INSTRUCTION MANUAL

AL-1440
Centre Lathe (415V)
356 x 1000mm Turning Capacity - 40mm Bore

L244

HARE&FORBES
MACHINERYHOUSE

Established 1930
Distributors of new & used workshop Equipment

L240 L242 AL1000C /AL1000D 9/18 SPEED

1340E/1440E LATHE

17-07-2007

CE

OPERATION MANUAL

&

PARTS LISTS

FOR

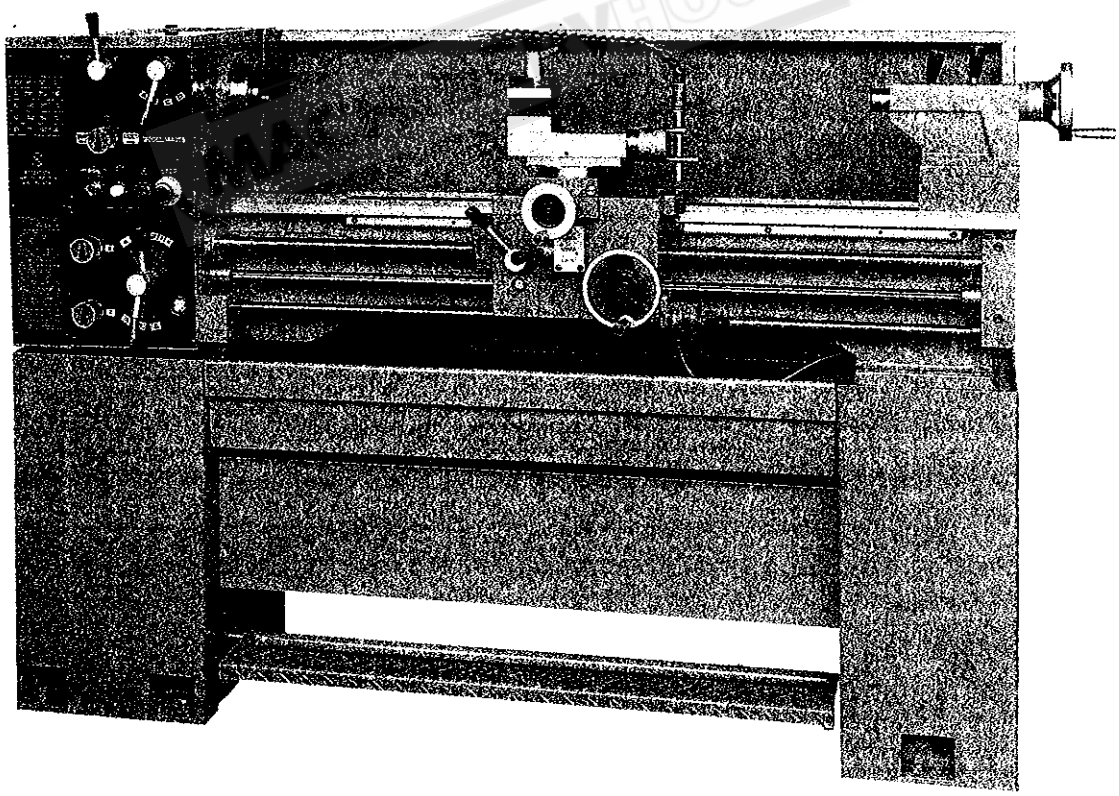
1340E/1440E

PRECISION HIGH SPEED LATHE

IMPORTANT

BEFORE OPERATING THE MACHINE PLEASE READ CAREFULLY-

OPERATION INSTRUCTIONS PAGES 4～36 IN THE MANUAL.



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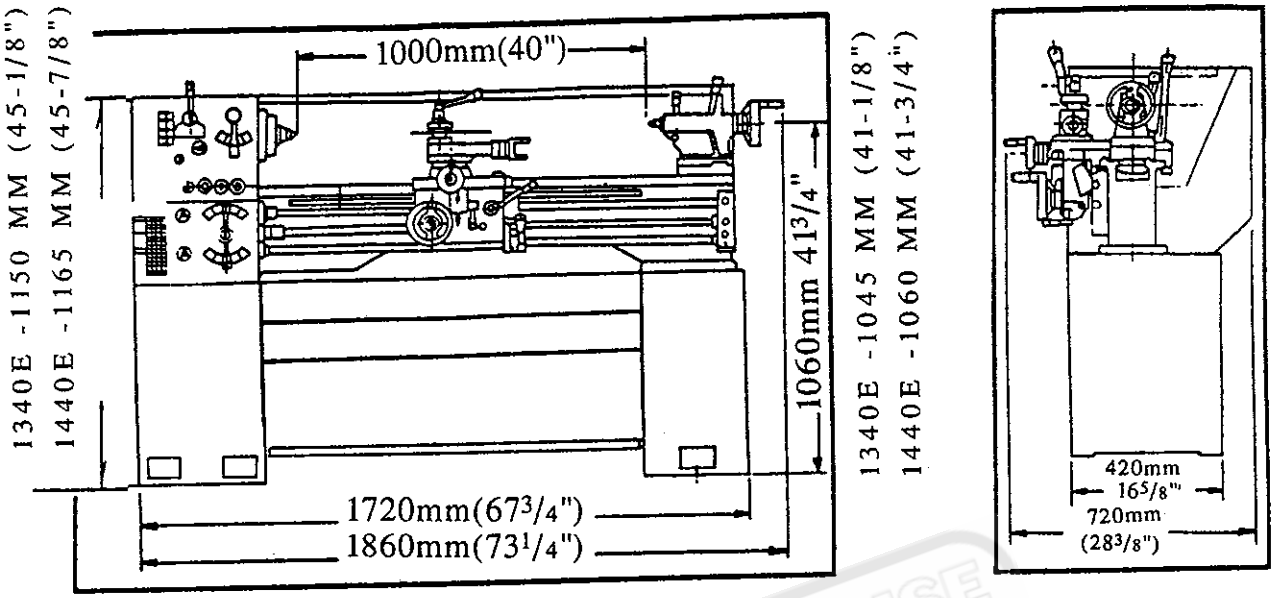
SPECIFICATIONS AND ACCESSORIES

MODEL: LD-1340E(330mmx1000mm
LD-1440E(360mmx1000mm)



SPECIFICATIONS:

DESCRIPTION	METRIC SYSTEM		INCH SYSTEM	
MODEL	300×1000	360×1000	1340	1440
SWING OVER BED	330	360	13"	14"
SWING OVER CROSS SLIDE	195	225	7-5/8"	8-3/4"
DISTANCE BETWEEN CENTERS	1000		40	
SWING OVER GAP	490	520	19-1/4"	20-3/4"
WIDTH OF BED	190		7-9/16	
NUMBERED OF SPINDLE SPEEDS	9			
RANGE OF SPINDLE SPEEDS	80-2000R.P.M.			
HOLE THROUGH SPINDLE	40mm		1-1/2"	
SPINDLE NOSE	D1-4 Camlock			
TAPER OF SPINDLE BORE	M.T.No.5			
TAILSTOCK QUILL TAPER	M.T.No.3			
TAILSTOCK QUILL TRAVEL	110mm		4 3/8"	
CROSS SLIDE TRAVEL	175mm		6 7/8"	
COMPOUND REST TRAVEL	100mm		4"	
METRIC THREADS	(30)0.4-7.0MM		(30)0.4-7.0MM	
INCH THREADS	(32)4-56TPI		(32)3-56TPI	
LONGITUDINAL FEEDS	0.068-0.936mm/REV		0.0016"-0.03 /REV	
CROSS FEEDS	0.034-0.468mm/REV		0.0008"-0.015 /REV	
MACHINE NET WEIGHT	600 KG	620 KG	1320 Ib	1364 Ib
GROSS WEIGHT	700 KG	720 KG	1540 Ib	1584 Ib
CRATE DIMENSION L×W×H	1905×762×1473		75"×30"×58"	

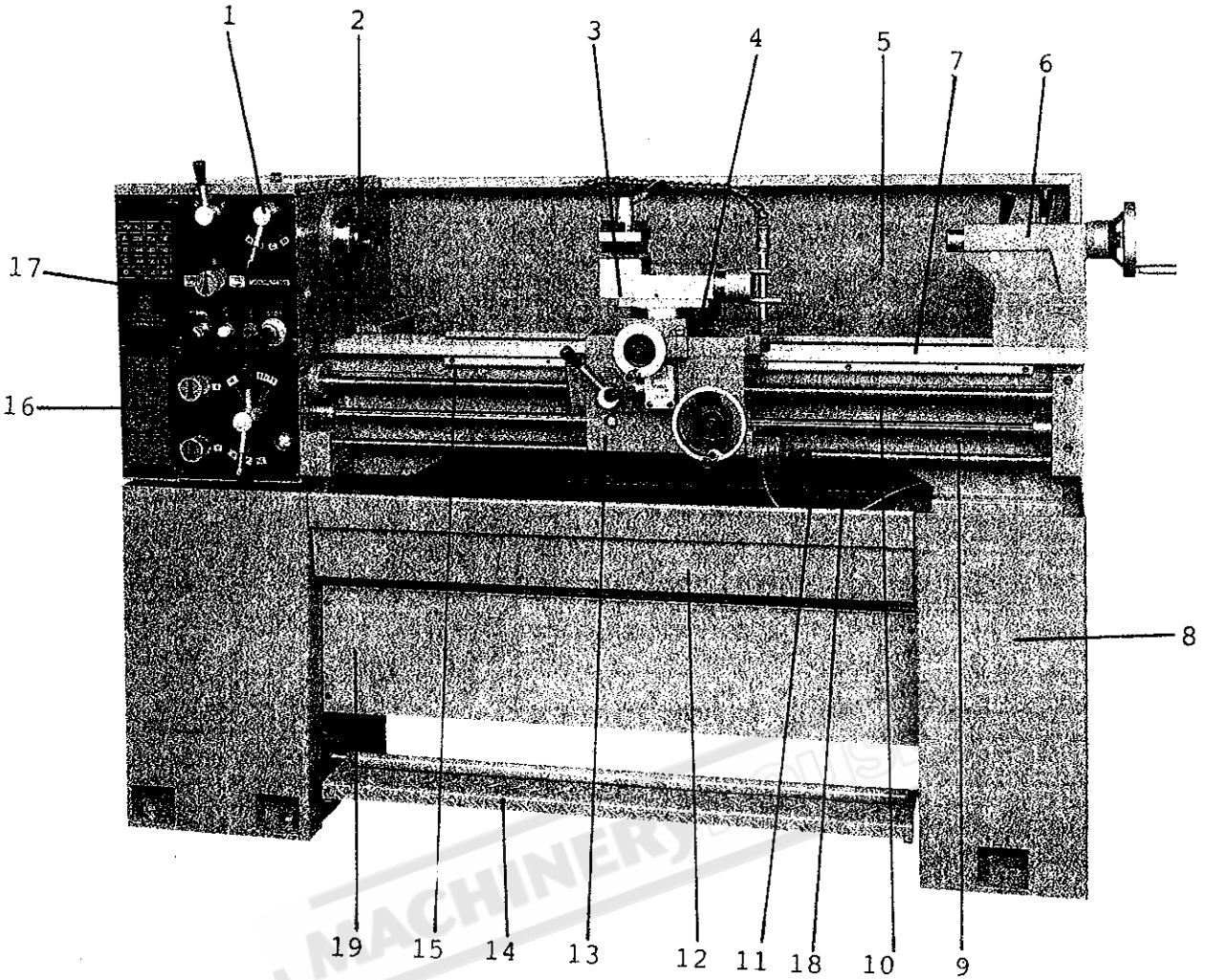
STANDARD ACCESSORIES

- 2HP 1PH 3HP 3PH main drive motor
- Rapid foor brake
- 4-ways tool post
- 6"& 8" Backplate(D1-4)
- Thread dial
- Gap bed
- Centers,M.T.No.3
- Center sleeve,M.T.No.5×3
- Set of change gears
- Tool kit & box
- Complete electric control unit
- Dual dials
- Face plate 10"(250mm)
- Steady rest
- Follow rest
- Rear splash guard
- 1/8HP coolant pump

OPTIONAL ACCESSORIES

- 3-jaw scroll chuck 6"(150mm)
- 4-jaw independent chuck 8"(200mm)
- Quick change tool post
- Single tool post
- Taper turning attachiment
- Carriage micro stop
- Live centers MT#3
- Work lamp
- Drill chuck 13mm(1/2")w/arbor
- Chuck guard
- 4-position carriage stop
- Milling Attachment

GENERAL LAYOUT OF LATHE



1. HEADSTOCK
2. SPINDLE
3. TOP SLIDE
4. SADDLE AND CROSS-SLIDE
5. SPLASH GUARD
6. TAILSTOCK
7. BED
8. MOUNTING FEET
9. FEED SHAFT
10. LEAD SCREW
11. SPINDLE ROTATION CONTROL LEVER
12. CHIP PAN
13. APRON
14. FOOTBRAKE
15. RACK
16. GEAR BOX
17. END COVER (GEAR TRAIN)
18. FORWARD/REVERSE CONTROL SHAFT
19. CONNECTION PLATE

UNCRATING THE MACHINE

UPON RECEIPT OF SHIPMENT, REMOVE CRATING CAREFULLY BUT DON'T REMOVE SKIDS UNTIL THE LATHE HAS BEEN MOVED TO THE APPROZIMATE PLACE SELECTED OR ITS ERECTION.

CLEANING THE MACHINE

DO NOT MOVE THE CARRIAGE OR TAILSTOCK ON THE BEDWAYS BEFORE CLEANING THOROUGHLY AND OILING THE WAYS. USE A GOOD CLEAN GREASE SOLVENT TO REMOVE SLUSHING COMPOUND AND DIRT ACCUMULATED IN TRANSIT. USE RAGS RATHER THAN WASTE TO ELIMINATE LINT. DO NOT USE AN AIR HOSE AS THIS WILL FORCE GRIT AND DIRT INTO IMPORTANT FUNCTIONING UNITS. USE A STIFF BRISTLE BRUSH TO GET INTO CORNERS AND TO CLEAN LEADSCREW THOROUGHLY.

WHEN THE MACHINE HAS BEEN CLEANED SATISFACTORILY, RUB CLEAN MACHINE OIL OVER ALL WAYS AND MAKE CERTAIN NO GRIT REMAINS. BEFORE MOVING THE CARRIAGE ON THE BED, REMOVE THE FILLER PLUG ON THE TOP OF THE CARRIAGE AND FILI. THE APRON WITH THE PROPER OIL AS SPECIFIED IN THE LUBRICATION CHART. OIL CARRIAGE WAYS ON BED. THEN PROCEED WITH MOVING THE CARRIAGE TO BALANCE THE LOAD. ALSO CHECK THE END GEARING FOR PROPER MESHING OF GEARS.

LIFTING THE MACHINE

TO OBTAIN A BALANCED CONDITION BEFORE LIFTING, IT IS NECESSARY TO MOVE THE TAILSTOCK TO THE RIGHT-HAND END OF THE BED AND CLAMP IT THERE. RESURE TO CLEAN BED WAYS BEFORE MOVING CARRIAGE OR TAILSTOCK.

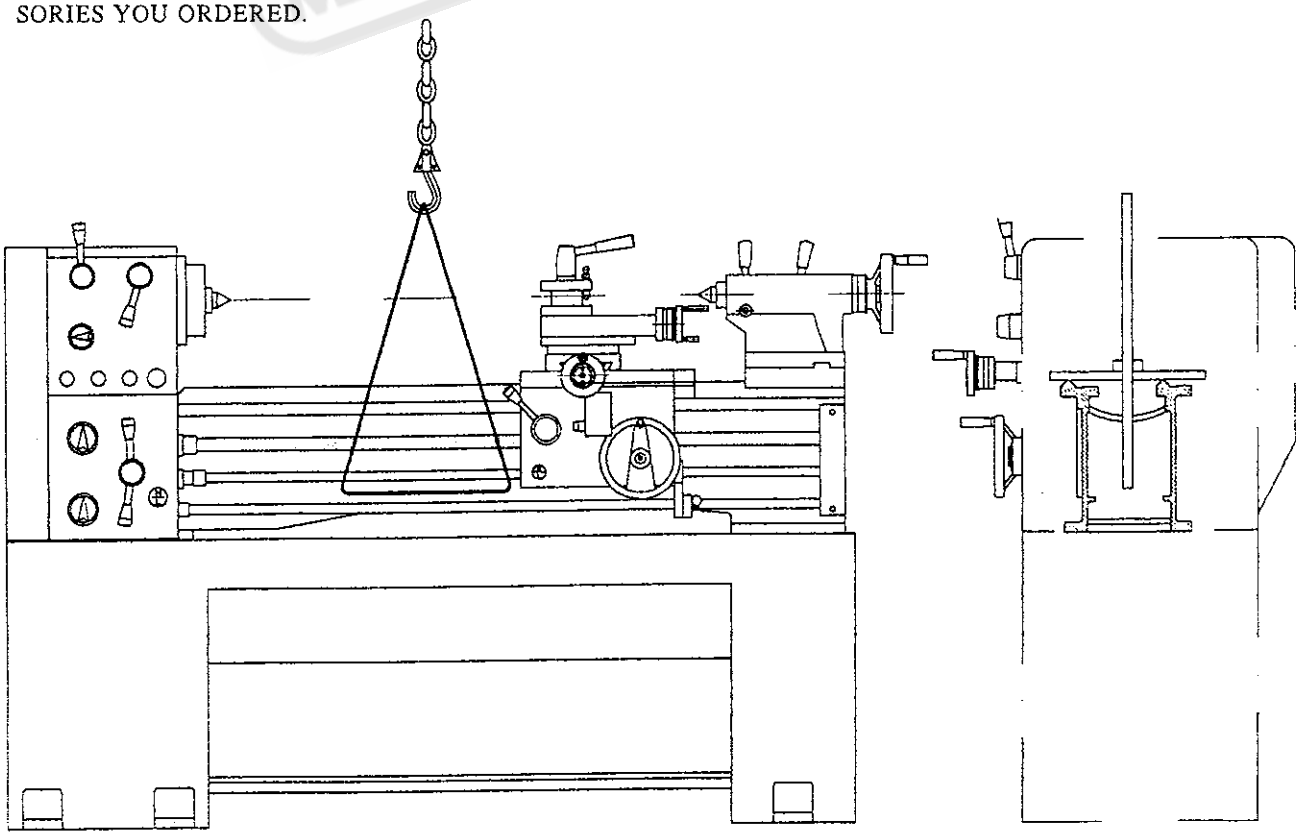
NOTE

MAKE CERTAIN THE LOAD IS ON BALANCE AND THAT THE SLING DOES NOT TOUCH THE LEADSCREW OR CONTROL ROD BEFORE LIFTING.

