEXAGON SOCKET COUNTERSUNK SCREW M4 X 10	FS - 0426
296	HEXAGON SOCKET COUNTERSUNK SCREW M6 X 16	FS - 0442
297	HEXAGON SOCKET DOG POINT SCREW M10 X 10	B163 - 1761
298	HEXAGON SOCKET CUP POINT SCREW M8 X 10	FS - 0534

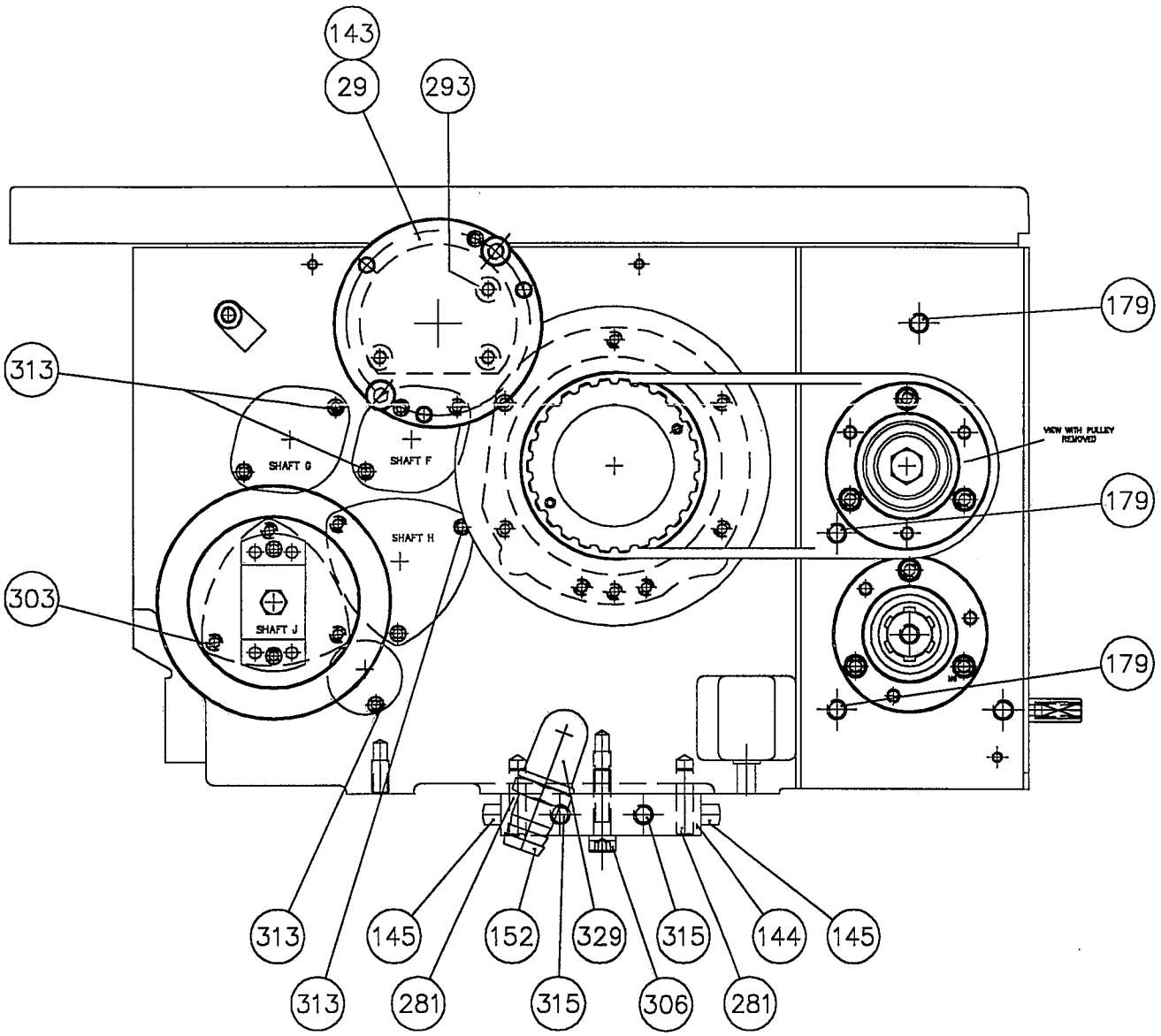
HEADSTOCK ASSEMBLY (6)





A100 - 0512A
HEADSTOCK ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
299	HEXAGON SOCKET DOG POINT SCREW M12 X 12	FS - 0378
300	HEXAGON SOCKET DOG POINT SCREW M12 X 12	FS - 0378
301	HEXAGON SOCKET CAP HEAD SCREW M4 X 20	FS - 0098
302	HEXAGON SOCKET CAP HEAD SCREW M4X 5 CONE POINT	B163 - 1634
303	HEXAGON SOCKET CAP HEAD SCREW M6 X 30	FS - 0140
304	HEXAGON SOCKET CAP HEAD SCREW M6 X 45	FS - 0146
305	HEXAGON SOCKET CAP HEAD SCREW M6 X 70	FS - 0151
306	HEXAGON SOCKET CAP HEAD SCREW M10 X 40	FS - 0190
307	HEXAGON SOCKET BUTTON HEAD SCREW M4 X 10	FS - 0274
308	HEXAGON SOCKET BUTTON HEAD SCREW M6 X 12	FS - 0294
309	HEXAGON SOCKET COUNTERSUNK SCREW M4 X 12	FS - 0428
310	HEXAGON SOCKET CAP HEAD SCREW M5 X 6 LG	B163 - 1642
311	HEXAGON SOCKET CAP HEAD SCREW M8 X 45	FS - 0172
312	HEXAGON SOCKET CAP HEAD SCREW M6 X 20	FS - 0136
313	HEXAGON SOCKET CAP HEAD SCREW M6 X 16	FS - 0134
314	SPRING FLEXO M246208	B366 - 0350
315	SET SCREW WEDGLOK M12 X 20	B164 - 0170
316	SPRING FLEXO AR / 3748	B365 - 4336
317	LOCKNUT M8	FS - 1040
318	'NYLOC' LOCKNUT M12	FS - 0973
319	1/8 BSPT HEX SOCKET PLUG	B424 - 3200
320	WASHER P/STEEL 2BA ID TAB	B116 - 0007
321	ENOTS NUT 3/8" 34-0155-03	B433 - 0892
322	SEAL 34-0156-03	PA - 0060
323	OIL SIGHT IC4611	B454 - 1001
325	NYLON TUBE .212 X 5/16 OD	R827 - 4105
326	NYLON TUBE 1 / 20 / D	R827 - 4107
327	BLANKING PLUG RM.11168RED	B224 - 2305
329	3/4" BSPT M / F 45 DEG ELBOW	PB - 0050
400	DIAL ADAPTOR	D004 - 0110
401	SELECTOR DIAL	D232 - 0039
402	PLATE - SPEED INDICATE	D537 - 1243
403	RETAINING PLATE	D565 - 1147
404	DIAL	D402H104.1
405	WASHER	D931 - 0374
406	WASHER - BACKING	D931 - 0373
407	DISC	D402H102.1
408	CIRCLIP	SG - 371

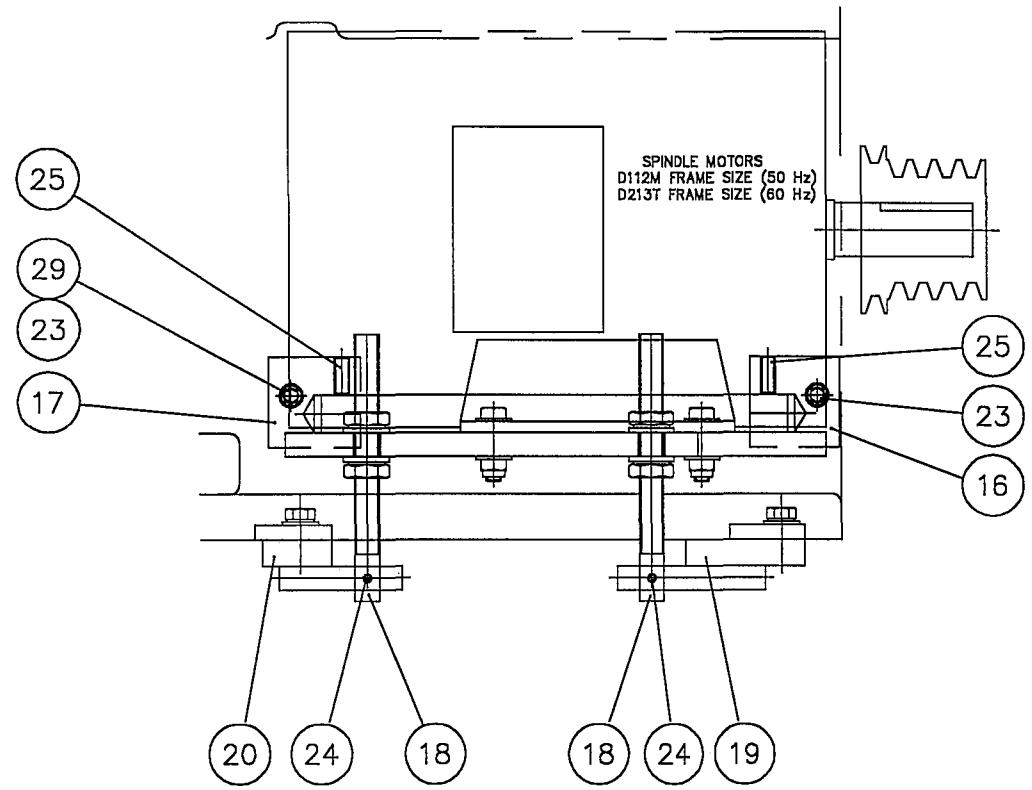


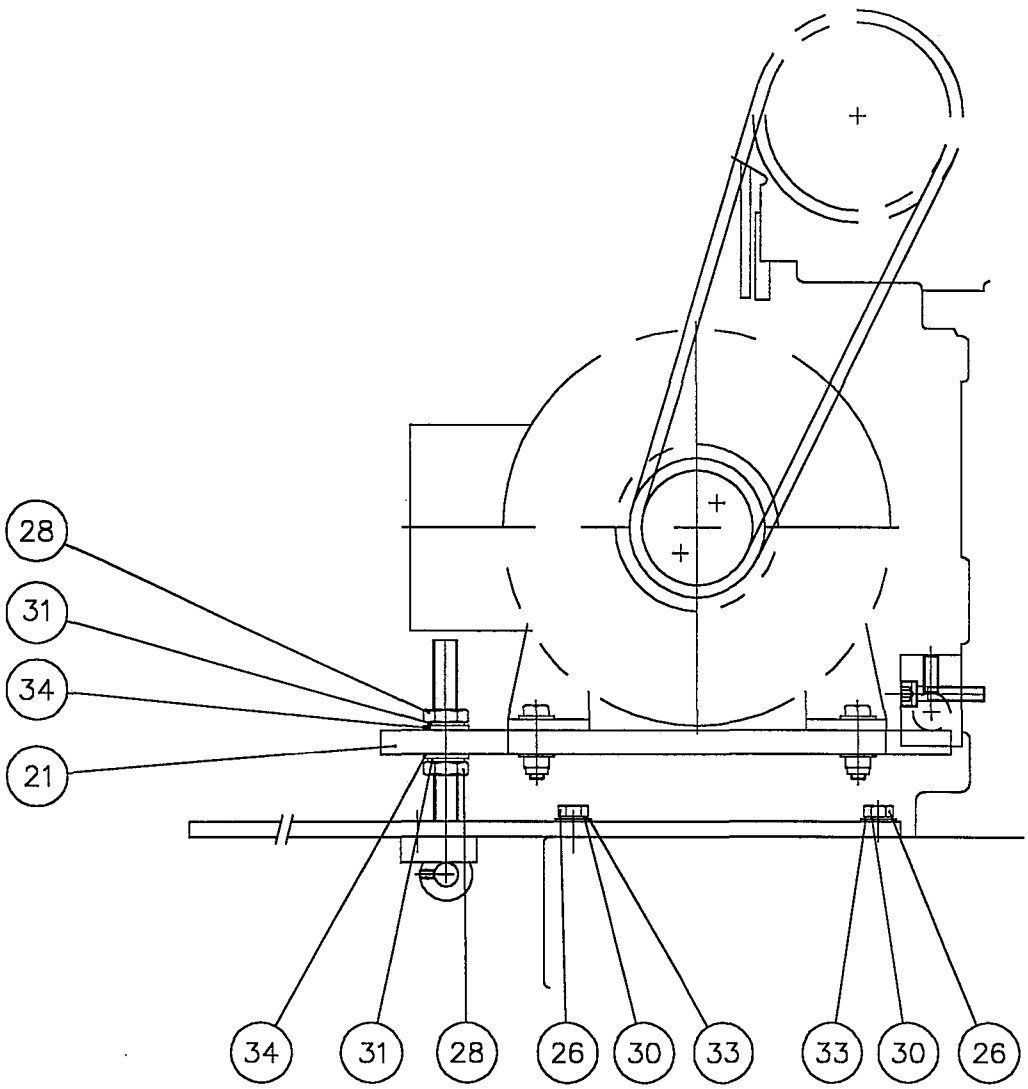
REAR VIEW OF HEADSTOCK

A100 - 0512A
HEADSTOCK ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.

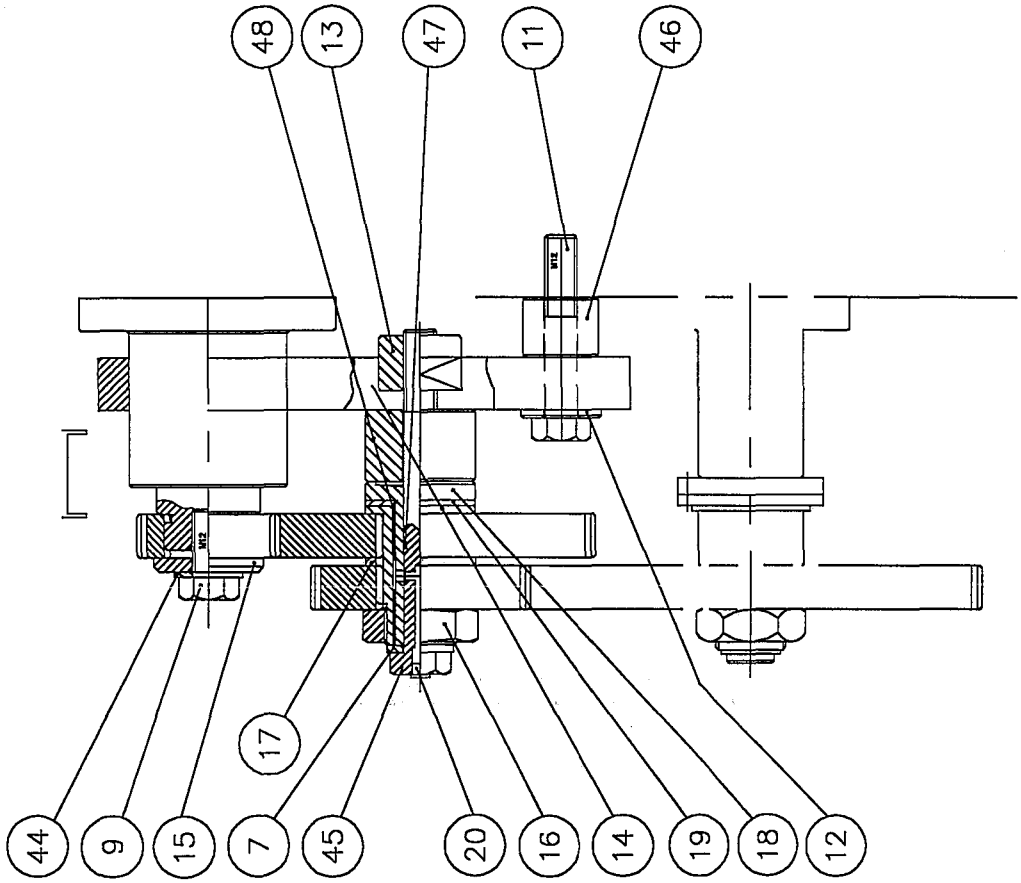
MOTOR MOUNTING ASSEMBLY





A175 - 0501G
MOTOR MOUNTING ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
11	BRIGHT WASHER M10	FP - 0165
16	MOTOR MOUNTING BLOCK	D04 7- 0109
17	MOTOR MOUNTING BLOCK	D047 - 0110
18	SWING BOLT	D697 - 0361
19	SUPPORT BAR	D041 - 0238
20	SUPPORT BAR	D041 - 0239
21	PLATE 60 Hz	D565 - 0979
22	ELECTRICAL PANEL BAR	D041 - 0240
23	HEXAGON SOCKET CAP HEAD SCREW M10 X 45	FS - 0192
24	HEXAGON SOCKET CUP POINT SCREW M6 X 10	FS - 0500
25	SET SCREW W/POINT M10 x 25	B163 - 1588
26	HEXAGON SOCKET CAP HEAD SCREW M12 X 35	FS - 0604
27	HEXAGON HEAD SET SCREW M10 X 40	FS - 0590
28	LOCK NUT M16	FS - 0976
29	SAFETY WASHER M10	FO - 0010
30	SAFETY WASHER VS-12	FO - 0030
31	SAFETY SPRING WASHER M16	B116 - 2316
32	NYLOC NUT M10	FS - 1010
33	BRIGHT WASHER M12	FP - 0070
34	BRIGHT WASHER M16	FP - 0090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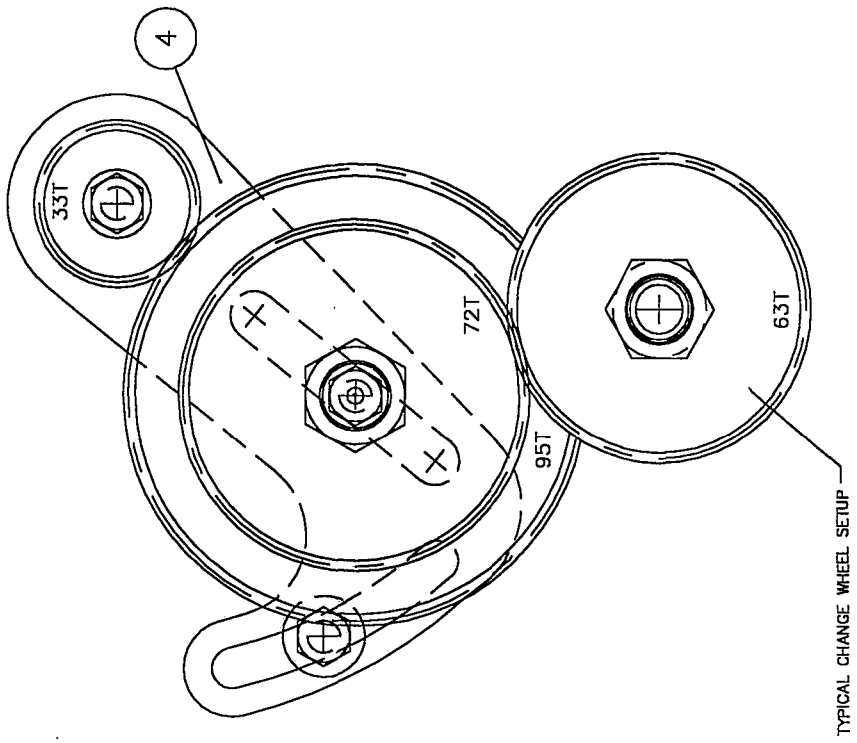
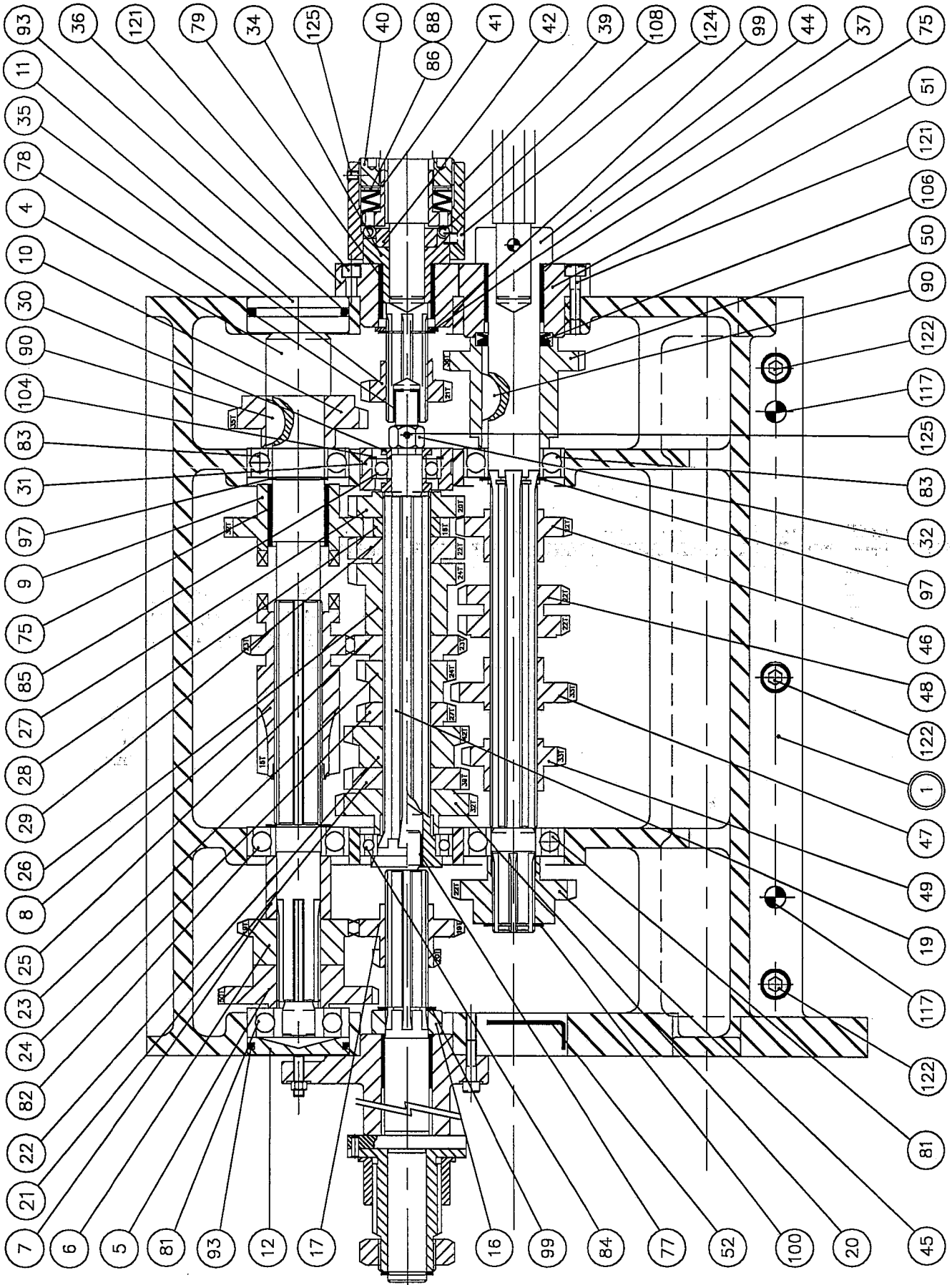

4
33T
72T
63T
95T
TYPICAL CHANGE WHEEL SETUP

A155 - 0504A
CHANGE WHEEL ASSEMBLY

ITEM NO.	DESCRIPTION		PART NO.
4	SWING FRAME		D720 - 0025
7	WASHER M12		FP - 0070
9	HEXAGON HEADED SCREW M12x25		FS - 0600
11	HEXAGON HEADED BOLT M12x140		FS - 0676
12	CLAMP WASHER		D708H008.1
13	TEE NUT (REAR)		D408H006.1
14	SHAFT - SLEEVE		D699 - 0793
15	WASHER		D408H010.1
16	NUT (D408H007.1)		FA - 0010
17	SPACER		D408H008.1
18	SLEEVE		D704 - 0123
19	WASHER		D931 - 0349
20	SPRINGWELL OIL NIPPLE 6mm		OC - 0010
22	35T 1.75 MOD. CHANGE WHEEL	(METRIC SET)	D344 - 1287
23	36T 1.75 MOD. CHANGE WHEEL	(IMP SET)	D344 - 1284
24	52T 1.75 MOD. CHANGE WHEEL	(IMP SET)	D344 - 1285
25	44T 1.75 MOD. CHANGE WHEEL	(METRIC SET)	D344 - 1286
27	48T 1.75 MOD. CHANGE WHEEL	(METRIC SET)	D344 - 1250
28	55T 1.75 MOD. CHANGE WHEEL	(METRIC SET)	D344 - 1251
29	88T 1.75 MOD. CHANGE WHEEL	(METRIC/IMP SET)	D344 - 1252
31	56T 1.75 MOD. CHANGE WHEEL	(IMP SET)	D344 - 1254
32	96T 1.75 MOD. CHANGE WHEEL	(METRIC SET)	D344 - 1255
34	84T 1.75 MOD. CHANGE WHEEL	(IMP SET)	D344 - 1334
35	90T 1.75 MOD. CHANGE WHEEL	(METRIC SET)	D344 - 1335
37	104T 1.75 MOD. CHANGE WHEEL	(IMP SET)	D344 - 1305
44	WASHER LOCK		B116 - 2228
45	STUD		D048 - 0160
46	SWING FRAME SPACER		D708 - 0489
47	O RING DOWTY 202-511 (RM091-16)		OA - 0020
48	GLACIER BUSH MB1820DU		BF - 0120

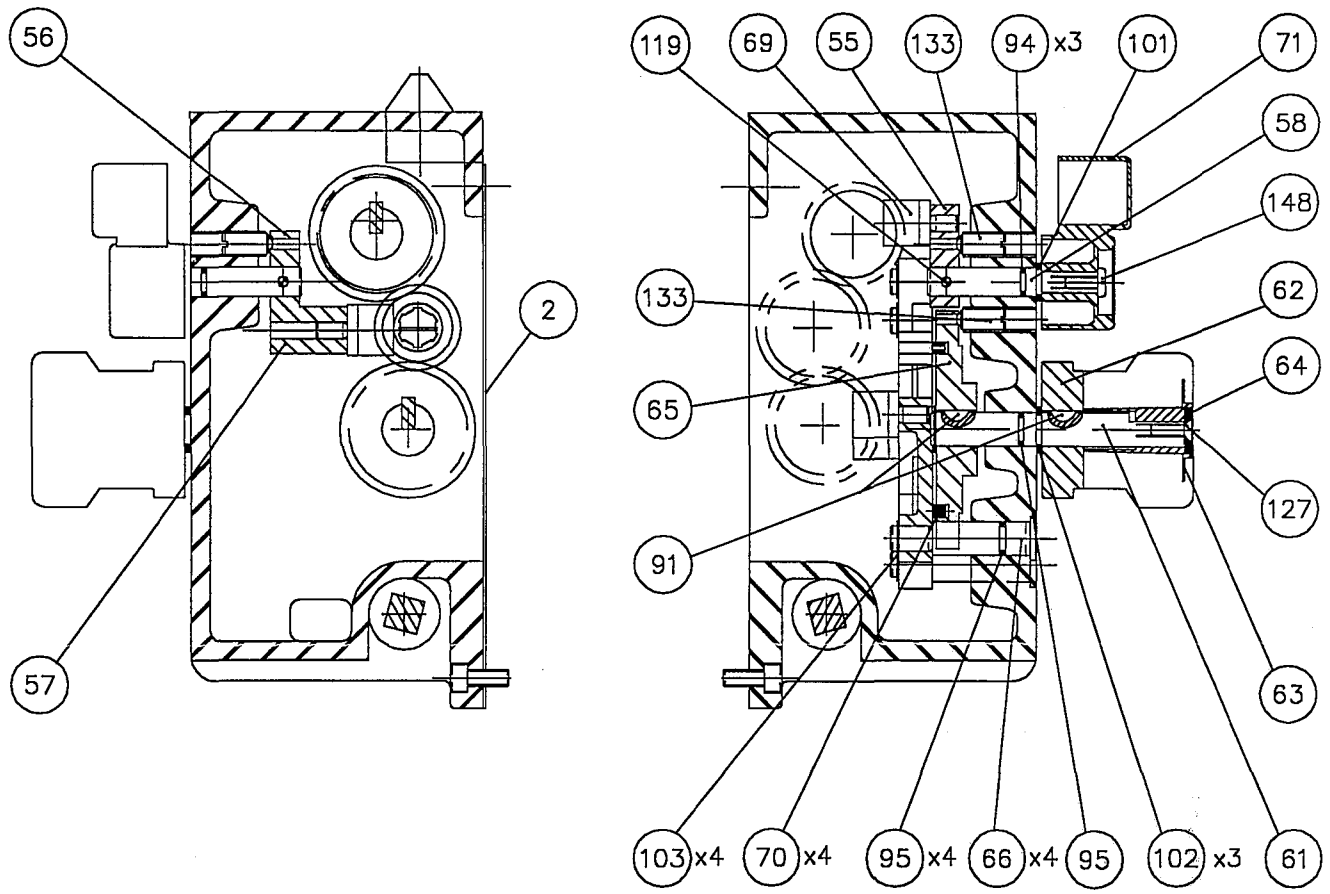
GEARBOX ASSEMBLY (1)

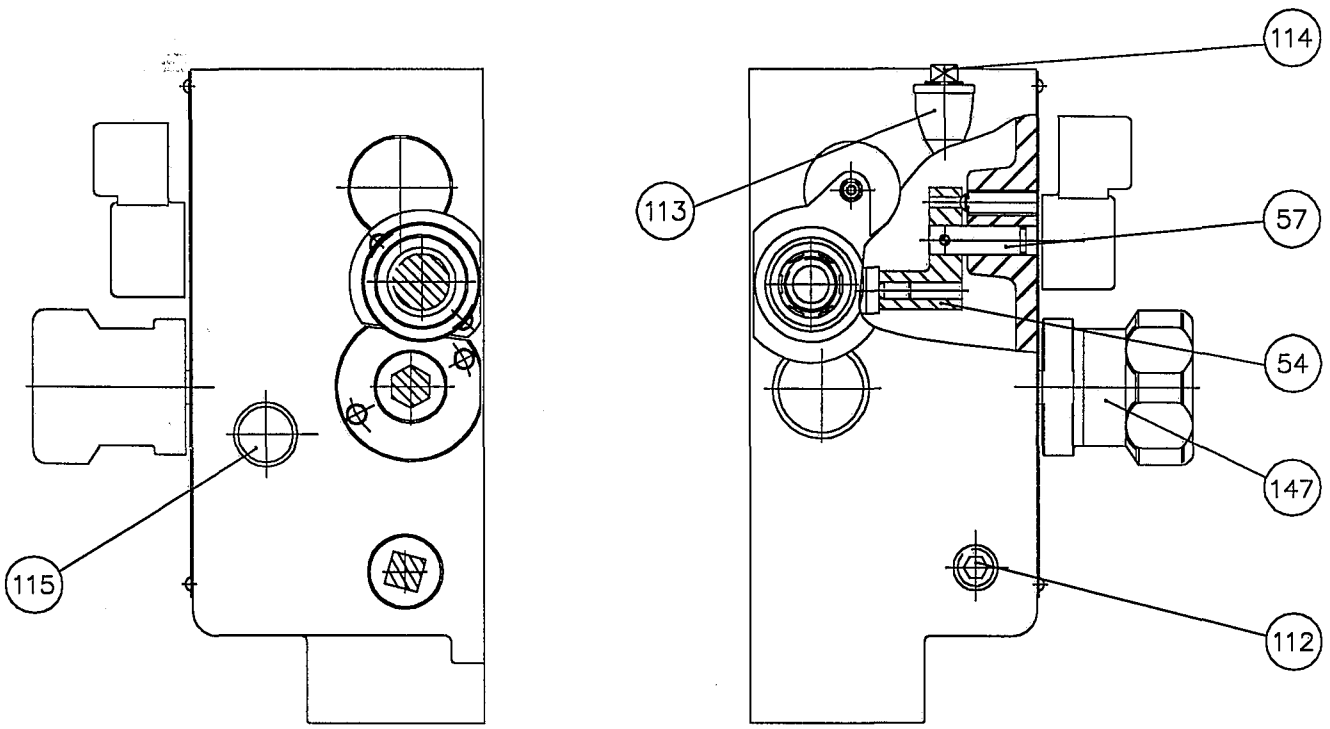


A703 - 0001A
GEARBOX ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	GEARBOX CASTING	D703H001.2
2	GEARBOX GASKET (D703H002.2)	GA - 0670
4	TOP SHAFT	D703H017.1
5	50T GEAR - TOP SHAFT	D703H022.1
6	19T GEAR - TOP SHAFT	D703H021.1
7	SPACER - TOP SHAFT	D703H023.1
8	16T/23T GEAR - TOP SHAFT	D703H020.1
9	32T GEAR - TOP SHAFT	D703H019.1
10	35T GEAR - TOP SHAFT	D703H018.1
11	PLUG	D703H047.1
12	LOCATING BUSH BEARING	D403H011.1
14	INPUT SHAFT	D703H048.1
15	HOUSING	D703H049.1
16	SPACER - INPUT SHAFT	D703H034.1
17	19T/20T GEAR	D703H035.1
19	MIDDLE SHAFT	D703H003.1
20	32T GEAR - MID SHAFT	D703H006.1
21	39T GEAR - MID SHAFT	D703H004.1
22	42T GEAR - MID SHAFT	D703H005.1
23	24T GEAR - MID SHAFT	D703H007.1
24	27T GEAR - MID SHAFT	D703H008.1
25	23T GEAR - MID SHAFT	D703H009.1
26	24T GEAR - MID SHAFT	D703H010.1
27	20T GEAR - MID SHAFT	D703H011.1
28	16T GEAR - MID SHAFT	D703H012.1
29	22T GEAR - MID SHAFT	D703H013.1
30	SPACER - MID SHAFT	D703H015.1
31	BEARING HOUSING	D703H014.1
32	ADJUSTING NUT	D703H016.1
34	OUTPUT SHAFT	D703H036.1
35	21T GEAR - OUTPUT SHAFT	D703H038.1
36	BEARING HOUSING	D703H037.1
37	SPACER	D001H2-081
39	HOUSING	D403H033.1
40	ADJUSTING NUT	D403H034.1
41	FRICTION SLEEVE	D403H035.1
42	INNER RING	D403H036.1
44	BOTTOM SHAFT	D703H024.1
45	22T GEAR - BOTTOM SHAFT	D703H029.1
46	22T SLIDING GEAR - BOTTOM SHAFT	D703H027.1
47	33T SLIDING GEAR - BOTTOM SHAFT	D703H025.1
48	22T/22T SLIDING GEAR - BOTTOM SHAFT	D703H028.1
49	33T SLIDING GEAR - BOTTOM SHAFT	D703H026.1
50	36T GEAR - BOTTOM SHAFT	D703H030.1
51	BEARING HOUSING	D703H031.1

GEARBOX ASSEMBLY (2)