IF A CRANE IS USED IN LIFTING, EXERCISE CARE THAT NONE OF THE MECHANISM IS DAMAGED. CHAIN, WIRE CABLE OR ROPE MAY BE USED TO LIFT THE LATHE.

IF ROPES ARE USED, BE CERTAIN THAT THEY ARE STRONG ENOUGH TO SAFELY CARRY THE WEIGHT OF THE MACHINE. THE FINISHED SURFACES OF THE MACHINF MUST BE PROTECTED FROM CHAINS BY USING WOODEN BLOCKS.

AFTER YOU RECEIVED THE MACHINE, PLS CHECK IF THE PACKING CONTENTS ALL THE ACCESSORIES YOU ORDERED.



CLEANING

BEFORE OPERATION ANY CONTROLS, REMOVE THE ANTICORROSION COATING FROM ALL SLIDEWAYS, AND THE END GEAR TRAIN, USING WHITE SPIRIT OR KEROSENCE.

DO NOT USE CELLULOSE SOLVENTS FOR CLEANING AS THEY WILL DAMAGE THE PAINT FINISH.

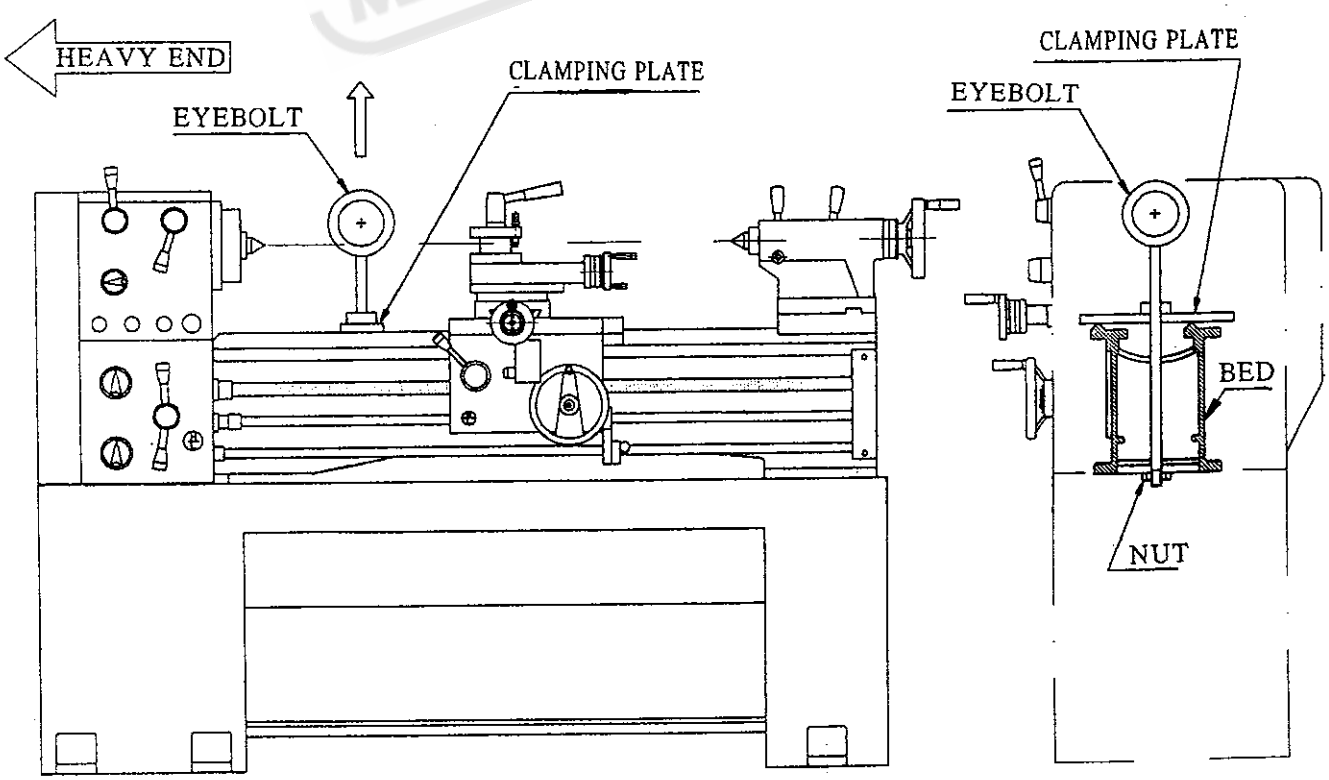
OIL ALL BRIGHT MACHINED SURFACES IMMEDIATELY AFTER CLEANING USING MACHINE OIL OR SLIDEWAY LUBRICANT, USE HEAVY OIL OR ON THE END GEAR.

LIFTING

USE THE BED-CLAMPING PLATE AND EYEBOLT TO SLING THE LATHE, POSITION THE SADDLE AND TAILSTOCK ALONG THE BED TO OBTAIN BALANCE.

RAISING AND LOWERING THE MACHINE SHOULD BE DONE CAREFULLY, ESPECIALLY WHEN YOU LOVER THE MACHINE, BE SURE NOT TO BUMP THE MACHINE AGAINST THE FLOOR.

* IMPORTANT: DO NOT USE SLINGS AROUND BED AS LEADSCREW AND FEED-SHAFT MAY BE BENT.

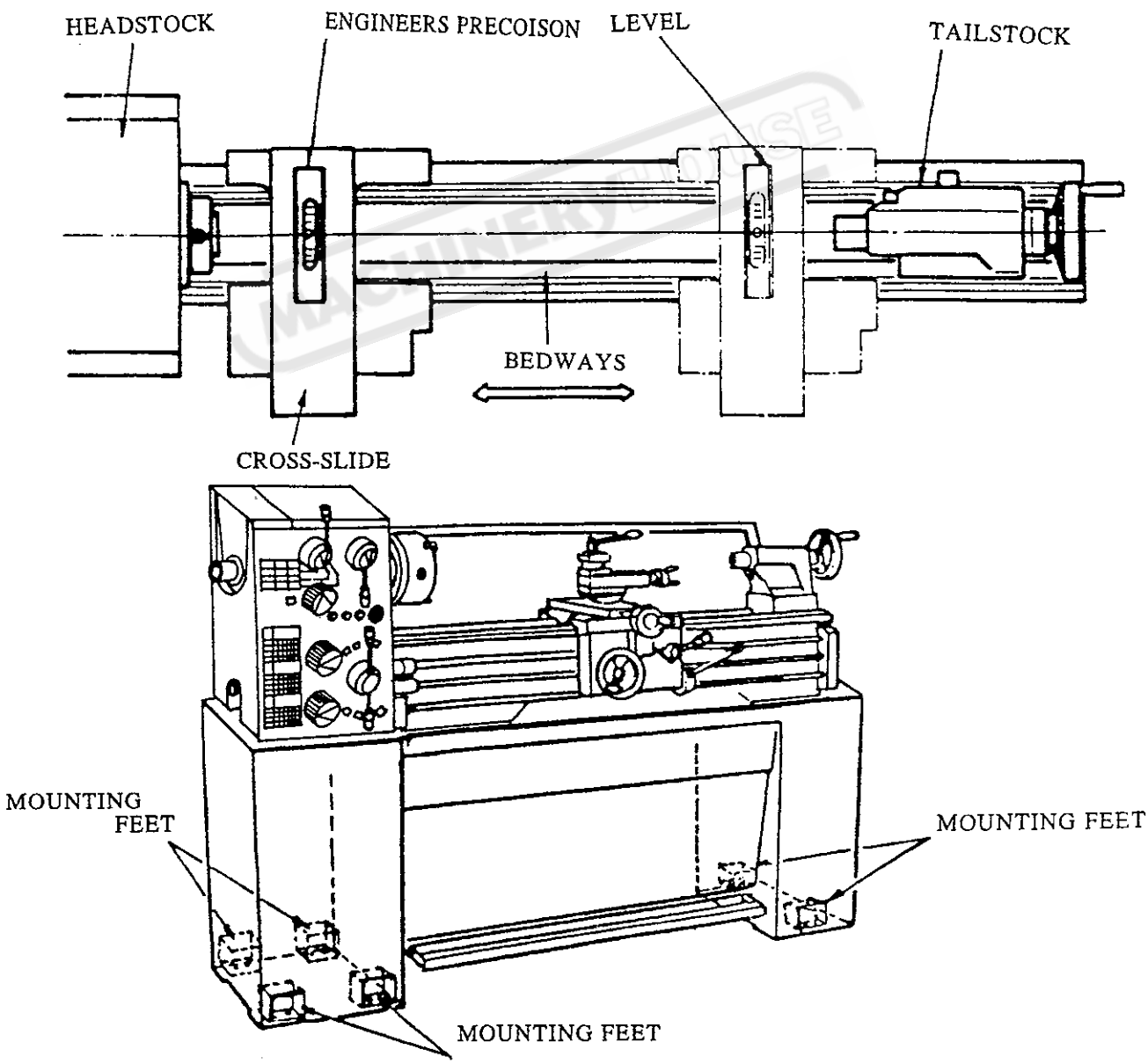


INSTALLING

LOCATED THE MACHINE ON A SOLID FOUNDATION, ALOWING SUFFICIENT AREA ALL ROUND FOR EASY WORKING AND MAINTENANCE (SEE FOUNDATION PLAN). THE LATHE MAY BE USED FREE-STANDING OR BOLTED TO THE FOUNDATION.

FREE-STANDING: POSITION LATHE ON FOUNDATION AND ADJUST EACH OF THE SIX MOUNTING FEET TO TAKE EQUAL SHARE OF THE LOAD.THEN USING AN ENGINEERS PRECISION LEVEL ON THE BEDWAYS ADJUST THE FEET TO LEVEL UP MACHINE. PERIODICALLY CHECK BED LEVEL TO ENSURE CONTINUED LATHE ACCURACY.

FIXED INSTALLATION: POSITION LATHE OVER SIX BOLTS (1/2 IN.OR 12 mm. DIAM.) SET INTO THE FOUNDATION TO CORRESPOND WITH HOLES IN THE MONUTING FEET. ACCURATELY LEVEL THE MACHINE, THEN TIGHTEN HOLD-DOWN BOLTS. RE-CHECK BED LEVEL.

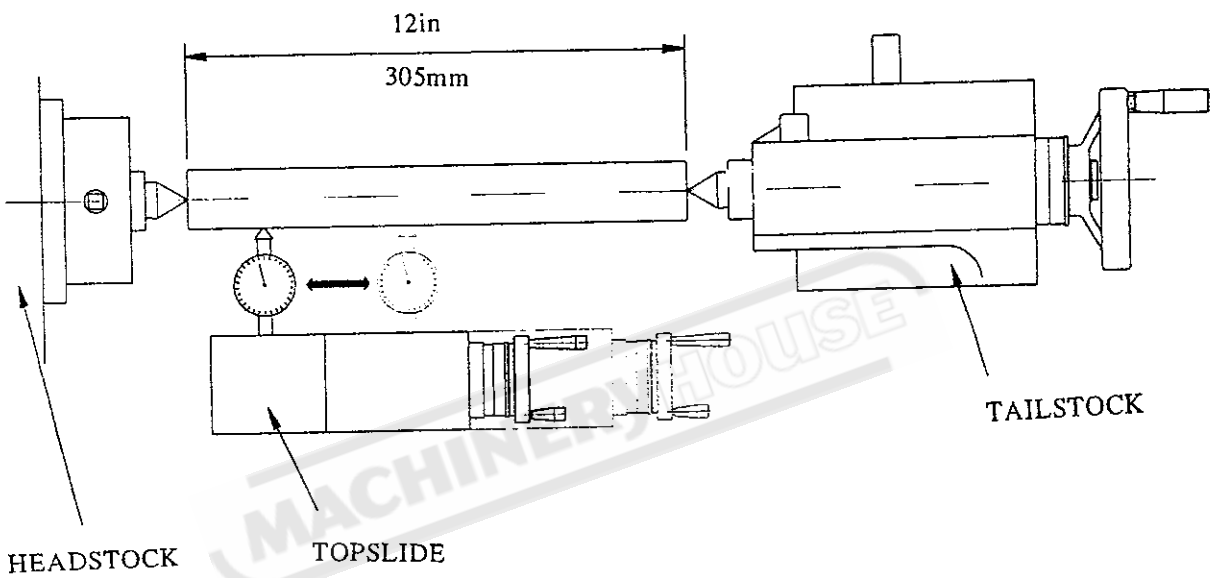


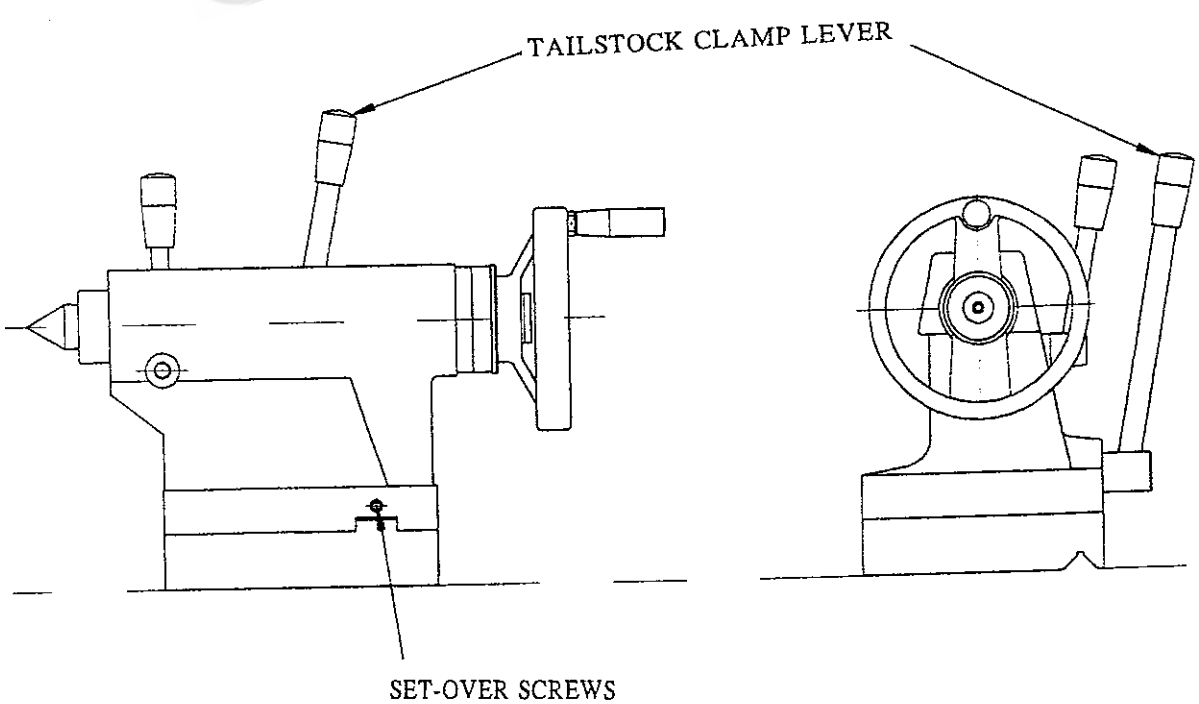
LATHE ALIGNMENT

B. TAILSTOCK CHECK

USING A 12IN. (305MM.) GROUND STEEL BAR FITTED BETWEEN HEAD-STOCK AND TAILSTOCK CENTERS, CHECK THE ALIGNMENT BY FITTING A DAIL-TEST INDICATOR TO THE TOPSLIDE AND TRAVERSING THE CENTER LINE OF THE BAR.

TO CORRECT ERROR RELEASE THE TAILSTOCK CLAMP LEVER AND AD-JUST THE TWO SET-OVER SCREWS PROVIDED CONTINUE WITH CHECKING AND CORRECTION UNTIL THE ALIGNMENT IS PERFECT.





LEVELING

LEVELING THE LATHE

The lathe should be kept perfectly level at all times

Leveling Procedure

CLEAN THE BEDWAYS THOROUGHLY AND MAKE SURE THE BEDWAYS ARE BRY AFTER CLEANING, bACK OFF ALL LEVELING SCREWS SO THE BASE IS SITTING ON THE FLOOR. PLACE A 6" PRECISION MACHINIST SPIRIT LEVEL OVER A PARALLEL IF THE LEVEL USED HAS A V-BASE, NOW PLACE THE LEVEL WITH THE BASE ON THE FRONT FLAT WAY, IF THE BASE OF THE LEVEL IS FLAT, IT CAN THEN BE DIRECTLY PLACED ON THE FLAT WAY, PLACE THE LEVELLENGTHWISE AT THE HEADSTOCK END AND LEVEL FOR A ZERO READING.

mOVE THE LEVEL TO THE TAILSTOCK END AND ADJUST THE OUTER END LEVELING SCREWS TO OBTAIN SAME READING AS ON THE HEADSTOCK END.

NOW PLACE THE LEVEL OVER A BRIDGE ACROSS AT THE HEADSTOCK END, TAKE A READING AND MOVE THE LEVEL TO THE TSILSTOCK END. THE READING AT THIS END MUST BE EXACTLY THE SAME AS THE OTHER END. NO TWIST IS PERMISSIBLE.

MAKE ADJUSTMENTS TO GET THE SAME READING AT BOTH ENDS.

IT WILL BE NECESSARY TO REPEAT THIS PROCEDURE SEVERAL TIMES, FOR MAKING MECESSARY ADJUSTMENTS, YOU WILL FIND THAT THE ADJUSTMENTS AT ONE END WILL AFFECT THE READING OF THE OTHER, AFTER THE END LEVELING SCREW ADJUSTMENTS ARE COMPLETE, TURN DOWN THE CENTER LEVELING SCREWS AT THE HEADSTOCK END UNTIL THEY REST UNDER SLIGHT TENSION. THE TENSION SHOULD BE SUCHTHAT IT DOES NOT CHANGE THE LEVEL READING.

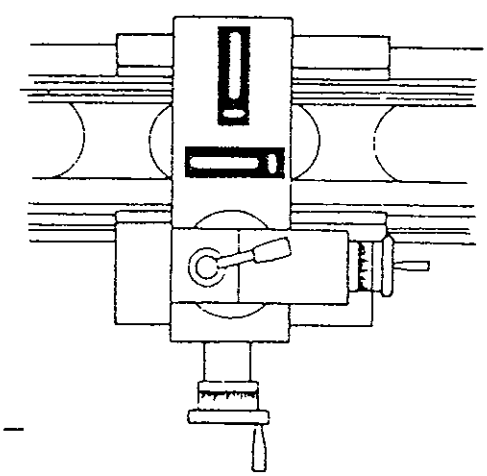
RECHECK LEVEL AT THIS TIME AND MAKE ONLY MINOR ADJUSTMENT, IF NECESSARY.

AFTER THE MACHINE HAS BEEN PUT TO USE FOR A PERIOD OF TIME, CHECK LEVEL TO OBSERVE IF THE ORIGINAL CONDITION EXISTS, MAKE ADJUSTMENTS IF NECESSARY.

(MARK ONE END OF THE LEVEL WITH A ERASABLE MARKER SO THAT THE LEVEL POINTS IN THE SAME DIRECTION FOR EVERY READING.)

CARPENTER'S OR COMBINATION SQUARE LEVEL ARE NOT ACCURATE AND MUST NOT BE USED,SCHEDULE A PERIODIC LEVEL CHECK AS A PART OF YOUR MAINTENENCE SCHEDULE.

POSITIONING OF SPIRIT LEVELS



TRANSPORTATION/INSTALLATION

PREPARATION FOR USE
****

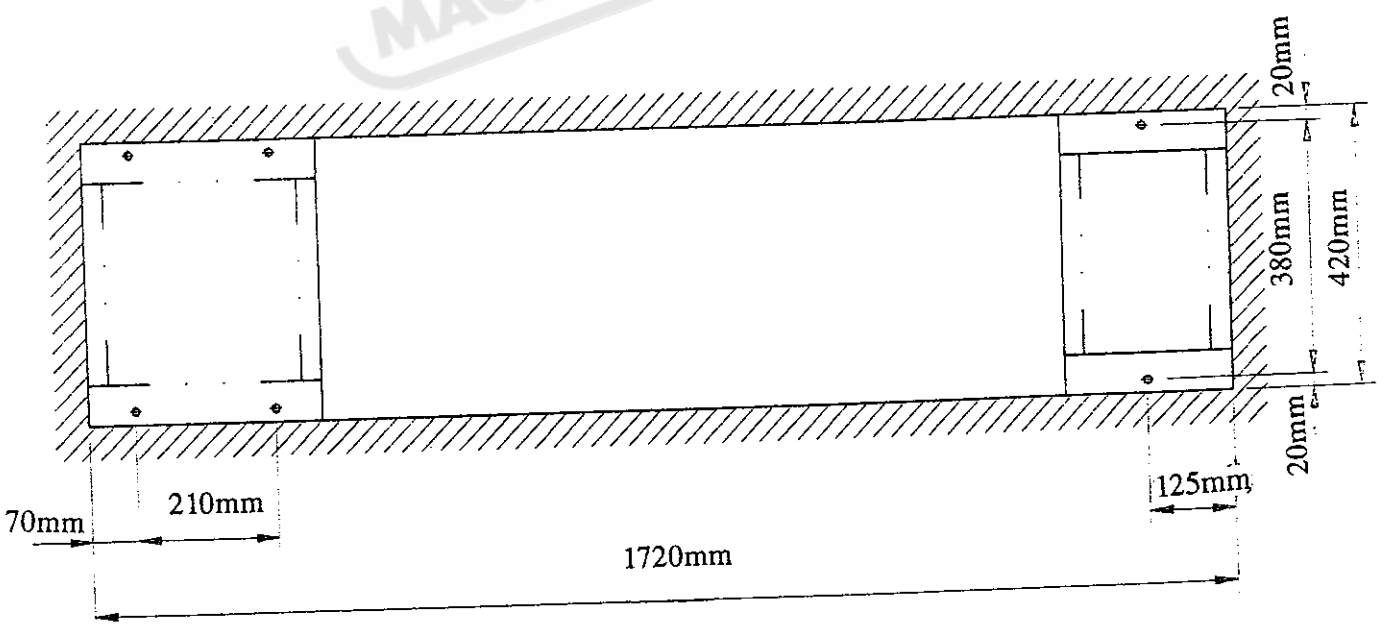
SELECTING LOCATION FOR MACHINE

FOR BEST RESULTS FROM ANY LATHE, IT IS IMPORTANT THAT THE ZONE SELECTED FOR ITS ERECTION BE WELL-LIGHTED, AS DRY AS POSSIBLE, AND AS FREE AS POSSIBLE FROM VIBRATION.

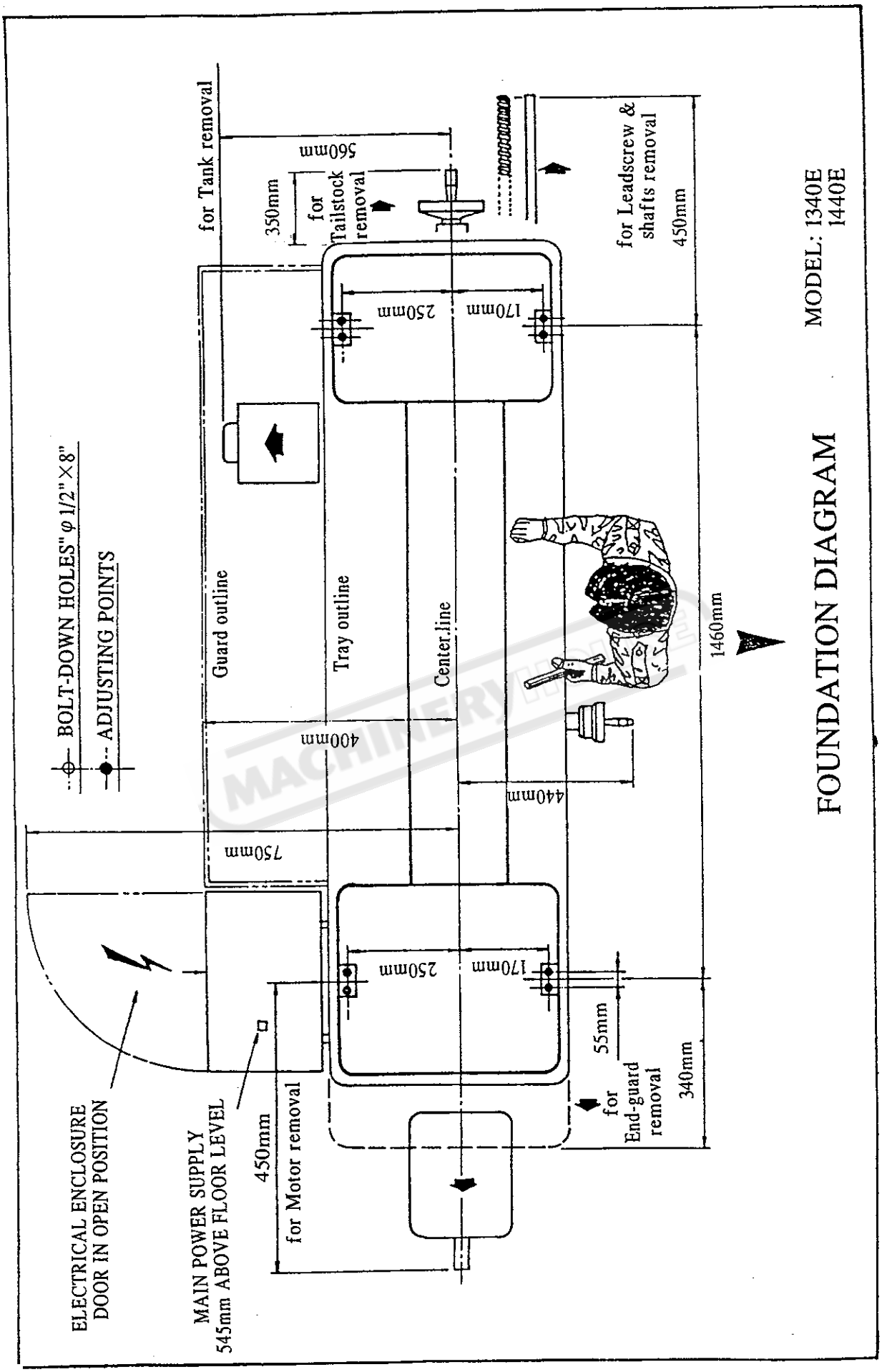
THE MACHINE SHOULD BE LOCATED SO THAT ADEQUATE SPACE IS PROVIDED FOR UTILIZATION OF MAXIMUM RAUGES, AS WELL AS THE SPACE REQUIRED FOR MAKING ADJUSTMENTS. A MINIMUM OF 28 INCHES CLEARANCE SPACE SHOULD BE PROVIDED AT THE ENDS AND REAR OF THE LATHE AND AT LEAST 40 INCHES AT THE FRONT FOR THE OPERATOR.

FOUNDATION

A SPECIAL FOUNDATION IS NOT ESSENTIAL FOR THIS MACHINE. HOWEVER, IT IS ADVISABLE TO PLACE IT ON A SUBSTANTIAL FOUNDATION OF CONCRETE IF POSSIBLE. IF PLACED ON A WOODEN FLOOR, CARE SHOULD BE TAKEN TO SEE THAT IT IS ADEQUATELY SUPORTED AND FREE FROM VIBRATION. IF THE MACHINE IS TO BE PLACED ON AN UPPER FLOOR, LOCATE IT DIRECTLY OVER A SUPPORTING BEAM OR GRINDER TO REDUCE ANY VIBRATION GENERATED BY NEARBY MACHINES



FUNDATION DIAGRAM


FOUNDATION DIAGRAM
MODEL: 1340E
1440E
BOLT-DOWN HOLES" φ 1/2" ×8"
ADJUSTING POINTS
for Tank removal
560mm
350mm
for Tailstock removal
for Leadscrew & shafts removal
450mm
250mm
170mm
Guard outline
Tray outline
Center.line
400mm
440mm
1460mm
750mm
55mm
for End-guard removal
340mm
ELECTRICAL ENCLOSURE DOOR IN OPEN POSITION
MAIN POWER SUPPLY 545mm ABOVE FLOOR LEVEL
450mm
for Motor removal

CHUCKS AND CHUCK MOUNTING

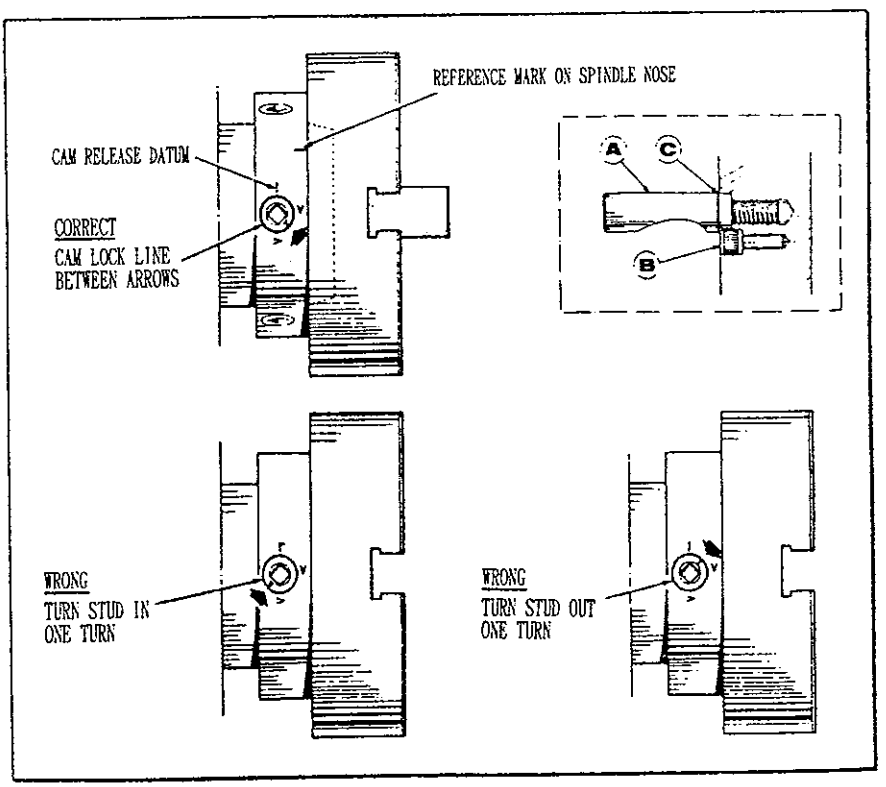
WHEN FITTING CHUCKS OR FACE PLATES, FIRST ENSURE THAT SPINDLE AND CHUCK TAPERS ARE PERFECTLY CLEAN AND THAT ALL CAMS LOCK IN THE CORRECT POSITIONS, SEE FIG. IT MAY BE NECESSARY WHEN MOUNTING A NEW CHUCK TO RE-SET THE CAMLOCK STUDS(A). TO DO THIS, REMOVE THE CAPHEAD LOCKING SCREWS(B) AND SET EACH STUD SO THAT THE SCRIBED RING(C) IS FLUSH WITH THE REAR FACE OF THE CHUCK-WITH THE SLOT LINING UP WITH THE LOCKING SCREW HOLE.

NOW MOUNT THE CHUCK OR FACEPLATE ON THE SPANDLE NOSE AND TIGHTEN THE SIX CAMS IN TURN. WHEN FULLY TIGHTENED, THE CAM LOCK 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 LIMIT MARKS, REMOVE THE CHUCK OR FACEPLATE AND RE-ADJUST THE STUD AS INDICATED IN THE ILLUSTRATION. FIT AND TIGHTEN THE LOCKING SCREW(B) AT EACH STUD BEFORE REMOUNTING THE CHUCK FOR WORK. A REFERENCE MARK SHOULD BE MADE ON EACH CORRETLY FITTED CHUCK OR FACEPLATE TO COINCIDE WITH THE REFERENCE MARK SCRIBED ON THE SPINDLE NOSE.

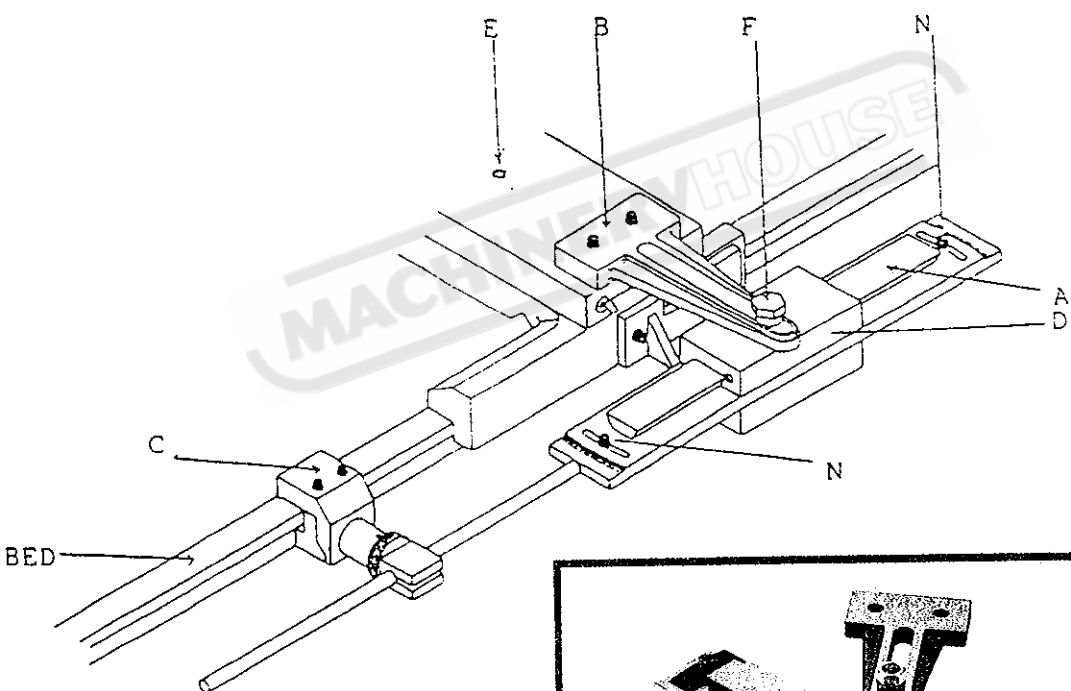
THIS WILL ASSIST SUBSEQUENT REMOUNTING: DO NOT INTERCHANGE CHUCKS OR FACE PLATES BETWEEN LATHES WITHOUT CHECKING FOR CORRECT CAM LOCKING BEFOREHAND.