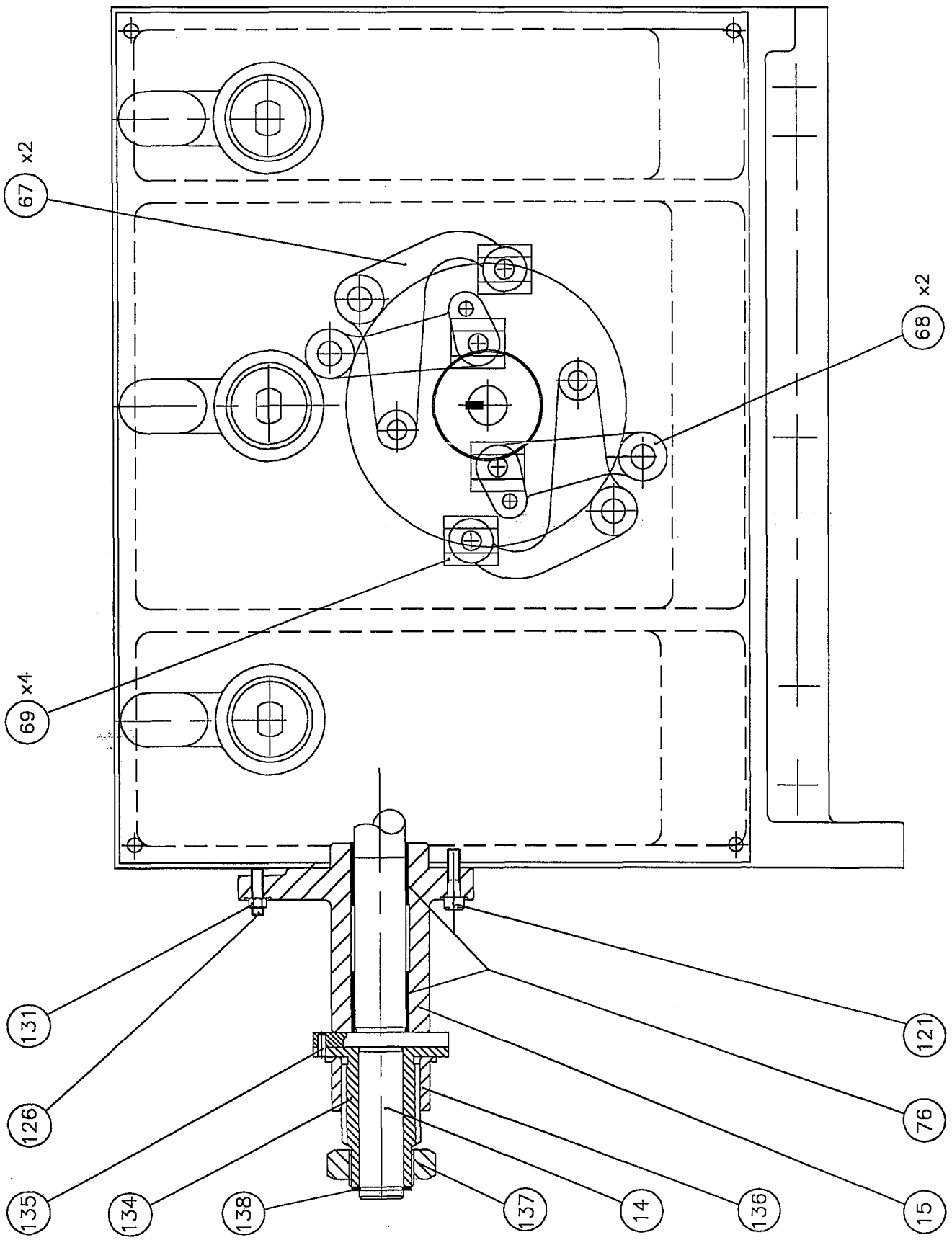




A703 - 0001A
GEARBOX ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
52	PLUG (D403H037.1)	PB - 0060
54	SELECTOR LEVER	D703H042..1
55	SELECTOR LEVER	D703H043.1
56	SELECTOR LEVER	D703H044.1
57	SELECTOR SHAFT	D703H041.1
58	SELECTOR SHAFT	D703H045.1
61	CAM SHAFT	D703H039.1
62	INNER RING	D403H064.1
63	SELECTOR DIAL	D702H090.1
64	WASHER	D402H111.1
65	SELECTOR CAM	D403H058.1
66	SELECTOR SHAFT	D703H040.1
67	SELECTOR LEVER (CAM)	D403H060.1
68	SELECTOR LEVER (CAM)	D403H061.1
69	GEAR SHIFTER	D403H052.1
70	CAM SELECTOR PIN (D403H062..1)	FT - 0620
71	HANDLE	D382 - 0137
75	GLACIER BUSH MB-25-30-DU	BF - 0160
76	GLACIER BUSH MB-20-25-DU	BF - 0140
77	GLACIER BUSH MB-12-15-DU	BF - 0070
78	GLACIER BUSH MB-10-15-DU	BF - 0060
79	GLACIER BUSH MB-22-25-DU	BF - 0145
81	MJ17(6303) BEARING	BG - 0020
82	LJ20(6204) BEARING	BG - 0060
83	XXLJ25(6005) BEARING	BG - 0050
84	BALL BEARING INA 61905	BG - 0260
85	DEEP GROOVE BEARING 6002	BG - 0270
86	THRUST NEEDLE BEARING AXK 2542	BC - 0130
88	THRUST WASHER INA AS2542	BC - 0120
90	WOODRUFF KEY 6 x 9 x 22	KA - 190
91	WOODRUFF KEY 3 x 5 x 13	KA - 170
93	'O' RING RM 0415-30	OA - 0220
94	'O' RING RM 0111-16	OA - 0040
95	'O' RING RM 0131-16 '	OA - 0060
97	EXTERNAL CIRCLIP 5103-100	RA - 370
98	EXTERNAL CIRCLIP 1400-20	RA - 0140
99	EXTERNAL CIRCLIP 1400-19	RA - 0130
100	EXTERNAL CIRCLIP 1400-15	RA - 0110
101	EXTERNAL CIRCLIP 1400-14	RA - 0100
102	EXTERNAL CIRCLIP 1400-16	RA - 0120
103	EXTERNAL CIRCLIP 1400-12	RA - 0090
104	INTERNAL CIRCLIP INA BR 32	RA - 0440

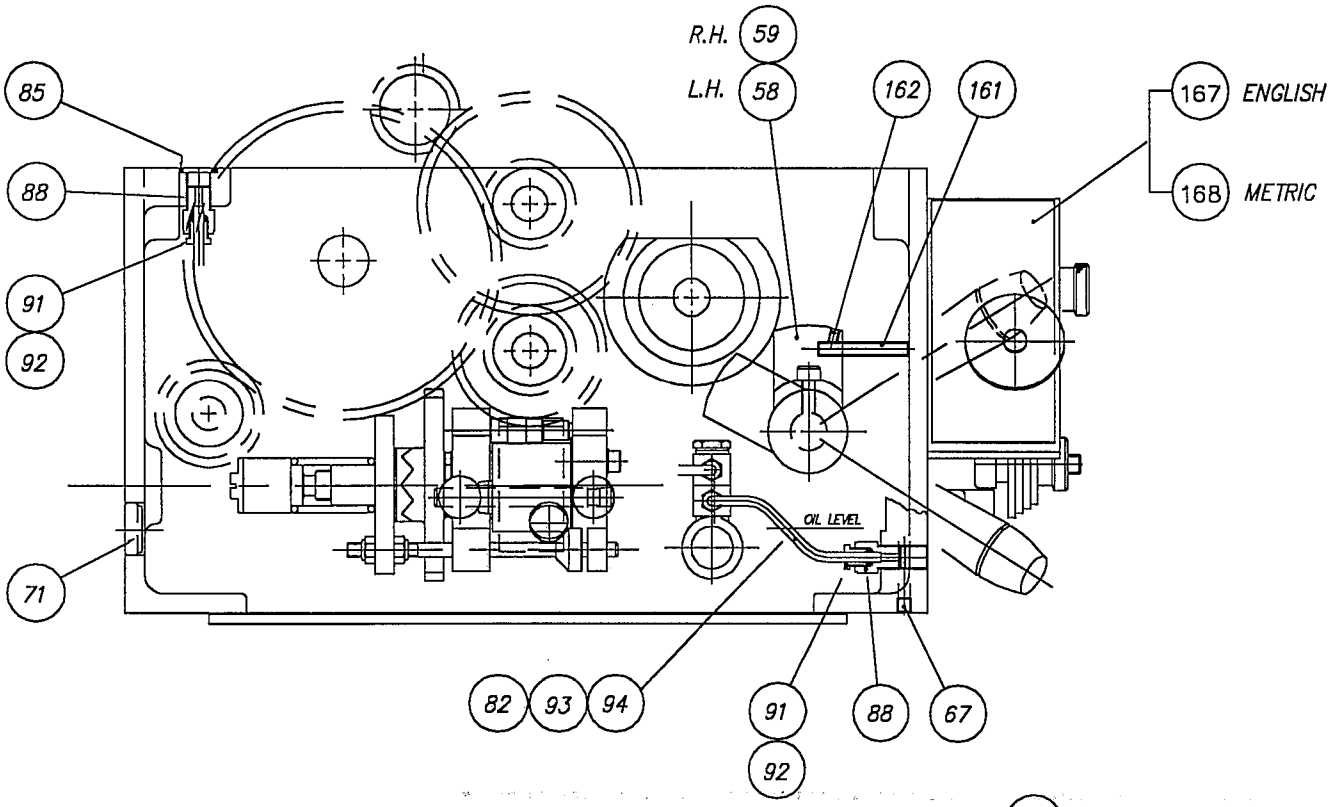
GEARBOX ASSEMBLY (3)

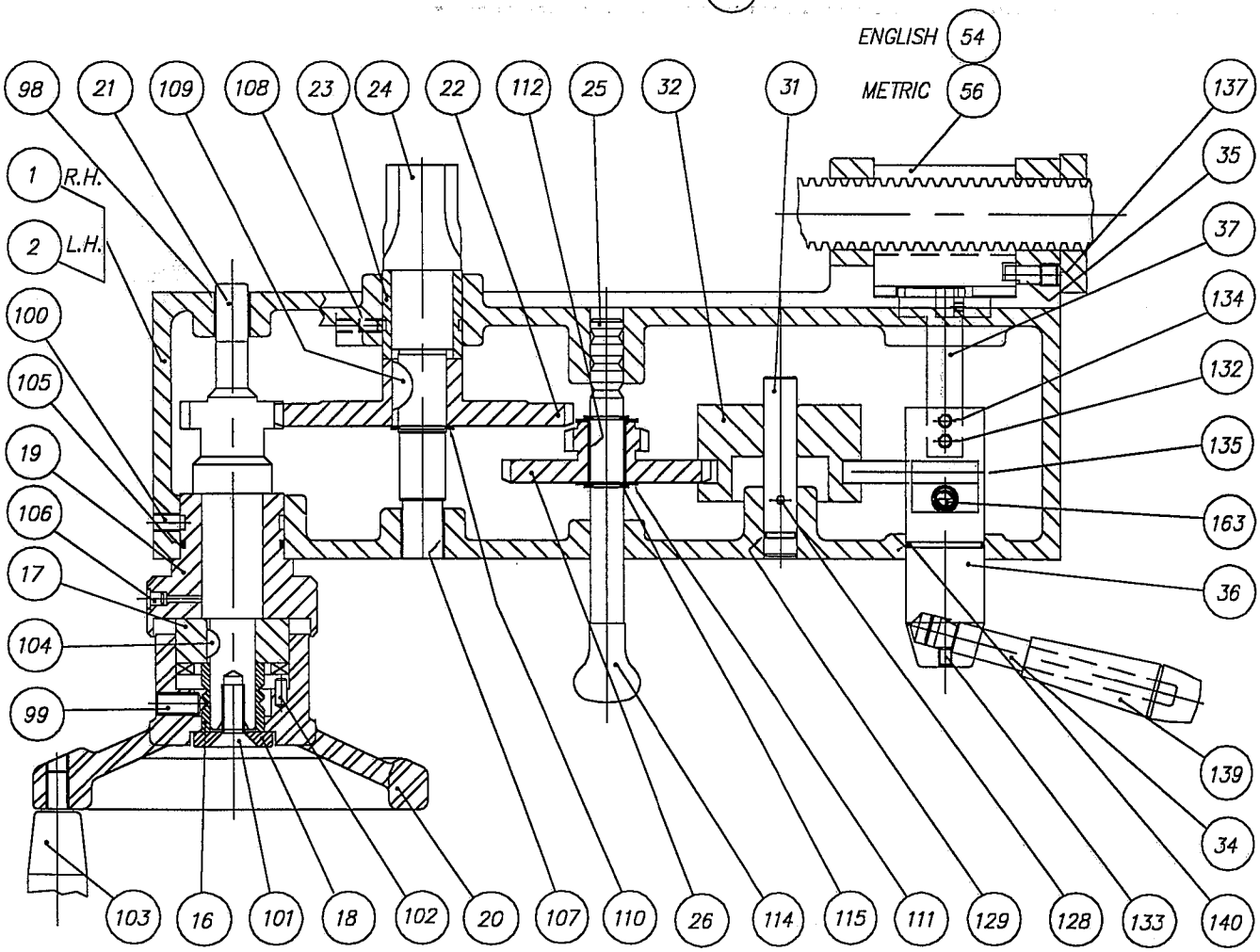


A703 - 0001A
GEARBOX ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
106	OIL SEAL V-25	OB - 0030
108	STEEL BALL 7.0	UB - 0007
110	SCHNORR DISC SPRING E5532	FR - 0170
112	1/2" BSPT DRAIN PLUG	PB - 0010
113	1/2" BSP M& F 90° ELBOW	PB - 0055
114	1/2" BSP SOCKET PLUG	PB - 0110
115	OIL WINDOW IC4610 (DW4061A)	WA - 0020
117	SPIROL PIN 10 x 30	FT - 0470
118	SPIROL PIN 6 x 35	FT - 0730
119	SPIROL PIN 5 x 24	FT - 0230
121	HEXAGON SOCKET CAP HEAD SCREW M5 x 20	FS - 0116
122	HEXAGON SOCKET CAP HEAD SCREW M8 x 20	FS - 0162
123	HEXAGON SOCKET CAP HEAD SCREW M8 x 40	FS - 0170
124	HEXAGON SOCKET C/SUNK SCREW M5 x 12	FS - 0436
125	HEXAGON SOCKET CUP POINT SET SCREW M4 x 4	FS - 0486
126	HEXAGON SOCKET CUP POINT SET SCREW M5 x 20	FS - 0536
127	HEXAGON SOCKET C/SUNK SCREW M6 x 16	FS - 0442
129	HEXAGON SOCKET DOG POINT SET SCREW M8 x 8	FS - 0362
131	M5 NUT	FS - 0914
133	BALL DETENT SCREW M12 (SP 996)	FS - 0050
134	CHANGE WHEEL BUSH	D708H009.1
135	MILD STEEL SHEAR PIN 5/32" x 3/8" LONG	D560 - 0137
136	SPACER	D708H010.1
137	NUT (D408H007.1)	FA - 0010
138	EXTERNAL CIRCLIP 1400-18	RA - 0125
148	PAN HEAD SCREW M8x 16 (D403H054.1)	FS - 0714

APRON ASSEMBLY (1)

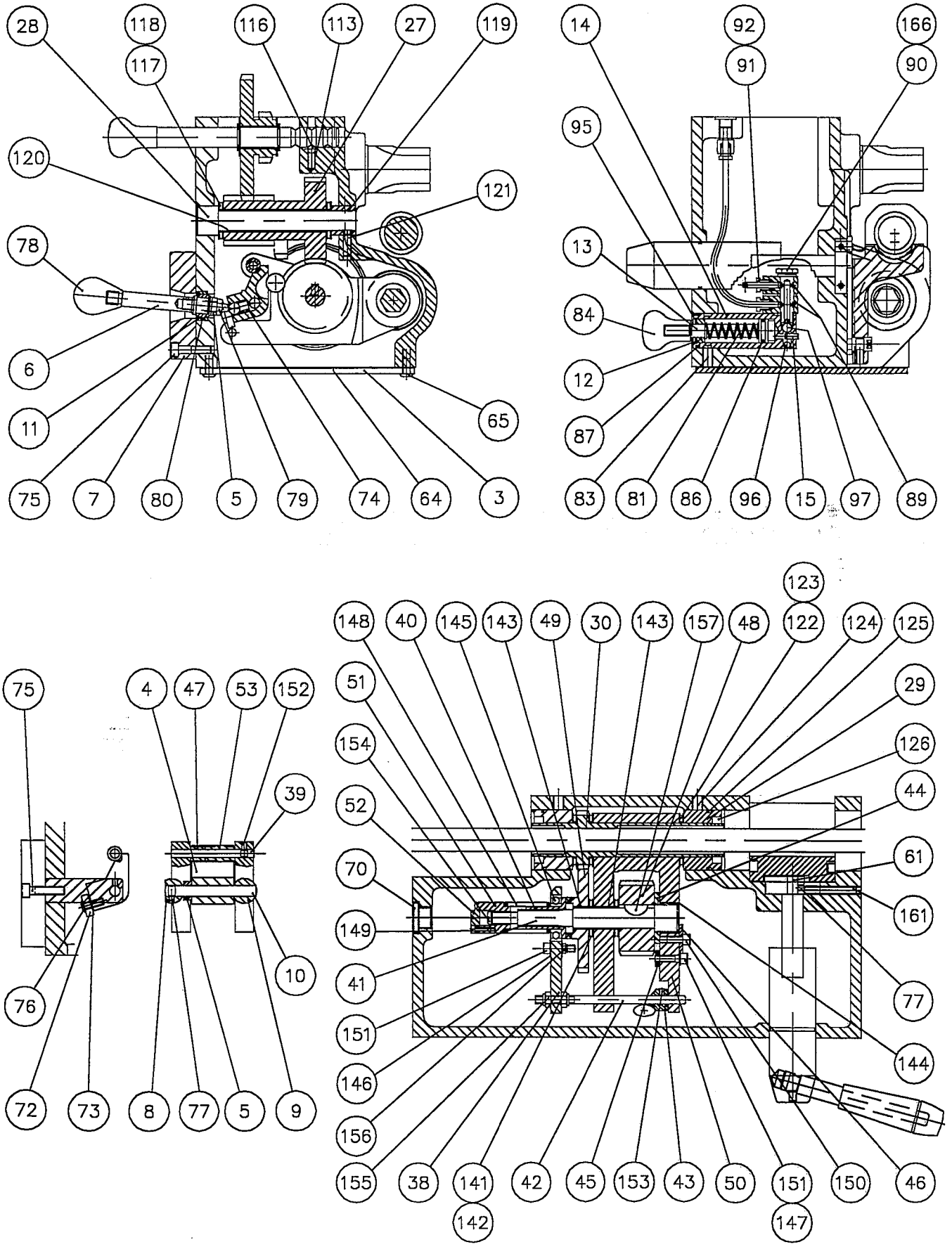




A704 - 0001A
APRON ASSEMBLY

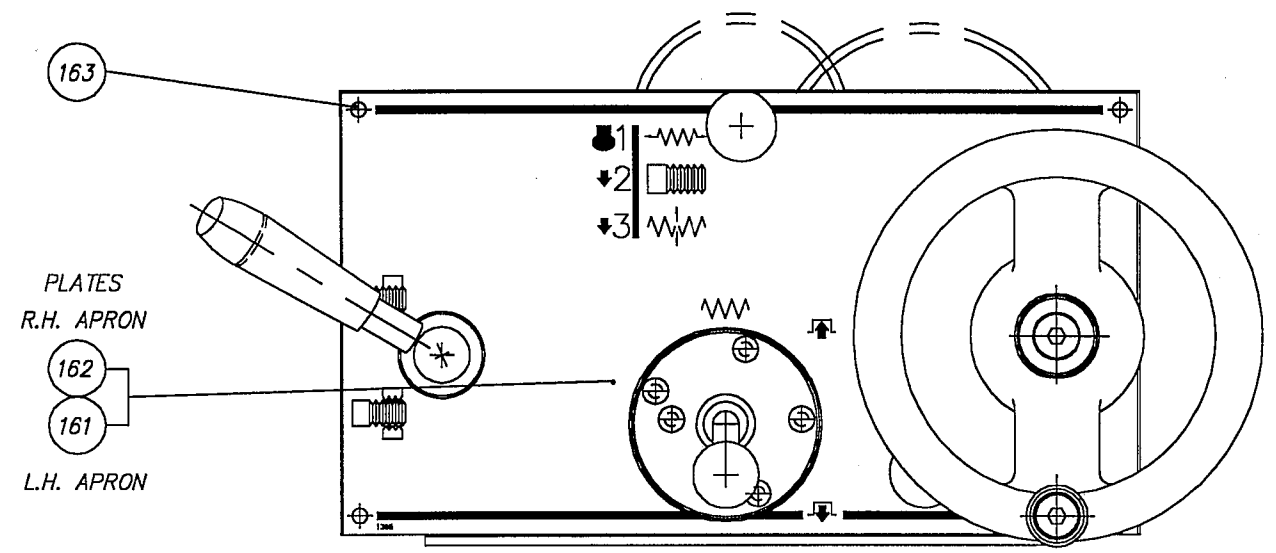
ITEM NO.	DESCRIPTION	PART NO.
1	APRON CASTING (RIGHT HAND)	D704H052.1
2	APRON CASTING (LEFT HAND)	D704H051.1
3	COVER PLATE	D704H053.1
4	WORM BOX CLIP	D704H003.1
5	SPACER	D704H009.1
6	WORM BOX LEVER	D704H018.1
7	LEVER BEARING COVER	D704H059.1
8	CLIP HINGE PILLAR	D704H061.1
9	CLIP HINGE PILLAR	D704H062.1
10	HINGE PIN CLIP	D704H063.1
11	SPACER	D704H075.1
12	END CAP	D001H1-010
13	PISTON	D230H1-015
14	PUMP BODY	D231H2-001
15	PIN	D404H039.1
16	HANDWHEEL DETENT SPACER	D404H057.1
17	APRON HANDWHEEL SPIGOT	D404H063.1
18	WASHER	D407H012.1
19	HOUSING	D704H033.1
20	APRON HANDWHEEL	D704H043.2
21	HANDWHEEL PINION SHAFT	D704H071.1
22	66T GEAR	D704H025.2
23	BUSH	D704H026.1
24	RACK PINION	D704H072.1
25	SLIDING PINION SHAFT	D704H028.1
26	16T/45T SLIDING GEAR	D704H029.1
27	PINION GEAR	D704H056.1
28	WORM GEAR SHAFT	D704H076.1
29	END BEARING	D704H088.1
30	FEED SHAFT GEAR	D704H.057.1
31	BOBBIN SHAFT	D404H014.1
32	BOBBIN INTERLOCK	D704H031.2
34	OPERATING SHAFT STEM	D704H037.1
35	RETAINER PIN	D704H068.1
36	LEADSCREW NUT OPERATING SHAFT	D704H089.1
37	LEADSCREW NUT ENGAGE SHAFT	D704H084.1
38	TRIP PLATE	D704H094.1
39	LOCATION BUSH PIN	D704H008.1
40	CLUTCH	D704H011.1
41	WORMBOX SHAFT	D704H012.1
42	STUD	D704H016.1
43	COLLAR	D704H017.1
44	SPACER	D704H044.1
45	TRIP WASHER	D704H045.1
46	WASHER	D704H046.1
47	SPACER	D704H047.1
48	15T HELICAL GEAR	D704H055.1
49	43T CLUTCH GEAR	D704H058.1
50	WORM BOX CASTING	D704H060.1
51	NUT	D704H064.1
52	ADJUSTER CAP	D704H065.1
53	LOCATION BUSH CLIP	D904H025.1
54	**IMPERIAL** LEADSCREW NUT	D704H067.1
55	LEFT HAND LEADSCREW SUPPORT	D704H069.1
56	**METRIC** LEADSCREW NUT	D704H066.1

APRON ASSEMBLY (2)



A704 - 0001A
APRON ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
57	RIGHT HAND LEADSCREW SUPPORT	D704H070.1
58	INTERLOCK FINGER	D704H087.1
59	INTERLOCK FINGER	D704H091.1
60	LEADSCREW NUT FINGER	D704H085.1
61	PIVOT PIN	D704H090.1
62	ECCENTRIC PIN	D704H086.1
63	FRICTION PIN	D704H093.1
64	GASKET	GA - 0660
65	HEXAGON SOCKET BUTTON HEAD SCREW M5x12	FS - 0286
66	HEXAGON SOCKET CUP POINT SET SCREW M5x6	FS - 0490
67	HEXAGON SOCKET CUP POINT SET SCREW M6x6	FS - 0496
68	3/8" BSPT PRESSURE PLUG	PB - 0090
69	1/8" BSPT PLUG	PB - 0170
70	3/8" BSP PLUG FESTO-3570	PB - 0240
71	OIL WINDOW (7/8") DW4064A	WA- 0010
72	BEARING FAG62527	BG - 0290
73	WASHER M5 FORM C	FP - 0030
74	COMPRESSION SPRING SG 416	FR - 0185
75	HEXAGON SOCKET CAP HEAD SCREW M6x25	FS - 0138
76	HEXAGON SOCKET BUTTON HEAD SCREW M5x12	FS - 0286
77	HEXAGON SOCKET CUP POINT SET SCREW M4x4	FS - 0486
78	KNOB No. 3229 M10 THREAD	HA - 0050
79	BALL STUD M8	YN - 0005
80	RAD BALL JOINT INA GE12DO	YN - 0015
81	COMPRESSION SPRING SG 342	FR - 0003
82	HEXAGON SOCKET BUTTON HEAD SCREW M5x8	FS - 0283
83	HEXAGON SOCKET DOG POINT SET SCREW M8x16	FS - 0386
84	KNOB (BLACK)	HA - 0040
86	O RING RM0136-24	OA - 0070
87	O RING RM0216-24	OA - 0120
88	ADAPTOR ENOTS 36-0530-02	PA - 0050
89	ENOTS 36-0384 02K	PA - 0185
90	BANJO BOLT	D304H039.1
91	4mm TUBE SLEEVE ENOTS 36-0501-02	PA - 0220
92	4mm TUBE NUT ENOTS 36-0500-02	PA - 0230
94	4mm NYLON TUBE	PF - 0010
95	INTERNAL CIRCLIP 1300x18	RA - 0270
96	STEEL BALL 5.0 DIA.	UB - 0005
97	STEEL BALL 7.0 DIA.	UB - 0007
98	GLACIER BUSH MB1420DU	BF - 0010
99	BALL DETENT SCREW SP1208	FS -0048
100	HEXAGON SOCKET DOG POINT SET SCREW M8x12	FS - 0366
101	HEXAGON SOCKET COUNTERSUNK SCREW M10x25	FS - 0454
102	DOWEL PIN M5x12	FT - 0520
103	M10 HANDLE	HA - 0160
104	WOODRUFF KEY 13x5x3	KA - 0170
105	O RING RMO416-24	OA - 0280
106	CONICAL DRIVE NIPP;LE	OC - 0010
107	GLACIER BUSH MB1820DU	BF - 0120
108	HEXAGON SOCKET DOG POINT SET SCREW M6x12	FS - 0352
109	WOODRUFF KEY 6x9x22	KA - 0190
110	EXTERNAL CIRCLIP DIN1400/22	RA - 0150
111	THRUST WASHER INA AS1528	BC - 0090
112	GLACIER BUSH MB1525DU	BF - 0100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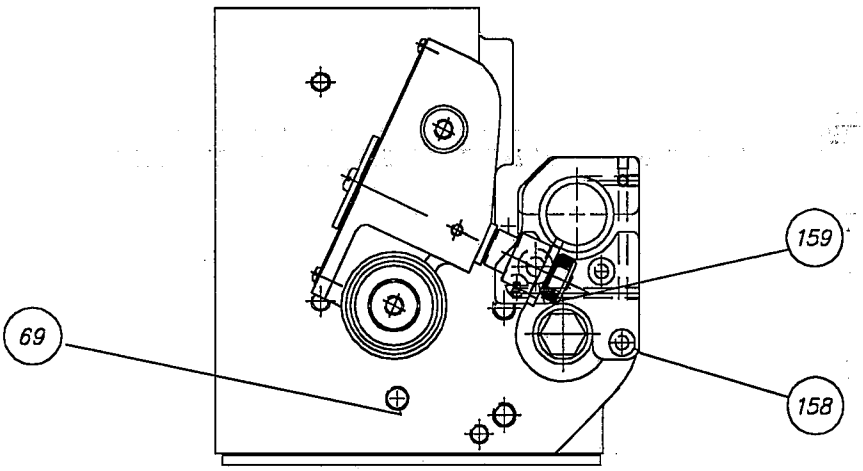
PLATES
R.H. APRON
162
161
L.H. APRON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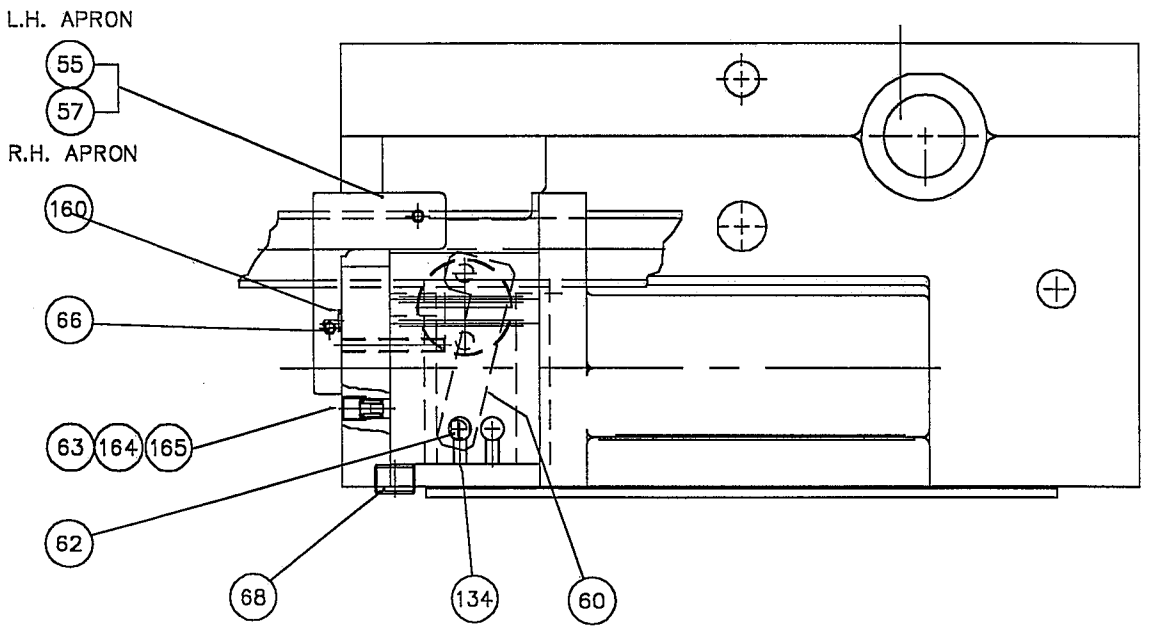
L.H. APRON
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57
R.H. APRON
160
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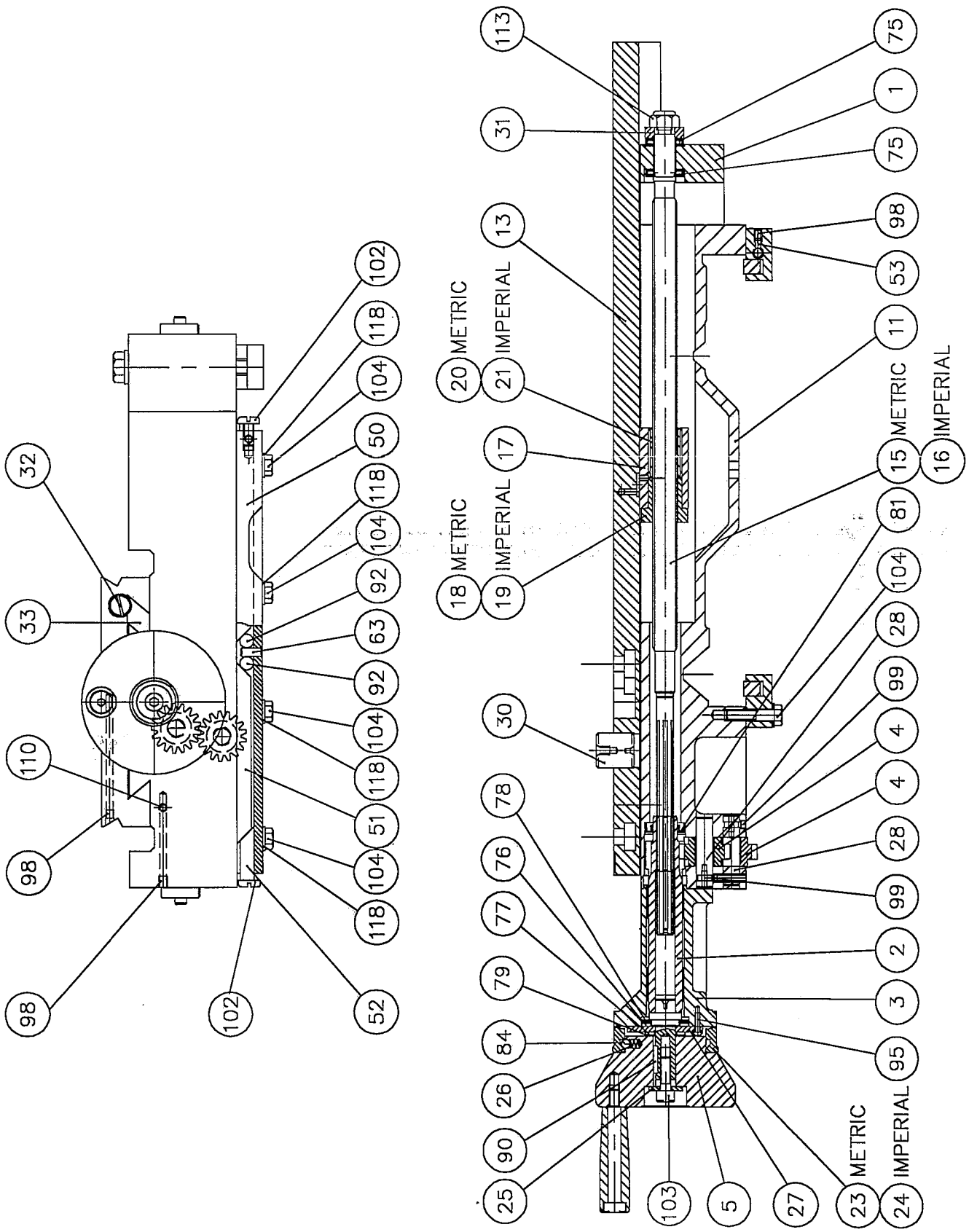
A704 - 0001A
APRON ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
113	COMPRESSION SPRING SG 347	FR - 0008
114	BLACK KNOB	HA - 0040
115	E CIRCLIP DIN 1500/12	RA - 0305
116	STEEL BALL 6.0 DIA.	UB - 0006
117	NEEDLE ROLLER BEARING AK1528	BC - 0080
118	THRUST WASHER AS1528	BC - 0090
119	BUSH	D704H092.1
120	GLACIER BUSH MB1525DU	BF - 0100
121	HEXAGON SOCKET DOG POINT SET SCREW M8x16	FS - 0368
122	NEEDLE ROLLER BEARING NTA-1625	BC - 0250
123	THRUST WASHER TRA-1625	BS - 0260
124	HEXAGON SOCKET DOG POINT SET SCREW M8x10	FS - 0790
125	O RING GRMO396-24	OA - 0380
126	OIL SEAL25x35x7	OB - 0190
127	HEXAGON SOCKET NYLOCK DOG POINT SET SCREW M6x20	FS - 0788
128	SPIROL PIN M4x30	FT - 0190
129	O RING GACO RM131-16	OA - 0060
131	HEXAGON SOCKET CAP HEAD SCREW M6x16	FS - 0134
132	HEXAGON SOCKET FULL DOG POINT SET SCREW M6x12	FS - 0352
133	HEXAGON SOCKET CUP POINT SET SCREW M6x8	FS - 0498
134	HEXAGON SOCKET CUP POINT SET SCREW M6x10	FS - 0500
135	HEXAGON SOCKET CUP POINT SET SCREW M10x10	FS - 0524
137	NYLOCK FULL POINT SCREW M10x8	FS - 0809
139	KNOB HANDLE KB6/1305	HA - 0180
140	O RING RMO321-16	OA - 0190
141	THRUST RACE AXK1528	BC - 0080
142	THRUST WASHER AS1528	BC - 0090
143	GLACIER BUSH MB1512DU	BF - 0095
144	GLACIER BUSH MB2015DU	BF - 0130
145	BALL BEARING 16003	BG - 0280
146	WASHER FORM C M5	FP - 0025
147	BRIGHT WASHER M5	FP - 0030
148	SG 430 SPRING	FR - 0322
149	HEXAGON SOCKET CAP HEAD SCREW M3x10	FS - 0086
150	HEXAGON SOCKET CAP HEAD SCREW M5x12	FS - 0112
151	HEXAGON SOCKET CAP HEAD SCREW M5x20	FS - 0116
152	HEXAGON SOCKET CUP POINT SET SCREW M5x6	FS - 0490
153	HEXAGON SOCKET CUP POINT SET SCREW M5x5	FS - 0530
154	PAN HEAD SLOTTED SCREW M5x10	FS - 0704
155	BRIGHT LOCK NUT M6	FS - 0944
156	SYMMONDS LOCK NUT M5	FS - 0974
157	WOODRUFF KEY 5x7.5x19	KA - 0180
158	HEXAGON SOCKET CAP HEAD SCREW M6x20	FS - 0136
159	HEXAGON SOCKET CAP HEAD SCREW M8x20	FS - 0162
160	O RING RM0036-24	OA - 0008
161	HEXAGON SOCKET CUP POINT SET SCREW M6x40	FS - 0510
162	HEXAGON SOCKET CUP POINT SET SCREW M4x6	FS - 0489
163	HEXAGON SOCKET CUP POINT SET SCREW M6x12	FS - 0132
164	COMPRESSION SPRING SG428	FR - 0310
166	BANJO WASHER 48-0231-01	PA - 0200
168	CLIP 34-0218-02	PA - 0280
170	FELT PLUG	PB - 0070

SADDLE ASSEMBLY (1)

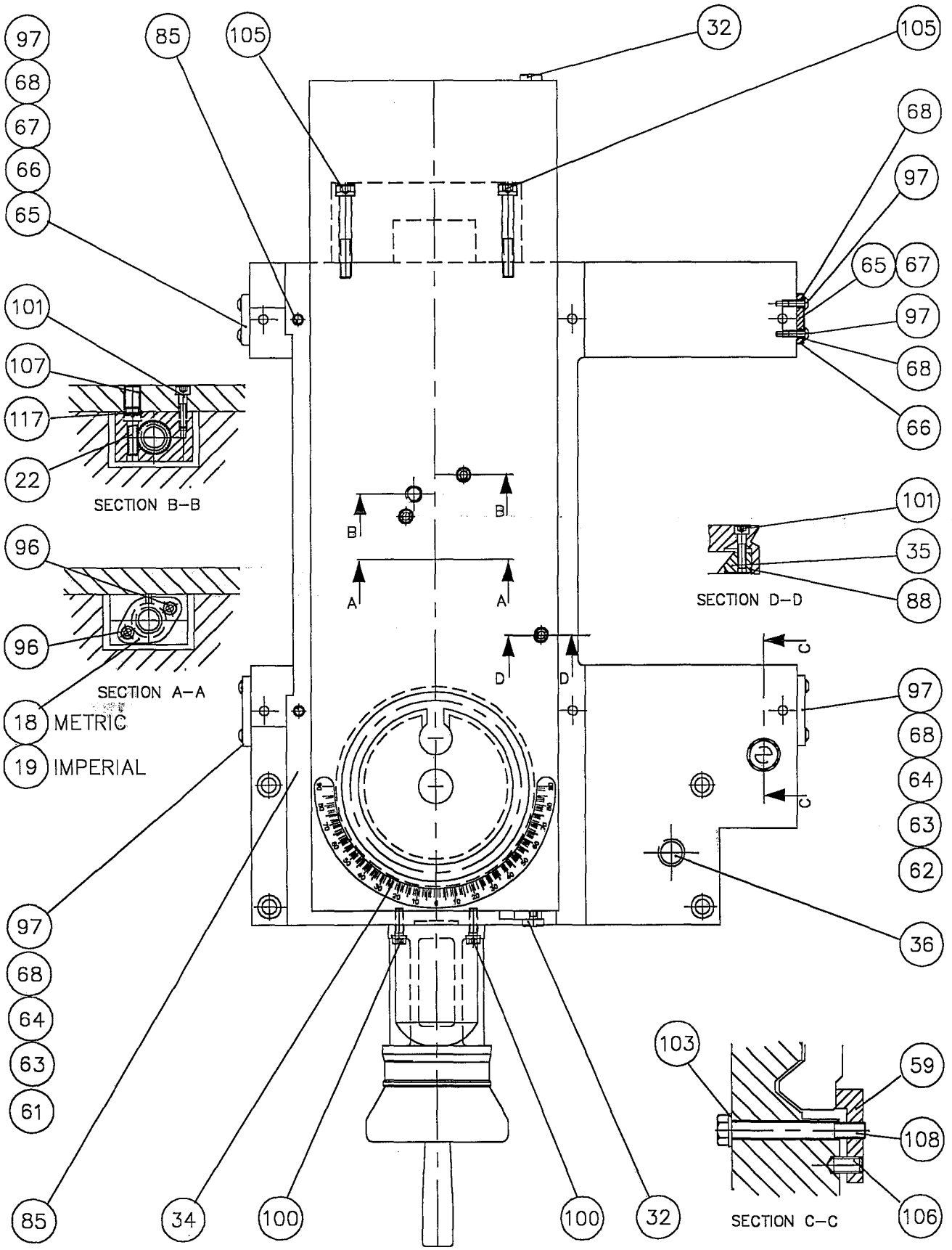


A119 - 0510A
SADDLE AND CROSS SLIDE ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	BRACKET SUB ASSEMBLY	A806 - 0564A
2	PINION SUB ASSEMBLY	A834 - 0024A
3	KEEP SUB ASSEMBLY	A806 - 0583A
4	17T GEAR SUB ASSEMBLY	A806 - 0566A
5	HAND WHEEL SUB ASSEMBLY	A842 - 0024A
8	SADDLE HANDWHEEL KIT	A950 - 0015A
12	SADDLE (GEARED HEAD MACHINE)	D696 - 0056
13	CROSS SLIDE	D705 - 0112
15	SADDLE SCREW (METRIC)	D697 - 0343
16	SADDLE SCREW (IMPERIAL)	D697 - 0344
17	CROSS SLIDE NUT BODY	D388 - 0126
18	FIXED CROSS SLIDE NUT (METRIC)	D405H019.1
19	FIXED CROSS SLIDE NUT (IMPERIAL)	D405H020.1
20	ADJUSTABLE CROSS SLIDE NUT (METRIC)	D405H021.1
21	ADJUSTABLE CROSS SLIDE NUT (IMPERIAL)	D405H022.1
22	CROSS SLIDE NUT ADJUSTING SCREW	D405H025.1
23	CROSS SLIDE INDEX RING (METRIC)	D424 - 0136
25	CROSS SLIDE INDEX RING (IMPERIAL)	D424 - 0135
26	COMPRESSION SPRING.	D707 - 0021
27	CROSS SLIDE THRUST PLATE	D565 - 0918
28	IDLER SHAFT	D690 - 0786
30	SWIVEL PEG	D572 - 0023
31	SPACER	D708 - 0251
32	GIB ADJUSTING SCREW — TRAUIS	D697 - 0345
33	CROSS SLIDE GIB STRIP	D345 - 0084
34	GRADUATION PLATE	D537 - 1038
35	LOCK PAD	D557 - 0144
36	SADDLE OIL FILLER PLUG	D566 - 0191
37	FELT PAD 1/4"x1/2"	D557 - 0106
38	INDEX RING (METRIC)	D424 - 0136
39	INDEX RING (IMPERIAL)	D424 - 0135
50	SADDLE STRIP MOUNTING	D345 - 0083
51	SADDLE STRIP	D715 - 0173
52	SHORT STRIP ADJUSTER	D715 - 0192
53	LOCK PAD	D557 - 0143
59	SADDLE CLAMP	D715 - 0172
61	BED VEE WIPER (HEAD END)	D937 - 0011
62	BED VEE WIPER (TAIL END)	D937 - 0012
63	BEDWAY VEE WIPER SHIELD	D725 - 0014
64	LEAF SPRING	D707 - 0051

816 931 9355

SADDLE ASSEMBLY (2)



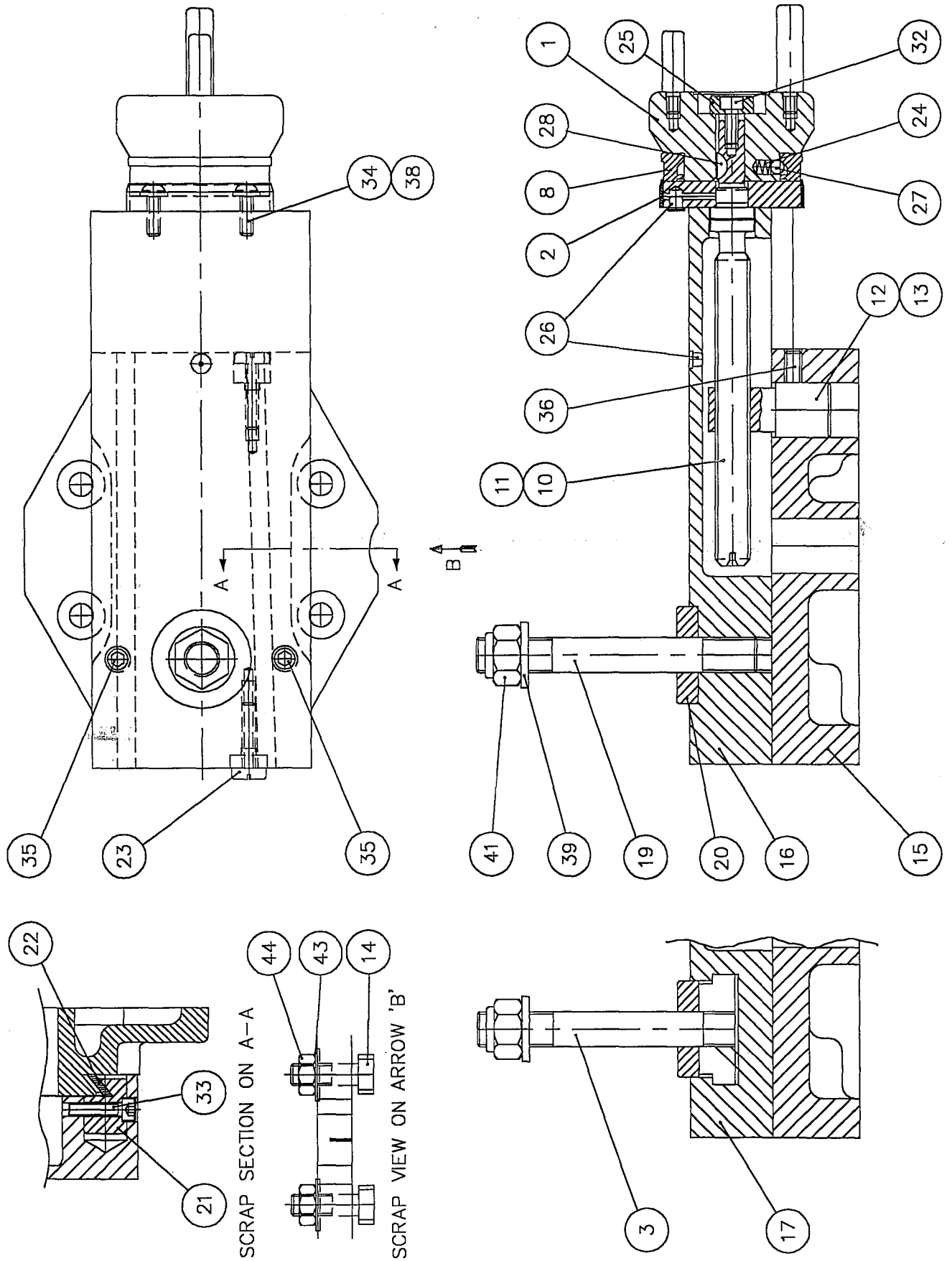
A119 - 0510A
SADDLE AND CROSS SLIDE ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
65	BEDWAY FLAT WIPER	D937 - 0010
66	BEDWAY FLAT WIPER SHIELD	D725 - 0013
67	WIPER SPRING	D707 - 0068
68	SPACER	D708 - 0087
69	ESLOK SOCKET SET SCREW M6x6	D697 - 0369
70	ESLOK SOCKET SET SCREW M8x8	D697 - 0370
75	THRUST BEARING AXZ 6.15.28.4.	BC - 0020
76	NEEDLE ROLLER BEARING AXK 2035	BC - 0110
77	NEEDLE ROLLER BEARING AXK 1528	BC - 0080
78	THRUST WASHER INA WS81104	B337 - 5014
79	THRUST WASHER AS1528	BC - 0090
81	OIL SEAL W11807027	B414 - 3051
82	FIBRE WASHER	B411 - 0020
84	CYCLE BALL BEARING 1/4"	B326 - 8107
85	CONCAVE LUBRICATOR 6mm	OC - 0010
88	'O' RING DOWTY 202-519	B413 - 0171
90	SQUARE KEY	B343 - 5008
92	STEEL ROLLER 10x10	BD - 0080
93	SPIROL PIN M6x16	FT - 330
95	HEXAGON SOCKET BUTTON HEAD SCREW M4x12	FS - 0278
96	HEXAGON SOCKET CAP HEAD SCREW M5x12	FS - 0112
97	HEXAGON SOCKET BUTTON HEAD SCREW M6x16	FS - 0296
98	HEXAGON SOCKET SET SCREW W POINT M6x8	B163Y1561
99	HEXAGON SOCKET DOG HEAD SET SCREW M4x5	B163 - 1721
100	HEXAGON SOCKET CAP HEAD SCREW M6x20	FS - 0136
101	HEXAGON SOCKET CAP HEAD SCREW M6x25	FS - 0138
102	SLOTTED PAN HEAD SCREW M8x16	FS - 0723
103	HEXAGON SOCKET CAP HEAD SCREW, WEDGLOK M8x25	FS - 0768
104	HEXAGON SOCKET CAP HEAD SET SCREW M8x35	FS - 0578
105	HEXAGON SOCKET CAP HEAD SCREW M8x60	FS - 0178
106	WEDGE LOK SET SCREW M12x20	B164 - 0170
107	DOG POINT SET SCREW M12x25	B163 - 1783
108	PLATED CAP HEAD SCREW M12x100	B163 - 1920
109	M12 PLATED WASHER	B117 - 0049
112	8MM NYLON TUBE	PF - 0080
113	NYLOC NUT M12	FS - 0973
116	FIBRE WASHER1/2"x3/4"	B411 - 0016
117	CRINKLE WASHER M6	FP - 0010
118	WASHER M8	FP - 0050

A119 - 0510A
SADDLE AND CROSS SLIDE SUB - ASSEMBLY

ITEM NO.	DESCRIPTION		PART NO.
	BRACKET SUB-ASSEMBLY	**A806 - 0564**	
1	SADDLE SCREW BRACKET		D050 - 0753
2	GLACIER BUSH MB1515DU		B311 - 1535
	PINION SUB-ASSEMBLY	**A834 - 0024**	
1	CROSS SLIDE PINION		D564 - 0105
2	PINION SHAFT EXTENSION		D699 - 0787
	KEEP SUB-ASSEMBLY	**A806 - 0583**	
2	GLACIER BUSH MB2525DU		B311 - 1564
	17T GEAR SUB-ASSEMBLY	**A806 - 0566**	
1	17T IDLER GEAR		D344 - 1269
2	GLACIER BUSH MB1220DU		B311 - 1530
	SADDLE HANDWHEEL KIT	**A950 - 0015**	
1	HANDWHEEL SUB ASSEMBLY		A842 - 0024
4	CROSS SLIDE PINION WASHER		D931 - 0344
5	COMPRESSION SPRING		D707 - 0021
6	NEEDLE ROLLER BEARING		B337 - 5001
7	THRUST WASHER		B337 - 5002
8	CYCLE BALL BEARING 1/4" DIA.		B326 - 8107
9	SQUARE KEY		B343 - 5008
10	HEXAGON SOCkET WEDGLOK CAP HEAD SCREW M8x25		B164 - 0054
	HANDWHEEL SUB-ASSEMBLY	**A842 - 0024A**	
1	HANDWHEEL		D383 - 0106
4	HANDLE		D382 - 0138
7	SHIM WASHER		D701 - 0034
10	SHOULDER SCREW		B163 - 1868

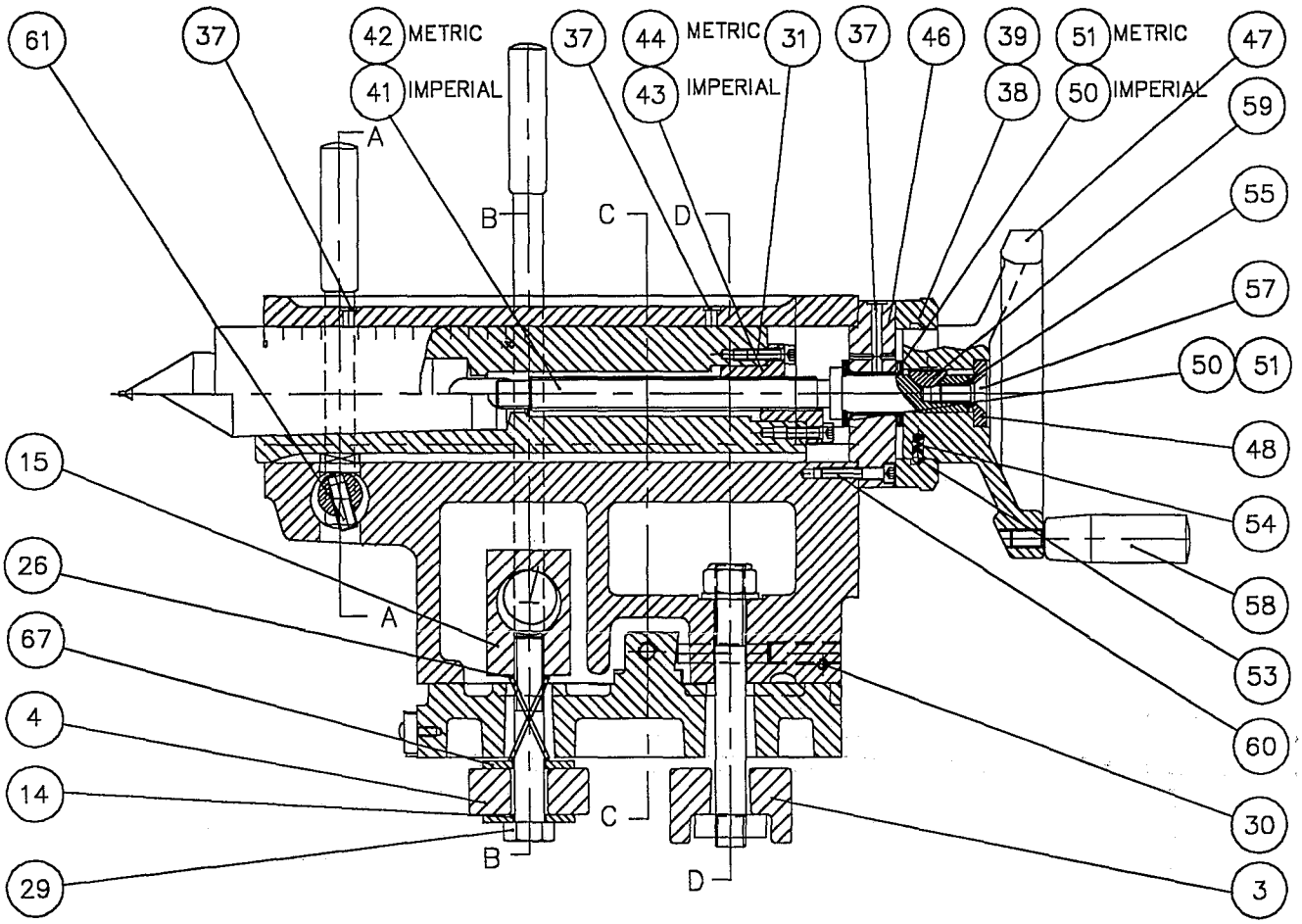
TOPSLIDE ASSEMBLY

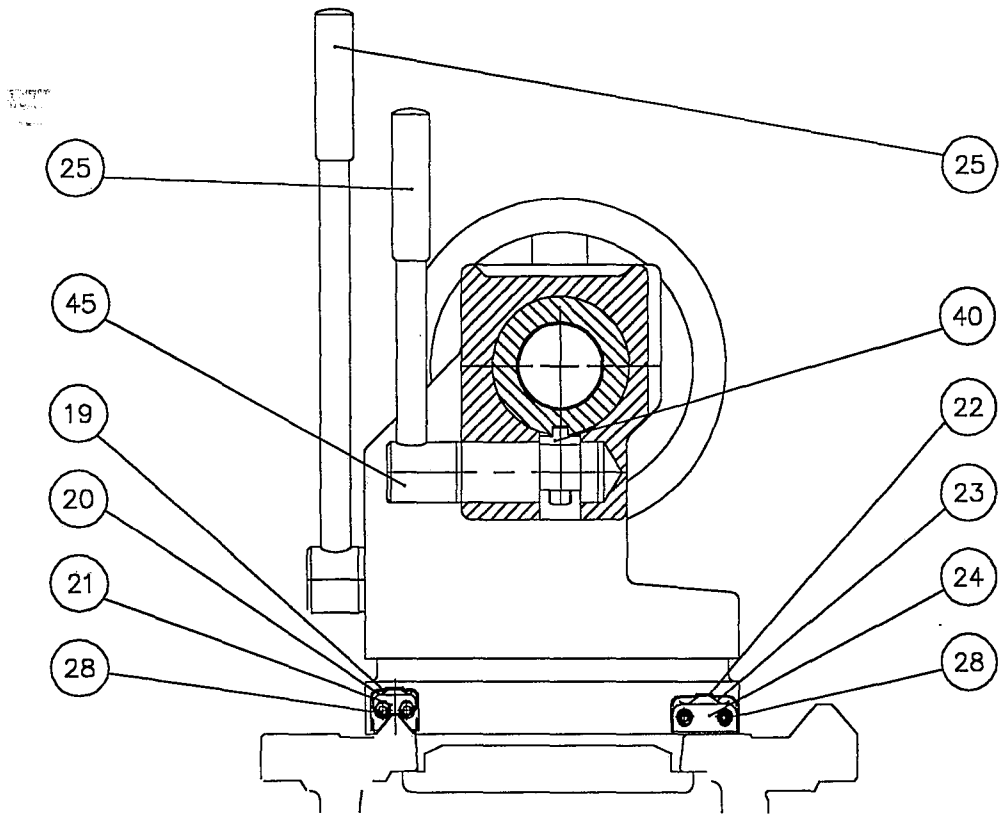


A125 - 0504A
TOPSLIDE ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	HAND WHEEL SUB ASSEMBLY	A842 - 0025A
2	KEEP SUB ASSSEMBLY	A806 - 0584A
3	METRIC TOOLHOLDER BOLT	D005 - 0453
8	METRIC INDEX RING	D424 - 0158
9	IMPERIAL INDEX RING	D424 - 0143
10	METRIC SCREW	D697 - 0364
11	IMPERIAL SCREW	D697 - 0365
12	METRIC NUT	D536 - 0313
13	IMPERIAL NUT	D536 - 0314
14	SWIVEL SLIDE BOLT	D048 - 0156
15	SWIVEL SLIDE	D705 - 0113
16	SOLID TOPSLIDE	D705 - 0115
17	SLOTTED TOPSLIDE	D705 - 0116
19	TOOLHOLDER STUD	D711 - 0190
21	TOPSLIDE LOCK PAD	D557 - 0145
22	GIB STRIP	D345 - 0085
23	GIB ADJUSTING SCREW	D697 - 0345
24	MULTI COMPRESSSION SPRING	D707 - 0021
25	LOCATION PIN	D560 - 0296
26	6mm DIA. CONCAVE LUBRICATOR	B454 - 2004
27	CYCLE BALL BEARING 1/4" DIA.	B326 - 8107
28	WOOODRUFF KEY 13x5x3	B343 - 2002
32	HEXAGON SOCKET CAP HEAD SCREW" WEDGLOK" M6x16	B164 - 0037
33	HEXAGON SOCKET CAP HEAD SCREW M6x25	B163 - 0039
34	HEXAGON SOCKET BUTTON HEAD SCREW M6x20	B163 - 1816
35	HEXAGON SOCKET CUP POINT SET SCREW M12	B163 - 1594
36	HEXAGON SOCKET DOG POINT SET SCREW M8x20	B163 - 1754
38	WASHER M6	B117 - 0009
39	WASHER M16	B117 - 0013
41	NYLOC NUT M16	B147 - 9008
43	WASHER M10	B117 - 0035
44	FULL NUT M10	B147 - 9154
	HANDWHEEL SUB-ASSEMBLY A842 - 0025A	
1	HANDWHEEL	D383 - 0110
3	LONG HANDLE	D382 - 0140
4	SHORT HANDLE	D382 - 0141
	KEEP SUB-ASSEMBLY A806 - 0584A	
1	KEEP	D442 - 0087
2	6mm DIA. LUBRICATOR	B454 - 2004

TAILSTOCK ASSEMBLY (1)

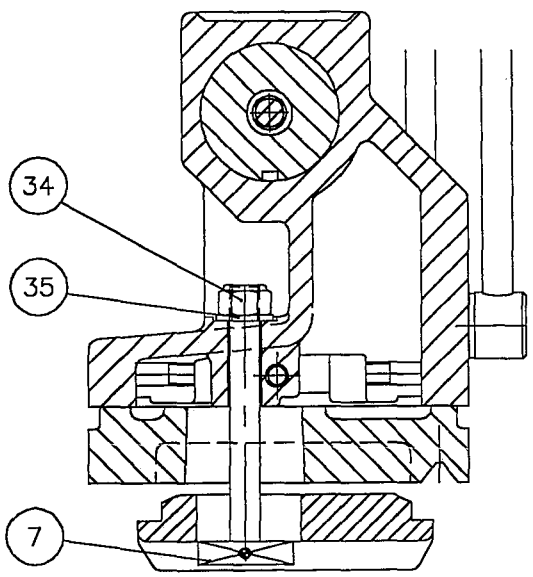




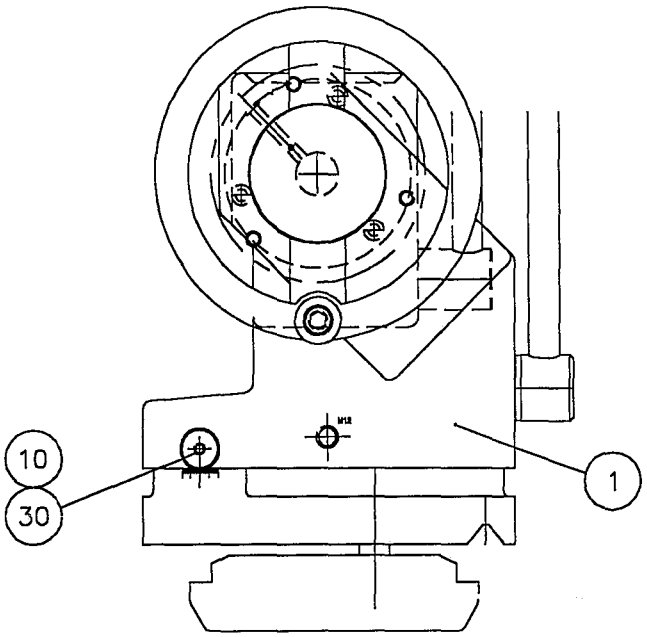
SECTION ON A – A

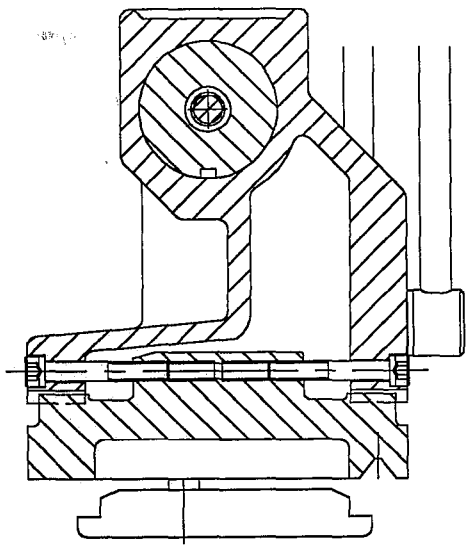
A149 - 0504A
TAILSTOCK ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	BODY / BARREL ASSEMBLY	A890-0033
3	REAR CLAMP PLATE	D131-0038
4	FRONT CLAMP PLATE	D131-0039
5	CLAMPING LEVER ASSEMBLY	A840-0041A
7	CLAMP STUD, SUB-ASSEMBLY	A840-0043A
10	SHAFT DHOBI MARK	D699-0782
14	CLAMP WASHER	D931-0355
15	CLAMP BLOCK	D047-0091
19	VEE SHEILD	D725-0019
20	SPRING	D707-0067
21	VEE WIPER	D937-0013
22	BEDWAY SHIELD FLAT	D725-0020
23	SPRING	D707-0068
24	WIPER FLAT	D937-0014
25	HANDLE	D382-0064
28	HEXAGON SOCKET BUTTON HEAD SCREW, M4 X 16	B163-1806
29	BOLT ESLOK M16 X 100	D048-0155
30	HEXAGON SOCKET SET SCREW HALF DOG M6	B163-1743
31	HEXAGON CAP HEAD SCREW M6 X 20	B163-0038
32	HEXAGONSOCKET SET SCREW DOG POINT M12 X 20	B163-1782
34	NYLOC NUT M16 FULL 'P' TYPE	B147-9008
35	WASHER M16 - TABLE 1	B117-0013
37	6mm DIAMETER LUBRICATOR CONCAVE	B454-2004
38	IMPERIAL INDEX RING	D424-0170
39	METRIC INDEX RING	D424-0171
40	BARREL KEY	D441-0078
41	IMPERIAL SCREW	D697-0341
42	METRIC SCREW	D697-0342
43	IMPERIAL BARREL NUT	D536-0311
44	METRIC BARREL NUT	D536-0312
45	BARREL CLAMP SUB-ASSEMBLY	A840-0046A
46	KEEP SUB-ASSEMBLY	A806-0562A
47	HANDWHEEL	D383-0104
48	HANDWHEEL SECURING WASHER	D931-0340
49	SPRING FLEXO 324016	B365-1677
50	THRUST WASHER AS2035	B337-5012
51	NEEDLE ROLLER BEARING AXK2035	B337-5011
53	STEEL BALL 6.0 DIAMETER	B326-9003
54	SPRING SG344	B365Y1334
55	SCHNORR DISC SPRING\ 607	B365-6409
57	COUNTERSUNK SOCKET SCREW M10 X 25	B163-1041
58	BLACK HANDLE ELSA	B223-1022
59	WOODRUFF KEY 6 X 9 X 22 LONG	B343-2009
60	HEXAGON SOCKET CAP HEAD SCREW M6 X 35	FS - 0138
61	SOCKET SET SCREW, ESLOK M10 X 25	D697-0358
67	STEEL TAB WASHER 5/8" ID	B116-0050

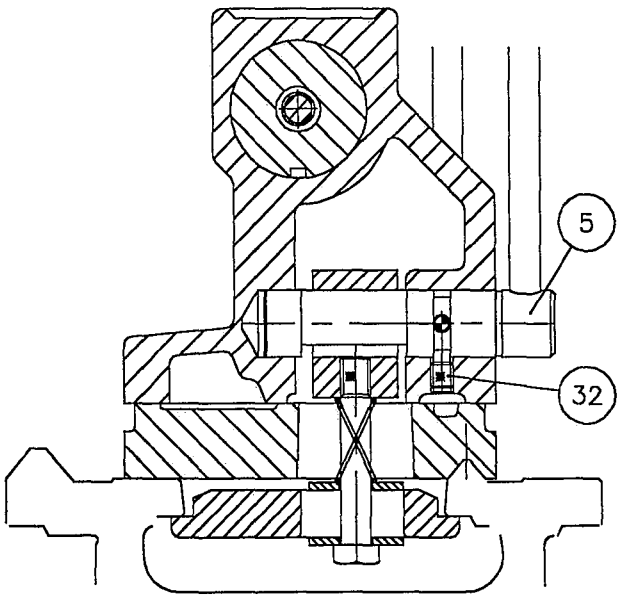


SECTION ON D – D





SECTION ON C – C

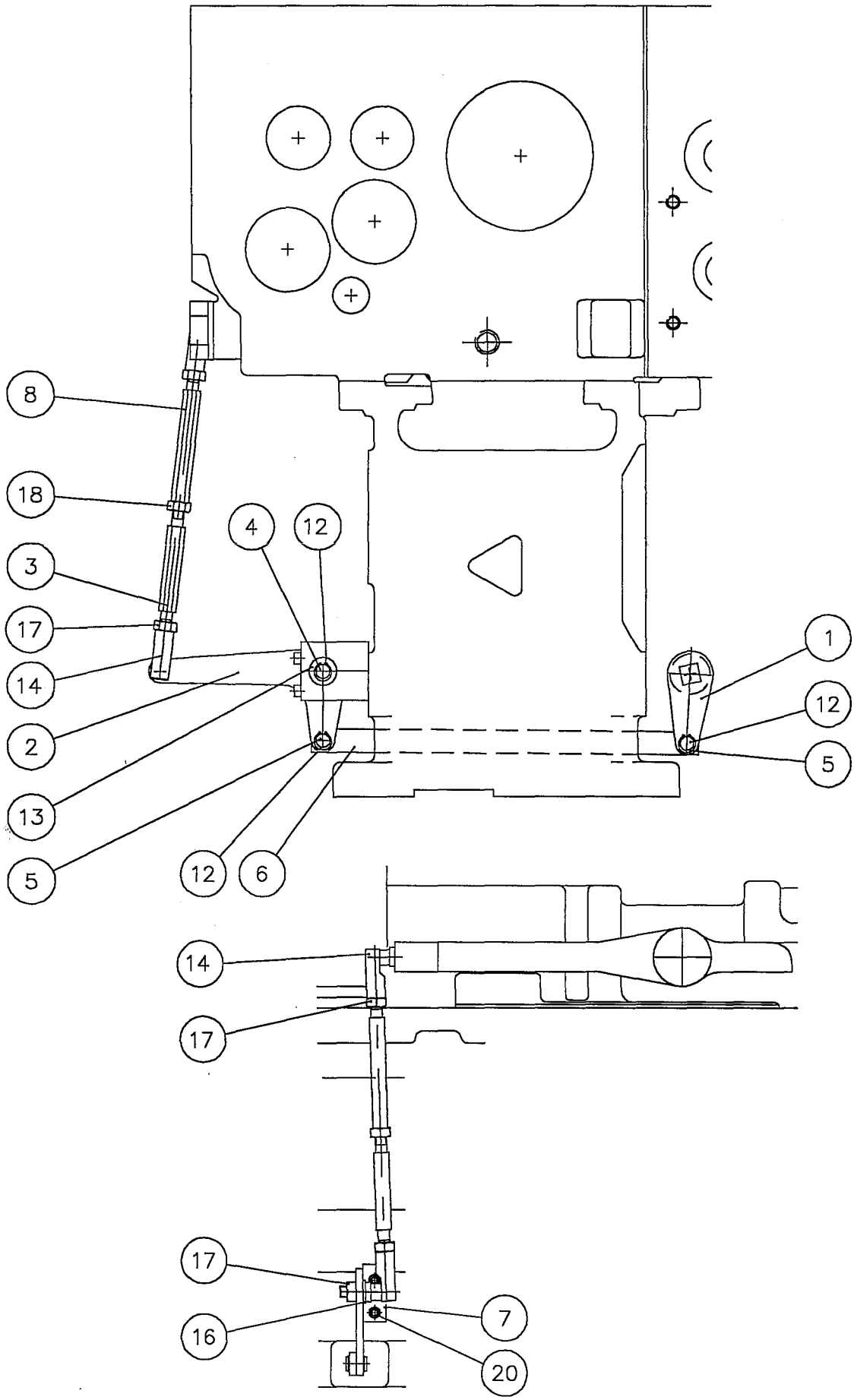


SECTION ON B – B

A149 - 0504A
TAILSTOCK SUB - ASSEMBLY

ITEM NO.	DESCRIPTION		PART NO.
	BODY/BARREL ASSEMBLY	**A890 - 0033**	
1	TAILSTOCK BODY/BASE SUB-ASSEMBLY		A890 - 0032
2	TAILSTOCK BARREL/SCALE SUB-ASSEMBLY		A890 - 0034
	BODY/BASE SUB-ASSEMBLY	A890 - 0032	
1	TAILSTOCK BODY		D827 - 0061
2	TAILSTOCK BASE		D827 - 0062
6	TAILSTOCK TO BASE PIN		D560 - 0302
9	DOG POINT SET SCREW M12x35		B163 - 0076
10	HEXAGON SOCKET CAP HEAD SCREW M10x65		B163 - 0076
	BARREL/SCALE SUB]-ASSEMBLY	**A890 - 0034**	
1	TAILSTOCK BARREL		D044 -0029
2	STAINLESS STEEEL GRADUATED PLATE		D537 - 0896
	CLAMPING LEVER SUB-ASSEMBLY	**A840 - 0041**	
1	ECCCENTRIC STUD		D123 - 0114
2	CLAMP LEVER		D717 - 0114
3	DOWEL 8x30		B111 - 6049
4	SPIROL PIN 3x30		B111 - 5065
	CLAMP STUD SUB-ASSEMBLY	**A840 - 0043**	
1	AUXILLARY CLAMP STUD		D711 - 0187
2	STUD PLATE		D565 - 0913
3	SPIROL PIN 5x36		B111 - 5099
	BARREL CLAMP SUB-ASSEMBLY	**A840 - 0046**	
1	ECCCENTRIC SHAFT		D123 - 0115
2	BARREL CLAMP STEM		D717 - 0115
3	SPIROL PIN 3x30		B111 - 5065
	KEEP SUB-ASSEMBLY	**A806 - 0078**	
1	KEEP		D442 - 0078
2	GLACIER BUSH MB2025 DU		B311 - 1549