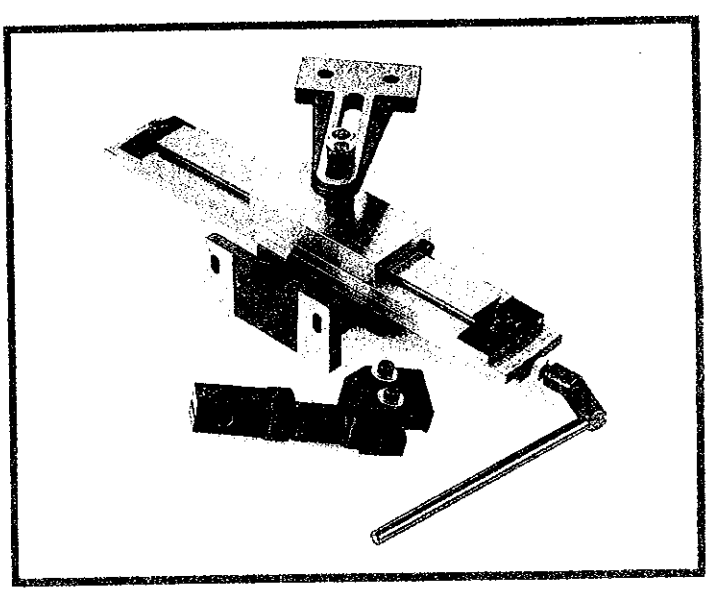
＊＊＊ IMPORTANT: TAKE CAREFUL NOTE OF SPEED LIMITATION WHEN USING FACEPLATE;' 10 INCH FACEPLATES SHOULD NOT BE RUN AT SPEEDS GREATER THAN 1000 REV/MIN. AND 12INCH FACEPLATES AT NOT MORE THAN 750 REV/MIN.



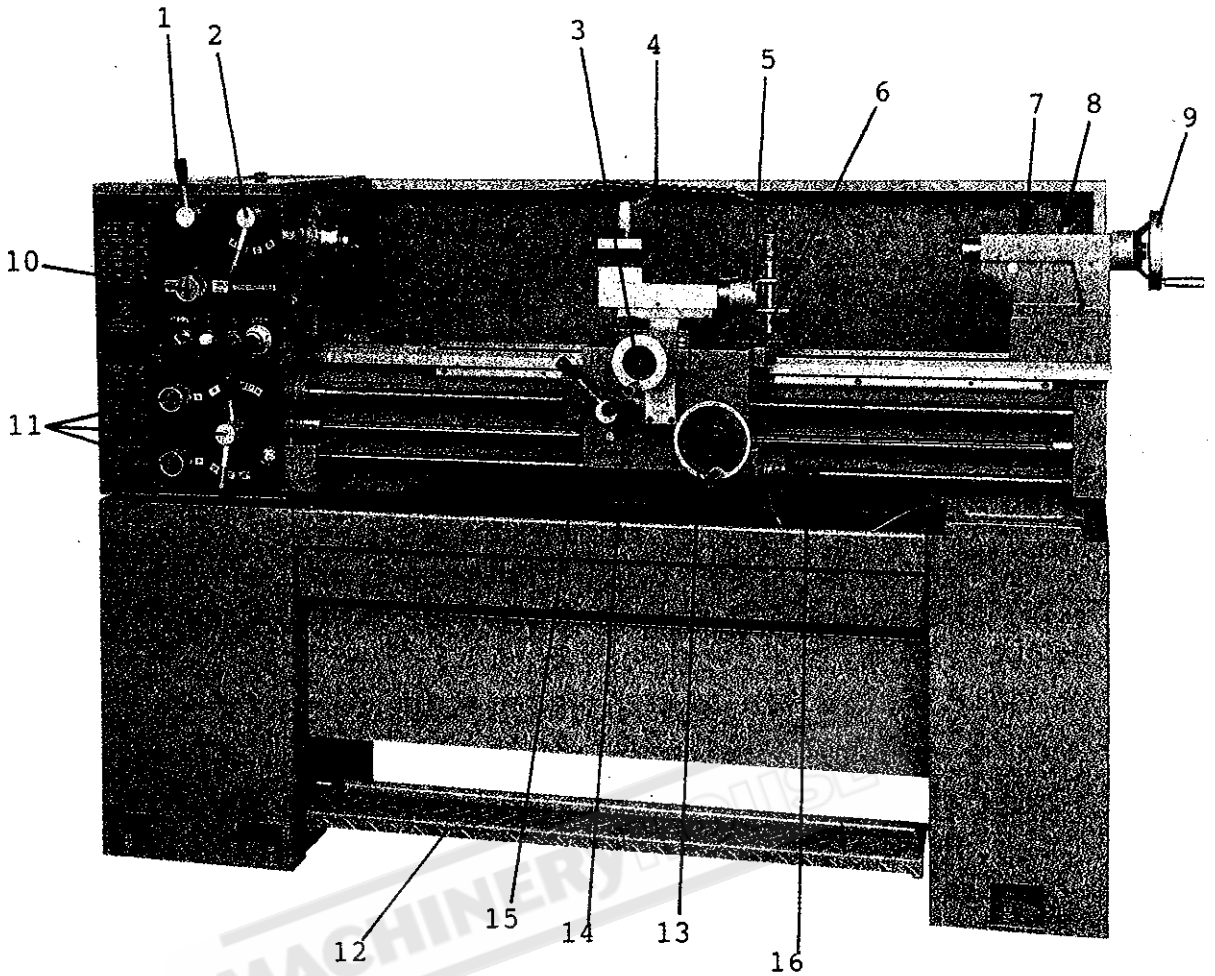
INSTRUCTIONS FOR ASSEMBLING TAPER ATTACHMENT ON LATHES:

1. LOOSEN CROSS FEED NUT "E".
2. FIT TAPER ATTACHMENT ON THE CARRIAGE AND LOCK IT BY SCREWS.
3. ADJUST SLIDE"A" PARALLELY TO BED BY 0.015MM PER 150MM THROUGH A DIAL METER.
4. INSTALL BOLT "F" ON BLOCK "D".
5. MOUNT THE PART "B" ON CROSS SLIDE AND LOCK IT BY SCREWS.
6. LOCK THE PART "B" ON BLOCK "D" BY NUT.
7. SET BRACKET "C" ON BED WAY.





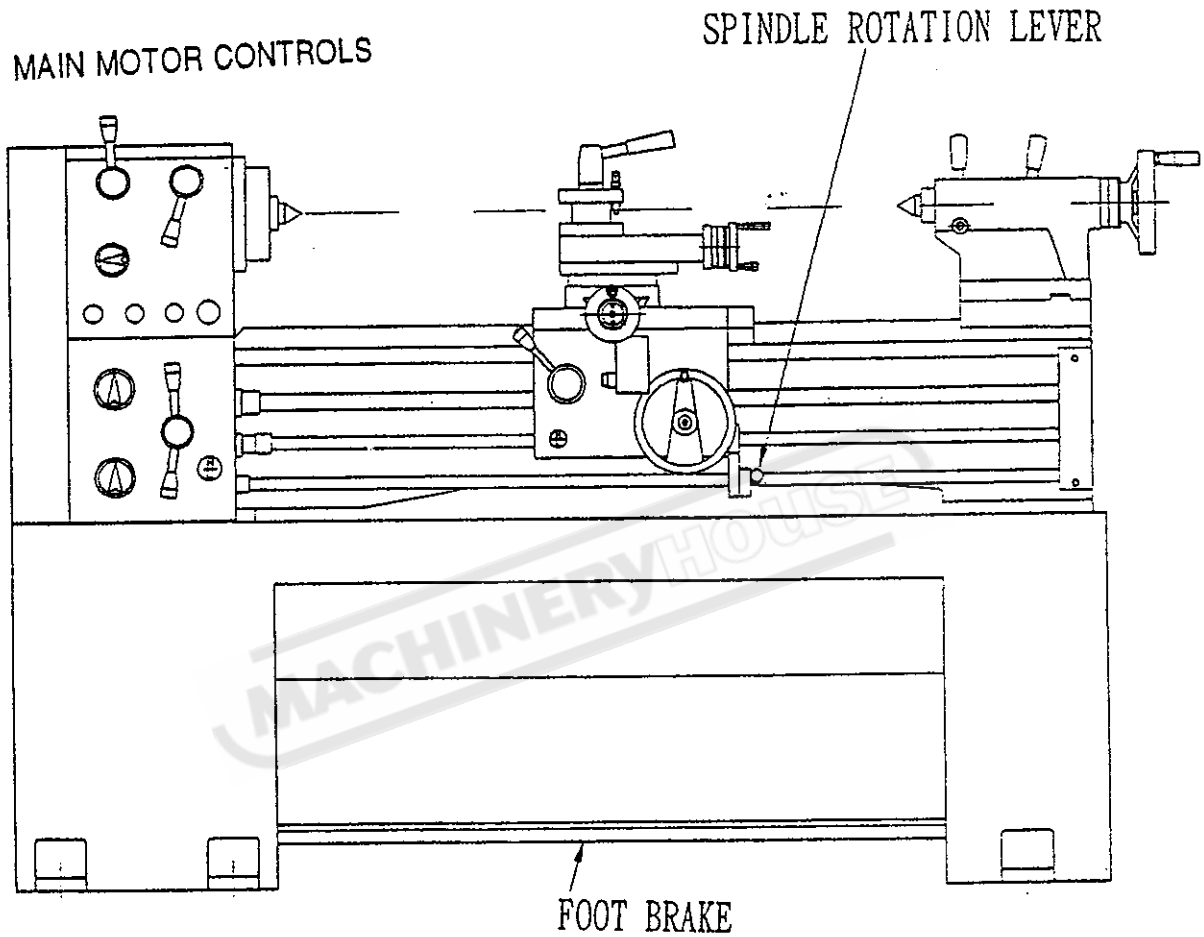
LATHE CONTROL



1. SPINDLE SPEED SELECTOR
2. SPEED SELECT LEVER
3. SLIDE CROSS FEED HANDWHEEL
4. TOOLPOST CLAMPING LEVER
5. TOP SLIDE HANDWHEEL
6. SADDLE CLAMPING LEVER
7. TAILSTOCK BARREL CLAMPING LEVER
8. TAILSTOCK CLAMPING LEVER
9. TAILSTOCK HANDWHEEL
10. POSITIVE-REVERSE LEVER
11. FEED AND THREAD SELECTORS
12. FOOT BRAKE
13. APRON LONGITUDINAL FEED HANDWHEEL
14. AUTOMATIC FEED LEVER
15. THREAD CUTTING HALF-NUT LEVER
16. SPINDLE ROTATION (FORWARD AND REVERSE)

* MAIN MOTOR ROTATION:
  SELECTED BY THE LEVER CONTROLS (THE LOCATED ON RIGHT HAND SIDE OF THE APRON) MOVE LEVER OUT AND UPWARD TO ENGAGE FORWARD ROTATION OF SPINDLE. OR OUT AND DOWN TO ENGAGE REVERSE ROTATION. OR RETURNED TO THE CENTRAL POSITION TO DISENGAGE DRIVE.

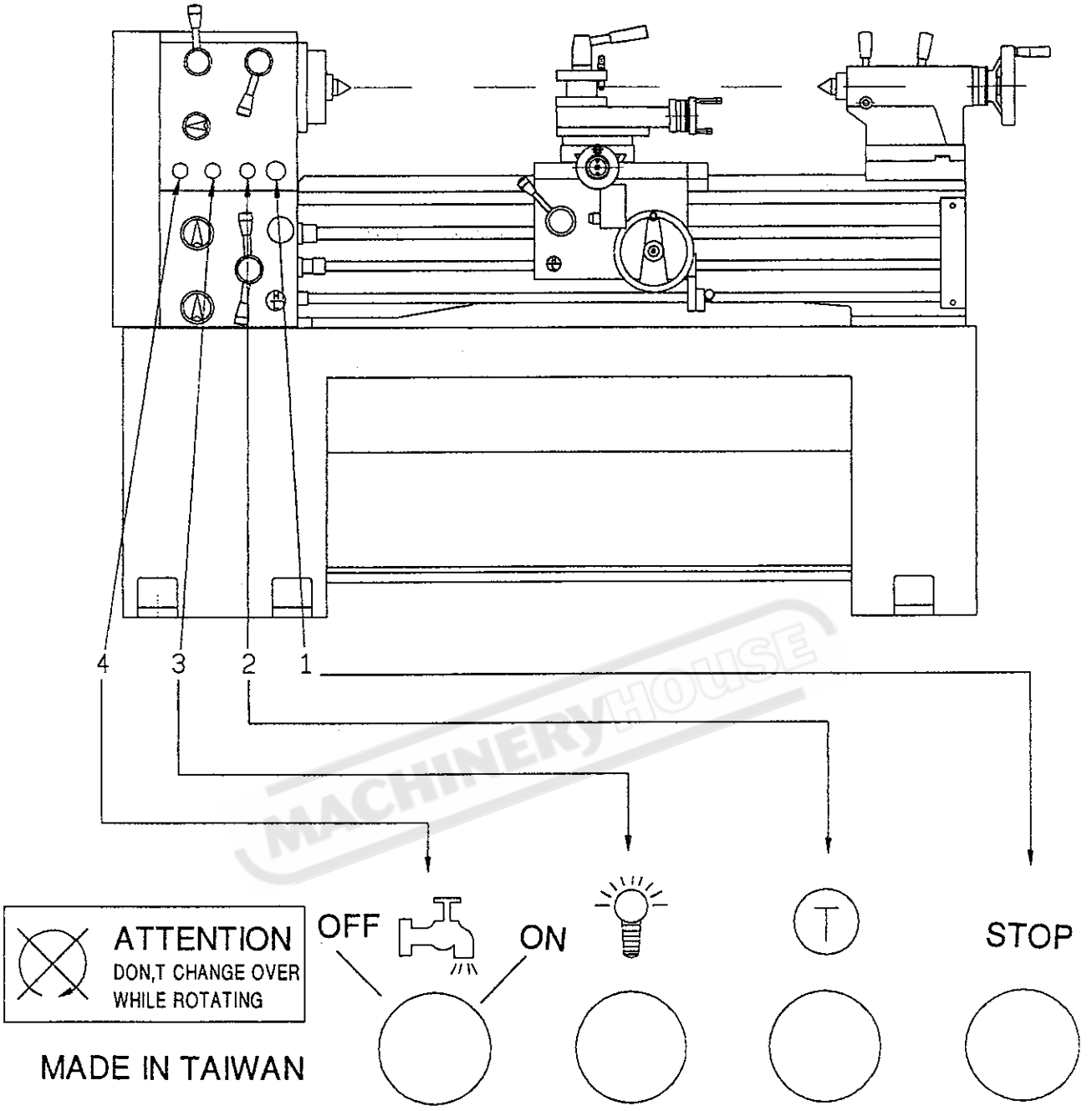
* FOOT BRAKE:
  A FOOT PEDAL BETWEEN PLINTHS OPERATES THE SPINDLE BRAKE.



* * * CAUTION * * *

1. During the machine run in high speed, please do not change rapidly the controlling lever from forwarding to reversing or from reversing to forwarding to ensure machine in safety and prevent the motor from damage.
2. An additional micro switch is fitted for the foot brake. Upon the foot brake is operated, the magnetic switch on the spindle motor will be cut off automatically.
3. If an emergency stop is need, then pedal only the foot brake to cut the power off from the spindle motor. Also, the brake lining will be operated to stop the spindle rapidly.
4. For a regular operation stop, put only the brake starting lever in the middle position to cut the magnetic switch off and stop the machine.

CONTROL PANEL



* * * CAUTION: DO NOT SHIFT GEARS WHEN THE SPINDLE IS RUNNING.

1. THE EMERGENCY STOP: PRESS THE RED MUSHROOM-HEAD BUTTON TO STOP THE MAIN MOTOR AND COOLANT PUMP.
2. INCHING BUTTON: PRESS THE GREEN BUTTON TO MOVE SPINDLE SLIGHTLY, IT WILL MARK SPINDLE SPEED SELSCTION VERY EASY, (WHILE THE SPINDLE ROTATION LEVER IS SET IN THE NEUTRAL POSITION).
3. PILOT LAMP.
4. COOLANT PUMP ON/OFF SWITCH.

CROSS SLIDE AND TOP SLIDE

A SOLID TOP-SLIDE IS FITTED AS STANDARD TO THE CROSS-SLIDE, CARRIED ON A ROTATABLE BASE THE CROSS-SLIDE IS MARKED 45° -0-45° DEG. FOR ACCURATE INDEXING.

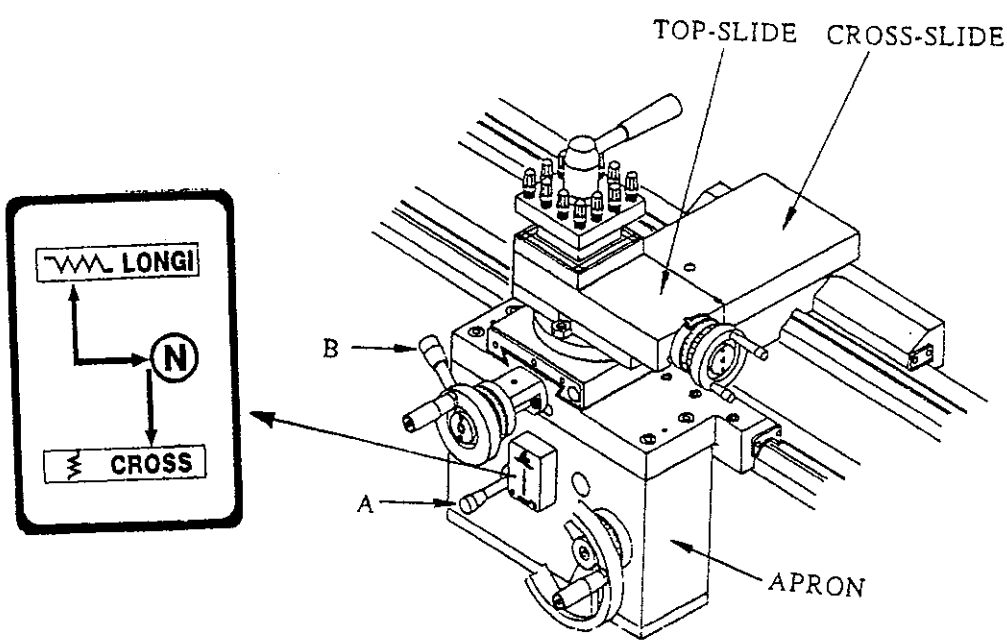
HANDWHEEL DIALS ARE GRADUATED IN INCH OR METRIC DIVISION TO SUIT THE OPERATING SCREW AND NUT FITTED.