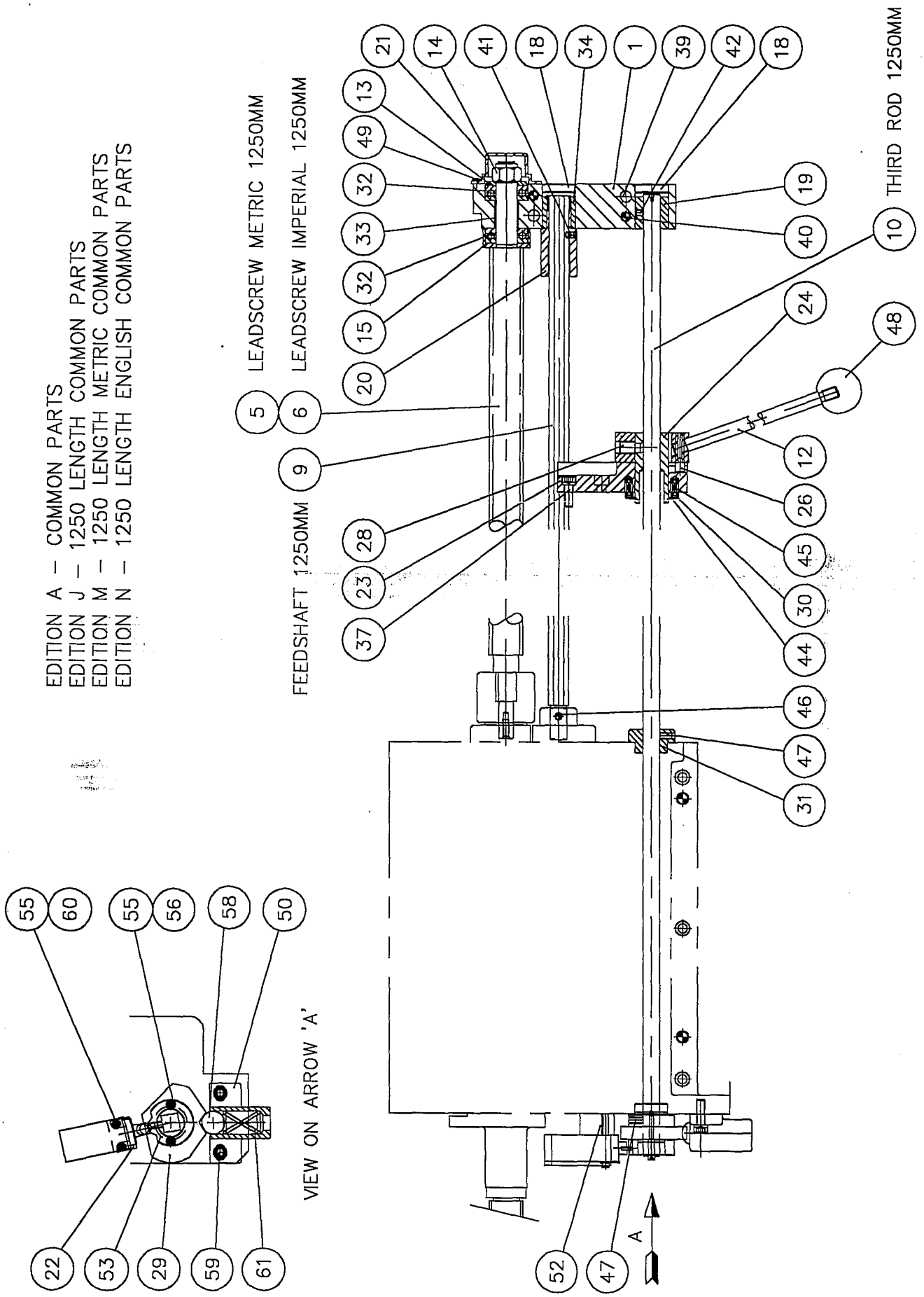
THIRD ROD LINKAGE ASSEMBLY



A106 - 0525A
THIRD ROD LINKAGE ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	LEVER THIRD ROD	D452 - 0283
2	LEVER THIRD ROD	D452 - 0284
3	ROD CLUTCH	D648 - 0109
4	PIN	D560 - 0299
5	PIN	D560 - 0300
6	BAR LINK	D041 - 0232
7	BLOCK	D047 - 0107
8	ROD - TOP	D648 - 0108
12	CIRCLIP EXTERNAL DIN 1400 - 12	RA - 0090
13	BRIGHT WASHER M12	FP - 0070
14	BALL JOINT	YN - 0010
16	BRIGHT WASHER M10	FP - 0060
17	BRIGHT HEXAGON NUT M10	FS - 0922
18	LOCKNUT M10	FS - 0952
20	HEXAGON SOCKET CAP HEAD SCREW M6 X 70	FS - 0151

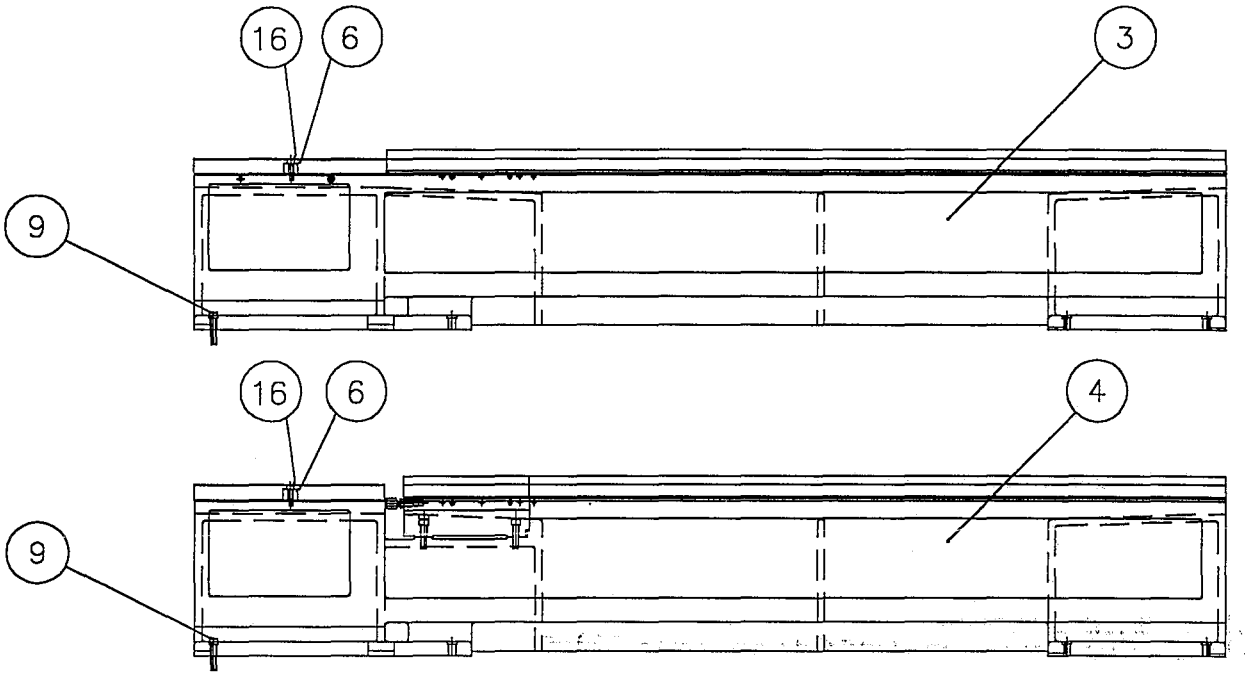
LEADSCREW COVER ASSEMBLY

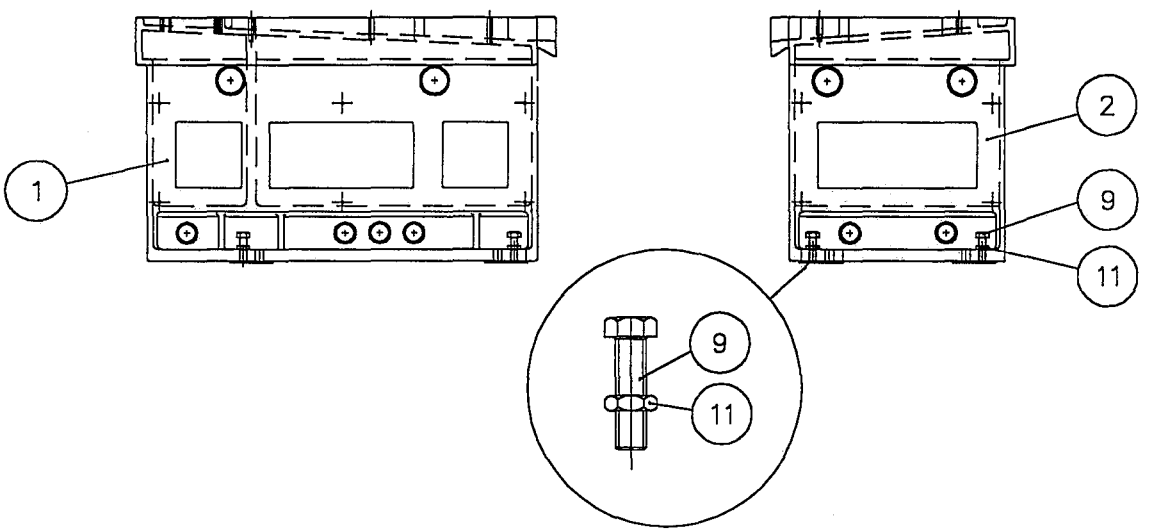


A106 - 0524A
LEADSCREW AND SPLINE SHAFT ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	END BRACKET	D706H001.2
5	LEADSCREW METRIC 1250MM	D456 - 0084
6	LEADSCREW ENGLISH 1250MM	D045 - 0086
9	SPLINE SHAFT 1250MM	D699 - 0774
10	THIRD ROD 1250MM	D699 - 0776
12	THIRD SHAFT LEVER SUB-ASSY	A406H00.1
13	COLLAR	D133 - 0249
14	HEX NYLOC NUT M18	FS - 0978
15	COVER LEADSCREW BEARING	D132 - 0717
16	STOP SLEEVE	D706H016.1
17	STOP BUSH	D706H002.1
18	PLUG TAILEND BRACKET	D566 - 0189
19	SLEEVE THIRD ROD	D704 - 0126
21	COVER LEADSCREW TAIL END	D132 - 0430
22	SWITCH SECURING PLATE	D565 - 1052
23	THIRD SHAFT BOSS	D706H011.1
24	CENTRE BUSH	D406H018.2
26	PEG (LEVER BOSS)	D406H020.1
28	FULL DOG POINT WITH NYLON PATCH M12 X 20	FS - 0794
29	CAM THIRD ROD SWITCH	D123 - 0110
30	THRUST WASHER D406H022.1 (16 SWG)	BC - 0180
31	BUSH	D403H046.2
32	THRUST BEARING 51204	BD - 0010
33	GLACIER BUSH MB20 25 DU	BF - 0140
34	OILITE BEARING BM1 X 30	BE - 0270
37	CAP HEAD SOCKET SET SCREW M8 X 20	FS - 0162
39	CAP HEAD SOCKET SET SCREW M10 X 65	FS - 0194
40	FT DOWEL PIN GD 1 DIA 8 X 45MM	B111 - 7046
41	CUP POINT SOCKET SCREW M6 X 8	FS - 0498
42	CUP POINT SOCKET SCREW M6 X 6	FS - 0496
43	SPIROL PIN 4 X 24MM MBK	FT - 0180
44	EXTERNAL CIRCLIP DIN1400-32	RA - 0200
45	SPRING SG 343	FR - 0004
46	SPIROL PIN 6 DIA X 35 LG	FS - 0502
47	CUP POINT SOCKET SET SCREW M6 X 12	FS - 0502
48	MOULDED RED KNOB M10 304	HA - 0030
49	SELF TAPPING SCREW NO.6 X 3/8 LG	B123 - 6026
50	BLOCK PLUNGER	D047 - 0108
52	BLOCK - LIMIT SWITCH	D047 - 0106
53	CAM - 3RD ROD SWITCH	D123 - 0124
55	BRIGHT WASHER M4	FP - 0170
56	HEXAGON SOCKET CAP HEAD SCREW M4 X 25	FS - 0100
58	STEEL BALL DIA 22	UB - 0022
59	HEXAGON SOCKET CAP HEAD SCREW M8 X 25	FS - 0164
60	HEXAGON SOCKET CAP HEAD SCREW M8 X 25	B163 Y0023
61	SPRING FLEXO M446910	FR - 0450
	THIRD SHAFT LEVER SUB-ASSY **A406H001.1**	
1	LEVER (3RD SHAFT)	D406H021.1
2	LEVER BOSS	D406H019.1
3	SPIROL PIN 4 X 24 MBK	FT - 0180

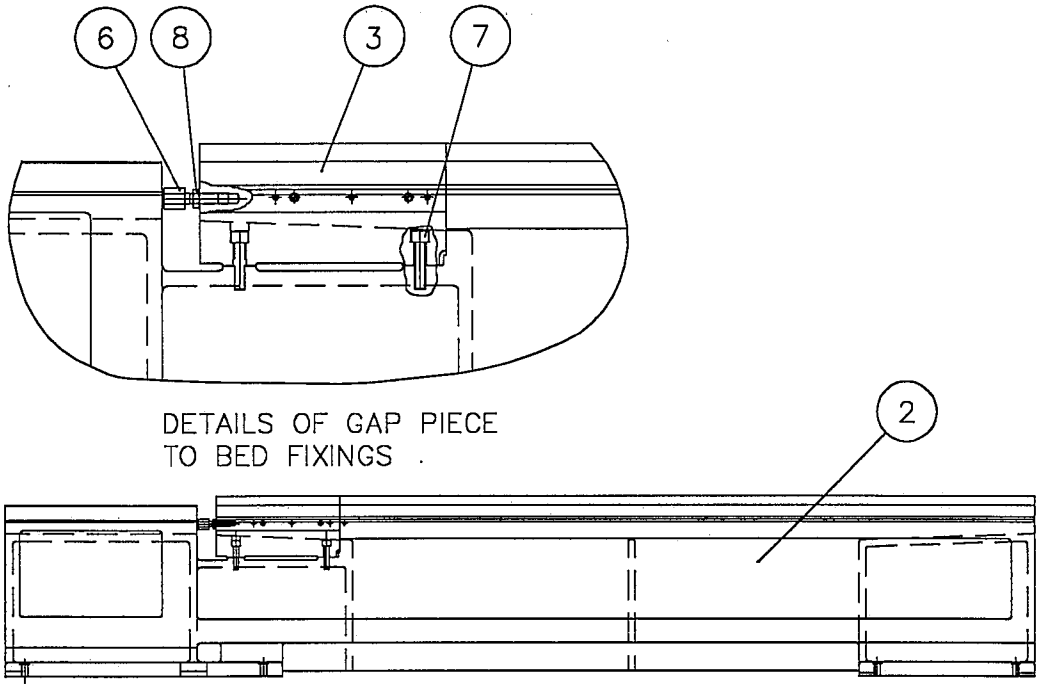
BED AND PLINTH ASSEMBLY (1250mm)



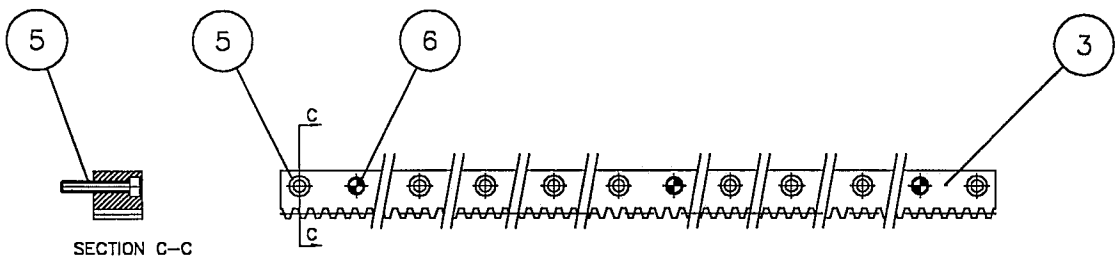


A106 - 0523D
GAP BED , PLINTH AND RACK ASSEMBLYS (1250mm)

ITEM NO.	DESCRIPTION	PART NO.
4	GAP AND BED ASSEMBLY 1250mm MACHINE	A803 - 0013B
6	SWARF/COOLANT STOP BLOCK	D047 - 0119
9	HEXAGON SOCKET CAP HEAD SCREW M12x55	B166 - 0136
10	WASHER M12	FP - 0012
13	INFILL PLATE GAP BED	D565 - 0994
14	INFILL SUPPORT PLATE	D565 - 0995
15	HEXAGON SOCKET BUTTON HEAD SCREW M6x12	FS - 0294
16	HEXAGON SOCKET CAP HEAD SCREW M10x35	FS - 0188
	PLINTH ASSEMBLY **A865 - 0031A**	
1	HEAD END PLINTH	D125 - 0102
2	TAILEND PLINTH	D125 - 0103
9	HEXAGON HEAD SCREW M16x 60	FS - 0622
11	LOCKNUT M16	FS - 0976



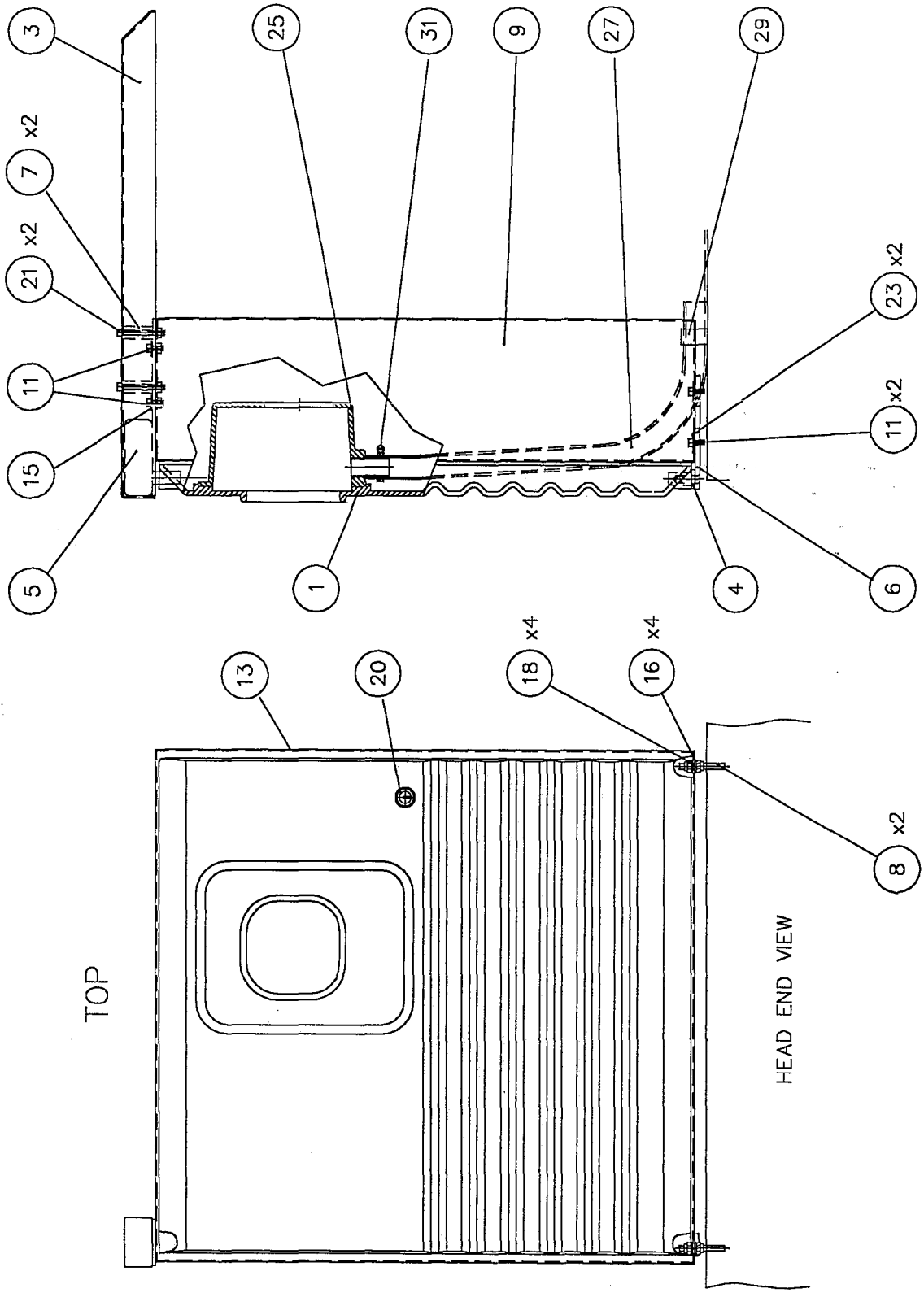
DETAILS OF GAP PIECE
TO BED FIXINGS .



A106 - 0520B
GAP BED , PLINTH AND RACK ASSEMBLYS (1250mm)

ITEM NO.	DESCRIPTION		PART NO.
	GAP BED ASSEMBLY	**A803 - 0013B**	
2	GAP BED 1250mm		C045 - 0125
3	GAP PIECE		D348 - 0015
6	JACKING SCREW		D697 - 0340
7	HEXAGON SOCKET CAP HEAD SCREW M12x50		B163 - 0088
8	NUT M10		FS - 0922
	RACK ASSEMBLY	**A106 - 0520B**	
3	RACK 1250mm MACHINE		D641 - 0058
5	HEXAGON SOCKET CAP HEAD SCREW M6x35		B163 - 0041
6	8mm DIA. DOWEL		B111Y7043

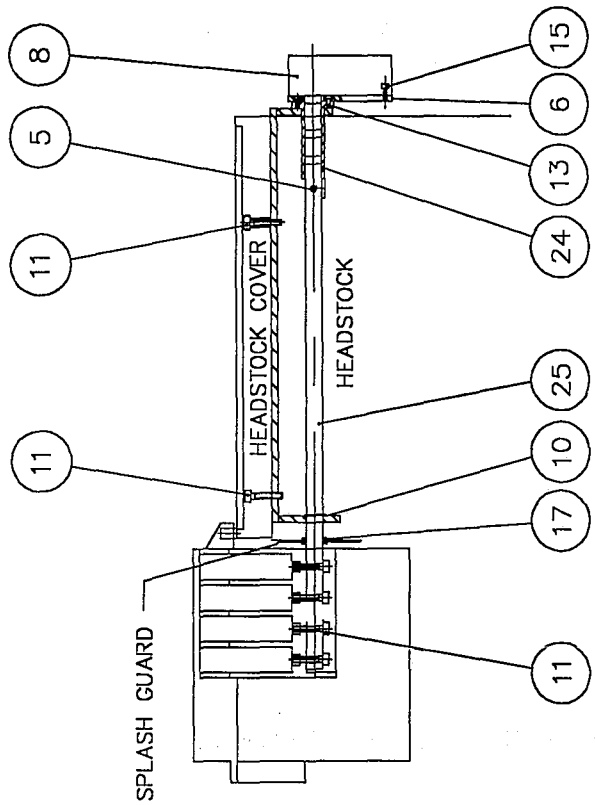
HEADEND GUARDING ASSEMBLY

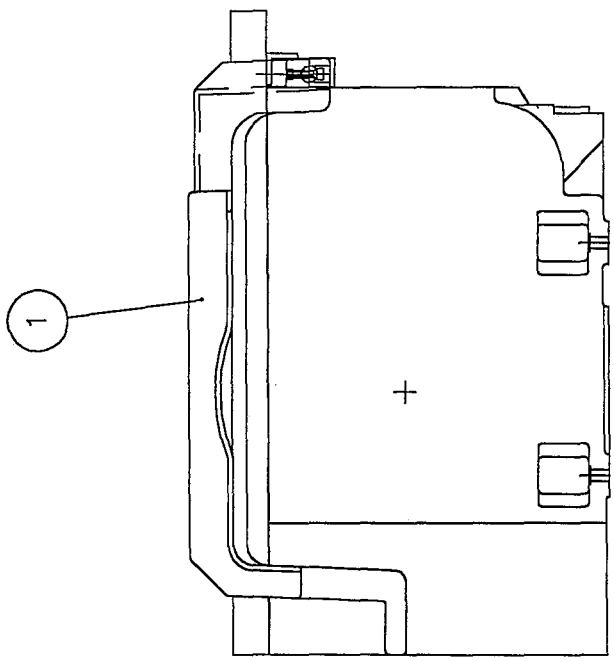


A137 - 0514A
HEAD END GUARDING ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	END GUARD DOOR	D346 - 0396
3	TRUNKING	D132 - 0698
4	SPACER	D708 - 0466
5	ROTACAM SWITCH ASSEMBLY	A826 - 0722
6	HINGE PLATE	D565 - 0916
7	SPACER - TRUNKING MOUNTING	D708 - 0469
8	STUD	D711 - 0189
9	HEAD END GUARD COVER	D132 - 0703
11	HEXAGON SOCKET CAP HEAD SCREW M6x16	FS - 0134
13	HEADSTOCK PLATE	D565 - 0924
15	TAB WASHER 1/4" I.D.	FP - 0250
16	WASHER M8	FP - 0140
18	LOCK NUT M8	FS - 1040
20	SOUTHCO KEY LATCH	YU - 0020
21	HEXAGON SOCKET CAP HEAD SCREW M6 X 55	FS - 0148
23	WASHER M6	B117 - 0051
25	COOLANT COLLECTOR	D132 - 0772
27	HOSE 25mm BORE	PF - 0140
29	PIPE RETAINING CLIP	D130 - 0020
31	ZINC HOSE CLIP 1"x1 3/8"	FU - 0025
	ROTACAM SWITCH ASSEMBLY	A826 - 0722
1	MOUNTING PLATE	D565 - 0923
2	HEXAGON SOCKET CAP HEAD SCREW M4x12	FS - 0092
4	GROMMET A1157	B715 - 1076
5	ROTACAM SWITCH HARNESS	A826 - 0753

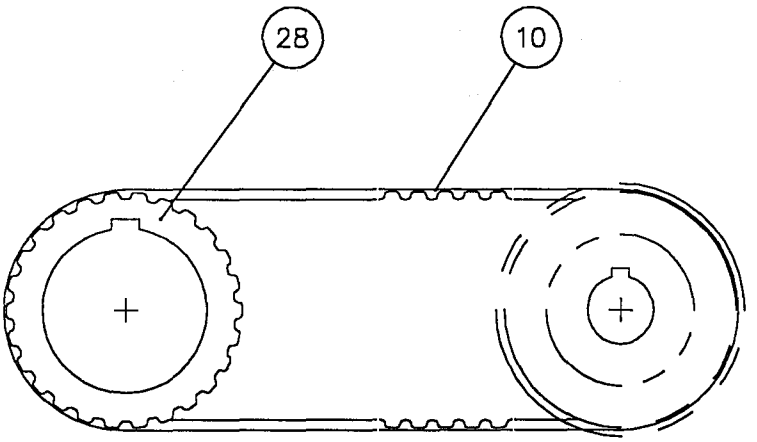
INTERLOCKED CHUCK GUARD ASSEMBLY

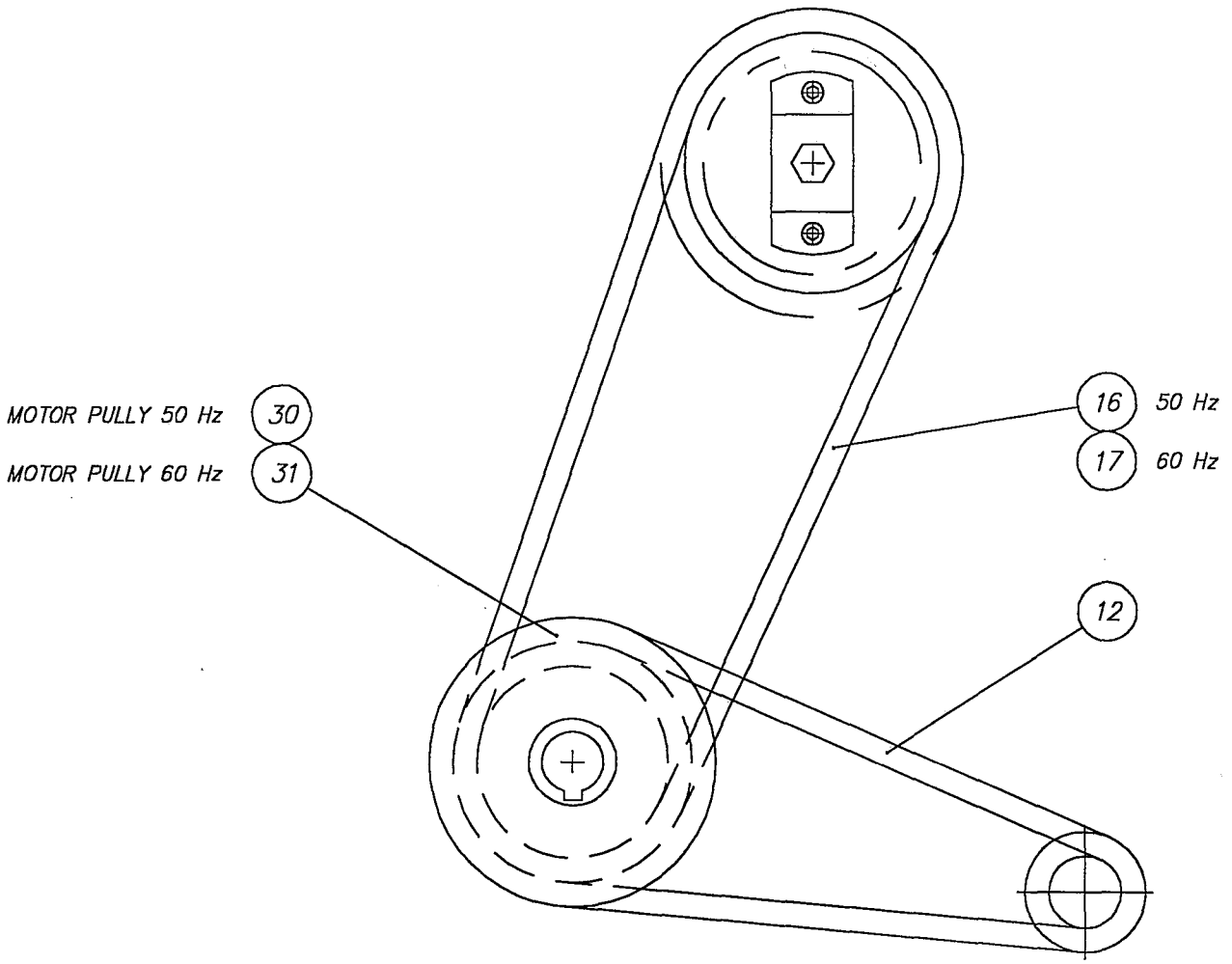




A137 - 0520E
INTERLOCKED CHUCK GUARD ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	CHUCK GUARD	D346 - 0395
6	CHUCK GUARD KIT (SEE BELOW)	A950 - 0019E
	CHUCK GUARD KIT **A950 - 0019E**	
5	STOP PIN	D560 - 0310
6	PLATE	D565 - 1026
8	ROTOCAM ASSEMBLY	A826 - 0753B
10	CIRCLIP DIN 1400-16	RA - 0120
11	HEXAGON SOCKET CAP HEAD SCREW M6 x 30	FS - 0140
13	HEXAGON SOCKET BUTTON HEAD SCREWM4 X 8	FS - 0272
15	HEXAGON SOCKET CAP HEAD SCREW M4 X 12	FS - 0094
17	GROMMET R.MOSS REF15093	B715 - 1086
24	SWITCH BRACKET	D050 - 0884
25	SHAFT	D699 - 0869
	ROTOCAM ASSEMBLY **A826 - 0753B**	
1	ROTOCAM SWITCH : EJA HS-IF	B753 - 6067
3	GLAND OFLEX : 5380-2080	B715 - 5009
6	CORE CABLE 0.5MM SQ.	R514 Y7213
7	ANGLED CONNECTOR 2-WAY 232-102	B718 - 3257


28
10


MOTOR PULLY 50 Hz
30
MOTOR PULLY 60 Hz
31
16
50 Hz
17
60 Hz
12

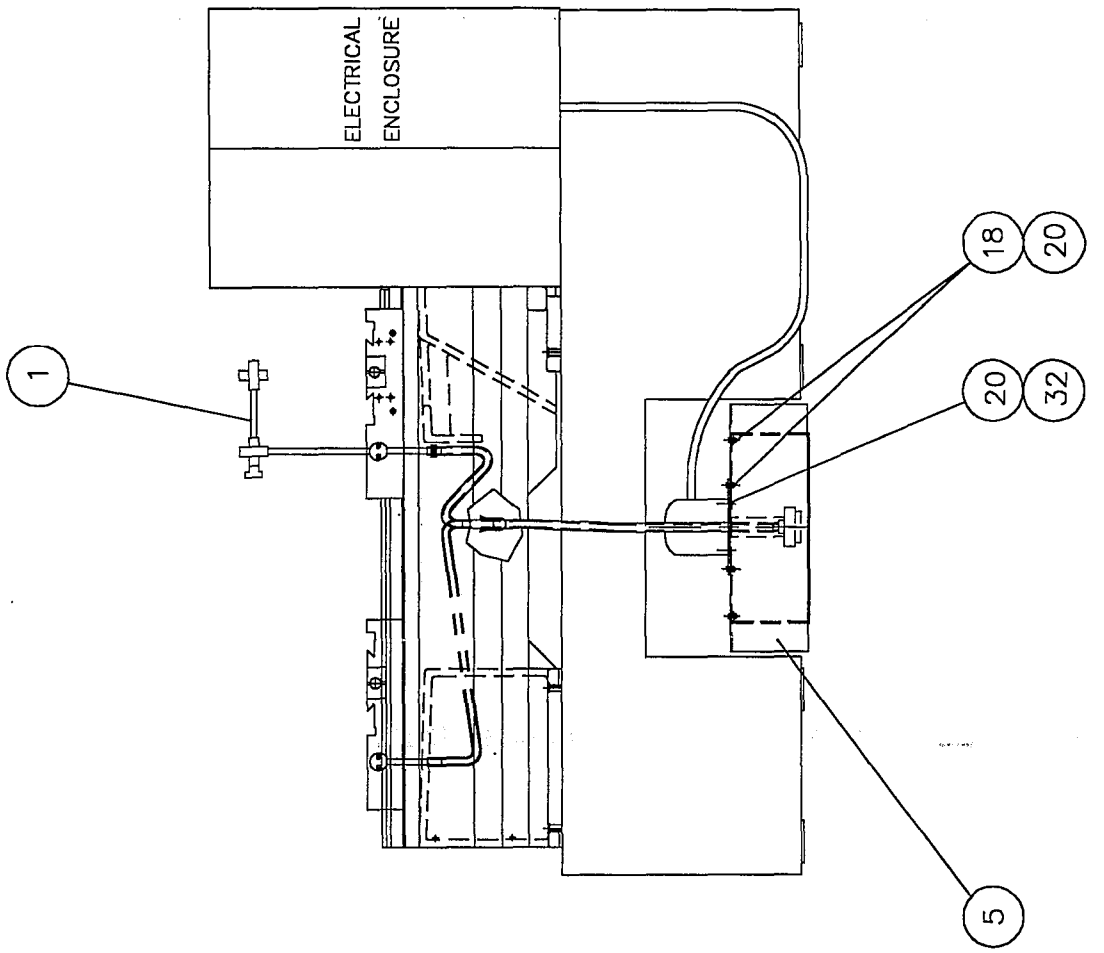
A107 - 0001NP
BELTS AND PULLEYS ASSEMBLY (50 / 60 Hz)

ITEM NO.	DESCRIPTION	PART NO.
10	TIMING BELT REF : 270H100	B346 - 1338
12	BRAMMER BELT COLOUR CODE RED	B348 - 0001
16	V BELT A37 SET OF 4 - 50 Hz	B345 - 5206
17	V BELT A35 SET OF 4 - 60 Hz	B345 - 5208
28	PULLEY 26T	D570 - 0323
30	MOTOR PULLEY - 50 Hz	D570 - 0339
31	MOTOR PULLEY - 60 Hz	D570 - 0342

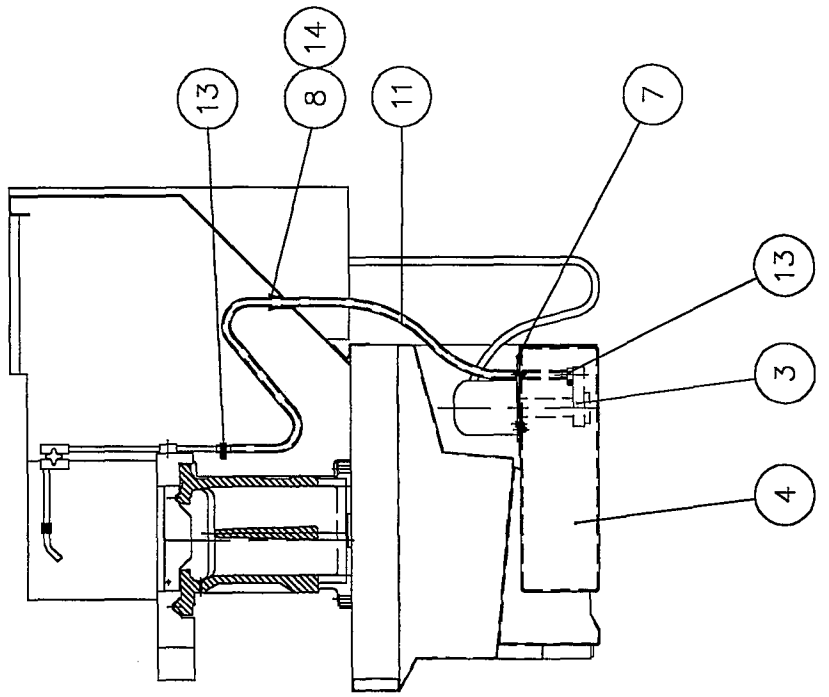
A173 - 0502A
HEADSTOCK LUBRICATION ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.