THE CROSS-SLIDE CAN BE POWER OPERATED BY PULLED DOWNWARD THE AUTOMATIC FEED LEVER AT HALF SLIDING FEED PER SPINDLE REVOLUTION OR IF CAN BE HAND-OPERATED USING THE LARGE-DIAMETER DIAL GRADUATED IN EITHER INCH OR METRIC DIVISIONS TO SUIT THE OPERATING SCREW AND NUT FITTED.

APRON CONTROLS

IN ADDITION TO HANDWHEEL TRAVERES, THE CARRIAGE CAN BE POWER-OPERATED THROUGH CONTROLS ON THE FRONT OF THE APRON,AUTOMATIC FEED LEVER (A) IF MOVE UPWARDS,CARRIAGE WOULD DO LONGITUDINAL-FEED OPERATION. IF MOVE LEVER (A) IN MIDDLE POSITION, IT WOULD DO MANUAL OPERATION. IF MOVE LEVER (A) DOWNWARDS, IT WOULD DO CROSS-FEED OPERATION.

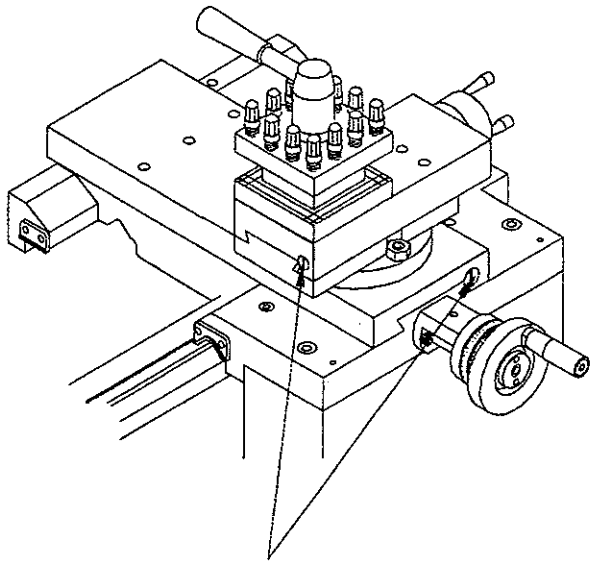
LEVER (B) IS PRESSED DOWNWARD TO ENGAGE THE LEADSCREW NUT FOR SCREW CUTTING, TO AVOID UNDUE WEAR. RELEASE THE NUT EXCEPT WHEN SCREW CUTTING, AN INTERLOCK WITHIN THE APRON PREVENTS IN ADVERTENT ENGAGEMENT OF AUTOMATIC FEED LEVER (A) AND HALF NUT LEVER (B) AT THE SAME TIME.



SLIDE WAYS ATTENTION

TAPERED GIB STRIPS ARE FITTED TO SLIDEWAYS OF SADDLE CROSS-SLIDE AND TOP (COMPOUND) SLIDES SO THAT ANY SLACKNESS WHICH MAY DEVELOP CAN BE RECTIFIED.

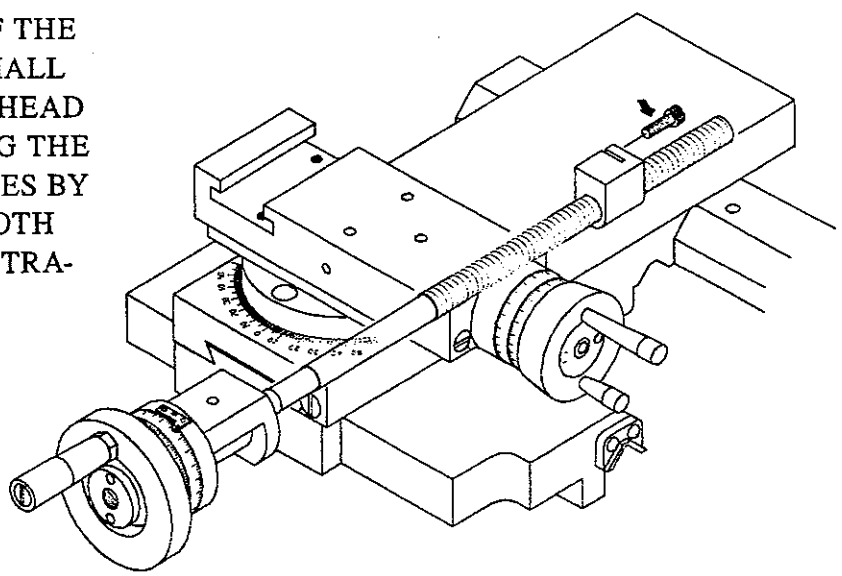
ENSURE THAT SLIDEWAYS ARE THROUGHLY CLEANED AND LUBRICATED BEFORE ATTEMPTING ADJUSTMENT. THEN RESET THE GIBS BY SLACKENING THE REAR GIB SCREW AND TIGHTENING THE FRONT SCREW,A LITTLE AT A TIME. CHECK CONSTANTLY FOR SMOOTH ACTION THROUGHOUT FULL SLIDE TRAVEL; AVOID OVERADJUSTMENT WHICH CAN RESULT IN INCREASED WEAR-RATE AND STIFF OR JERKY ACTION.



GIB ADJUSTERS

CROSS-SLIDE NUT

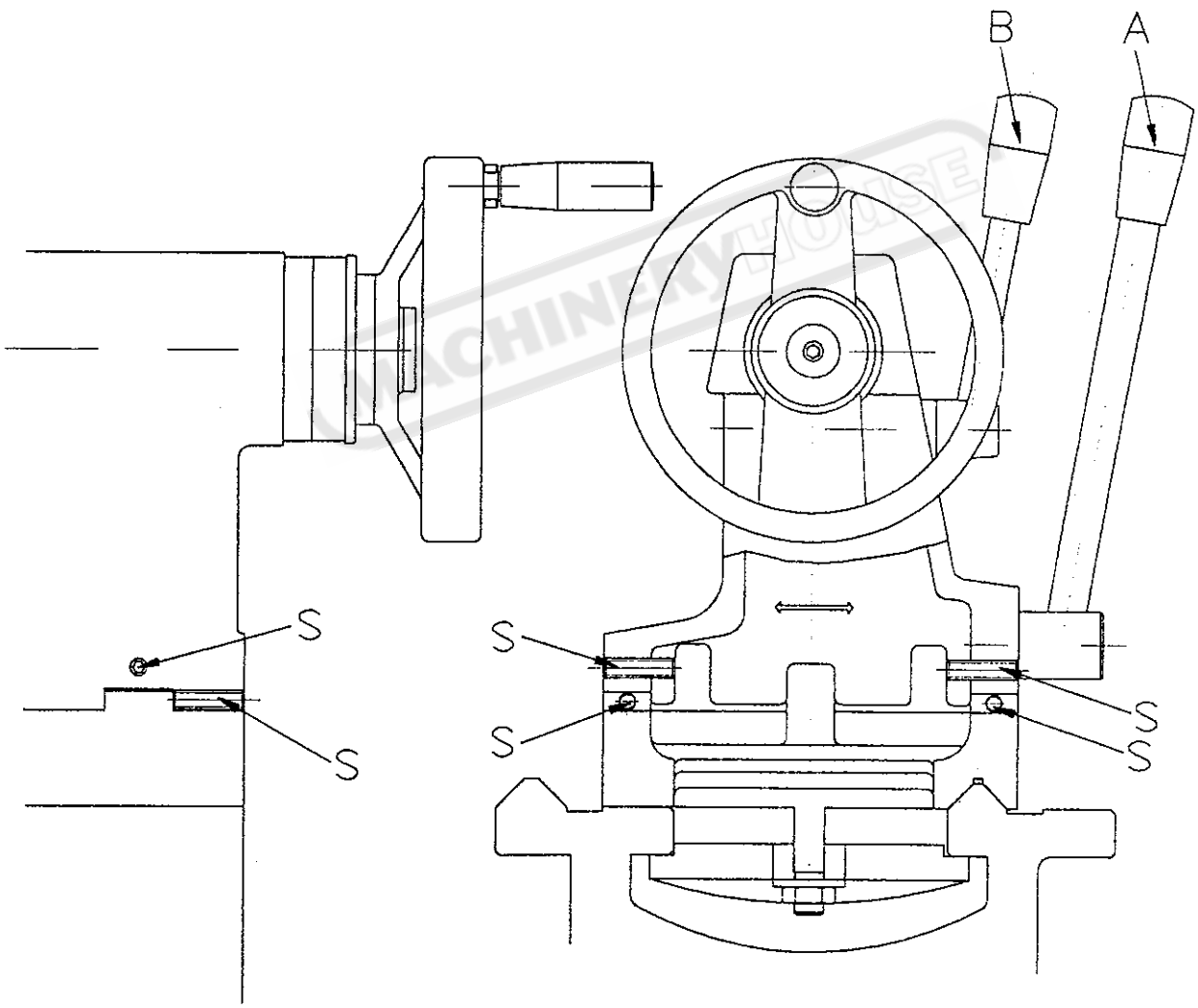
THIS IS ADJUSTABLE FOR ELIMINATION OF SLACKNESS WHICH MAY DEVELOP IN SERVICE. REDUCE BACKLASH BY THE CAP-HEAD SCREW REAR OF THE NUT, THEN MAKE ONLY SMALL ADJUSTMENT BY THE CAP-HEAD SCREW. BEFORE OPERATING THE CROSS-SLIDE SEVERAL TIMES BY HAND TO BE SURE OF SMOOTH OPERATION THROUGHOUT TRAVEL.



TAIL STOCK

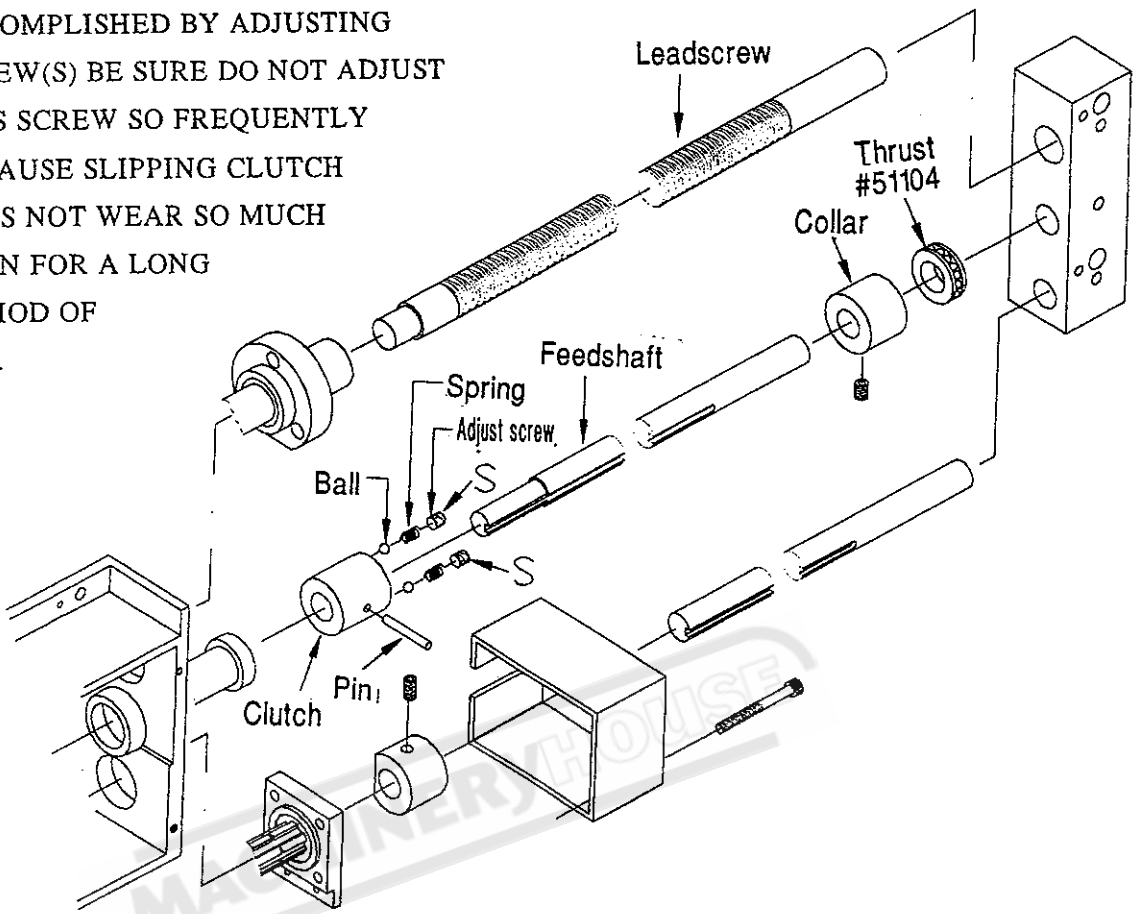
CAN BE FREED MOVEMENT ALONG THE BED BY UNLOCKING THE CLAMP LEVER (A). THE TAILSTOCK BARREL IS LOCKED BY LEVER (B).

THE TAILSTOCK CAN BE SET-OVER FOR PRODUCTION OF SHALLOW TAPERS OR FOR RE-ALIGNMENT, RELEASE THE CLAMPING LEVER (A) AND ADJUST SCREW (S) AT EACH SIDE OF THE BASE TO MOVE TAILSTOCK LATERALLY ACROSS THE BASE. RETIGHTENING AND CHECKING AFTER ADJUSTMENT OF SET OVER.



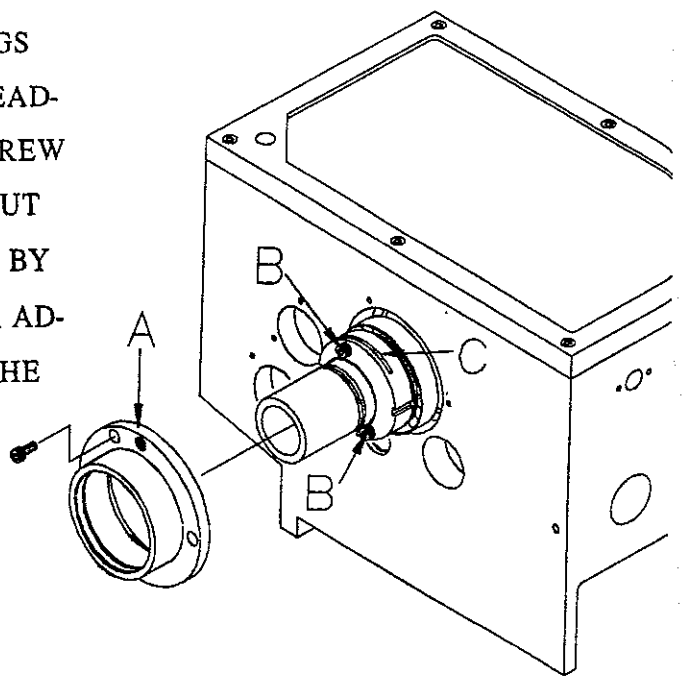
ADJUSTMENT OF SLIPPING CLUTCH

APRON HAS AN OVERLOAD PROTECTION DEVICE BY MEANS OF SLIPPING CLUTCH. THIS ADJUSTMENT CAN BE ACCOMPLISHED BY ADJUSTING SCREW(S) BE SURE DO NOT ADJUST THIS SCREW SO FREQUENTLY BECAUSE SLIPPING CLUTCH DOES NOT WEAR SO MUCH EVEN FOR A LONG PERIOD OF USE.



SPINDLE BEARING ADJUSTMENT

WHEN WE FIND THE SPINDLE BEARINGS ARE TOO TIGHT OR LOOSE, OPEN THE HEADSTOCK COVER (A) AD LOOSE THE SET SCREW (B) ON THE SPINDLE BEARING THRUST NUT (C) AND THEN ADJUST THE THRUST NUT BY LOOSING OR FASTENING IT. THE PROPER ADJUSTMENT IS FINISHED BY FASTENING THE SET SCREW AGAIN.



THREADS AND FEEDS

****FOR INCH GEAR BOX****

CHECK THE CHART FOR THE DESIRED FEED AND TURN THE CHANGE LEVER.(W,X,Y,Z)AND (P.Q.R.I.T.)AND TURN THE SELECTOR KNOB (A,B)(C,D) IN THE GEAR BOX. TO THE OBTAIN THE DESIRED SPEED SHOWN ON THE RIGHT CHART.

CAUTION

DO NOT CHANGE GEARS AND FEEDS WHEN SPINDLE IN HIGHER SPEED RANGE.