COOLANT ASSEMBLY (380 – 415V)

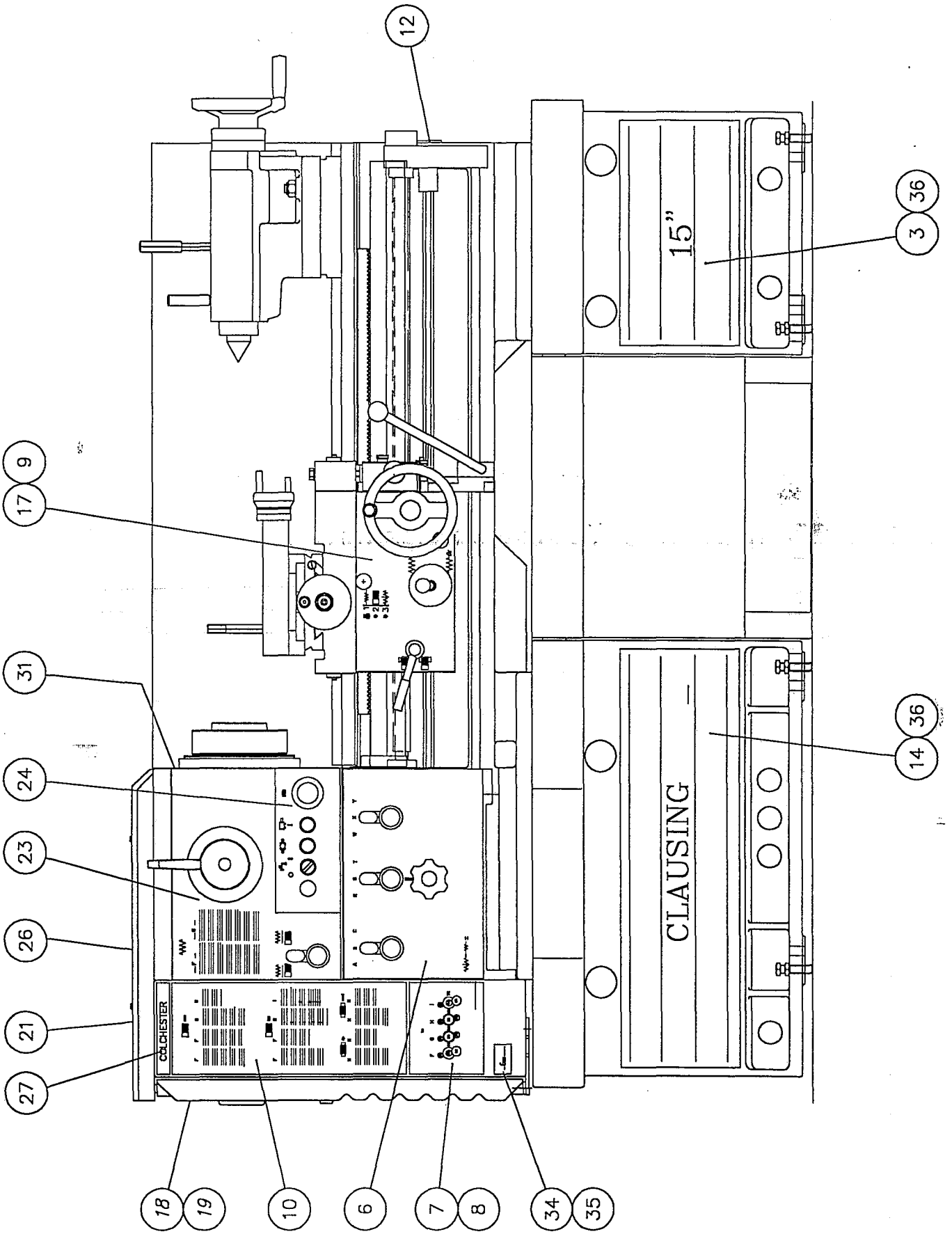


REAR VIEW ON MACHINE WITH SPLASH GUARD REMOVED



A167 - 0510G
COOLANT ASSEMBLY (380 - 415V)

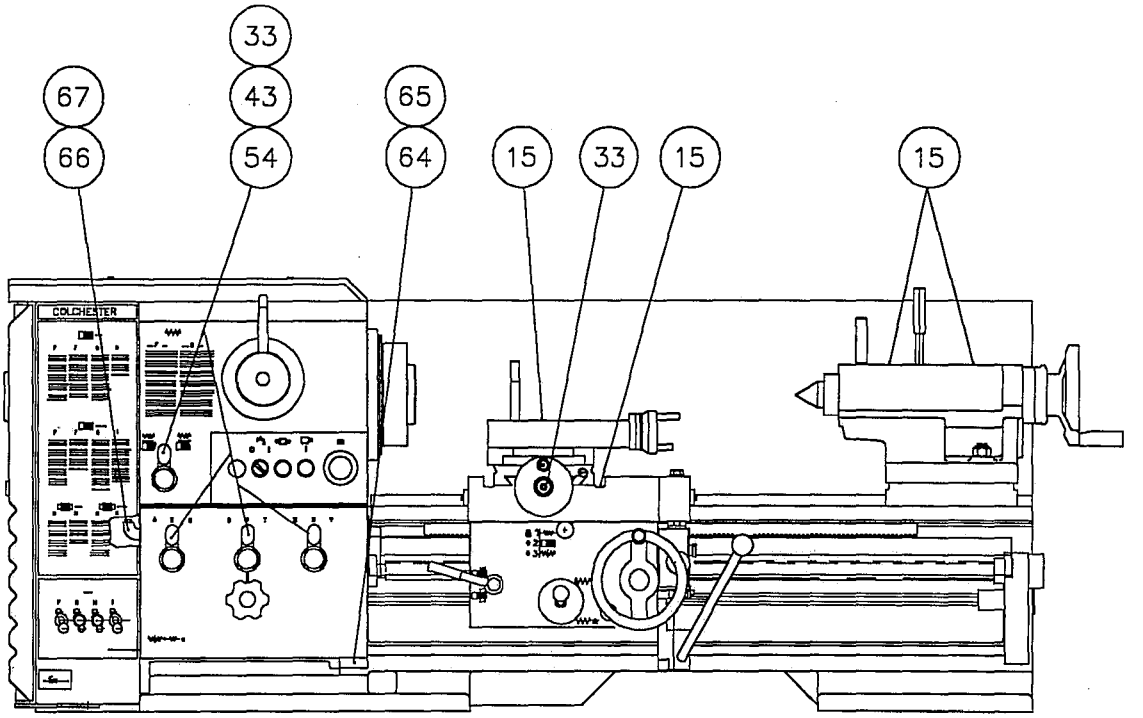
ITEM NO.	DESCRIPTION	PART NO.
1	STANDPIPE ASSEMBLY	AH - 0040
3	COOL PUMP (TAIWANESE) 380 - 415V	A867 - 0049A
4	FLOOR STANDING COOLANT TANK	D828 - 0061
5	COOLANT TANK COVER 1250MM	D132 - 0700
7	PUMP MOUNTING PLATE	D565 - 0943
8	PLASTIC SLEEVE	D704 - 0048
11	PLASTIC HOSE 1/2" BORE 1200MM	R827 - 6127
13	HOSE CLIP SIZE 00	FU - 0040
14	TUBE CLIP ENOTS 3/4" DIA	B233 - 1109
18	HEXAGON SOCKET BUTTON HEAD SCREW M6 X 12	FS - 0294
20	BRIGHT WASHER M6	FS - 0040
32	HEXAGON SOCKET CAP HEAD SCREW M6 X 16	FS - 0134
	COOLANT PUMP ASSEMBLY **A867-0049A**	
1	COOLANT PUMP (TAIWANESE)	B473 - 1320
2	PUMP HARNESS ASSEMBLY (TAIWANESE)	A826 - 1072A

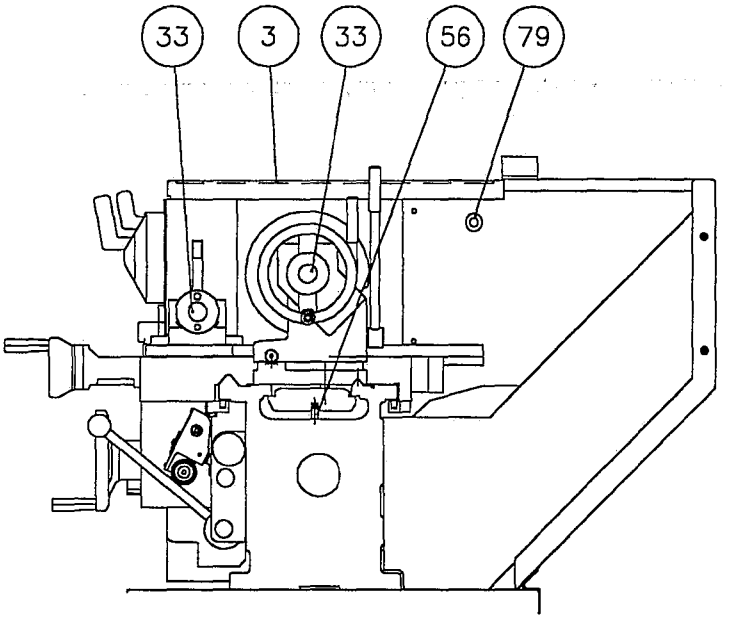

12
3
36
15"
9
17
31
24
23
26
21
27
14
36
CLAUSING
COLCHESTER
18
19
10
6
7
8
34
35

A161 - 0511A,R,S
NAMEPLATES ASSEMBLY (CLAUSING)

ITEM NO.	DESCRIPTION	PART NO.
3	15" NAMEPLATE - HEADEND	D537 - 1025
6	GEARBOX NAMEPLATE	NA - 1363
7	CHANGEWHEEL NAMEPLATE - METRIC	D537 - 1124
8	CHANGEWHEEL NAMEPLATE - ENGLISH	D537 - 1123
9	APRON NAMEPLATE - RIGHT HAND	NA - 1365
10	THREAD FEED NAMEPLATE	D537 - 1032
12	D537 - 0783 NAMEPLATE	NA - 1190/B
14	'CLAUSING' NAMEPLATE - TAILEND	D537 - 1033
17	APRON NAMEPLATE - LEFT HAND	NA - 1364
18	CONTROL PANEL NAMEPLATE	D537 - 0102
19	ELECTRICAL WARNING FLASH PLATE	D565 Y0406
21	DESIGN REGISTRATION NAMEPLATE	D537 - 1165
23	HEADSTOCK NAMEPLATE	D537 - 1162
24	PUSHBUTTON NAMEPLATE	D537 - 1042
26	CLUTCH ADJUSTING NAMEPLATE	D537 - 0847
27	'COLCHESTER' NAMEPLATE	D537 - 1057
28	LABEL RED ARROW - LUB PUMP	D537 - 1039
31	CHUCK WARNING NAMEPLATE	D537 - 1083
32	WARNING TIE ON LABEL	D537 - 1093
34	'600' LOGO NAMEPLATE	D537 - 1170
35	SCREW TAPTITE M3 X 5 LG	B123 - 6065
36	BUTTON HEAD SOCKET SCREW M6 X 10	FS - 0292
37	BUTTON HEAD SOCKET SCREW M4 X 10	FS - 0274
38	SELF TAPPING PAN HEAD SCREW No.4 X 1/4"	B123 - 6024

TRIMMINGS ASSEMBLY (1)

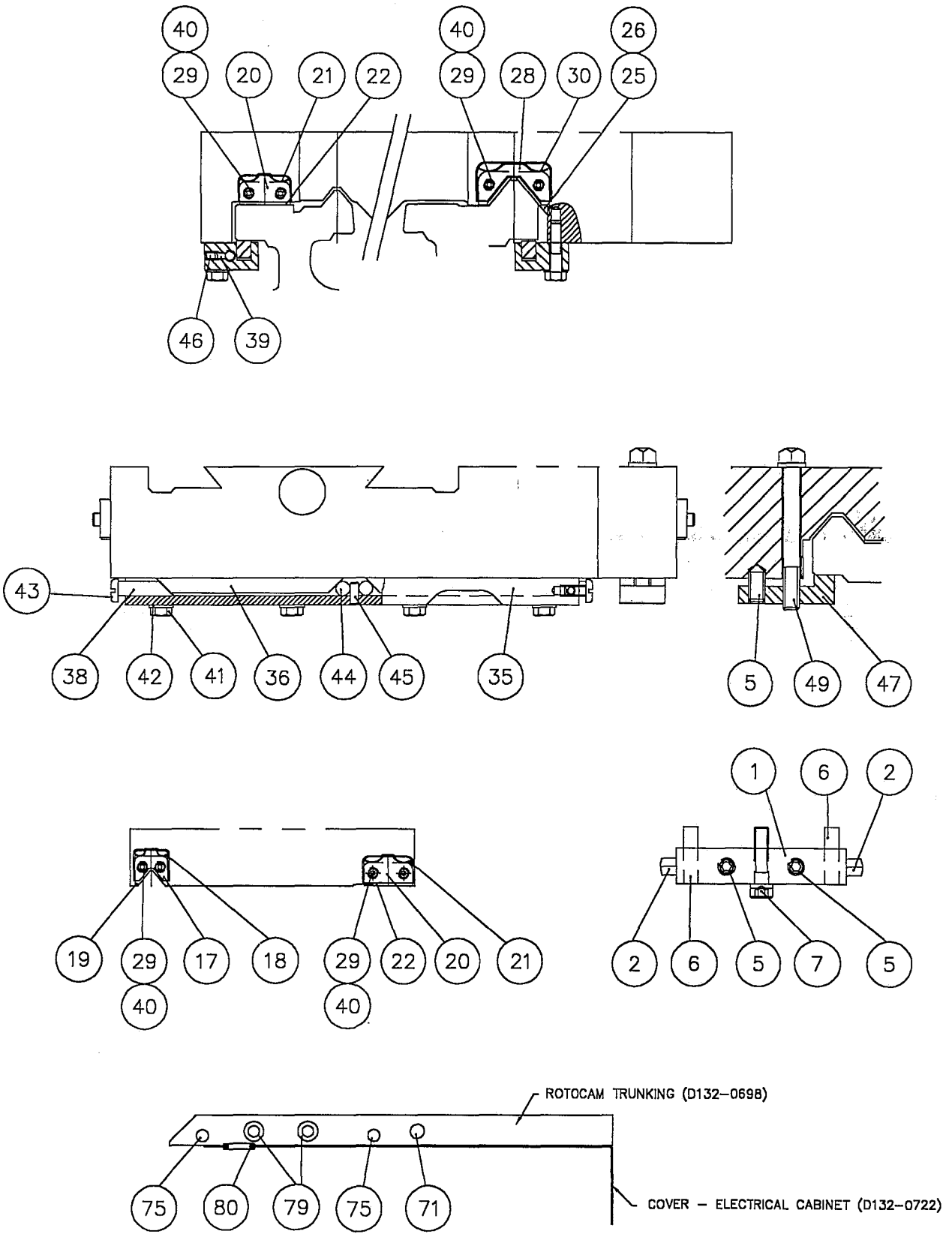




ITEM 7 – 4 OFF USED TO SECURE HEADSTOCK TO BED
ITEM 8 – 2 OFF USED TO SECURE GEARBOX TO BED
ITEM 9 – 10 OFF USED TO SECURE BED TO PLINTH
ITEM 10 – 2 OFF USED TO SECURE GEARBOX TO BED
ITEM 13 – 1 OFF USED TO LOCATE HEADSTOCK TO BED
ITEM 14 – 2 OFF USED TO LOCATE GEARBOX TO BED
ITEM 50 – 10 OFF USED WITH ITEM 9
ITEM 58 – 2 OFF USED TO SECURE INFILL PLATE TO HEADSTOCK
ITEM 68 – 6 OFF USED FOR SECURING SPLASH GUARD TO HEADSTOCK,
SPLASH GUARD TO BED & SPLASH GUARD TO SPLASH GUARD BRACKET
2 OFF USED FOR SECURING INFILL PLATE TO SPLASH GUARD
ITEM 69 – 8 OFF USED FOR SECURING SPLASH GUARD TO HEADSTOCK
SPLASH GUARD TO BED & SPLASH GUARD TO SPLASH GUARD BRACKET
2 OFF USED FOR SECURING INFILL PLATE TO SPLASHGUARD
ITEM 70 – 2 OFF USED WITH ITEM 68

A176 - 0521B
TRIMMINGS ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
1	SET OVER PAD	D557 - 0142
2	PIN SET OVER	D560 - 0297
3	HEADSTOCK MAT	D132 - 0797
5	WEDGLOK SET SCREW M12 X 20	B164 - 0170
6	SPIROL PIN 10 DIA X 40	B111 - 5160
7	CAP HEAD SOCKET SCREW M10 X 40	FS - 0190
8	CAP HEAD SOCKET SCREW M8 X 40	FS - 0170
9	HEX HEAD SOCKET SCREW M12 X 55 LG	B166 - 0136
10	CAP HEAD SOCKET SCREW M8 X 20	FS - 0162
12	BED STOP PIN	D560 - 0307
13	DOWEL PIN I0 DIA X 36MM LG.	B111 Y7060
14	DOWEL PIN 10 DIA X 30 LG	B111 - 7057
15	OIL NIPPLE 6MM DRIVE IN CONCAVE	OC - 0010
17	VEE SHIELD	D725 - 0019
18	SPRING TRIUMPH	D707 - 0067
19	VEE WIPER	D937 - 0013
20	BEDWAY SHIELD FLAT.	D725 - 0020
21	SPRING 6 7 8 & 10 IN MCS	D707 - 0068
22	FLAT WIPER	D937 - 0014
23	WIPER FLAT SHIELD	D725 - 0013
24	BED FLAT WIPER	D937 - 0010
25	VEE WIPER HEAD-END	D937 - 0034
26	VEE WIPER TAIL-END	D937 - 0033
28	BEDWAY WIPER VEE SHIELD	D725 - 0014
29	SPACER BED 800	D708 - 0087
30	LEAF SPRING	D707 - 0051
31	R SPACER 1/40DXI/2 760	D708 - 0143
33	BLUE CAP C380 (SIFAM)	ED - 1550
35	SADDLE STRIP MOUNT STD	D345 - 0083
36	SADDLE STRIP STD	D715 - 0173
38	STRIP ADJUSTER-SHORT	D715 - 0192
39	LOCK PAD STD	D557 - 0143
40	BUTTON HEAD SOCKET SCREW M4 X 12	FS - 0278
41	H.T. HEX HEAD SOCKET SCREW M8 X 35	FS - 0578
42	M8 TYPE A WASHER	FP - 0140
43	SLOTTED PAN HEAD SCREW WITH NYLOC M8 X 16	FS - 0723
44	CYLINDRICAL ROLLER I0MM DIA. X 10	BD - 0080
45	SPIROL PIN M6 X 16 MBK	FT - 0330
46	SOCKET SET SCREW W POINT M6X8MM	B163 Y1561
47	SADDLE CLAMP	D715 - 0209
49	SADDLE LOCKING SCREW	D697 - 0393
50	M12 BRIGHT WASHER LIGHT STEEL FORM A	FP - 0070
53	HANDLE	D382 - 0078
54	HANDLE	D382 - 0137



VIEW FROM REAR OF MACHINE SHOWING ROTOCAM TRUNKING (D132-0698)

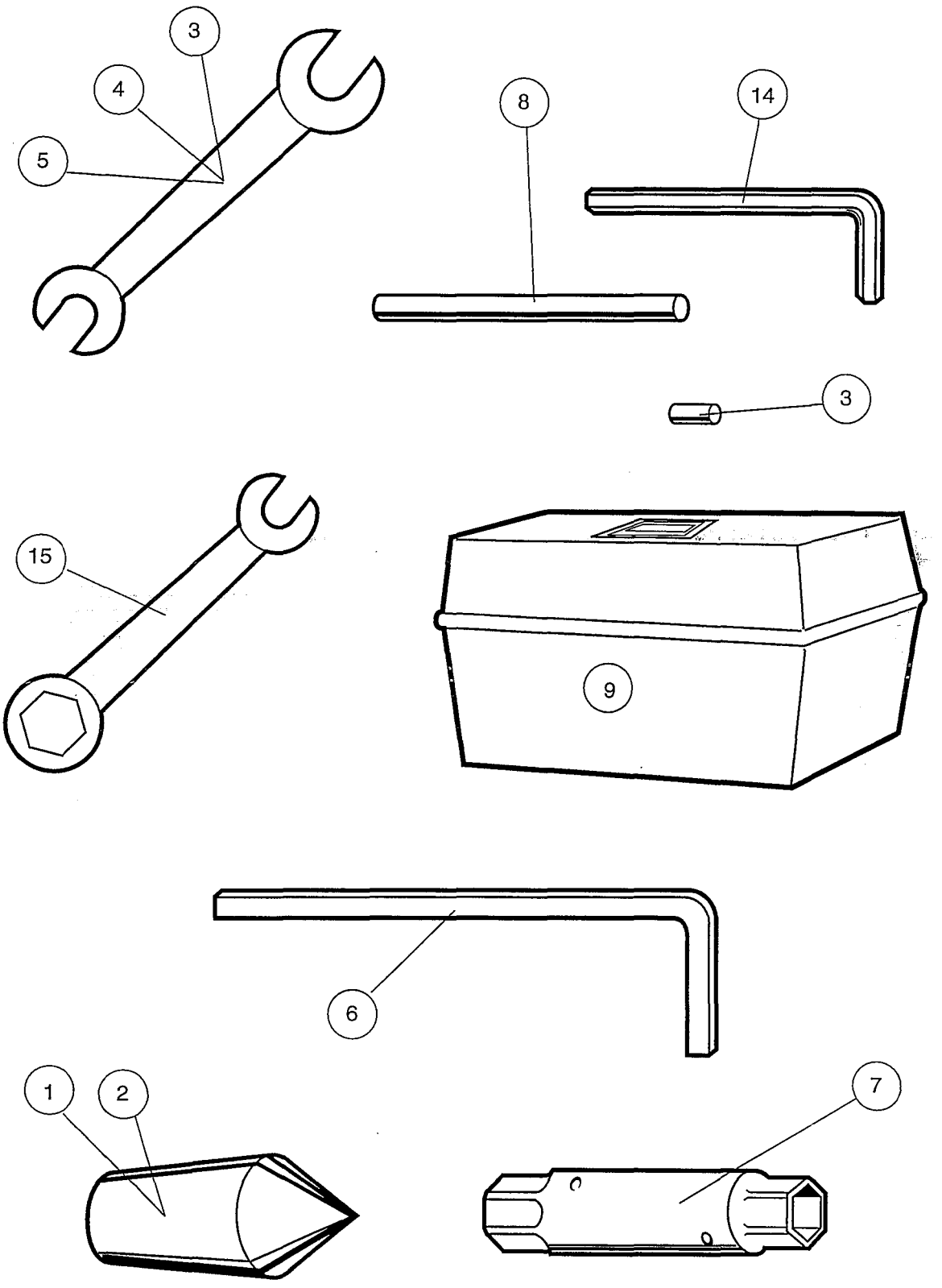
A176 - 0521B
TRIMMINGS ASSEMBLY

ITEM NO.	DESCRIPTION	PART NO.
56	STOP PIN TAILSTOCK	D560 - 0298
58	BUTTON HEAD SOCKET SCREW M6 X 16	FS - 0296
59	PLUG - SPEED SELECTOR	D566 - 0213
61	ROCOL MOULD RELEAS AGENT	R741 - 0110
62	TIPONEX 6-KILO TIN	YF - 0210
64	GEARBOX EXTENSION BRACKET	D050 - 0790
65	CAP HEAD SOCKET SET SCREW M8 X 50	FS - 0174
66	12 BSP 45 M&F ELBOW	B424 - 2254
67	PLUG 12IN BSP 43774	B424 - 2814
68	BUTTON HEAD SOCKET SCREW M6 X 12	FS - 0294
69	WASHER M6 FORM C PLATED	B117 - 0048
70	M6 NYLOCK NUT	FS - 0930
71	PLUG R.MOSS 15159 16MMDIA	B715 - 1077
73	TUBE CLIP - ENOTS 5/8" DIA	B233 - 1108
76	PVC BLANKING PLUG A101	B224 - 2209
77	PLUG ROBERT MOSS 10755	B224 - 2304
79	BLANK PLUG 25 DIA MOSS10705	B224 - 2240
80	GROMMET - ROBERT MOSS 10446	B715 - 1085

A132 - 0522G,L
SHEET METAL ASSEMBLY (1250mm)

ITEM NO.	DESCRIPTION	PART NO.
2	COVER HEADEND	D132 - 0703
4	TRUNKING	D132 - 0698
5	HEADSTOCK PLATE	D565 - 0924
10	SWARF BIN (1250mm)	D832 - 0155
16	SUPPORT BRACKET SPLASH GUARD TAIL END	D050 - 0656
20	SPLASH GUARD (1250mm)	D346 - 0411
22	INFILL PLATE SPLASH GUARD	D565 - 0960
23	INFILL PLATE	D565 - 0977
24	INFILL PLATE	D565 - 0978
25	COOLANT TANK STANDARD	D828 - 0061
26	PUMP MOUNTING PLATE	D565 - 0943
28	COVER COOLANT TANK (1250mm)	D132 - 0700
29	INFILL SUPPORT PLATE	D565 - 0995
31	INFILL PLATE GAP BED	D565 - 0994
33	COVER - TORQUE LIMITER	D132 - 0954
36	LEADSCREW COVER (1250mm)	D132 - 0879

TOOL KIT

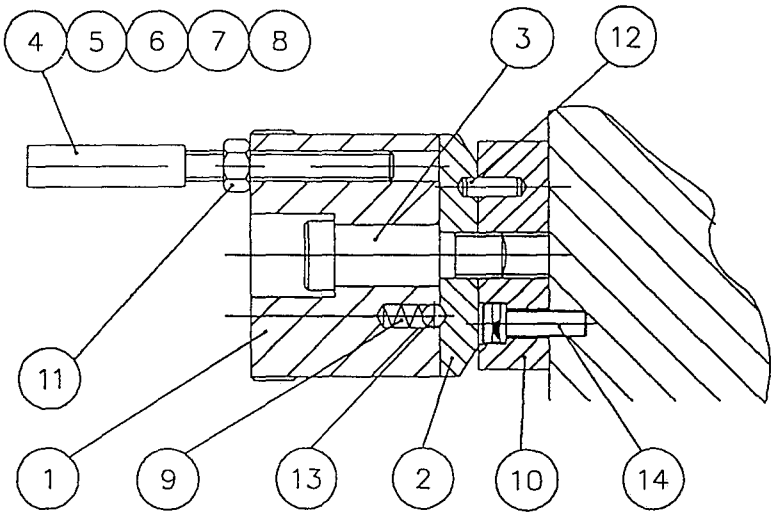


A180 - 0505A
TOOL BOX ASSEMBLY

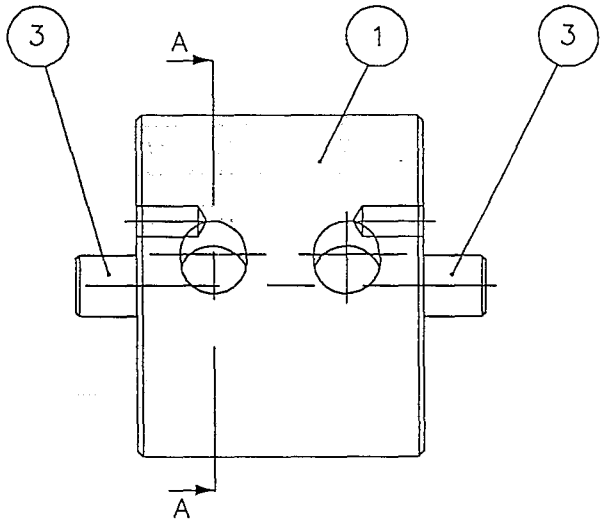
ITEM NO.	DESCRIPTION	PART NO.
1	HARD CENTRE No. 4 MORSE TAPER	TD - 0130
2	HARD CENTRE No. 5 MORSE TAPER	TD - 0030
3	O/E SPANNER 17 x 19 mm A/F	TB - 0180
4	O/E SPANNER 22 x 24 mm A/F	TB - 0190
5	O/E SPANNER 32 x 36 mm A/F	B982 - 0038
6	L' CAMLOCK KEY	D441 - 0051
7	BOX SPANNER 11/16" x 15/16" AF	B981 - 1538
8	TOMMY BAR 3/8"x6"	B981 - 1804
9	PLASTIC TOOLBOX	R647 - 0120
10	MID STEEL SHEAR PIN 5/32" x 3/8" LONG	D560 - 0137
14	SET HEXAGON KEYS 2mm-10mm	A894 - 0004F
15	13mm COMBINATION SPANNER	B981 - 2850
	SET HEXAGON KEYS	**A894 - 0004F**
	ALLEN KEY 3/8" A/F	TB - 0320
	ALLEN KEY 9/16" A/F	TB - 0340
	ALLEN KEY 2.0mm A/F	TB - 0380
	ALLEN KEY 2.5mm A/F	TB - 0390
	ALLEN KEY 3.0mm A/F	TB - 0400
	ALLEN KEY 4.0mm A/F	TB - 0410
	ALLEN KEY 5.0mm A/F	TB - 0420
	ALLEN KEY 6.0mm A/F	TB - 0430
	ALLEN KEY 8.0mm A/F	TB - 0440
	ALLEN KEY 10.0mm A/F	TB - 0450
	ALLEN KEY 14.0mm A/F	TB - 0460
	ALLEN KEY 17.0mm A/F	B982 - 0012

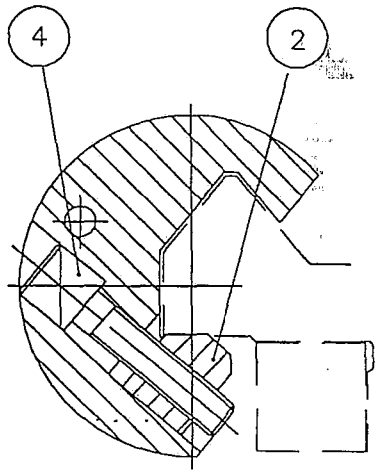
ACCESSORIES INDEX

TURRET STOP ASSEMBLY A184 – 0516



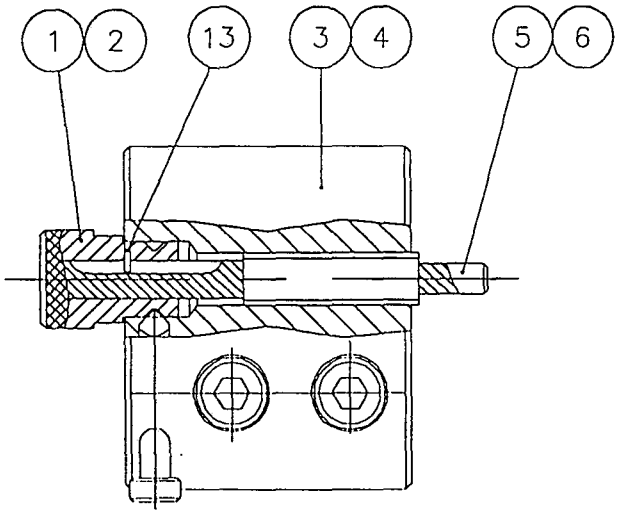
SINGLE BED STOP A184 – 0514

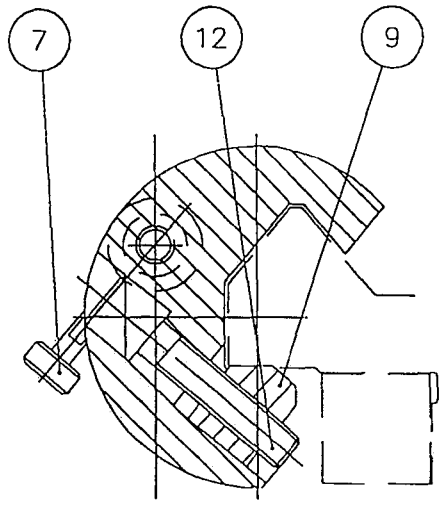




SECTION A–A

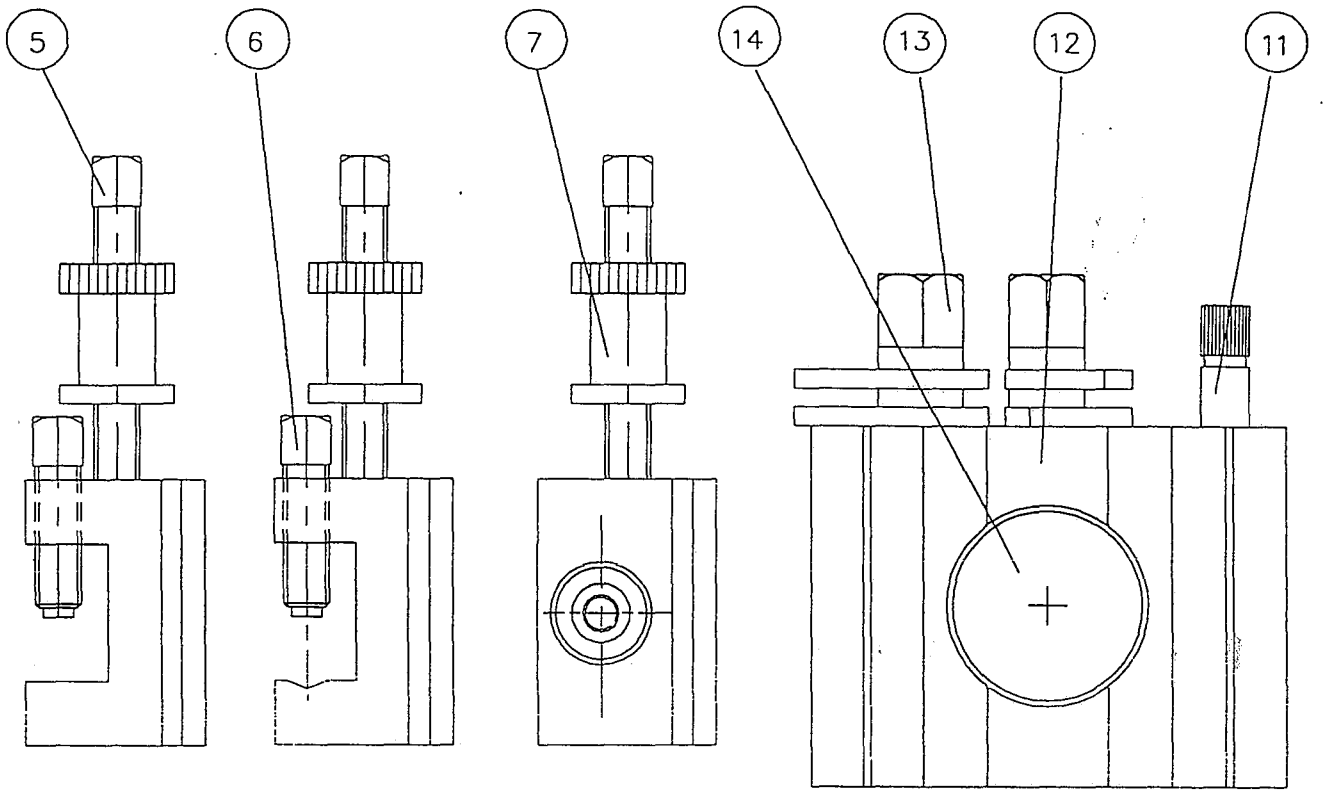
MICROMETER BED STOP A184 – 0515



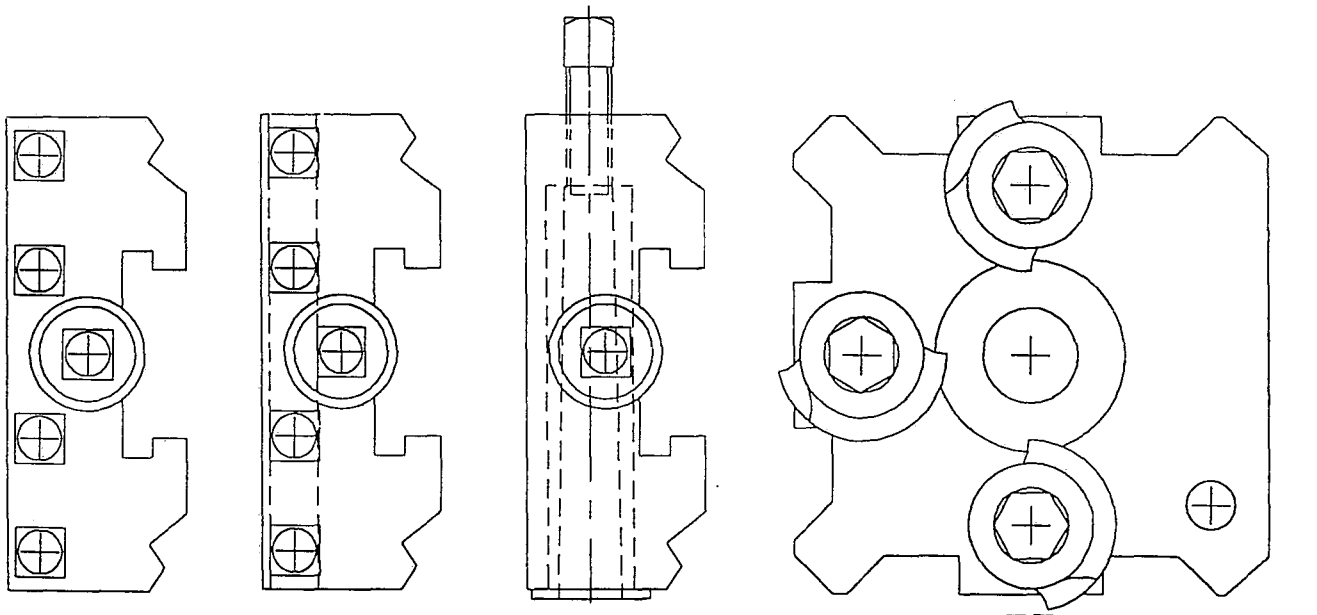


ITEM NO.	DESCRIPTION	PART NO.
	FIVE POSITION TURRET STOP ASSEMBLY A184-0516	
1	TURRET - 5 POSITION STOP	D835-0016
2	TURRET PLATE	D565-0930
3	TURRET SPINDLE	D709-0049
4	STOP SCREW	D697-0351
5	STOP SCREW	D697-0352
6	STOP SCREW	D697-0353
7	STOP SCREW	D697-0354
8	STOP SCREW	D697-0355
9	MULTI-COMPRESSION SPRING	D707-0033
10	SUB PLATE	D565-0931
11	HEXAGON LOCK NUT M8	B147-9170
12	SPIROL PIN 5 X 12 MBK	B111-5089
13	CYCLE BALL BEARING 1/4 INDI	B326-8107
14	HEXAGON SOCKET CAP HEAD SCREW M6 X 20	B163-0038
	SINGLE BED STOP ASSEMBLY A184-0514	
1	BED STOP BODY	D712-0069
2	CLAMP - BED STOP	D131-0040
3	BED STOP PAD	D557-0149
4	HEXAGON SOCKET CAP HEAD SCREW M10 X 45	B163-0072
	MICROMETER BED STOP ASSEMBLY A184-0515	
1	THIMBLE IMPERIAL	D382-0142
2	THIMBLE METRIC	D382-0143
3	MICROMETER BED STOP IMPERIAL	D712-0070
4	MICROMETER BED STOP MM	D712-0071
5	STOP ROD IMPERIAL	D648-0091
6	STOP ROD METRIC	D648-0092
7	CLAMP SCREW - BED STOP	D697-0350
9	CLAMP - BED STOP	D131-0040
12	HEXAGON SOCKET CAP HEAD SCREW M10 X 45	B163-0072
13	DOWEL PIN 1/8" X 1/4"	B111-1041