30 T.P.I. INCH (120 / 127)	PX	PX	QX	TZ	RX	RX	QZ	RW
	60	65	60	60	57	60	60	60
AD	3	3 1/4	4	4 1/3	4 3/4	5	5 1/2	7
BD	6	6 1/2	8	9	9 1/2	10	11	14
AC	12	13	16	18	19	20	22	28
BC	24	26	32	36	38	40	44	56

(120 / 127 / 60) PITCH MM	RW	QW	RW	QW	RW	QX	QW	QX
	28	28	42	35	49	30	49	36
AD	3.2	4.0	4.8	5.0	5.6	6.0	7.0	7.2
BD	1.6	2.0	2.4	2.5	2.8	3.0	3.5	3.6
AC	0.8	1.0	1.2	1.25	1.4	1.5	1.75	1.8
BC	0.4	0.5	0.6		0.7	0.75		0.9

30 (120 / 127 / 60) FEED MM (1/1, 1/2)	IW	IX	IY	IZ
AD	0.021	0.0295	0.0638	0.0226
BD	0.0105	0.0148	0.0184	0.0113
AC	0.0053	0.0072	0.0092	0.0056
BC	0.0026	0.0036	0.0046	0.0028

30 (120 / 127 / 60) PITCH MM	TY	UX	SY	UY	SZ	RY	UZ	RZ
AD	3.2	3.6	4.0	4.8	5.0	5.6	6.0	7.0
BD	1.6	1.8	2.0	2.4	2.5	2.8	3.0	3.5
AC	0.8	0.9	1.0	1.2	1.25	1.4	1.5	1.75
BC	0.4	0.45	0.5	0.6		0.7	0.75	

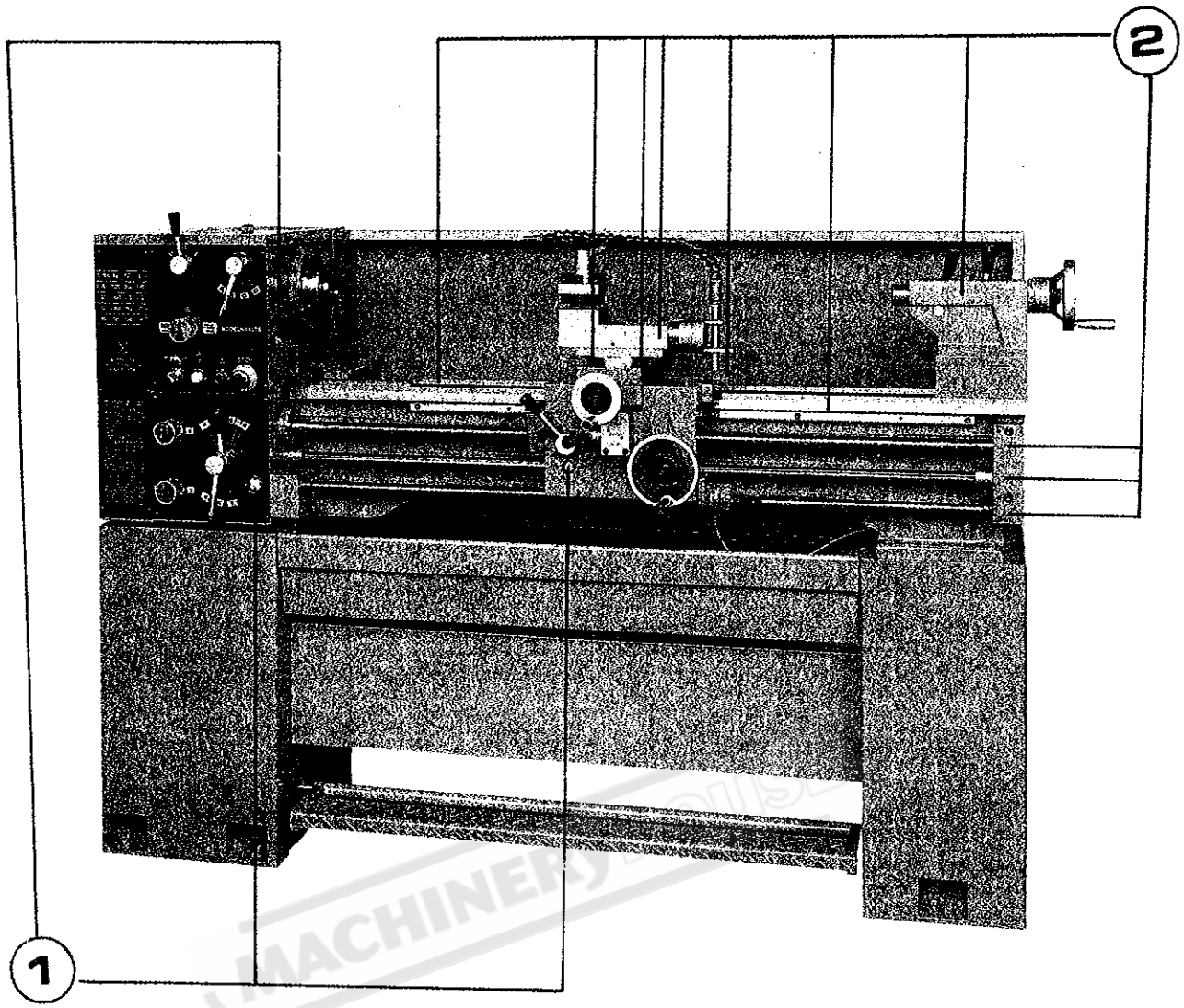
40 (120 / 127) T.P.I. INCH	UX	SY	TX	UX	TX	TX	TX	TX
	48	60	38	60	44	48	52	56
AD	4	4 1/2	4 3/4	5	5 1/2	6	6 1/2	7
BD	8	9	9 1/2	10	11	12	13	14
AC	16	18	19	20	22	24	26	28
BC	32	36	38	40	44	48	52	56

30 (120 / 127 / 60) FEED MM (1/1, 1/2)	X	Y	Z
PAD	0.554	0.752	0.936
PBD	0.272	0.376	0.468
PAC	0.136	0.188	0.234
PBC	0.068	0.094	0.117

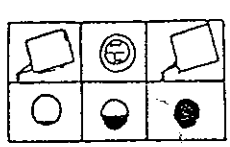
****FOR METRIC GEAR BOX****

CHECK THE CHART FOR THE DESIRED FEED AND TURN THE CHANGE LEVER (X,Y,Z) AND (R,S,T,P,U) TURN THE SELECTOR KNOB (A,B) (C,D) IN THE GEAR BOX. TO THE OBTAIN THE DESCIRED SPEED SHOWN ON THE LEFT CHART.

LUBRICATION CHART



TWICE PER DAY 2	OIL DAILY	CHECK DAILY 1



CAUTIONS ON OILING

THE FOLLOWING CAUTIONS ARE VERY IMPORTANT TO BE FOLLOWED WHEN OILING.

(1) USE. ONLY SPECIFIED OIL OR GREASE WITH SPECIFIED QUANTITY. TO USE OIL OR GREASE OTHER THAN SPECIFIED AND TOO MUCH AMOUNT OF OIL OR GREASE MAY ADVERSELY AFFECT THE PERFORMANCE OF THE MACHINE.

(2) CLEAN THE SLIDE WAYS, OIL FILLER HOLES, OIL TANK, ETC. BEFORE POURING OIL AND USE CARE NOT TO POLLUTE OIL WHEN POURING OIL.

(3) WHEN POURING OIL, PLACE A FILTER OVER OIL FILLER HOLE TO ELIMINATE DUST AND CONTAMINATOR. IF FILTER IS NOT AVAILABLE, USE A WIRE NET OF 150 MESH OR FINER.

(4) SUCCESSIVELY USE THE IDENTICAL OIL OR GREASE. NOTE THAT THE USE OF OIL HAVING DIFFERENT PROPERTIES MIGHT DEGRADE THE OIL.

(5) EVEN WHEN NEW OIL IS DRAINED, AND USED AGAIN FOR REASSEMBLING, REPLACEMENT OF PART OR ANY OTHER REASON, BE SURE TO FILTER THE OIL WHEN POURING THEOIL AGAIN.

(6) DO NOT FULLY USE OIL OF OIL CAN, BUT LEAVE A SMALL QUANTITY OF OIL IN THE CAN. THIS CAUTIONS SHOULD BE GOLLOWED TO ELIMINATE MOISTURE AND SEDIMENT FROM OIL.

LUBRICATION CHECKS

A. HEADSTOCK

HEADSTOCK BEARING AND GEARS ARE SPLASH LUBRICATED. ENSURE THAT OIL LEVEL IS KEPT BETWEEN H-L LEVEL MARK ON THE SIGHT GLASS IN THE CHUCK-FACE OF HEADSTOCK. AFTER LONG TIME OF OPERATION, WHEN THE HEADSTOCK LUBRICATION OIL BECOMES UNCLEAN IT SHOULD BE DRAINED OUT TO REFILL FRESH LUBRICATION OIL.

TO CHANGE OIL IN HEADSTOCK, SET APRON CONTROL LEVER TO CENTRAL POSITION AND STOP THE MAIN MOTOR. UNSCREW THE DRAIN PLUG BESIDE HEADSTOCK, THEN THE OIL TANK CAN BE EASILY DRAINED OUT FOR CHANGING OIL. A FILLER PLUG IS FITTED BESIDE THE LEFT END OF THE HEADSTOCK ACCESSIBLE AFTER REMOVAL OF THE END GUARD.

B. GEARBOX

THE GEARBOX IS SPLASH-LUBRICATED FROM ON INTERNAL RESERVOIR OF OIL. CHECK THE OIL LEVEL CONSTANTLY TO THE MARK ON THE OIL SIGHT WINDOW AT THE FRONT OF GEARBOX. A WEEKLY CHECK IS RECOMMENDED, WITH THE OIL CHANGED EVERY SEMI ANNUAL. FILL OIL THROUGHT A FILLER CAP IN THE TOP OF THE GEAR BOX. ENCLOSED BY THE END-GUARD. DRAIN FROM A DRAIN PLUG IN THE BOTTOM OF THE GEAR BOX.

C. APRON

APRON OILING SHOULD BE MADE THROUGH THE OIL INLET IN THE TOP OF THE SADDLE. BY REMOVING THE CAP OF THE OIL INLET THE OIL MUST BE ALWAYS KEPT WITH THE HORIZONTAL CENTER LINE OF THE OIL SIGHT AT THE FRONT OF THE APRON TO DRAIN THE PLUG AT THE LOWER OF APRON WHEN TAKING OFF THE OIL.

FILL APRON RESERVOIR THROUGH INLET TO LEVER THE SIGHT WINDOW WITH SHELL TONNA OIL 27 LUBRICANT.

D. OTER PORTIONS

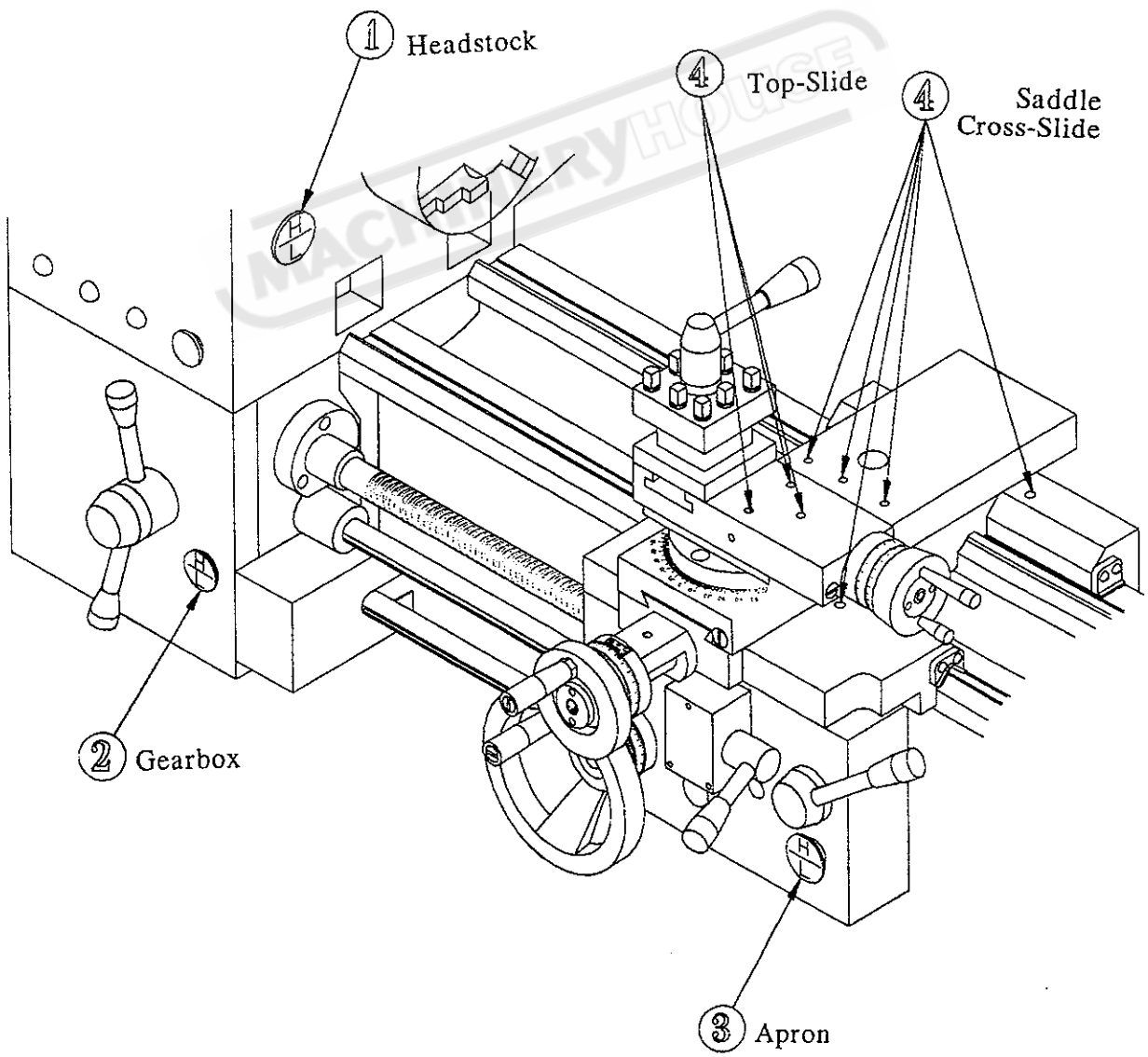
THERE ARE OIL INLETS IN CROSS SLIDE. COMPOUND REST, FEED SCREW SHAFT BEARING, AND BRACKET WHICH HOLDS ROD, LEAD SCREW AND TAILSTOCK, HAND OILING IS REQUIRED FROM TIME TO TIME.

*** ENSURE THAT THE SLIDEWAYS ARE THOROUGHLY CLEANED AND LUBRICATED BEFORE OPERATING THE LATHE.

LUBRICATION CHECKS

BEFORE OPERATING THE MACHINE MAKE THE FOLLOWING IMPORTANT CHECKS:

1. THAT THE HEADSTOCK IS FILLED TO LEVEL MARKED ON OIL SIGHT WINDOW WITH SHELL TELLUS OIL 27.
2. THAT THE GEARBOX FILLED TO LEVEL MARKED ON OIL SIGHT WINDOW WITH SHELL TELLUS OIL 27.
3. THAT THE CARRIAGE APRON IS FILLED TO LEVEL MARK ON OIL SIGHT WINDOW WITH SHELL TONNA 33.
4. IN ADDITION, APPLY AN OIL CAN TO THE POINTS SHOWN ON LUBRICATION DIAGRAM WHICH REQUIRE DAILY OILING, USE LIGHT MACHINE OIL OR WAY LUBRICANT.



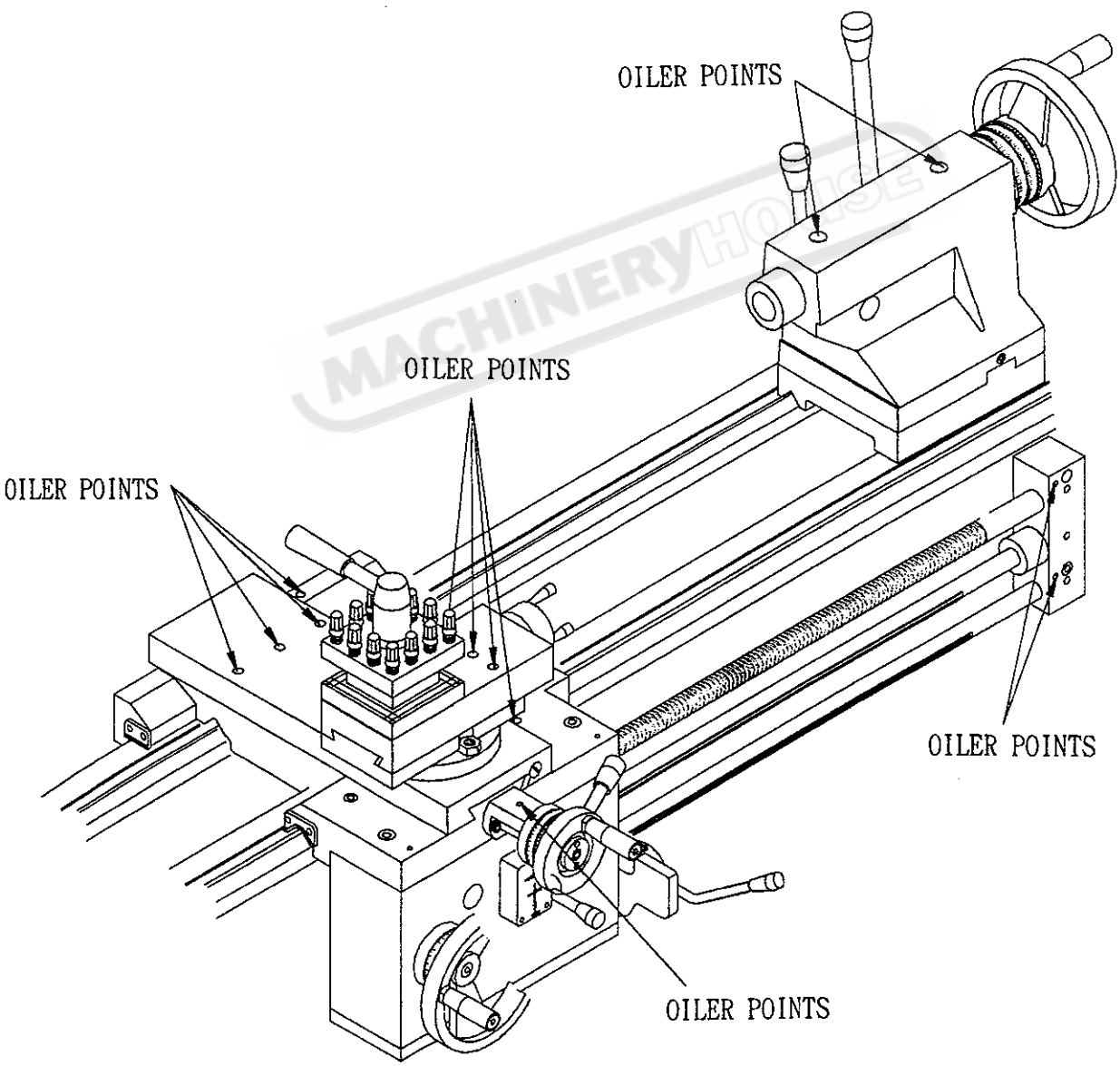
LUBRICATION

IN ADDITION TO PUMP-FED LUBRICATION, OILER POINTS ARE PROVIDED FOR THE SADDLE, CROSS-SLIDE, CROSS-SLIDE NUT AND USIND A STANDARD PUMP-TYPE CAN WITH LIGHT MACHINE OIL OR WAY LUBRICANT, SEE FIG.