QUICK CHANGE TOOLPOST



(4) STANDARD (16) VEE (3) 2 MORSE TAPER



ADDITIONAL TOOLHOLDERS

(1) PARTING OFF TOOLHOLDER

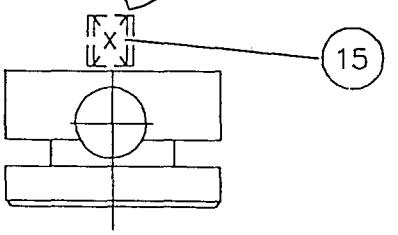
(2) Parting Off Blade

(8) BORING TOOLHOLDER

WRENCHES

(9) TOOL CLAMP SCREW

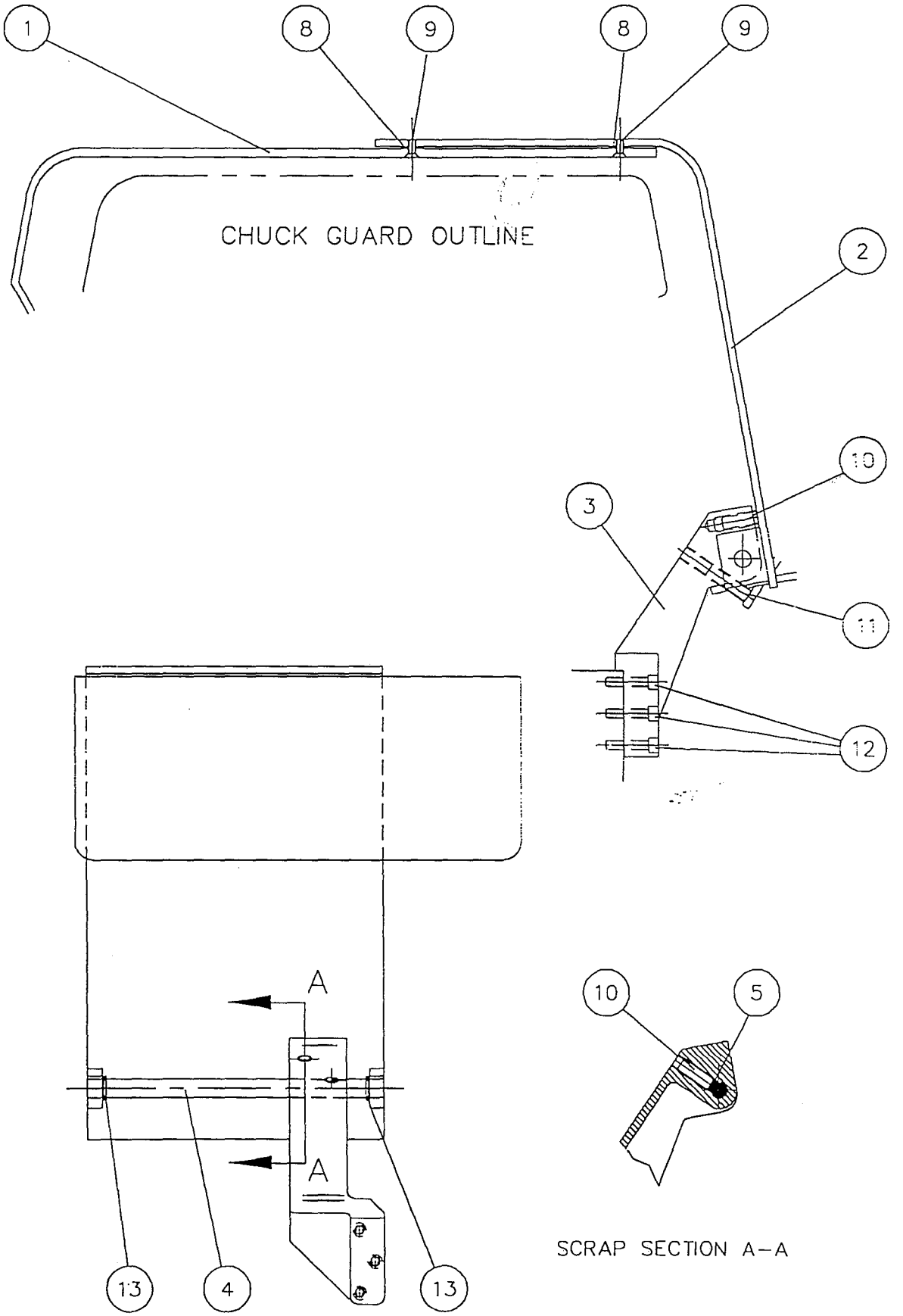
(10) CAM CLAMP



QUICK CHANGE TOOLPOST ASSEMBLIES

ITEM NO.	DESCRIPTION	PART NO.
1	RAPIDUE QUICK CHANGE TOOLPOST	B935 - 1364
2	DICKSON QUICK CHANGE TOOLPOST	B935 - 1339

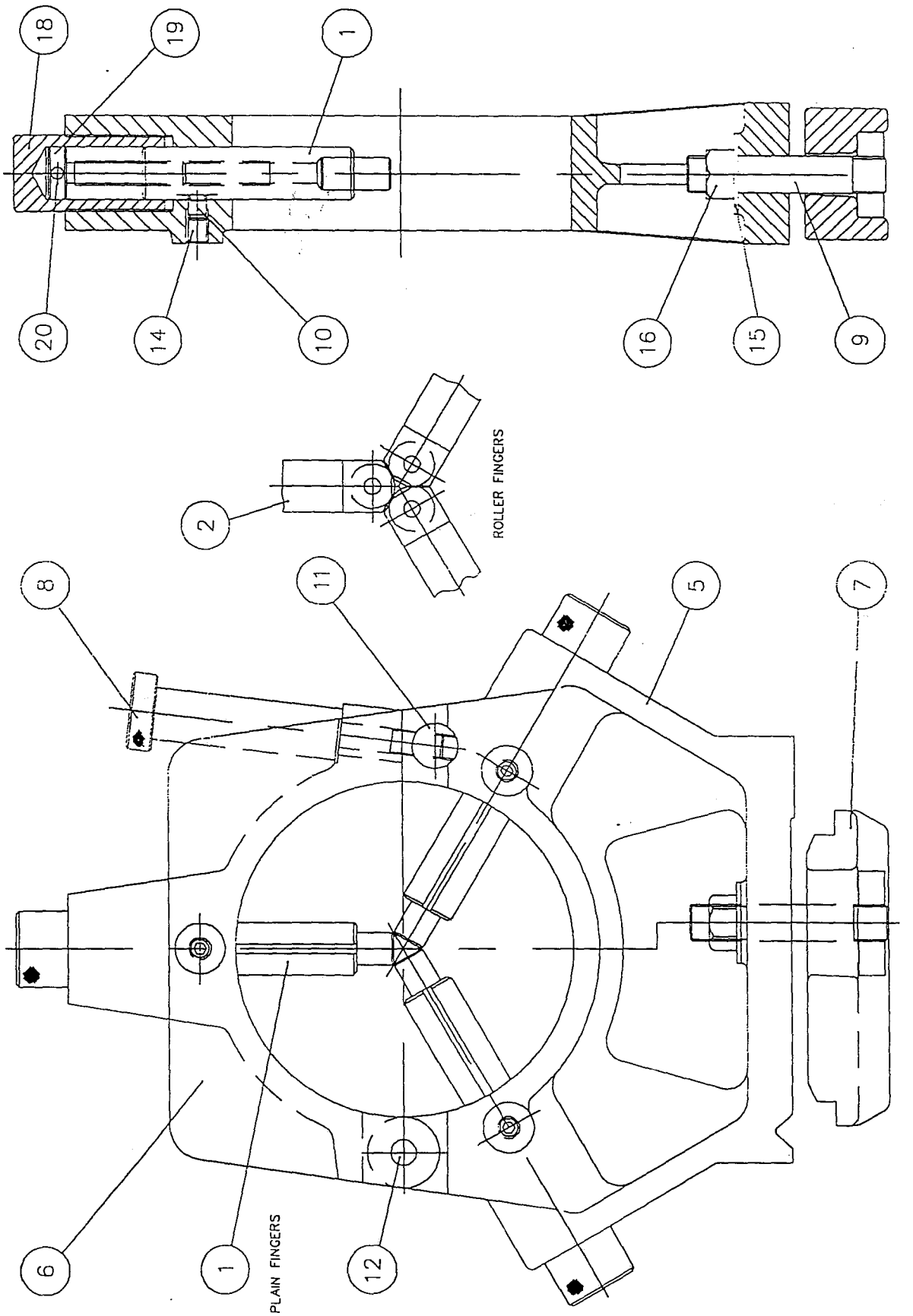
CHIP GUARD ASSEMBLY



CHIP GUARD ASSEMBLY A137 - 0518

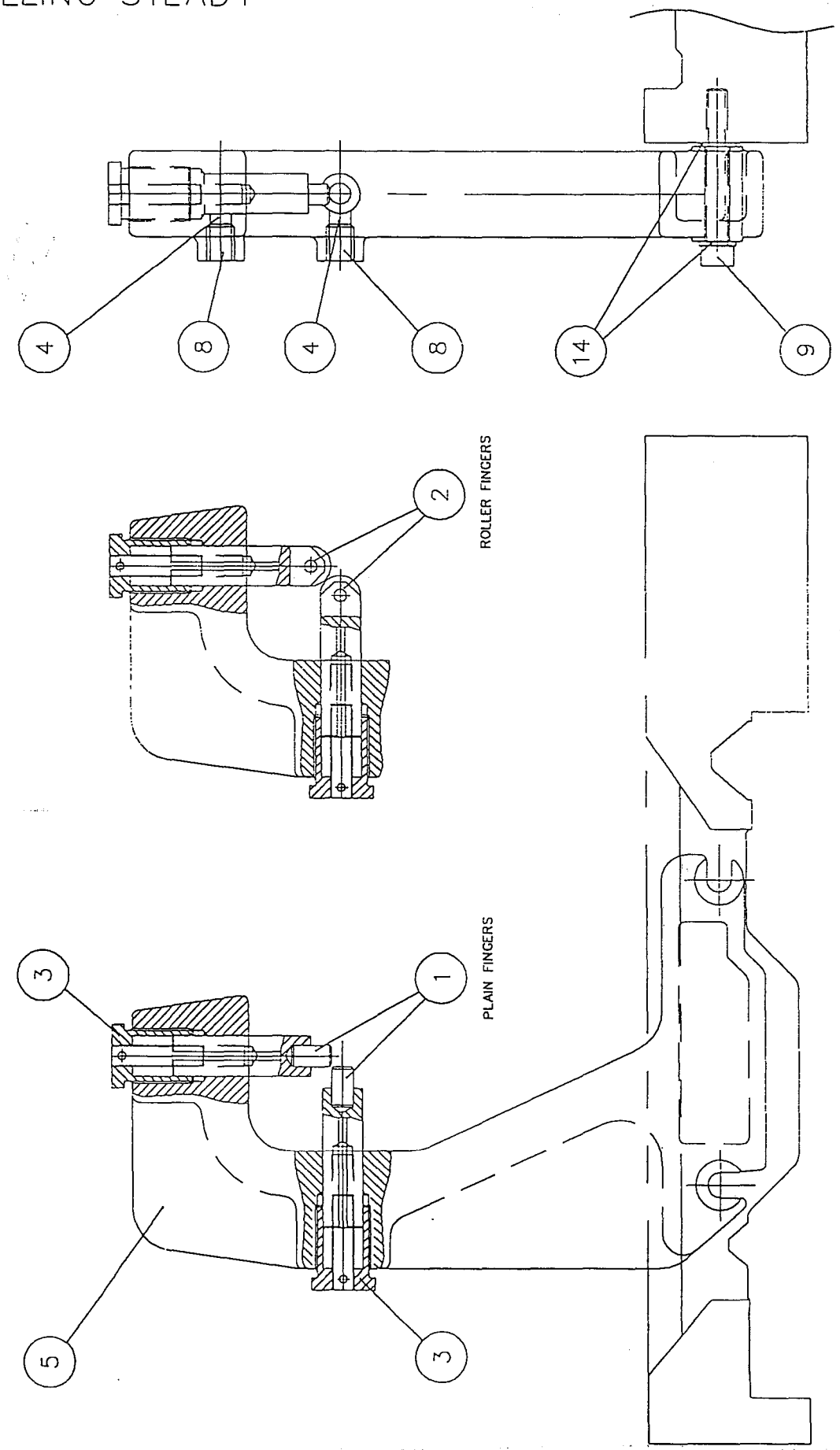
ITEM NO.	DESCRIPTION	PART NO.
1	CHIP GUARD	D346 - 0111
2	SUPPORT	D718 - 0035
3	BRACKET	D050 - 0176
4	SHAFT	D699 - 0485
5	PLUG	D566 - 0089
8	FIBRE WASHER 1/4" ID 1/2" OD	B411 - 0006
9	COUNTERSUNK SCREW 10-24 UNCx1/2"	B143 - 7403
10	CUP POINT SET SCREW 1/4"x1"	B143 - 5069
11	OVAL POINT SET SCREW 1/4"x11/4"	B143 - 5672
12	HEXAGON SOCKET CAP HEAD SCREW M6x30	B163 - 0040
13	EXTERNAL CIRCLIP 1/2" ID	B362 - 0013

STATIONARY STEADY ASSEMBLY



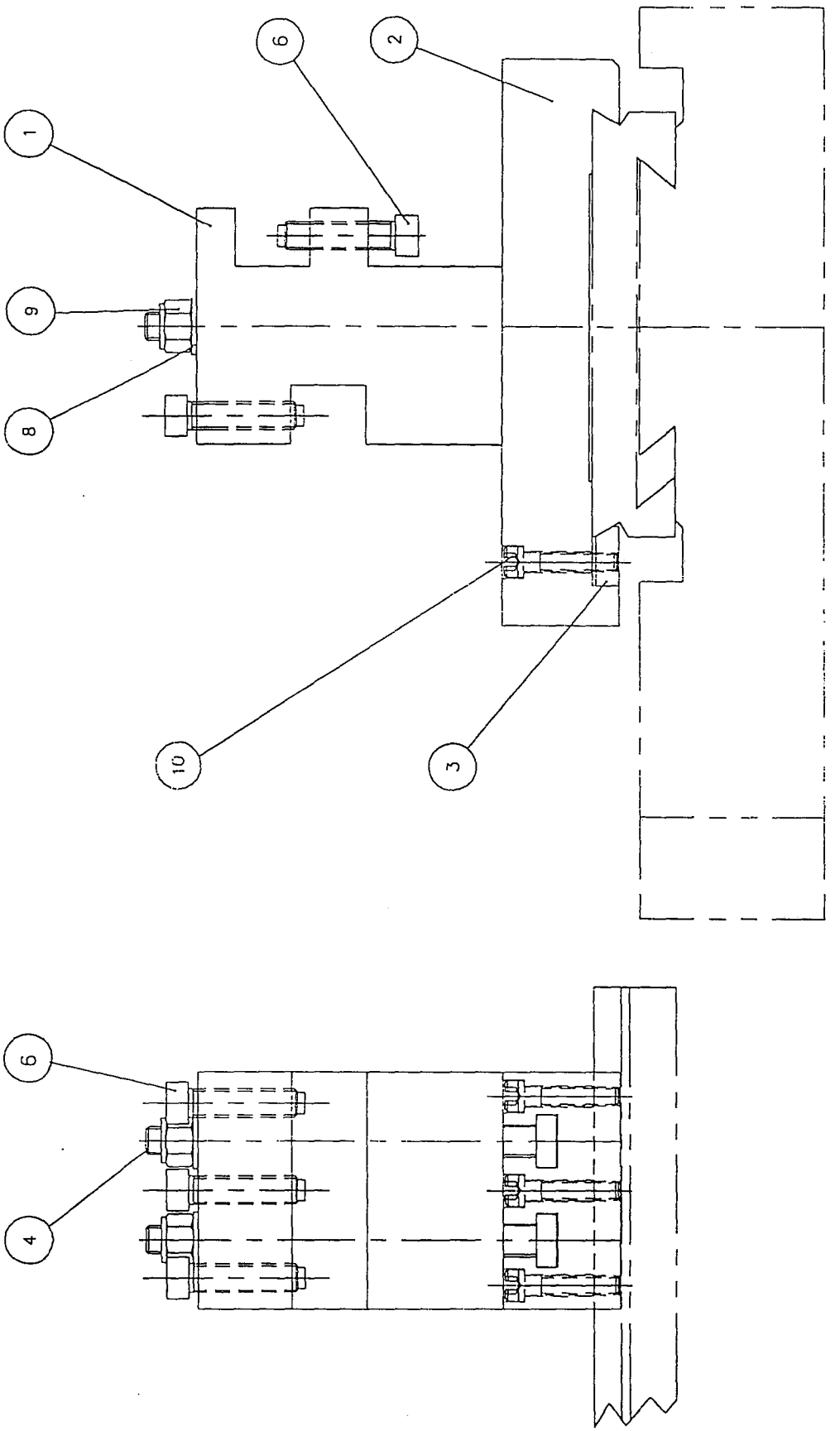
ITEM NO.	DESCRIPTION		PART NO.
1	PAD TYPE FINGER SUB-ASSEMBLY		A882 - 0018
2	ROLLER TYPE FINGER SUB-ASSEMBLY		A882 - 0014
5	STEADY BASE		D722 - 0057
6	STEADY TOP		D722 - 0061
7	CLAMP PLATE		D131 - 0038
8	LOCKING PIN		D697 - 0177
9	CLAMP STUD SUB-ASSEMBLY		A840 - 0045
10	KEY		D441 - 0043
11	PIN		D560 - 0161
12	HINGE PIN		D560 - 0162
14	DOG POINT SCREW M12x12		B163 - 1780
15	WASHER M16		B117 - 0013
16	NYLOC NUT M16		B147 - 9008
18	COLLAR		D133 - 0196
19	STEADY SCREW		D697 - 0222
20	SPIROL PIN		B111 - 2494
	PAD TYPE FINGER SUB-ASSEMBLY	A882 - 0018	
1	PAD FINGER		D300 - 0024
2	PAD INSERT		D421 - 0021
	ROLLER TYPE FINGER SUB-ASSEMBLY	A882 - 0014	
1	ROLLER FINGER		D300 - 0014
2	PIN		D560 - 0163
5	BEARING FA G 6082Z or NTN 608ZZ		B315 - 0208
7	SET SCREW 10-24 UNCx3/16"		B143 - 5002
	CLAMP STUD ASSEMBLY	A840 - 0045	
1	STUD		D711 - 0191
2	STUD PLATE		D565 - 0913
3	SPIROL PIN 5x36		B111 - 5099

TRAVELLING STEADY



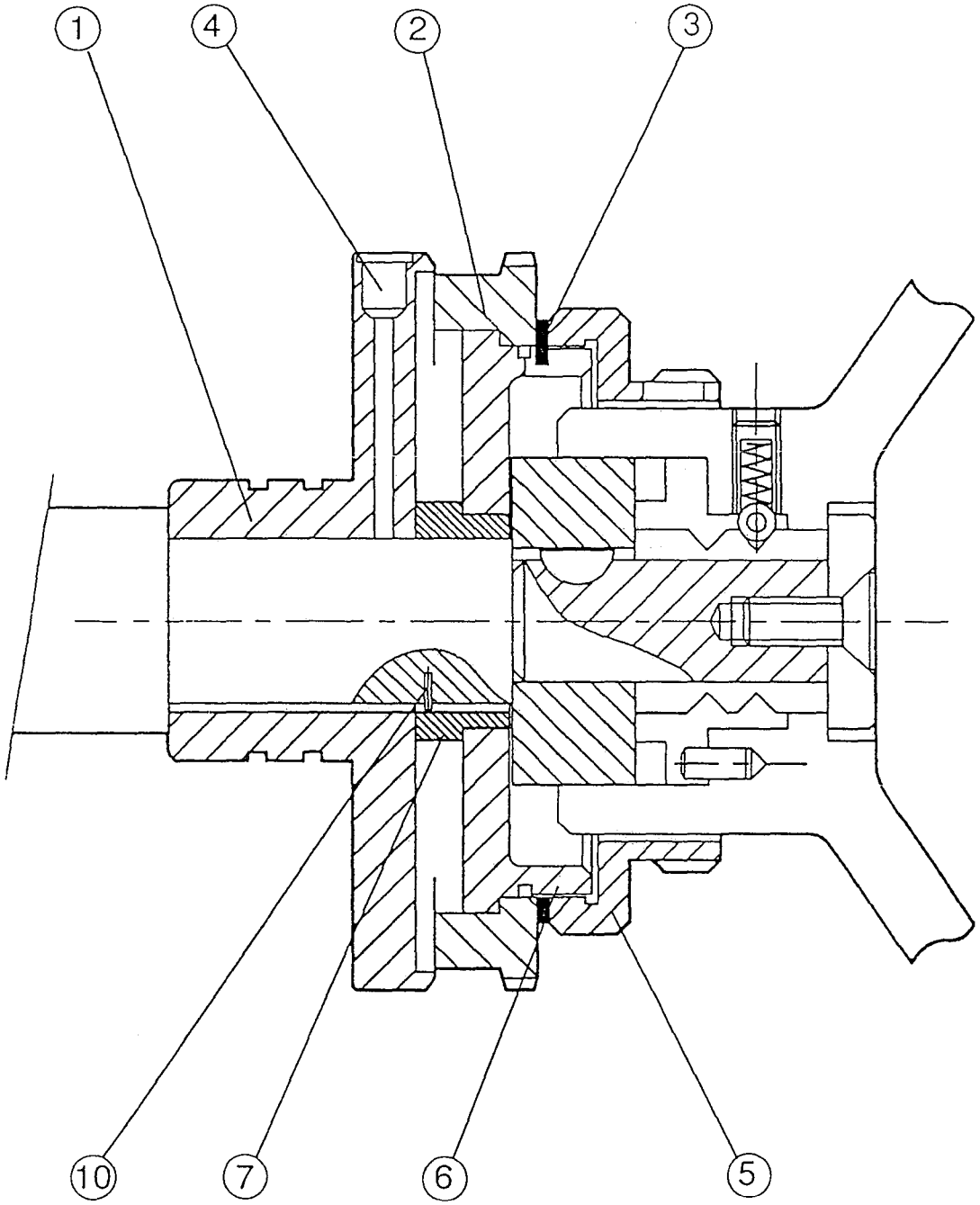
ITEM NO.	DESCRIPTION	PART NO.
1	PAD TYPE FINGER SUB -ASSEMBLY	A882 - 0019
2	ROLLER TYPE FINGERSUB -ASSEMBLY	A882 - 0015
3	COLLAR	D005 - 0482
4	KEY	D441 - 0043
5	TRAVELLING STEADY CASTING	D722 - 0058
8	DOG POINT SCREW M12x12	B163 - 1780
9	HEXAGON SOCKET CAP HEAD SCREW M10x65	B163 - 0076
14	WASHER	D931 - 0217
	PAD TYPE FINGER SUB-ASSEMBLY A882 - 0019	
1	PLAIN FINGER	D300 - 0017
2	PAD INSERT	D421 - 0004
	ROLLER TYPE FINGER SUB-ASSEMBLY A882 - 0015	
1	ROLLER FINGER	D300 - 0016
2	PIN	D560 - 0164
5	BEARING FAG 6252Z or NTN625ZZ	B315 - 0203
7	HEXAGON SOCKET SET SCREW 4BAx3/16"	B133 - 0062

REAR TOOLPOST ARRANGEMENT



REAR TOOLPOST ASSEMBLY A182 - 0515A

ITEM NO.	DESCRIPTION	PART NO.
1	REAR TOOLPOST BODY	D831 - 0062
2	BASE PLATE	D565 - 0937
3	GIB STRIP	D345 - 0087
4	TEE BOLT	D048 - 0158
6	SQUARE HEAD SET SCREW M12x50	B170 - 0005
8	WASHER M12	B117 - 0012
9	NYLOC NUT M12	B147Y9025
10	HEXAGON SOCKET CAP HEAD SCREW M8x40	B163 - 0057


1
4
2
3
10
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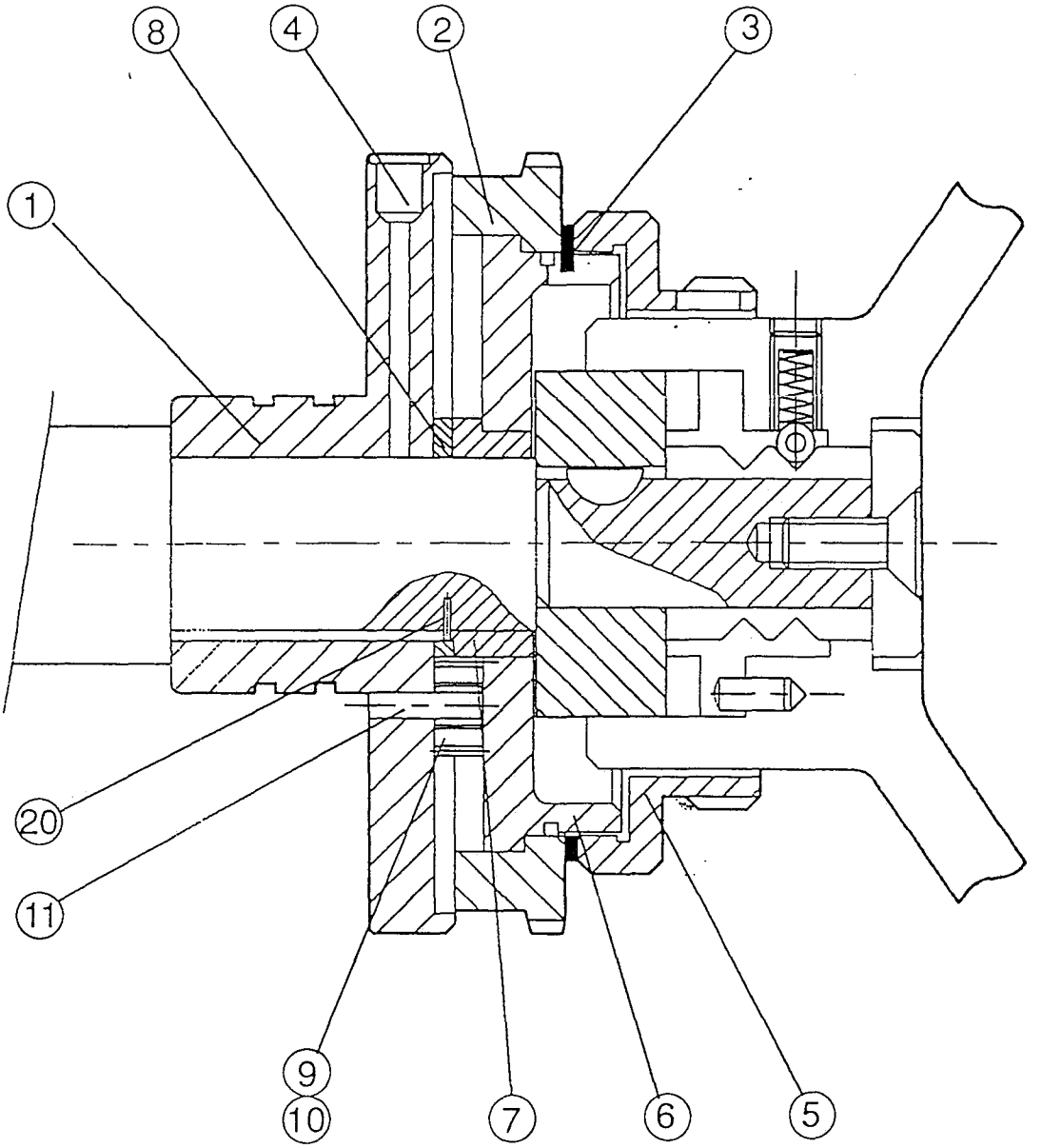
5

APRON DIAL ASSEMBLY (METRIC) B973 - 2130

ITEM NO.	DESCRIPTION	PART NO.
1	KEEP	B340 - 0001
2	DIAL METRIC	B973 - 2070
3	TAB WASHER	B117 - 0181
4	GREASE NIPPLE	B416 - 0001
5	INDEX LOCK RING	B520 - 0001
6	BEARING SPIGOT	B539 - 0002
7	SLEEVE	B537 - 0002


8
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2
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1
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11
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10
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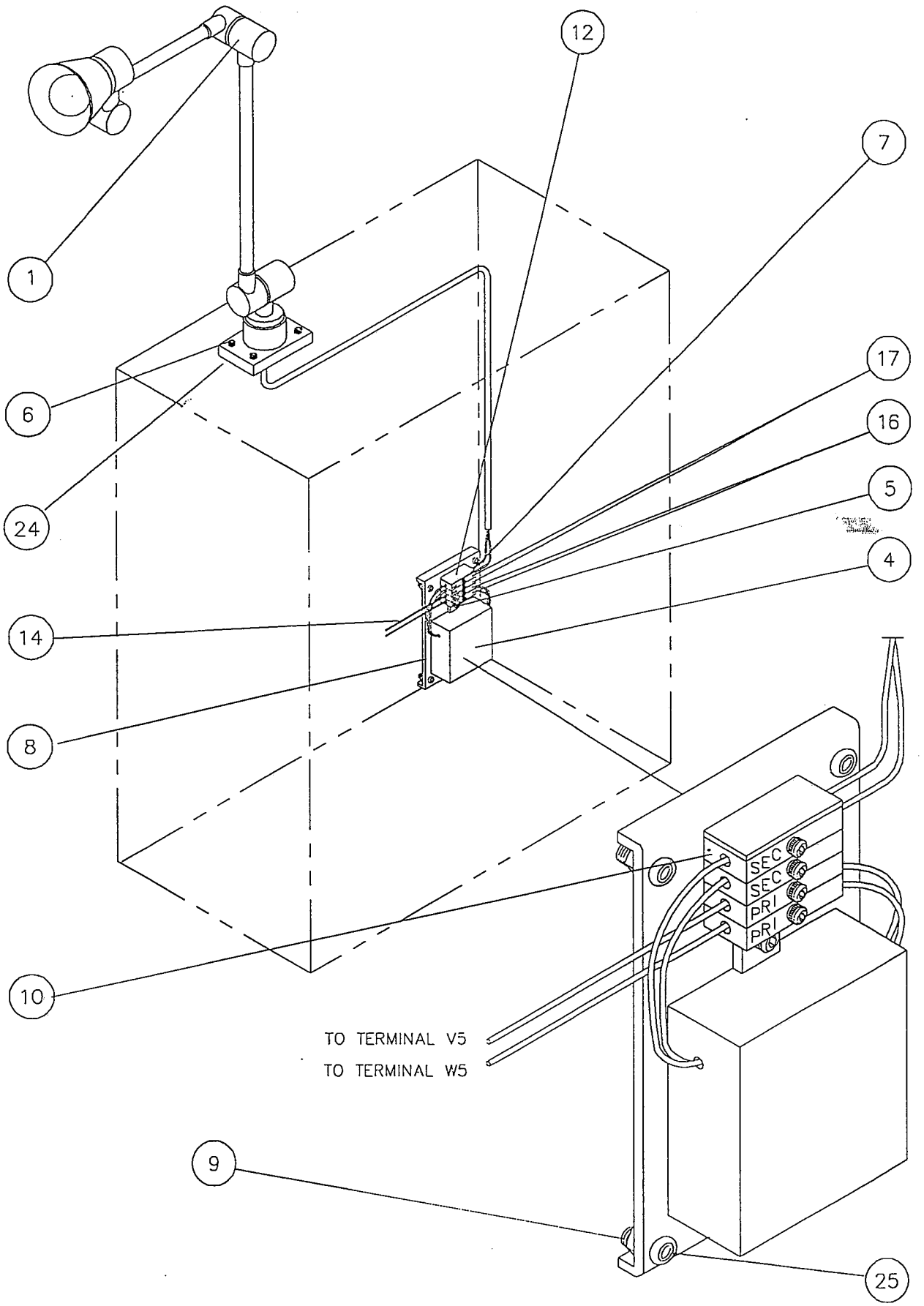
6
5