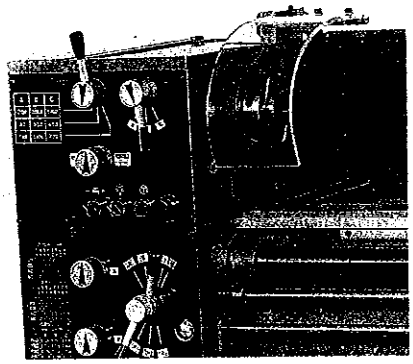
ON THE TAILSTOCK, TAIL END OF LEADSCREW OILER POINTS ARE PROVIDED FOR DAILY ATTENTION FROM A STANDARD OIL CAN.

IT IS RECOMMENDED THAT ALL SLIDEWAYS, THE LEADSCREW AND FEED SHAFT ARE CLEANED OFF (A BRISTLE PAINT BRUSH IS USEFUL FOR THIS) AND LIGHTLY OILED AFTER EACH PERIOD OF WORK.

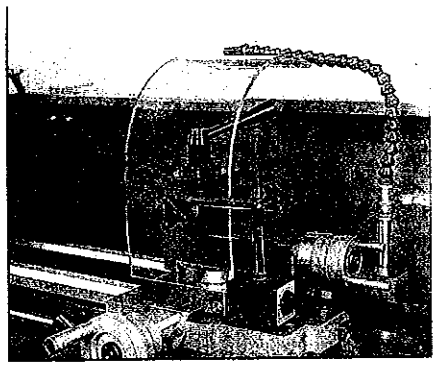
NOTE: USE OF INCORRECT GRADED OF CAN CAUSE DAMAGE.



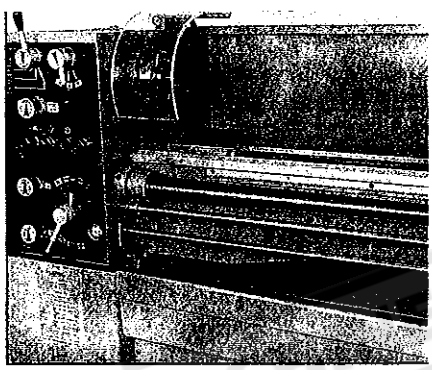
"CE" CHARACTERISTICS:



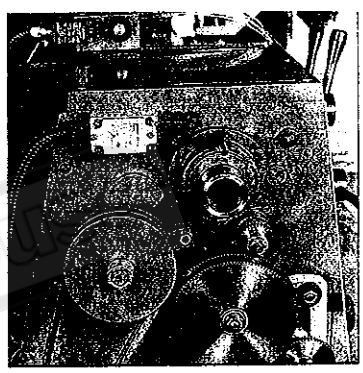
A CHUCK GUARD WITH LIMIT SWITCH IS FITTED. (The machine is stopped automatically when the chuck guard is lifted up.)



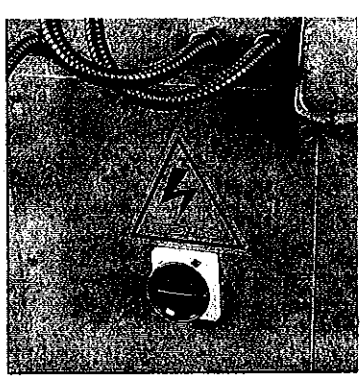
TOOL SLIDE GUARD IS MOUNTED ON THE SADDLE TO ENSURE OPERATION SAFELY.



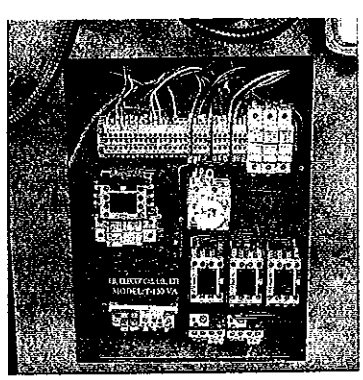
LEAD SCREW IS INSTALLED WITH MOVABLE COVER PROTECTED TO ENSURE OPERATION SAFELY.



END COVER IS CONNECTED WITH A LIMIT SWITCH ON THE SIDE OF HEADSTOCK. (The machine is stopped automatically when the end cover is opened.)



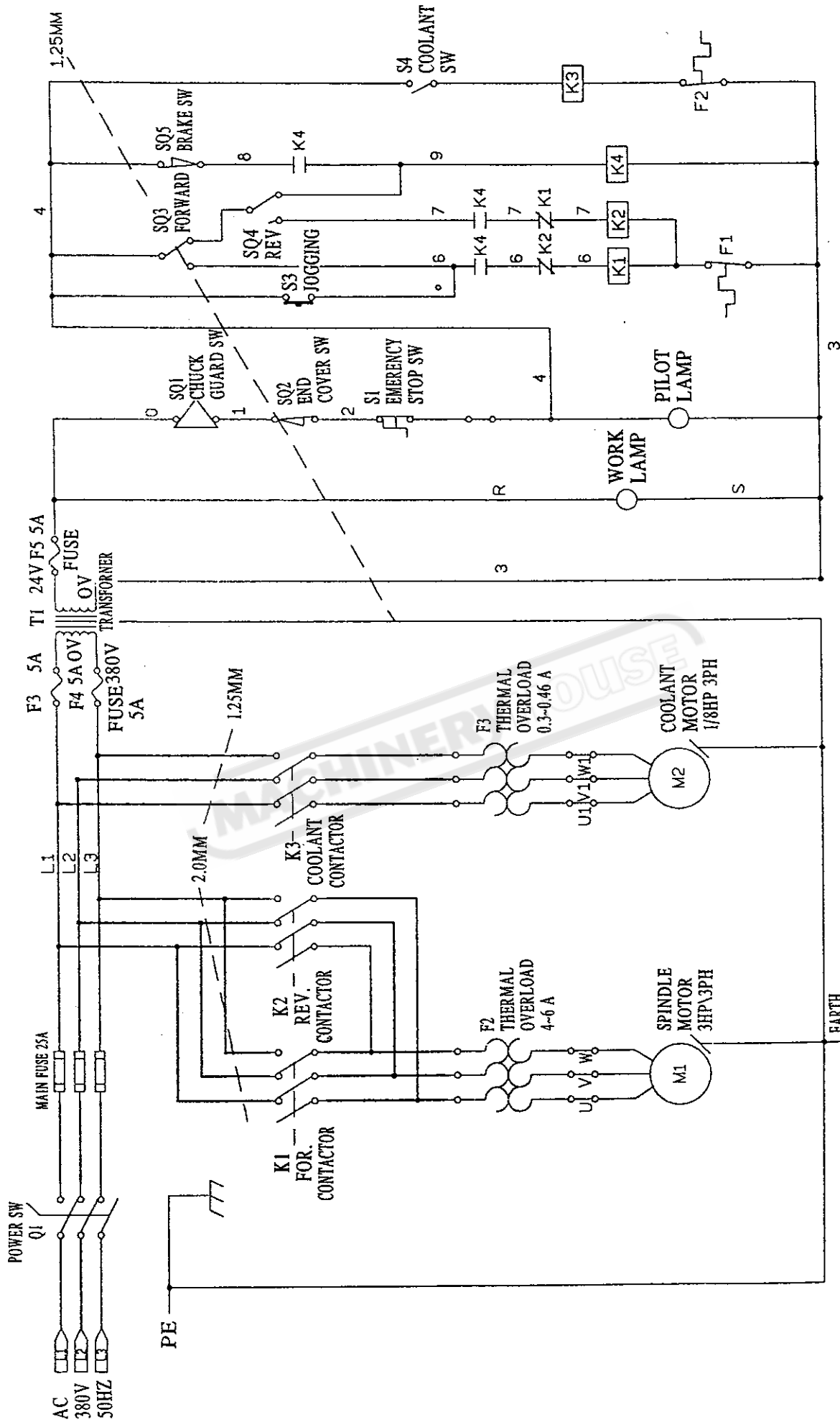
A MAIN SWITCH IS MOUNTED ON THE DOOR OF ELECTRIC BOX TO CONTROL ELECTRIC SUPPLY.



ELECTRIC BOX CONTAINS "CE" STANDARD COMPONENTS.

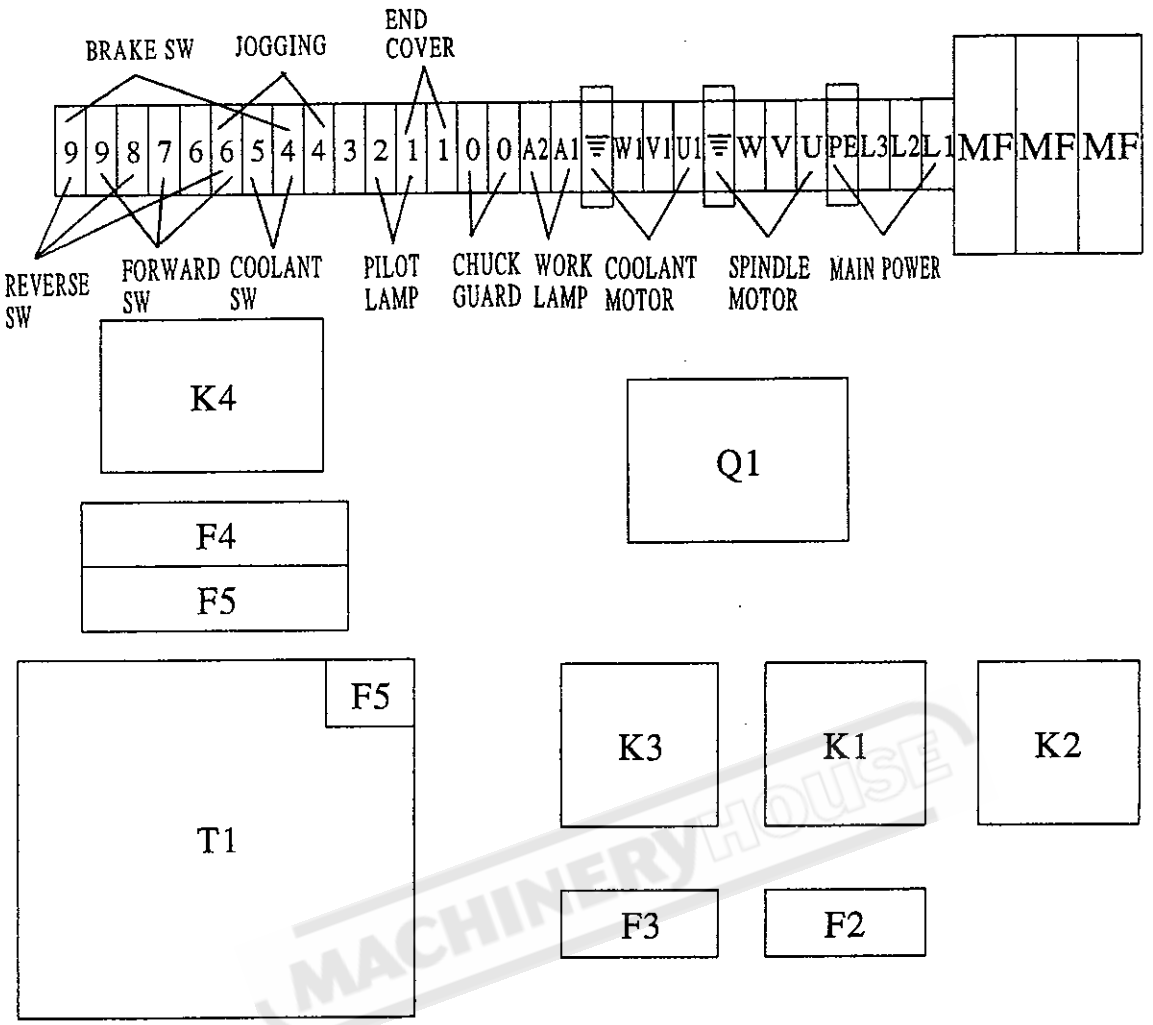
LD-1340E,LD-1440E MOTOR FOR "CE" NORMS ELECTRIC COMPONENTS
FOR 3HP 50HZ 24V CONTROL.

NO.	DESCRIPTION	BRAND	CODE	SPEC.	REMARK
	MAGNETIC SWITCH	TAIAN	CN-11	380V/4KW	K1,K2,K5
	MAGNETIC SWITCH	TAIAN	CN-11	380V/4KW	K3
	MAGNETIC SWITCH	TAIAN	CN-11	380V/4KW	K4
	OVERLOAD ROLAY	TAIAN	RHN-10M	0.3-0.464A/380V	F3
	OVERLOAD ROLAY	TAIAN	RHN-10M	4-6A/380V	F2
	POWER TRANSFORMER	ZIENTE	TC130VA/24V		TR 1
	DOOR SWITCH	AB	194L-A16		Q 1
	FUSE HOLDER	GEC ALSTHOM	10 x38	32A/660V	MF
		FMC 101			
	FUSE	GEC ALSTHOM	10 x38	32A/660V	F5,F4
		FMC 101			
0	TERMINAL	AB	1492-W4	800V/15A	
1	LIMIT SWITCH	OMRON	D4BS-25FC		
		TE	XCK-P591		
2	LIMIT SWITCH	OMRON	D4D-1532N		
		TE	XCK-P102		
3	FOR/REV SWITCH	HIGHLY	Z15G/1306		
4	PUMP SWITCH	TE	ZB2-BE101		
5	PUSH BUTTON	TE	ZB2-BE101		
6	PILOT LIGHT	TE	ZB2-BE101		
7	EMERGENCY SWITCH	TE	ZB2-BE102		