ITEM NO.	DESCRIPTION	PART NO.
1	KEEP	B340 - 0001
2	DIAL - IMPERIAL	B973 - 2071
3	TAB WASHER	B117 - 0181
4	GREASE NIPPLE	B416 - 0001
5	INDEX LOCK RING	B520 - 0001
6	BEARING SPIGOT	B539 - 0002
7	64T GEAR	B508 - 0030
8	63T GEAR	B508 - 0031
9	15T IDLER GEAR	B508 - 0032
10	BEARING INA K4X7X7	B337 - 9053
11	SOLID DOWEL 4x15	B111 - 6028
20	SPIROL DOWEL 2x6	B111 - 5285

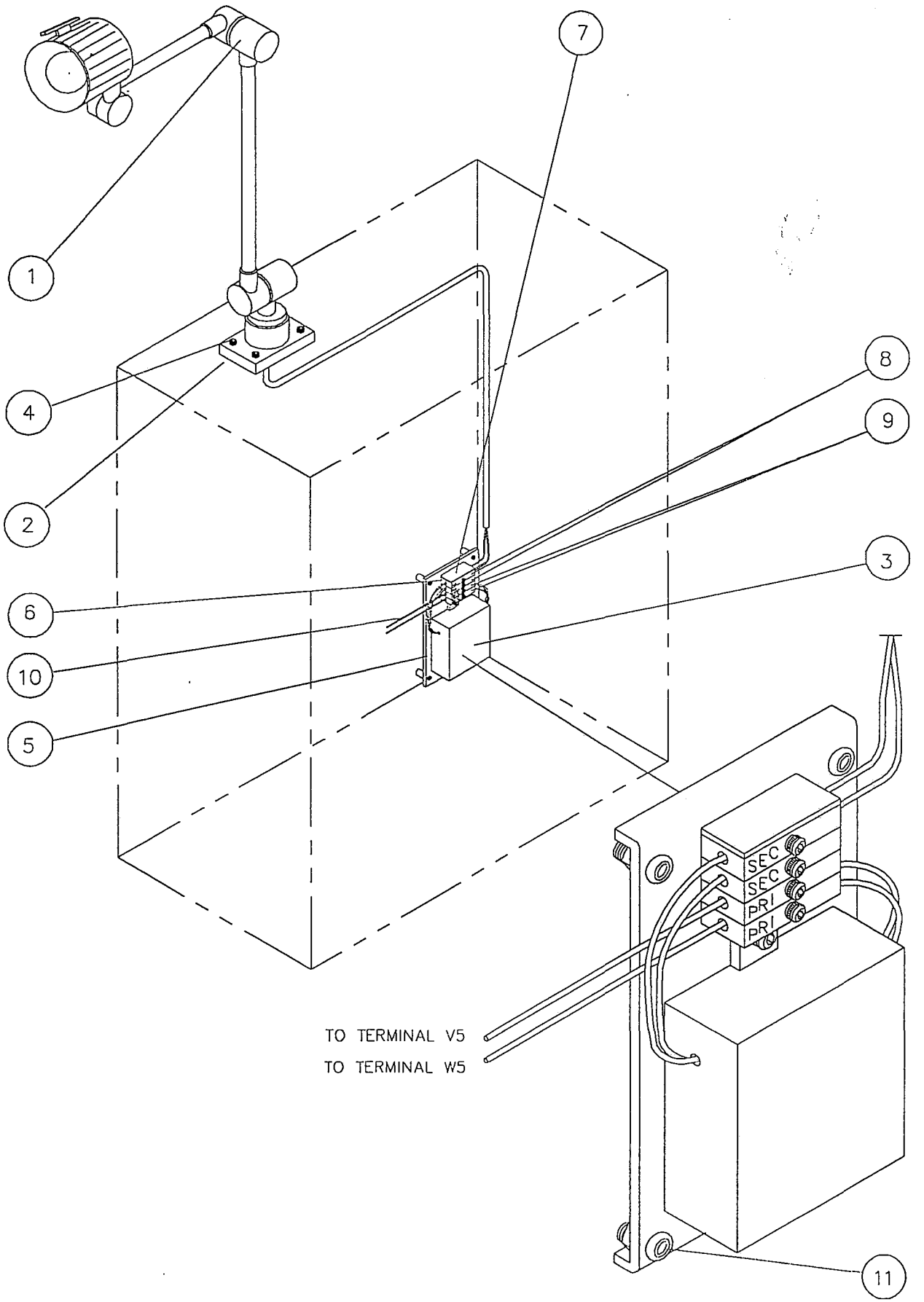
LO–VO LIGHT ASSEMBLY



LO-VO LIGHT ASSEMBLY A170 - 0505

ITEM NO.	DESCRIPTION	PART NO.
1	LO-VO LITE	B784 - 1140
4	TRANSFORMER 415v PRIMARY 50v SECONDARY	B772 - 3019
5	HEXAGON SOCKET CAP HEAD SCREW M4x8	B163 - 1803
6	HEXAGON SOCKET CAP HEAD SCREW M5x20	B163 Y0028
7	HEXAGON SOCKET CAP HEAD SCREW M3x8	B163Y0003
8	PLATE	D565 - 0920
9	NYLOC NUT M4	B147Y9001
10	FUSE BLOCK KLIPPON ASK 1	B718 - 2047
12	END PLATE KLIPPON AP(1.5)	B718 - 2048
14	PVC 1.0mm SQ. WIRE RED	R512 - 6002
16	FUSE R.S. 413-973 20mm 2A	B752 - 1237
17	FUSE R.S. 413-967 20mm 1A	B752 - 1235
24	NYLOC NUT M5	B147 - 9002
25	HEXAGON SOCKET BUTTON HEAD SCREW M4x16	B163 - 1806

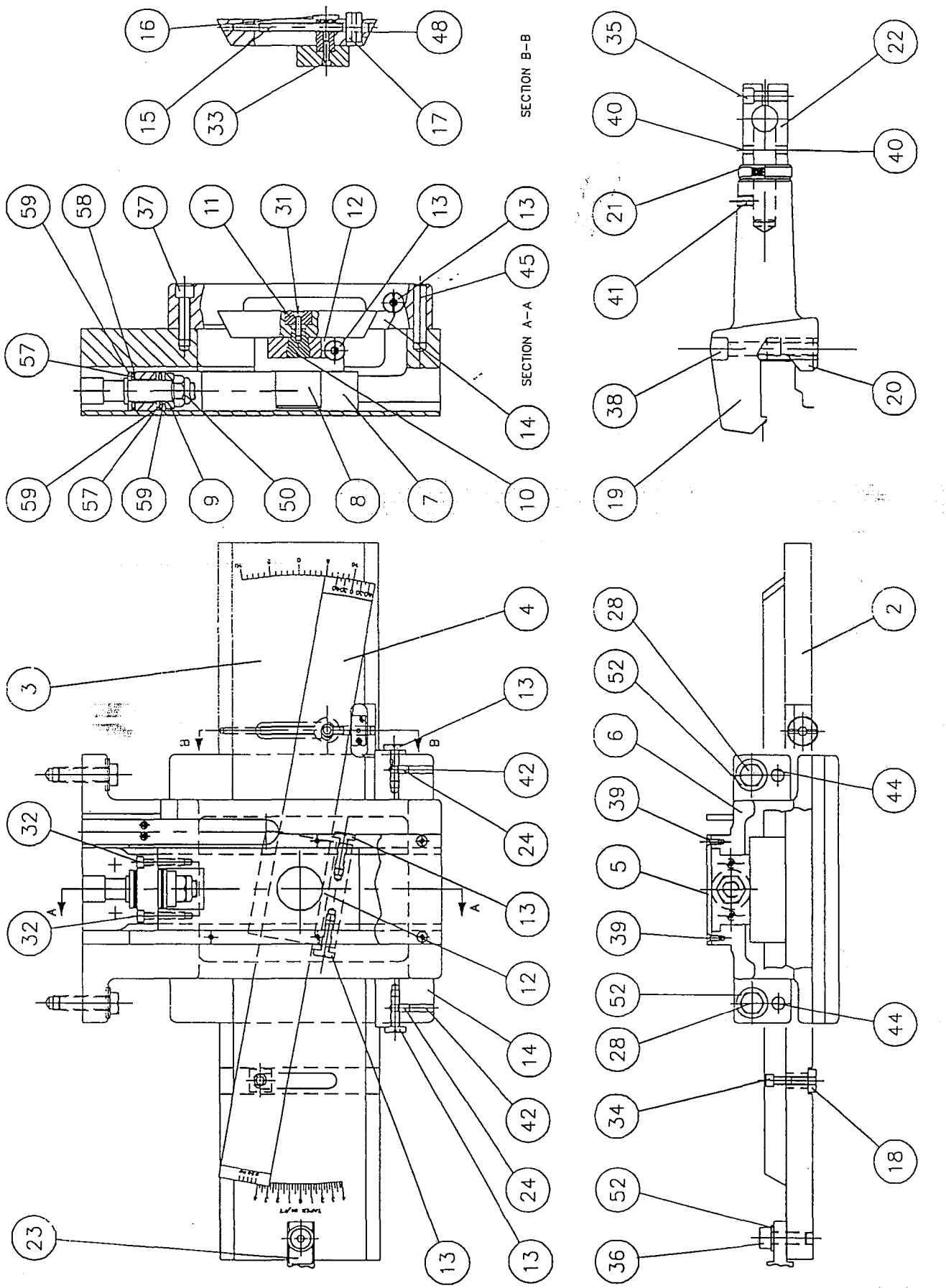
LO–VO LIGHT ASSEMBLY (HALOGEN)



LO - VO LIGHT ASSEMBLY (HALOGEN) A170 - 0506

ITEM NO.	DESCRIPTION	PART NO.
1	HALOGEN LIGHT HGW 70-N	B784 - 1226
2	ADAPTOR BLOCK	D047 - 0124
3	TRANSFORMER 63VA.380V/23V	B772 - 3023
4	HEXAGON SOCKET CAP HEAD SCREW M5x16	B163 - 0027
5	PLATE	D565 - 0920
6	FUSE BLOCK KLIPPON ASK 1	B718 - 2047
7	END PLATE KLIPPON AP(1.5)	B718 - 2048
8	FUSE R.S. 413-973 20mm 1A	B752 - 1235
9	FUSE R.S. 413-967 20mm 2A	B752 - 1237
10	PVC 1.0mm SQ. WIRE RED	R512 - 6002
11	HEXAGON SOCKET CAP HEAD SCREW M3x8	B163 Y0003

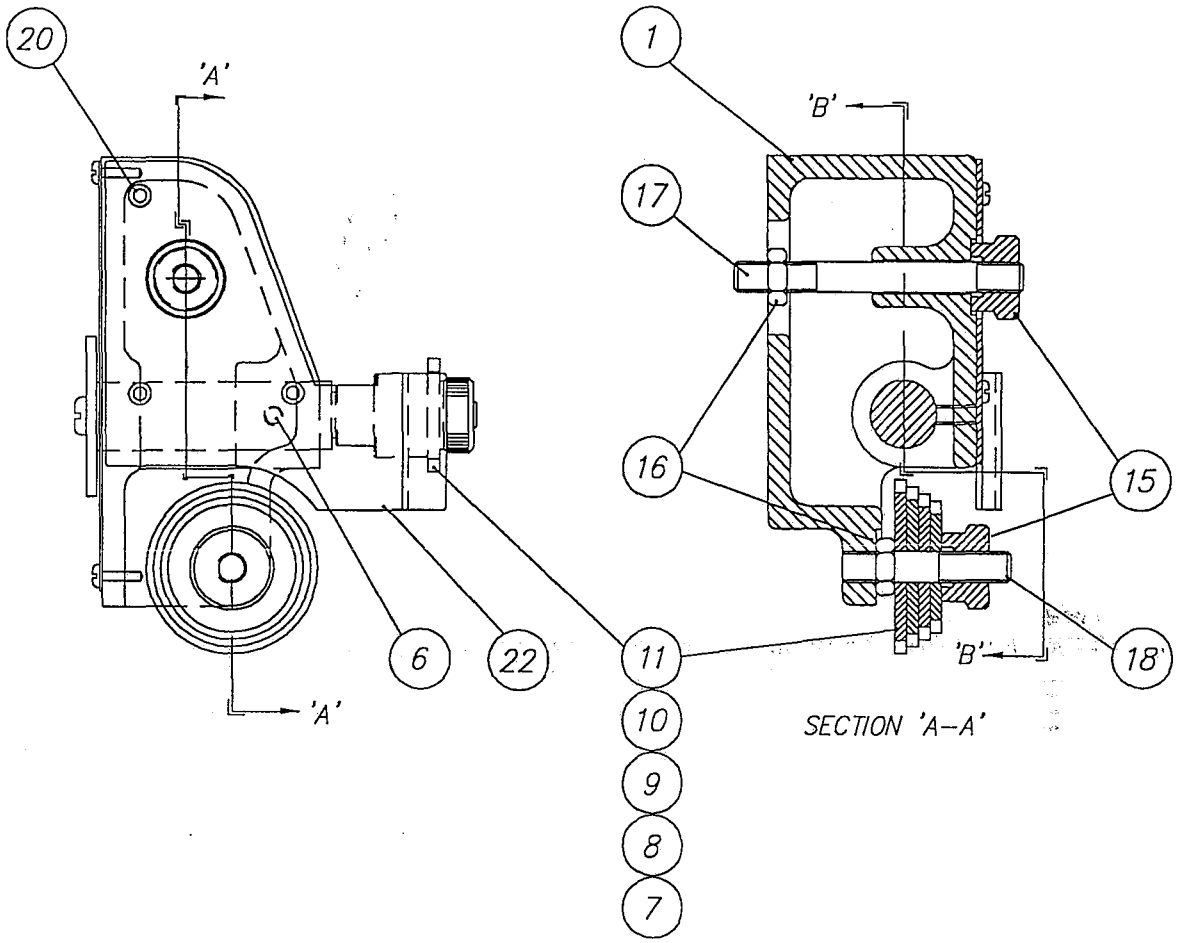
TAPER TURNER ASSEMBLY



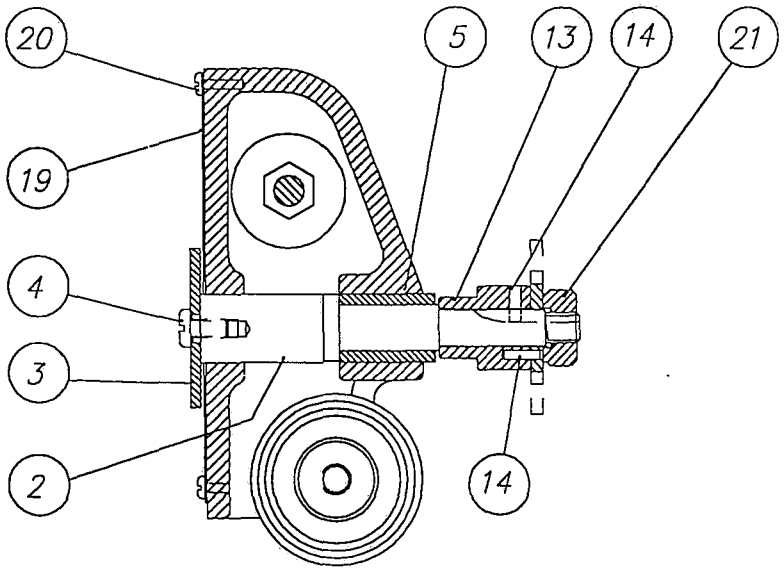
TAPER TURNER ASSEMBLY A186 - 0628

ITEM NO.	DESCRIPTION	PART NO.
1	HOUSING PLATE SUB ASSEMBLY	A806 - 0568
2	BASE PLATE	D505 - 0936
3	GRADUATED PLATE	D565 - 0935
4	GRADUATED SLIDE	D705 - 0120
5	COVER PLATE	D565 - 0934
6	SUPPORT BRACKET	D050 - 0655
7	SLIDE	D705 - 0119
8	SLIDING BLOCK	D047 - 0100
9	SPACER	D708 - 0251
10	PIVOT PEG	D572 - 0024
11	RETAINING WASHER	D931 - 0346
12	GIB STRIP	D715 - 0082
13	GIB ADJUSTING SCREW	D697 - 0357
14	GIB STRIP	D715 - 0083
15	ADJUSTING SCREW	D697 - 0356
16	CLAMP NUT	D536 - 0620
17	ADJUSTING KNOB	D443 - 0044
18	CLAMP NUT	D536 - 0619
19	ANCHOR BRACKET	D050 - 0654
20	ANCHOR BRACKET CLAMP	D047 - 0099
21	ECCENTRIC PIN	D271 - 0007
22	CLAMP BRACKET	D050 - 0653
23	CONNECTING ROD	D648 - 0093
24	LOCK PAD	D567 - 0143
28	HEXAGON SOCKET CAP HEAD SCREW M10x35	B163 - 0086
31	HEXAGON SOCKET CAP HEAD SCREW M5x12	B163 - 0026
32	HEXAGON SOCKET CAP HEAD SCREW M5x25	B163Y0029
33	HEXAGON SOCKET CAP HEAD SCREW M6x12	B163 - 0036
34	HEXAGON SOCKET CAP HEAD SCREW M6x35	B163 - 0041
35	HEXAGON SOCKET CAP HEAD SCREW M8x20	B163 - 0053
36	HEXAGON SOCKET CAP HEAD SCREW M10x25	B163Y0068
37	HEXAGON SOCKET CAP HEAD SCREW M10x40	B163 - 0076
38	HEXAGON SOCKET CAP HEAD SCREW M10x55	B163 - 0074
39	HEXAGON SOCKET COUNTER SUNK SCREW M4x8	B163 - 1006
40	HEXAGON SOCKETSETSCREW M6x6	B163 - 1560
41	CONE POINT SETSCREW M6x10	B163 - 1659
42	CONE POINT SET SCREW M6x 20	B163 - 1565
44	DOWEL PIN 10x30	B111 - 7057
45	DOWEL PIN 10x45	B111 - 6310
48	SPIROL PIN 3 DIA.x20	B111Y5060
50	NYLOC NUT M12	B147Y9006
52	WASHER M12	B117 - 0012
57	NEEDLE ROLLER BEARING	B337 - 5001
58	THRUST WASHER	B337 - 5002
59	THRUST WAHER	B337 - 5014
	PLATE HOUSING SUB-ASSEMBLY A806 - 0568	
1	HOUSING PLATE	B565 - 0933
2	GLACIER BUSH MB1515DU	B311 - 1535

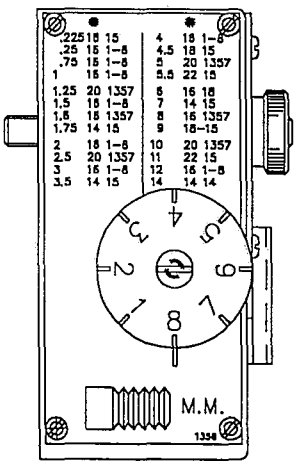
THREAD DIAL INDICATOR ASSEMBLY (METRIC)



SECTION 'A–A'

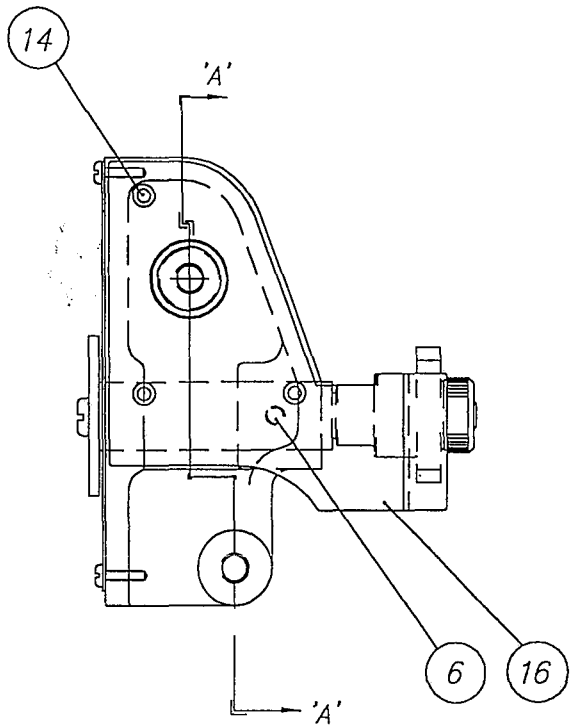


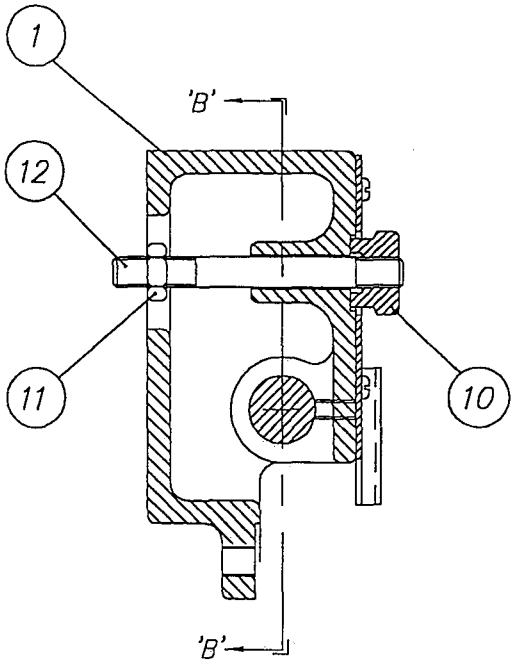
SECTION 'B–B'



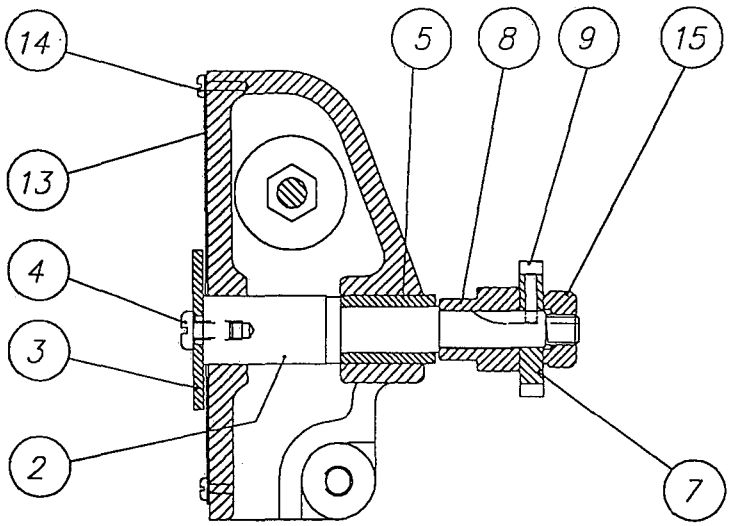
ITEM NO.	DESCRIPTION	PART NO.
1	INDCATOR HOUSING	D704H077.1
2	SPINDLE	D704H078.1
3	DIAL	D001H3 - 036
4	PAN HEAD SCREW (STAINLESS STEEL) M5 X 10	FS - 0704
5	OILITE BEARING CM22 X 25	BE - 0080
6	HEXAGON SLOTTED DOG POINT SCREW M5 X 12	FS - 0344
7	GEAR 22T	D301H3 - 026
8	GEAR 20T	D301H3 - 025
9	GEAR 18T	D301H3 - 024
10	GEAR 16T	D301H2 - 016
11	GEAR 14T	D301H2 - 015
13	SPACER - METRIC	D704H080.1
14	MILLS PIN 3 X 10	FT - 0647
15	KNURLED NUT	D112H2 - 008
16	LOCKNUT M8	FS - 1040
17	STUD	D250H0 - 003
18	STUD - THREAD INDICATOR	D704H079.1
19	PLATE - METRIC	NA - 1358
20	PAN HEAD SELF TAPPING SCREW N0.4 X 1/4"	B123 - 6024
21	KNURLED NUT	D704H083.1
22	COVER - INDICATOR GEAR	D704H095.1

THREAD DIAL INDICATOR ASSEMBLY (ENGLISH)

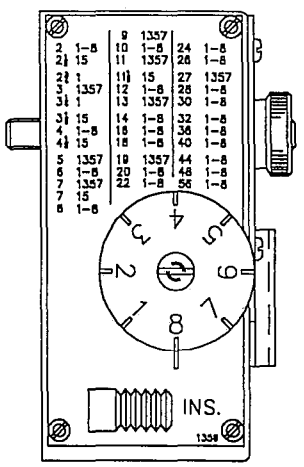




SECTION 'A–A'

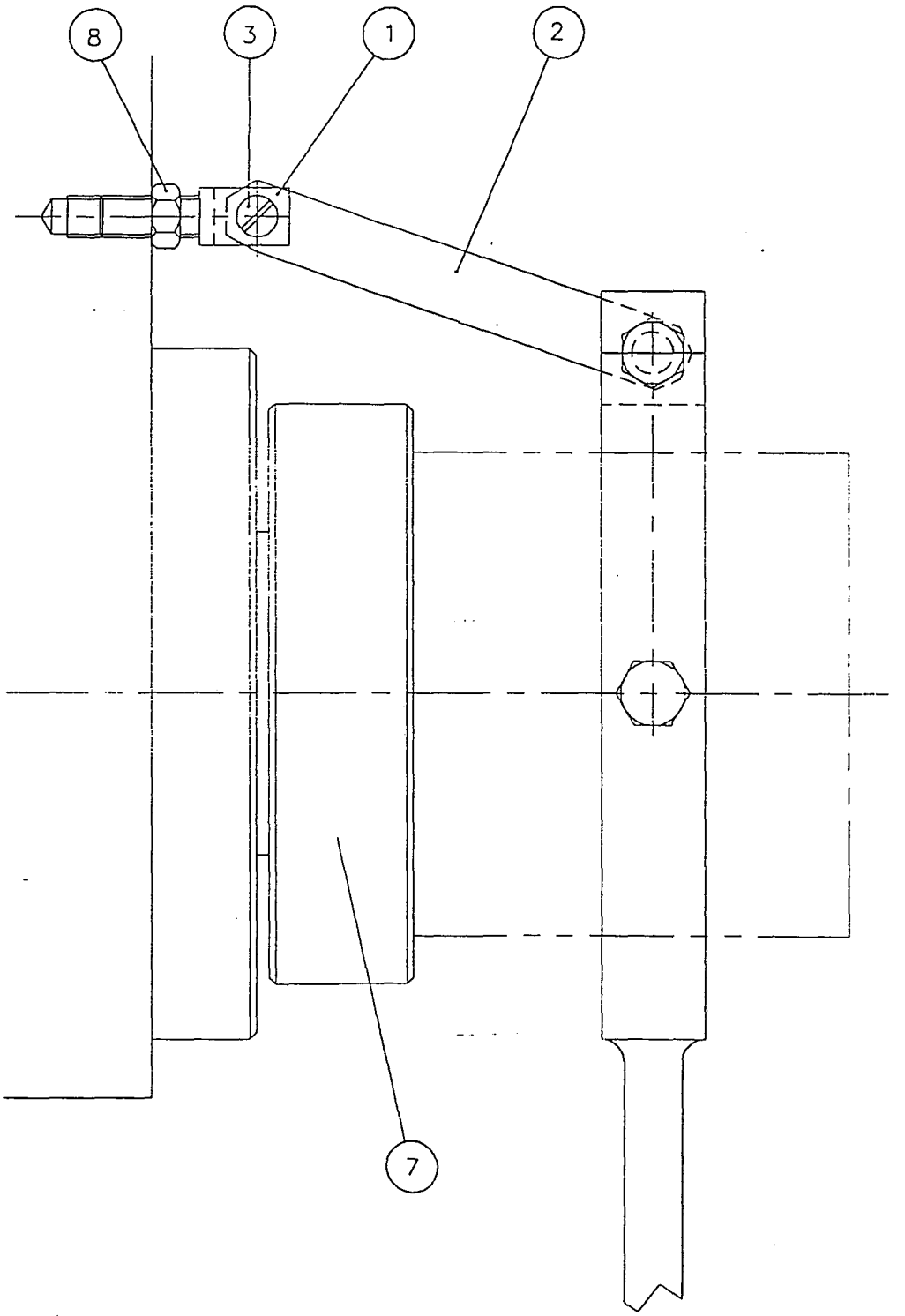


SECTION 'B–B'



ITEM NO.	DESCRIPTION	PART NO.
1	INDCATOR HOUSING	D704H077.1
2	SPINDLE	D704H078.1
3	DIAL	D001H3 - 036
4	PAN HEAD SCREW (STAINLESS STEEL) M5 X 10	FS - 0704
5	OILITE BEARING CM22 X 25	BE - 0080
6	HEXAGON SLOTTED DOG POINT SCREW M5 X 12	FS - 0344
7	GEAR 16T	D301H3 - 023
8	SPACER - ENGLISH	D704H081.1
9	MILLS PIN 3 X 12	FT - 0648
10	KNURLED NUT	D112H2 - 008
11	LOCKNUT M8	FS - 1040
12	STUD	D250H0 - 003
13	PLATE - METRIC	NA - 1359
14	PAN HEAD SELF TAPPING SCREW N0.4 X 1/4"	B123 - 6024
15	KNURLED NUT	D704H083.1
16	COVER - INDICATOR GEAR	D704H095.1

LEVER OPERATED COLLET CHUCK LINKAGE



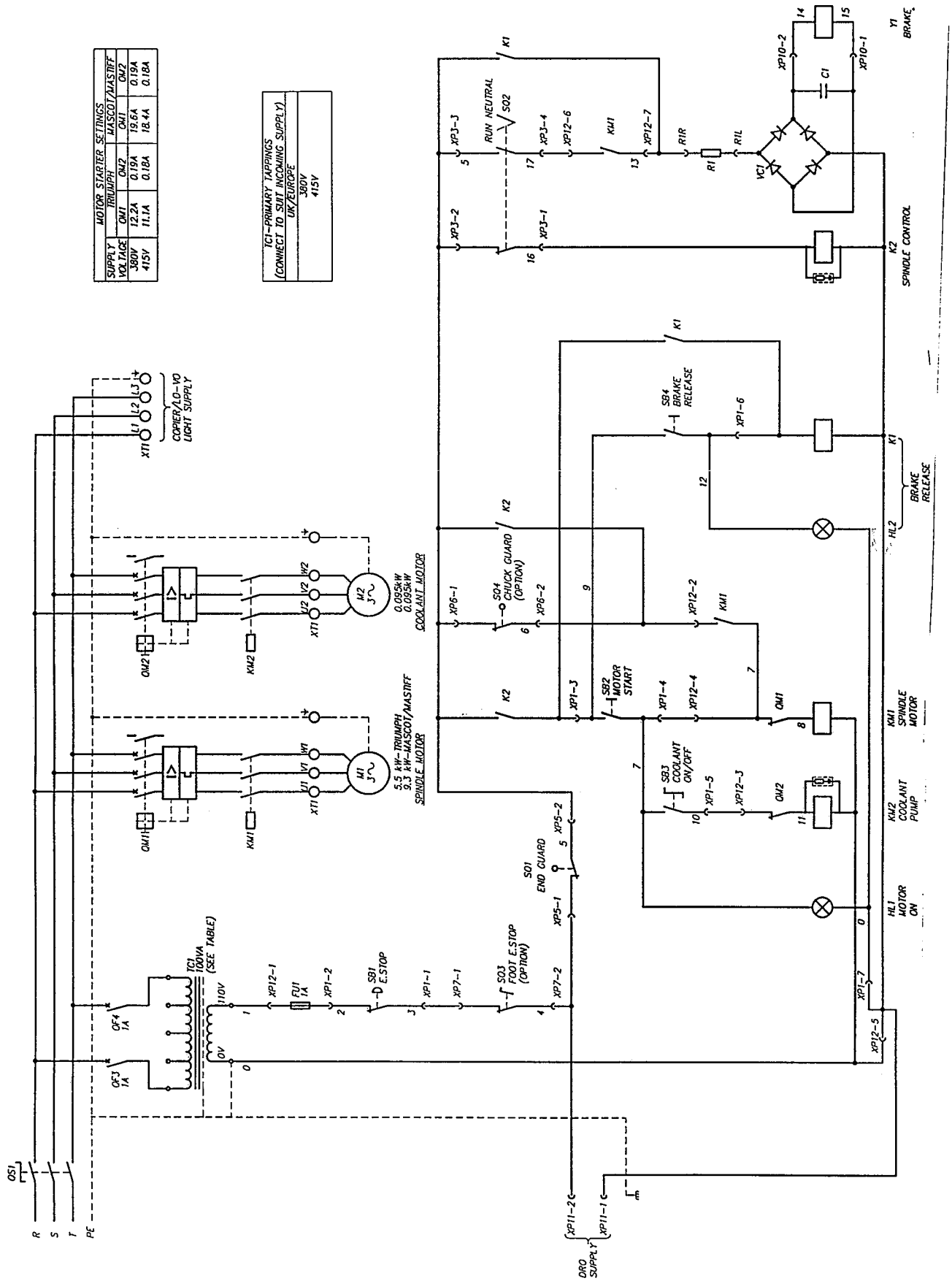
LEVER OPERATED COLLET CHUCK LINKAGE A178 - 0526

ITEM NO.	DESCRIPTION	PART NO.
1	CLAMP FORK	D299 - 0069
2	LINK	D454 - 0027
3	PIN LINK	D560 - 0050
7	11/2" D1-6 COLLET CHUCK	B913 - 1178
8	THIN HEXAGON NUT M12	B147 - 9172

CONTENTS PAGE

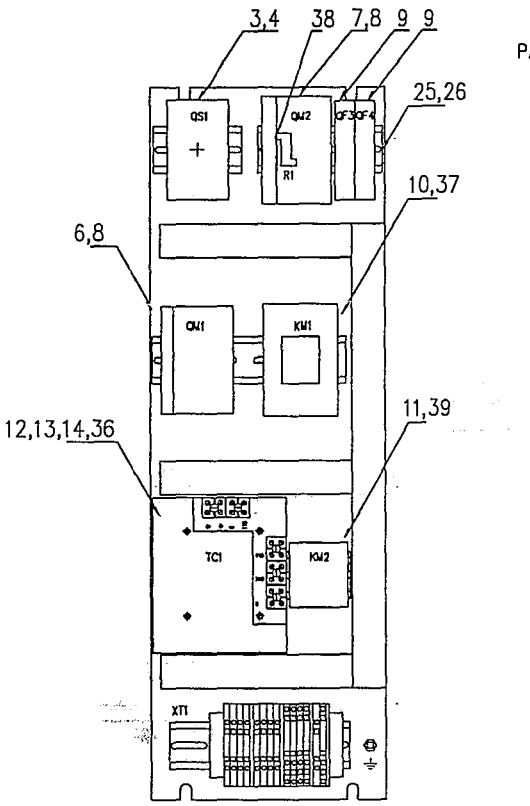
ELECTRICS

WIRING DIAGRAM (380-415V 50Hz)

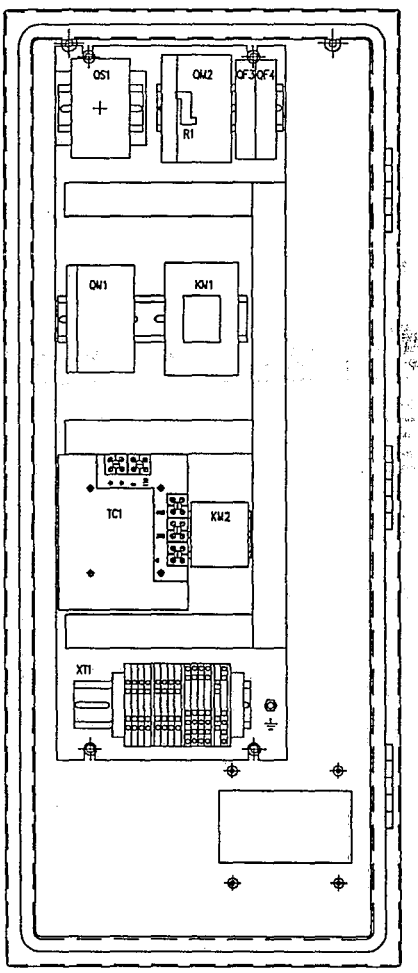


ITEM NO.	DESCRIPTION	PART NO.

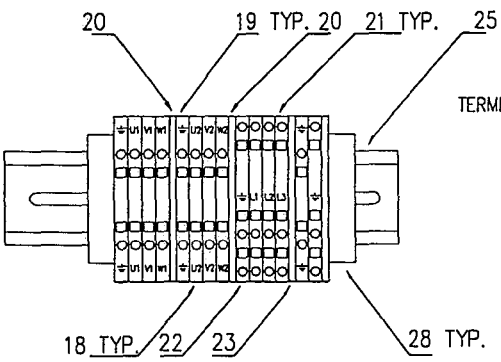
ENCLOSURE ASSEMBLY (380-415V 50Hz)



PANEL ASSEMBLY



CABINET ASSEMBLY – VIEWED WITHOUT DOOR



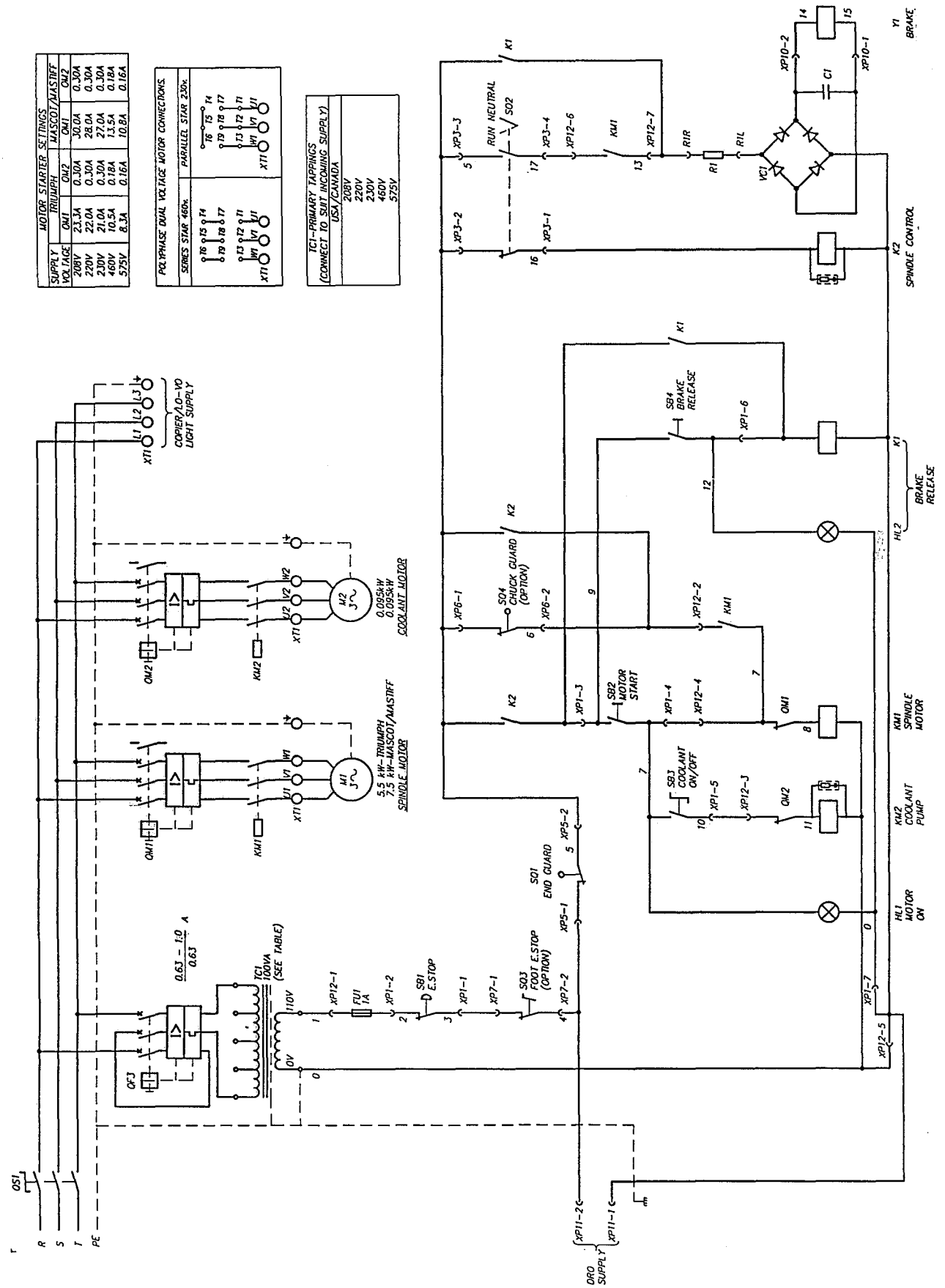
TERMINAL RAIL DETAIL

	WIRE COLOUR	DESCRIPTION
PRIM.	WHITE	415
	RED	380
	BLACK	0
SEC.	YELLOW	0
	PURPLE	110

A191 - 0580A
ENCLOSURE ASSEMBLY (380-415V 50Hz)

ITEM NO.	DESCRIPTION		PART NO.
3	MAIN SWITCH	SALTER - H22541300234N4	LF - 2920
4	MAIN SWITCH SHAFT EXT.	SALTER - 211 137	LF - 0930
6	MANUAL MOTOR STARTER 14A.	TELEMEC - GV2 - M16	LF - 1416
7	MANUAL MOTOR STARTER 0.25A	TELEMEC - GV2 - M02	LF - 1331
8	AUXILIARY CONTACT	TELEMEC - GV2 - AN11	LF - 1431
9	1A SP CIRCUIT BREAKER	TELEMEC - GB2 - CB06	LF - 1550
10	CONTACTOR	LC1D1810F7	B763 - 9200
11	3 - POLE CONTACTOR + 1 N/O 2.2kw	LC1K0610F7	LF - 2061
12	TRANSFORMER	CX31 - 100VA	AJ - 0821
13	RELAY INTERFACE ASSEMBLY		A826 - 1349A
14	NYLON INSULATING SPACER - STYLE 1.	147 - 947	FL - 0460
18	TERMINAL BLOCK	WAGO - 280 - 601	B718 - 3242
19	EARTH TERMINAL	WAGO - 280 - 607	B718 - 3246
20	END PLATE	WAGO - 280 - 330	B718 - 3243
21	TERMINAL BLOCK	WAGO - 280 - 646	B718 - 3348
22	EARTH BLOCK	WAGO - 280 - 637	B718 - 3201
23	END PLATE	WAGO - 280 - 312	B718 - 3202
24	OPEN SLOT GREY TRUNKING 25 X 80mm		LC - 6090
25	35MM DIN MOUNTING RAIL	WAGO - 210 - 112	B700 - 0054
28	END STOP	WAGO - 209 - 101	B718 - 3204
36	XP12 TO MAGNETICS HARNESS		A826 - 1350A
37	AUXILIARY CONTACT BLOCK	TELEMEC - LA1 - DN20	LF - 2950
38	RESISTOR	WELWYN - WH50 - 100R	LF - 1660
39	SUPPRESSOR	LA1 - KA1U	B701 - 0045

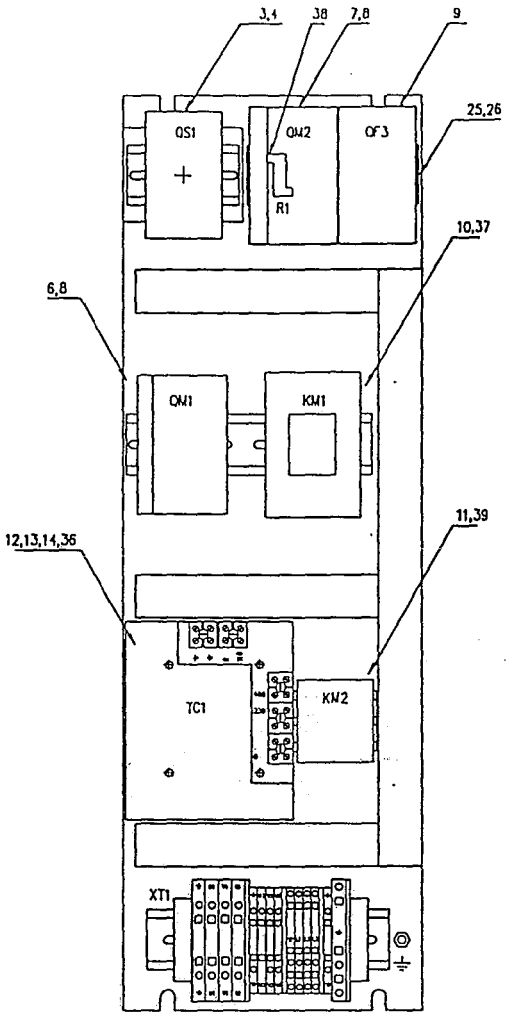
WIRING DIAGRAM (230-460V, 208V, 575V)



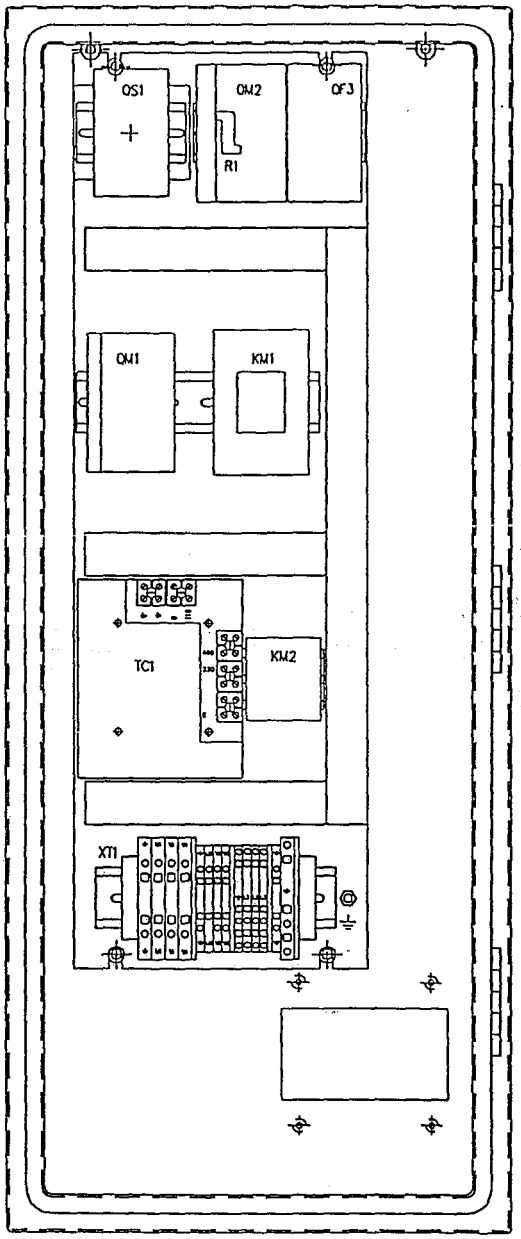
DCIN - 22107	GTC/MTC/MFC	Serial No.		Diagram - EP - 772	Issue 4	01.02.96

ITEM NO.	DESCRIPTION	PART NO.

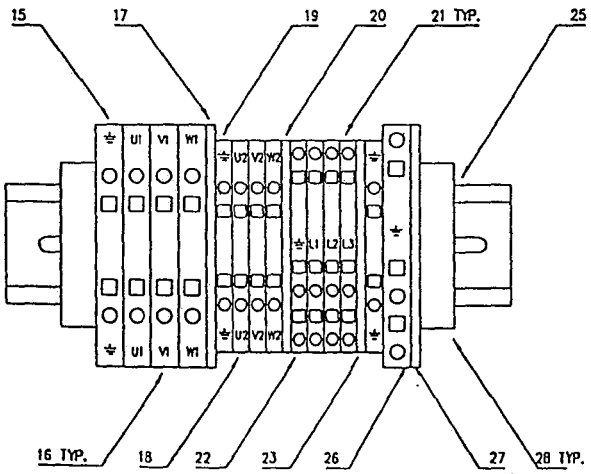
ENCLOSURE ASSEMBLY (230-460V 60Hz)



PANEL ASSEMBLY



CABINET ASSEMBLY – VIEWED WITHOUT DOOR



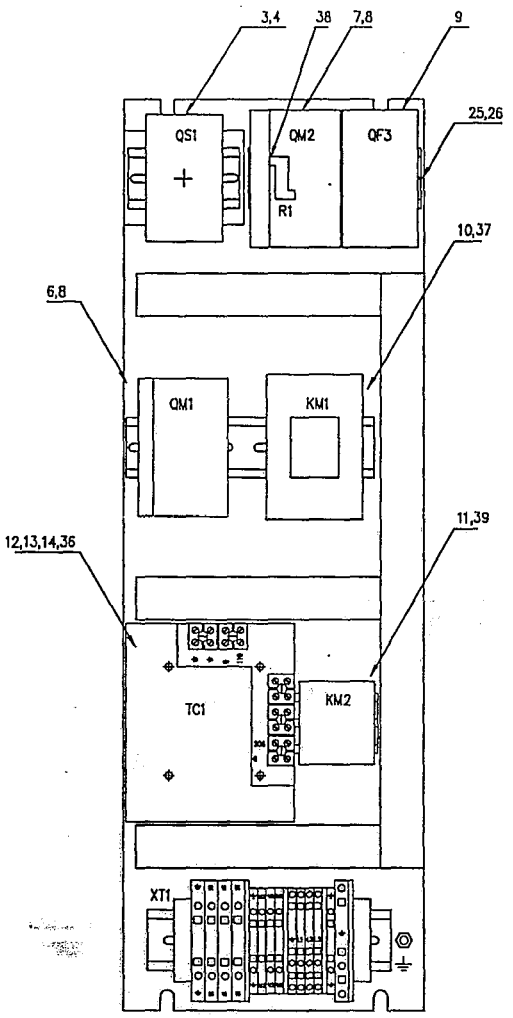
TERMINAL RAIL DETAIL

	WIRE COLOUR	DESCRIPTION
PRIM.	WHITE	575
	RED	460
	PURPLE	230
	YELLOW	220
	BROWN	208
	BLACK	0
SEC.	BLACK	0
	GREY	110

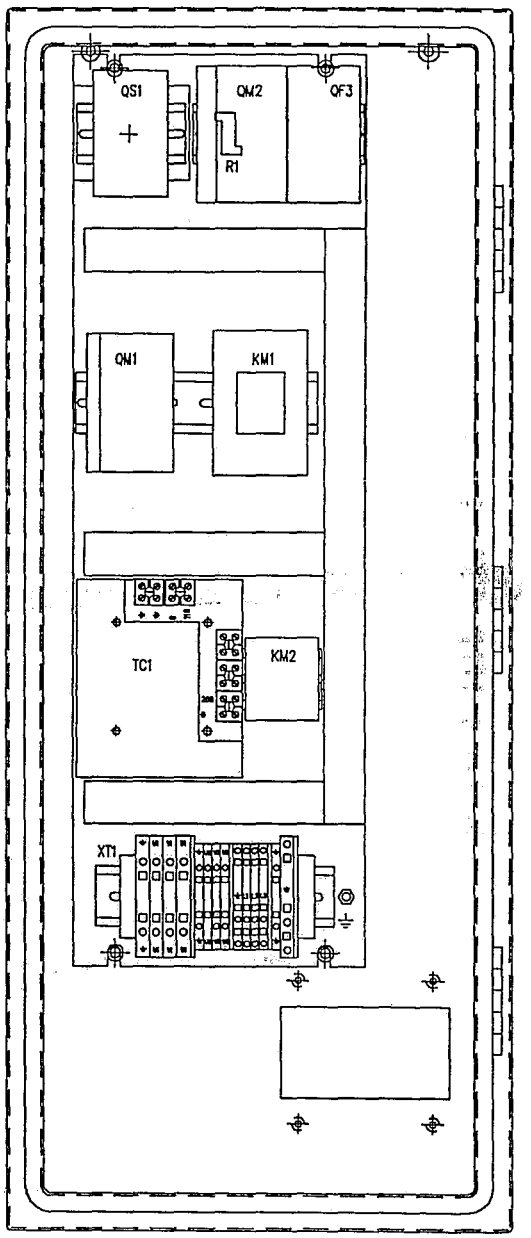
A191 - 0581A
ENCLOSURE ASSEMBLY (230-460V 60Hz)

ITEM NO.	DESCRIPTION			PART NO.
3	MAIN SWITCH	SALTER -	H24041300234N4	LF - 2940
4	MAIN SWITCH SHAFT EXT.	SALTER -	211 137	LF - 0930
6	MANUAL MOTOR STARTER 23A.	TELEMEC -	GV2 - M21	LF - 1421
7	MANUAL MOTOR STARTER 0.4A.	TELEMEC -	GV2 - M03	LF - 1341
8	AUXILIARY CONTACT	TELEMEC -	GV2 - AN11	LF - 1431
9	MANUAL MOTOR STARTER 1.0A	TELEMEC -	GV2 - M05	LF - 1361
10	CONTACTOR	TELEMEC -	LC1D2510F7	LF - 2030
11	3 - POLE CONTACTOR + 1 N/O 2.2kw		LC1K0610K7	LF - 2061
12	TRANSFORMER		CX32 - 100VA	AJ - 0831
13	RELAY INTERFACE ASSEMBLY			A826 - 1349A
14	NYLON INSULATING SPACER - STYLE 1.		147 - 947	FL - 0460
15	TERMINAL BLOCK	WAGO -	282 - 601	B718 - 3350
16	EARTH TERMINAL	WAGO -	282 - 607	B718 - 3351
17	PATITION	WAGO -	282 - 316	B718 - 3352
18	TERMINAL BLOCK	WAGO -	280 - 601	B718 - 3242
19	EARTH TERMINAL	WAGO -	280 - 607	B718 - 3246
20	END PLATE	WAGO -	280 - 330	B718 - 3243
21	TERMINAL BLOCK	WAGO -	280 - 646	B718 - 3348
22	EARTH BLOCK	WAGO -	280 - 637	B718 - 3201
23	END PLATE	WAGO -	280 - 312	B718 - 3202
24	OPEN SLOT GREY TRUNKING 25 X 80mm			LC - 6090
25	35MM DIN MOUNTING RAIL	WAGO -	210 - 112	B700 - 0054
26	EARTH BLOCK	WAGO -	281 - 637	B718 - 3261
27	INTER PLATE	WAGO -	281 - 312	B718 - 3263
28	END STOP	WAGO -	209 - 101	B718 - 3204
29	MANUAL MOTOR STARTER 14A.	TELEMEC -	GV2 - M16	LF - 1416
30	MANUAL MOTOR STARTER 0.25A.	TELEMEC -	GV2 - M02	LF - 1331
36	XP12 TO MAGNETICS HARNESS			A826 - 1350A
37	AUXILIARY CONTACT BLOCK	TELEMEC -	LA1 - DN20	LF - 2950
38	RESISTOR	WELWYN -	WH50 - 100R	LF - 1660
39	SUPPRESSOR		LA1 - KA1U	B701 - 0045

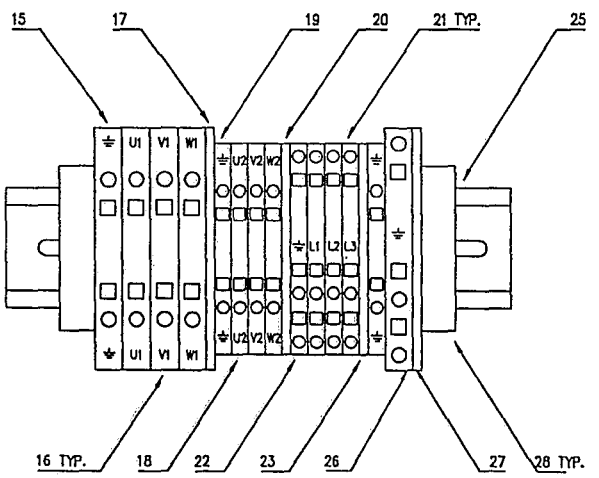
ENCLOSURE ASSEMBLY (208V 60Hz)



PANEL ASSEMBLY



CABINET ASSEMBLY – VIEWED WITHOUT DOOR



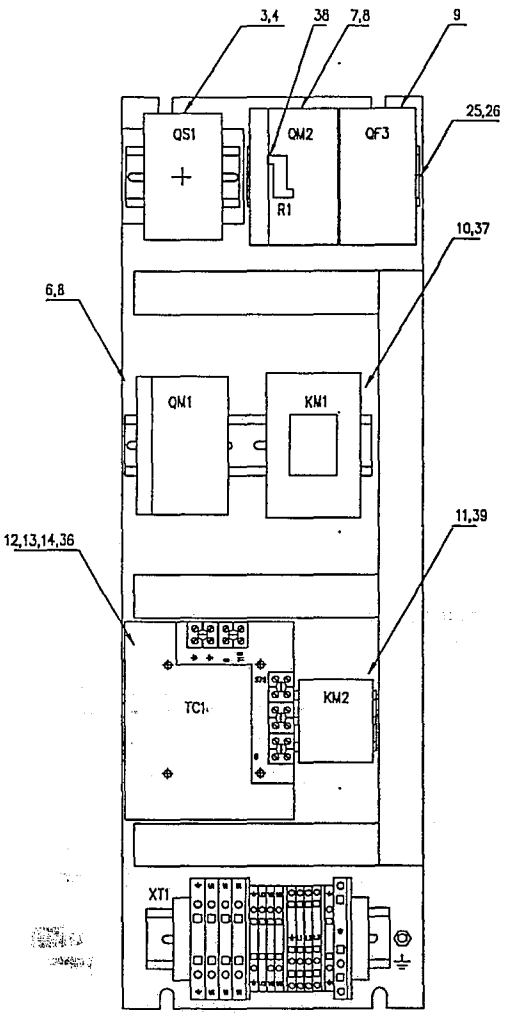
TERMINAL RAIL DETAIL

	WIRE COLOUR	DESCRIPTION
PRIM.	WHITE	575
	RED	460
	PURPLE	230
	YELLOW	220
	BROWN	208
	BLACK	0
SEC.	BLACK	0
	GREY	110

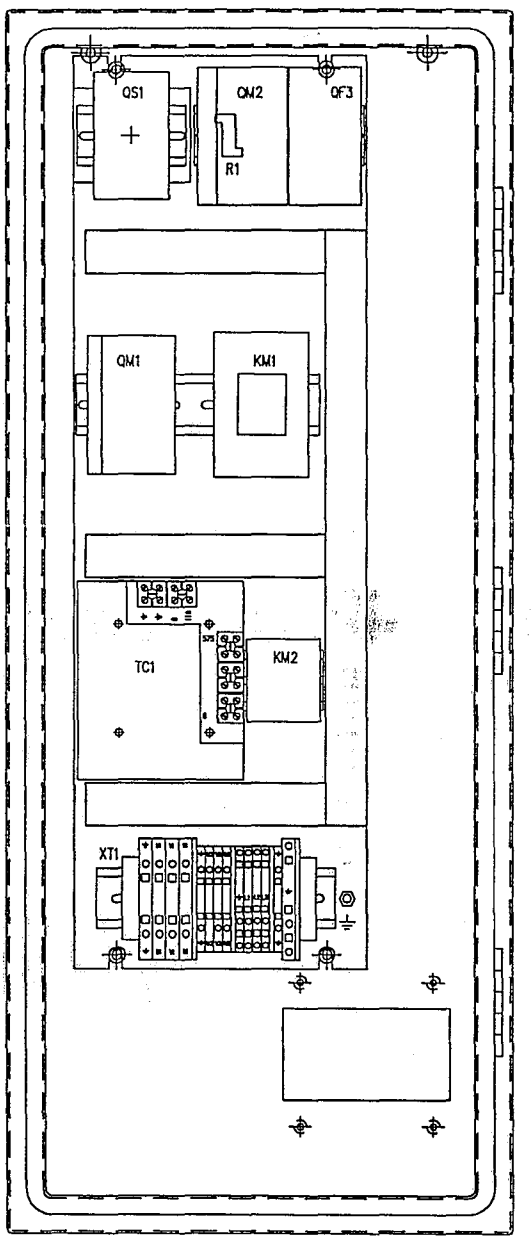
A191 - 0582A
ENCLOSURE ASSEMBLY (208V 60Hz)

ITEM NO.	DESCRIPTION			PART NO.
3	MAIN SWITCH	SALTER -	H24041300234N4	LF - 2940
4	MAIN SWITCH SHAFT EXT.	SALTER -	211 137	LF - 0930
6	MANUAL MOTOR STARTER 25A.	TELEMEC -	GV2 - M22	LF - 1422
7	MANUAL MOTOR STARTER 0.4A.	TELEMEC -	GV2 - M03	LF - 1341
8	AUXILIARY CONTACT	TELEMEC -	GV2 - AN11	LF - 1431
9	MANUAL MOTOR STARTER 1.0A	TELEMEC -	GV2 - M05	LF - 1361
10	CONTACTOR	TELEMEC -	LC1D2510F7	LF - 2030
11	3 - POLE CONTACTOR + 1 N/O 2.2kw		LC1K0610K7	LF - 2061
12	TRANSFORMER		CX32 - 100VA	AJ - 0831
13	RELAY INTERFACE ASSEMBLY			A826 - 1349A
14	NYLON INSULATING SPACER - STYLE 1.		147 - 947	FL - 0460
15	TERMINAL BLOCK	WAGO -	282 - 601	B718 - 3350
16	EARTH TERMINAL	WAGO -	282 - 607	B718 - 3351
17	PATITION	WAGO -	282 - 316	B718 - 3352
18	TERMINAL BLOCK	WAGO -	280 - 601	B718 - 3242
19	EARTH TERMINAL	WAGO -	280 - 607	B718 - 3246
20	END PLATE	WAGO -	280 - 330	B718 - 3243
21	TERMINAL BLOCK	WAGO -	280 - 646	B718 - 3348
22	EARTH BLOCK	WAGO -	280 - 637	B718 - 3201
23	END PLATE	WAGO -	280 - 312	B718 - 3202
24	OPEN SLOT GREY TRUNKING 25 X 80mm			LC - 6090
25	35MM DIN MOUNTING RAIL	WAGO -	210 - 112	B700 - 0054
26	EARTH BLOCK	WAGO -	281 - 637	B718 - 3261
27	INTER PLATE	WAGO -	281 - 312	B718 - 3263
28	END STOP	WAGO -	209 - 101	B718 - 3204
36	XP12 TO MAGNETICS HARNESS			A826 - 1350A
37	AUXILIARY CONTACT BLOCK	TELEMEC -	LA1 - DN20	LF - 2950
38	RESISTOR	WELWYN -	WH50 - 100R	LF - 1660
39	SUPPRESSOR		LA1 - KA1U	B701 - 0045

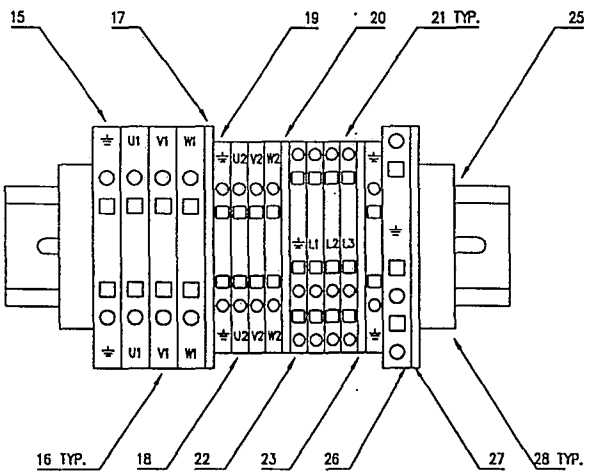
ENCLOSURE ASSEMBLY (575V 60Hz)



PANEL ASSEMBLY



CABINET ASSEMBLY – VIEWED WITHOUT DOOR

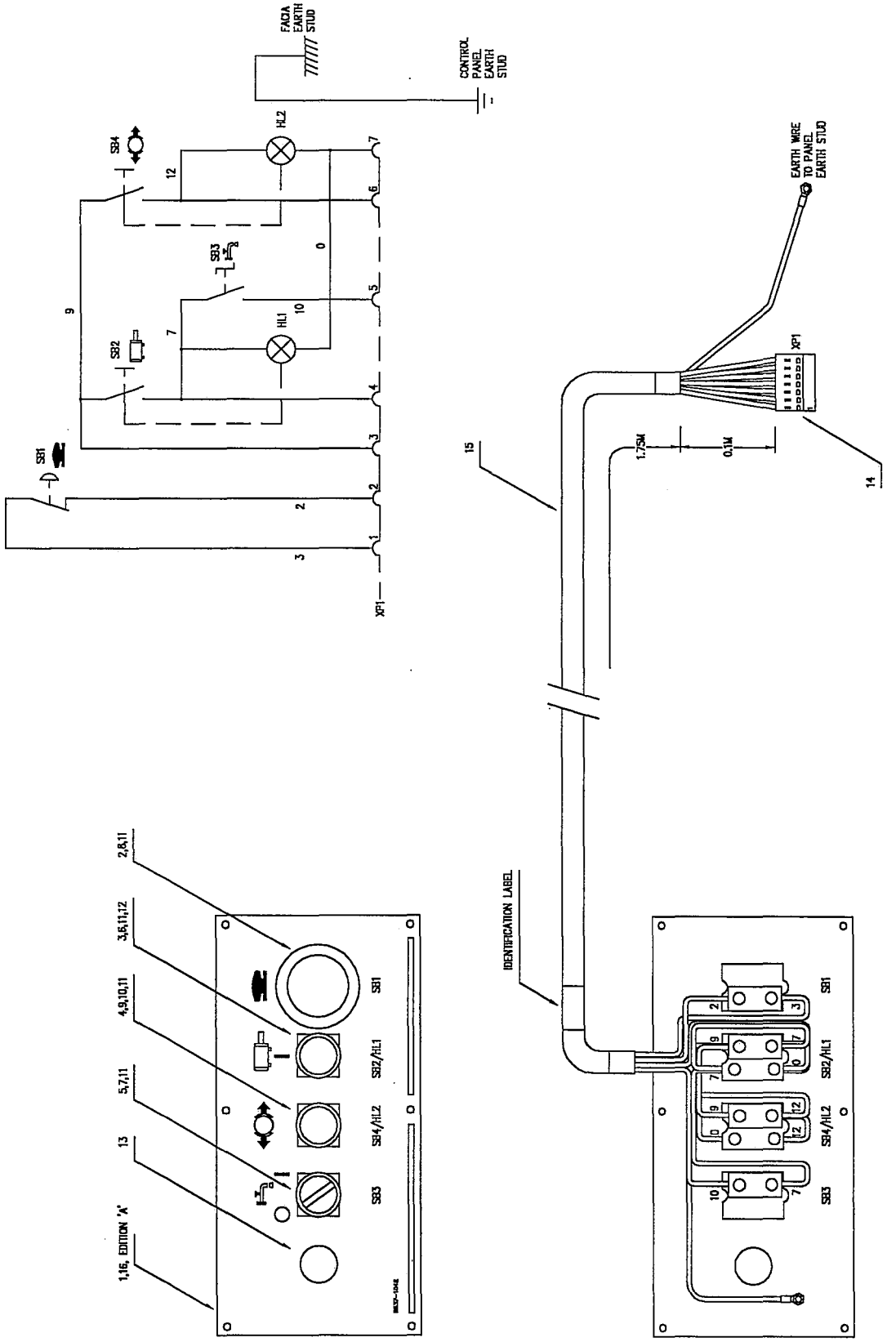


TERMINAL RAIL DETAIL

	WIRE COLOUR	DESCRIPTION
PRIM.	WHITE	575
	RED	460
	PURPLE	230
	YELLOW	220
	BROWN	208
	BLACK	0
SEC.	BLACK	0
	GREY	110

A191 - 0583A
ENCLOSURE ASSEMBLY (575V 60Hz)

ITEM NO.	DESCRIPTION			PART NO.
3	MAIN SWITCH	SALTER	- H22541300234N4	LF - 2920
4	MAIN SWITCH SHAFT EXT.	SALTER	- 211 137	LF - 0930
6	MANUAL MOTOR STARTER 10A.	TELEMEC	- GV2 - M14	LF - 1411
7	MOTOR CIRCUIT BREAKER	TELEMEC	- GV2 - M01	LF - 1641
8	AUXILIARY CONTACT	TELEMEC	- GV2 - AN11	LF - 1431
9	MANUAL MOTOR STARTER 1.0A	TELEMEC	- GV2 - M05	LF - 1361
10	CONTACTOR	TELEMEC	- LC1D1210F7	LF - 2120
11	3 - POLE CONTACTOR + 1 N/O 2.2kw		LC1K0610K7	LF - 2061
12	TRANSFORMER		CX32 - 100VA	AJ - 0831
13	RELAY INTERFACE ASSEMBLY			A826 - 1349A
14	NYLON INSULATING SPACER - STYLE 1.		147 - 947	FL - 0460
15	TERMINAL BLOCK	WAGO	- 282 - 601	B718 - 3350
16	EARTH TERMINAL	WAGO	- 282 - 607	B718 - 3351
17	PATITION	WAGO	- 282 - 316	B718 - 3352
18	TERMINAL BLOCK	WAGO	- 280 - 601	B718 - 3242
19	EARTH TERMINAL	WAGO	- 280 - 607	B718 - 3246
20	END PLATE	WAGO	- 280 - 330	B718 - 3243
21	TERMINAL BLOCK	WAGO	- 280 - 646	B718 - 3348
22	EARTH BLOCK	WAGO	- 280 - 637	B718 - 3201
23	END PLATE	WAGO	- 280 - 312	B718 - 3202
24	OPEN SLOT GREY TRUNKING 25 X 80mm			LC - 6090
25	35MM DIN MOUNTING RAIL	WAGO	- 210 - 112	B700 - 0054
26	EARTH BLOCK	WAGO	- 281 - 637	B718 - 3261
27	FUSE TERMINAL	WAGO	- 282 - 122	B718 - 3262
28	END STOP	WAGO	- 209 - 101	B718 - 3204
36	XP12 TO MAGNETICS HARNESS			A826 - 1350A
37	AUXILIARY CONTACT BLOCK	TELEMEC	- LA1 - DN20	LF - 2950
38	RESISTOR	WELWYN	- WH50 - 100R	LF - 1660
39	SUPPRESSOR		LA1 - KA1U	B701 - 0045


FADA EARTH STUD
CONTROL PANEL EARTH STUD
HL2
SB4
SB3
HL1
SB2
SB1
XP1
EARTH WIRE TO PANEL EARTH STUD
1.75M
0.1M
15
14
IDENTIFICATION LABEL
2,8,11
3,6,11,12
4,9,10,11
5,7,11
13
1,16, EDITION "A"
SB1
SB2/HL1
SB4/HL2
SB3

A826 - 1171A
OPERATOR CONTROL ASSEMBLY

ITEM NO.	DESCRIPTION		PART NO.
1	NAMEPLATE PUSHBUTTONS		D537 - 1042
2	MUSHROOM OPERATOR HEAD	TELEMEC. ZA2-BS54	LD - 0560
3	ILLUMINIOUS PUSH BUTTON GREEN.	TELEMEC. ZA2-BW33	LC - 3110
4	OPERATOR HEAD	TELEMEC. ZA2-BW31	LD - 0890
5	2-POS.S/SWITCH OPERATOR	TELEMEC. ZA2-BD2	LD - 0580
6	BODY WITH IN/O CONTACT	TELEMEC. ZA2-BW061	LD - 0880
7	N/O CONTACT BLOCK	TELEMEC. ZA2-BZ101	LD - 0590
8	N/C CONTACT BLOCK	TELEMEC. ZA2-BZ102	LD - 0600
9	TRANSFORMER BODY	TELEMEC. ZA2-BV184	LD - 0900
10	1 N/O CONTACT	TELEMEC. ZB2-BE101	LD - 0910
11	SQUARE COLLAR ADAPTOR	TELEMEC. ZA2-BZ31	LC - 3100
12	BULB 130V 2.6W	TELEMEC. DLI-CE130	LC - 3170
13	BLANKING PLUG	ZB2-SZ3	B762 - 7009
14	HEADER	231-107/003-000	B718 - 3255
16	PUSH BUTTON PLATE		D565 - 09Z5

BASIC ELECTRICAL ASSEMBLIES

ITEM NO.	DESCRIPTION	PART NO.
1	ROTOCAM SWITCH ASSEMBLY	A826 - 1088A
2	CLUTCH SWITCH CABLE ASSEMBLY	A826 - 1172A
3	BRAKE CABLE ASSEMBLY	A826 - 1173A

CLAUSING INDUSTRIAL INC.
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