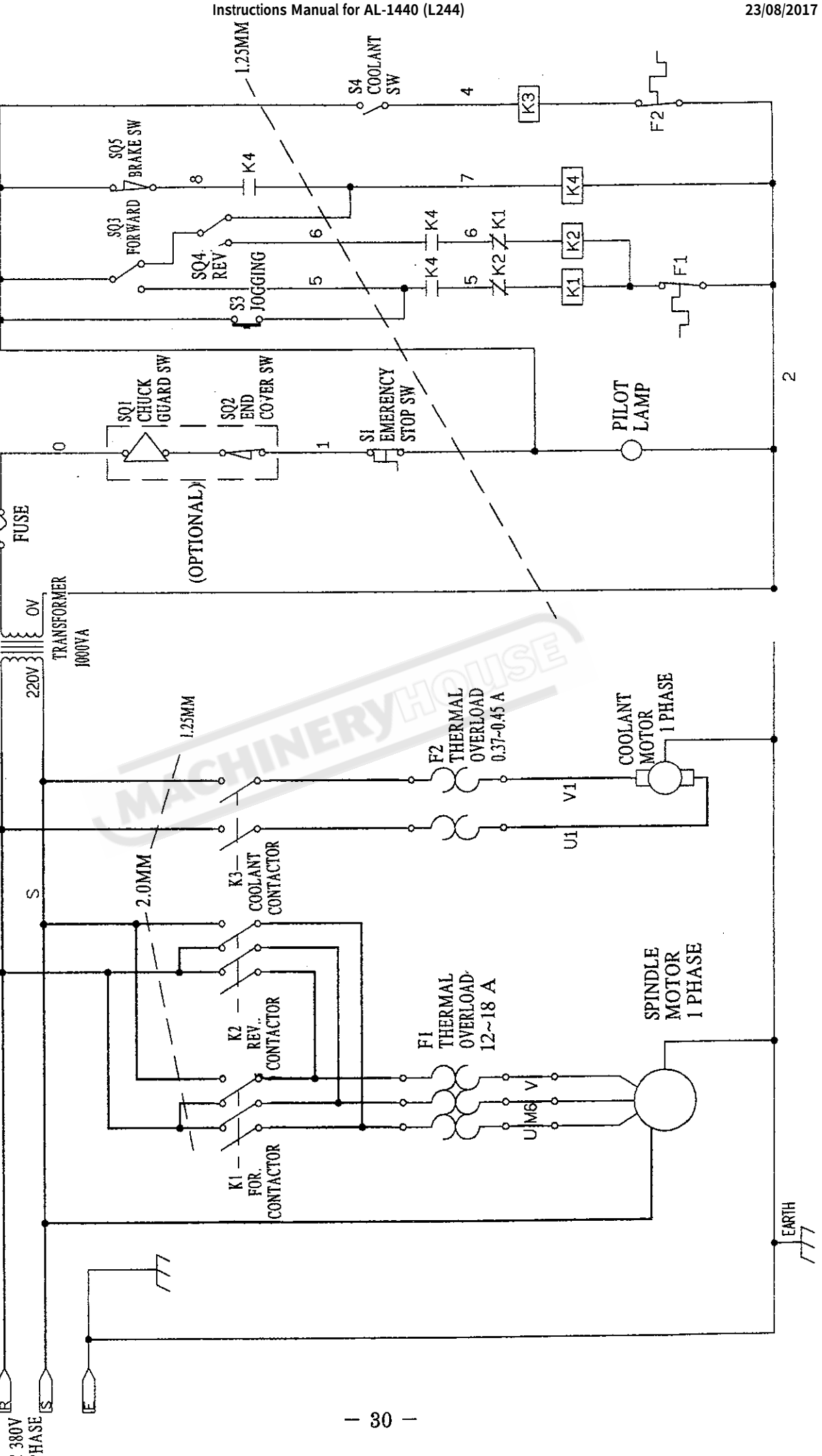
"CE" NORMS WIRING CIRCUIT DIAGRAM

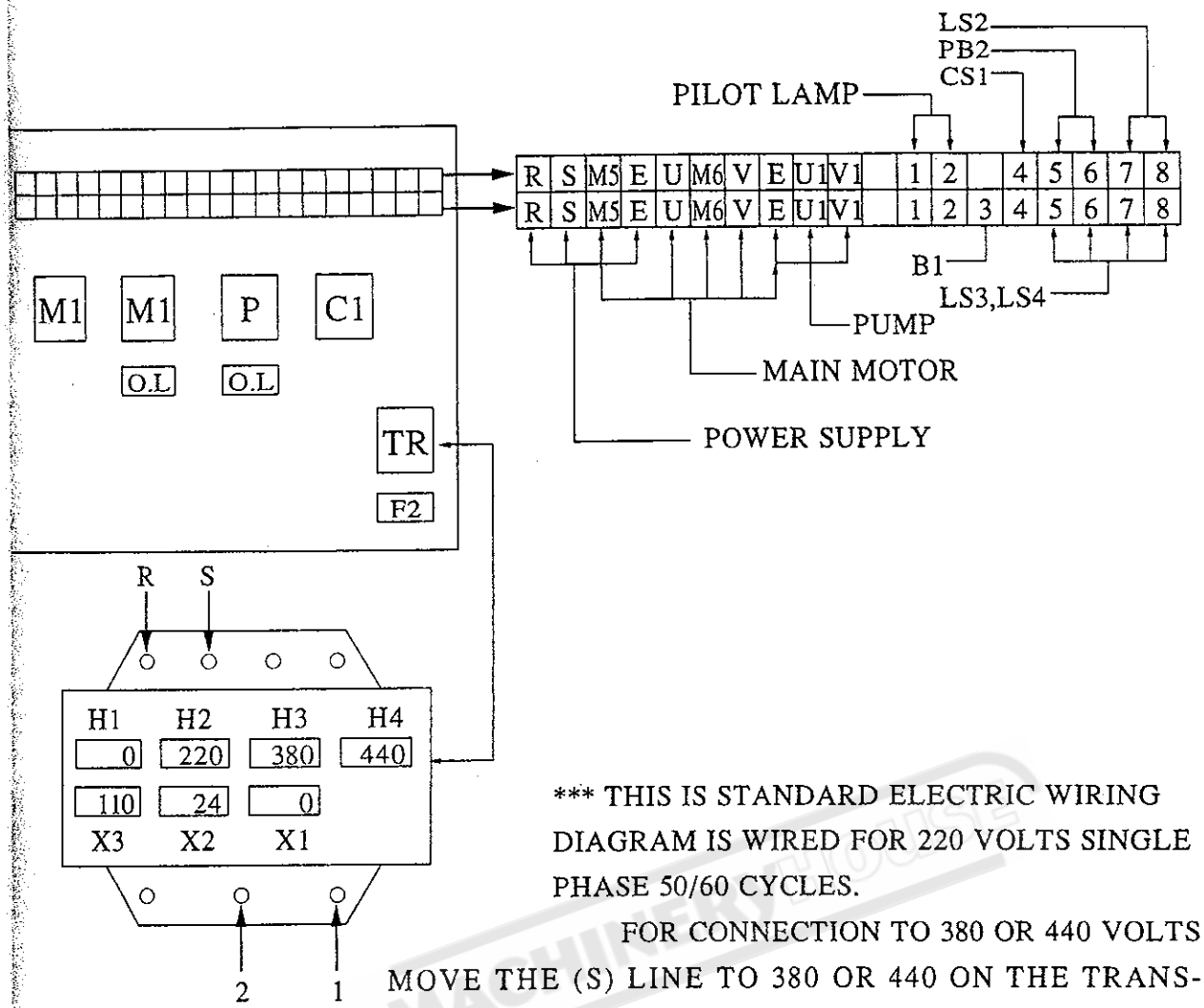
"CE" MARKING ELECTRIC COMPONENTS POSITION



T1: CONTROL CIRCUIT TRANSFORMER.
K2: FOR MAIN MOTOR REVERSE AC MAGNETIC CONTACTOR COIL.
K1: FOR MAIN MOTOR FORWARD AC MAGNETIC CONTACTOR COIL.
K3: FOR PUMP MOTOR AC MAGNETIC CONTACTOR COIL.
K4: AC MAGNETIC CONTACTOR COIL.
F2,F3: THERMAL OVERLOAD RELAY.
F4,F5: CIRCUIT TRANSFORMER WITH FUSE 32A/660V.
Q1: DOOR SWITCH.
MF: MAIN POWER FUSE.

WIRING DIAGRAM (1 PHASE)





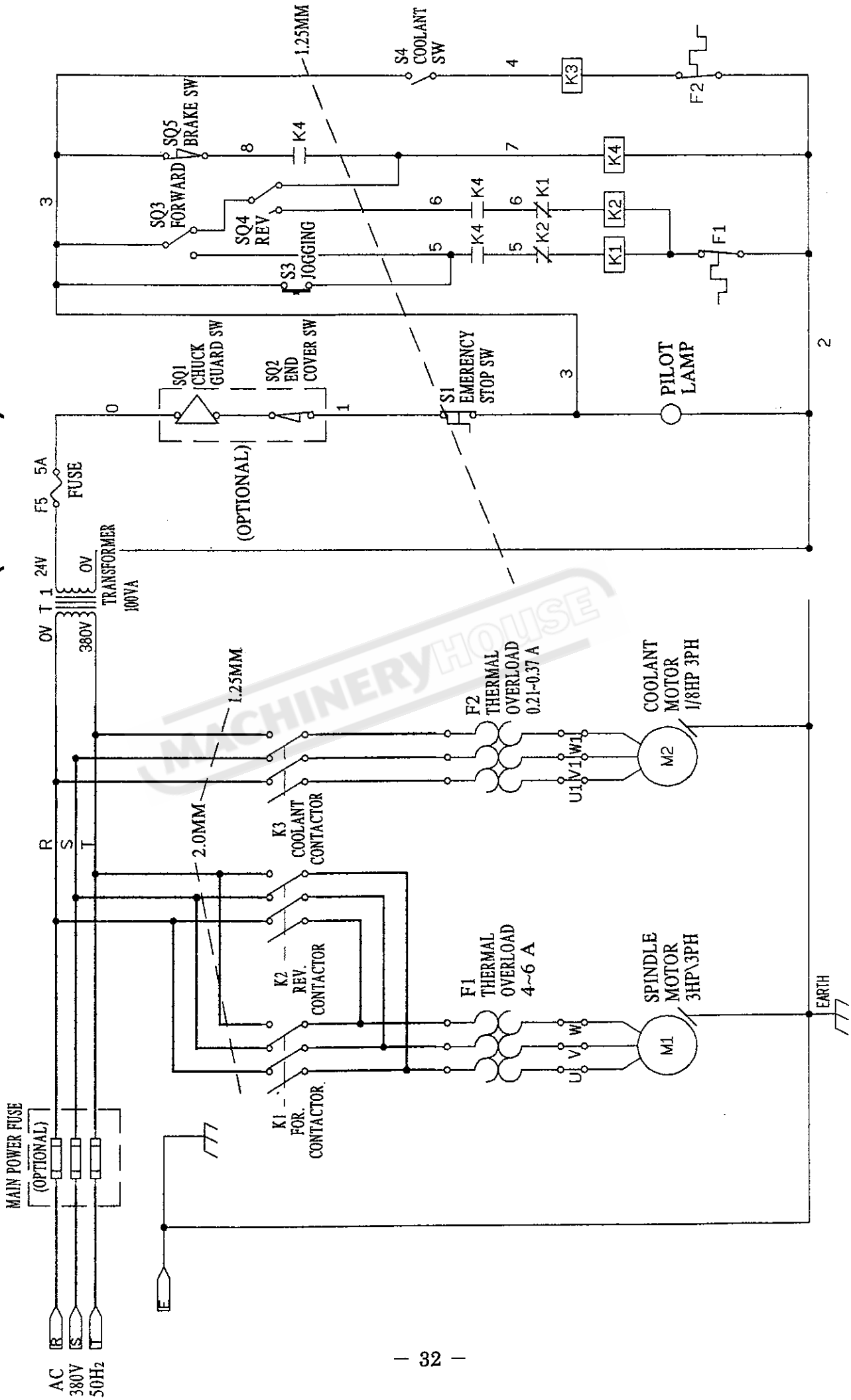
*** THIS IS STANDARD ELECTRIC WIRING DIAGRAM IS WIRED FOR 220 VOLTS SINGLE PHASE 50/60 CYCLES.

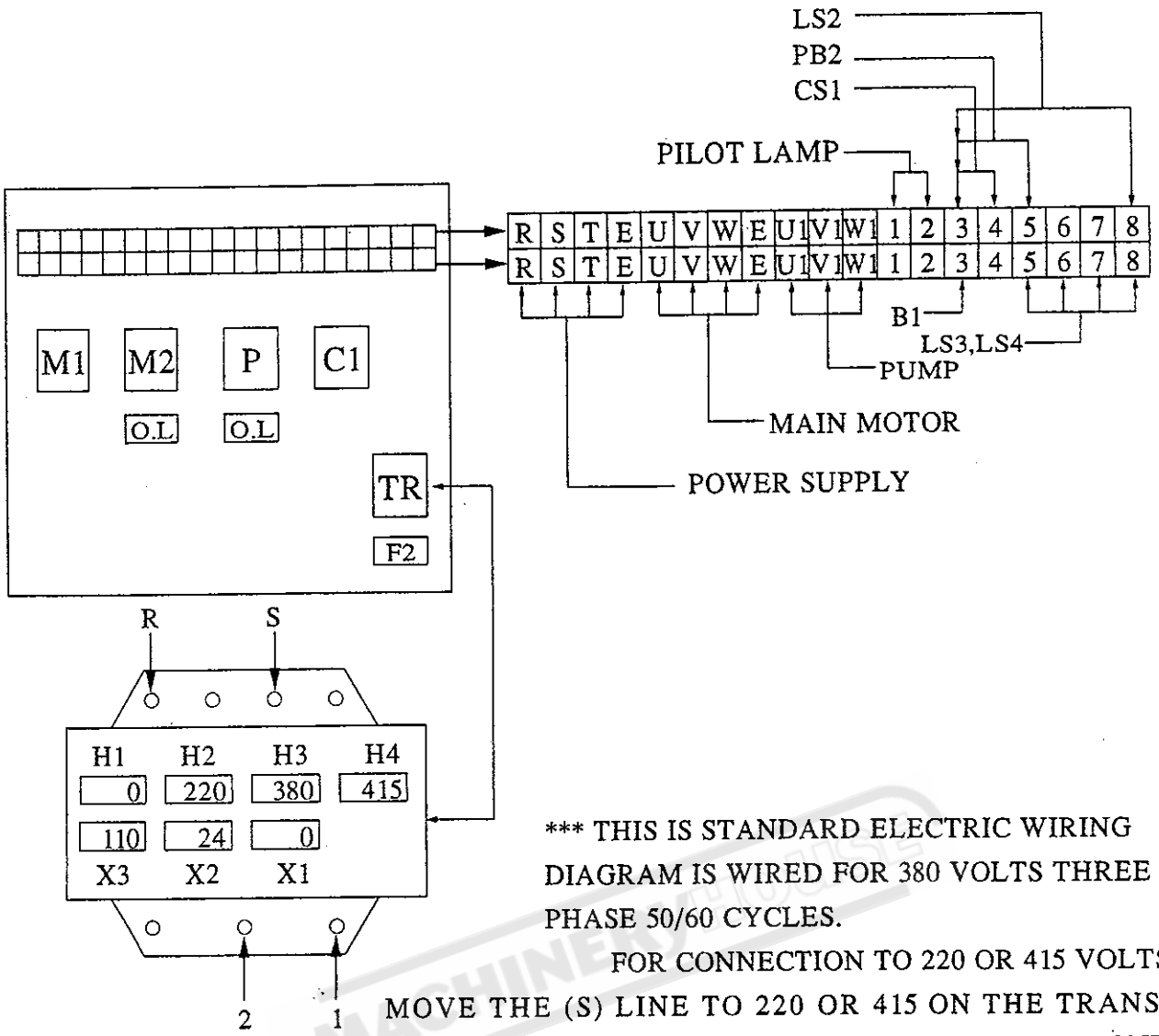
FOR CONNECTION TO 380 OR 440 VOLTS MOVE THE (S) LINE TO 380 OR 440 ON THE TRANSFORMER AND INTERCHANGE MOTOR WIRED CORRESPOND 380 OR 440 VOLTS WITH POWER SUPPLY.

** SINGLE PHASE W/FOOT BRAKE AND PUMP **

CS1 : PUMP MOTOR SELECTING SWITCH
TR : CONTROL CIRCUIT TRANSFORMER
M1 : FOR MAIN MOTOR REVERSE AC MAGNETIC CONTACTOR COIL
M2 : FOR MAIN MOTOR FORWARD AC MAGNETIC CONTACTOR COIL
P : FOR PUMP MOTOR AC MAGNETIC CONTACTOR COIL
C1 : AC MAGNETIC CONTACTOR COIL
O.L : THERMAL OVERLOAD RELAY
F2 : FUSE 5A
B1 : EMERGENCY STOP BUTTON
PB2 : INCHING BUTTON
LS2 : LIMIT SWITCH FOR FOOT BRAKE
LS3 : LIMIT SWITCH FOR MAIN MOTOR REVERSE
LS4 : LIMIT SWITCH FOR MAIN MOTOR FORWARD

WIRING DIAGRAM (3 PHASE)



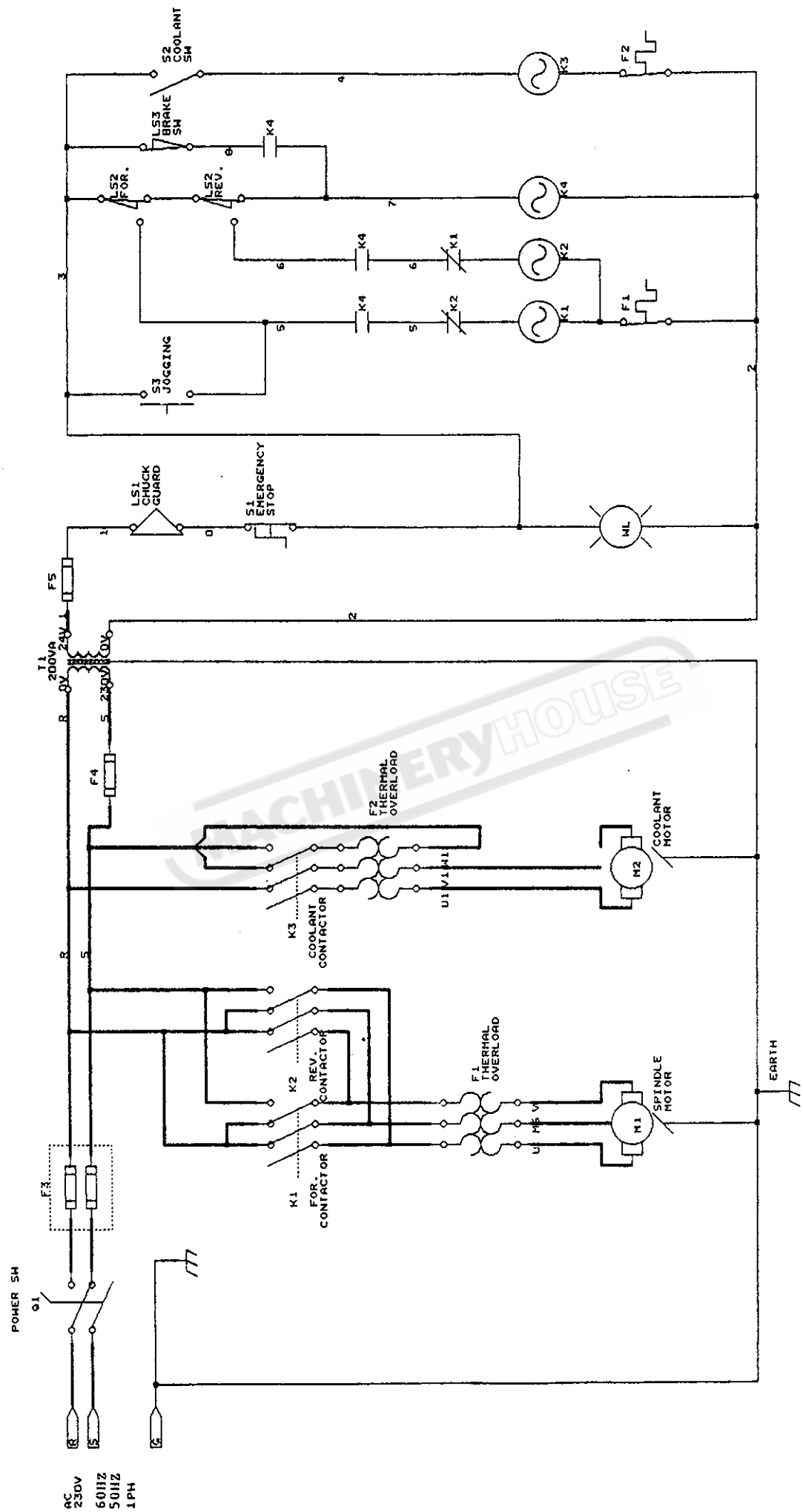


*** THIS IS STANDARD ELECTRIC WIRING DIAGRAM IS WIRED FOR 380 VOLTS THREE PHASE 50/60 CYCLES.

FOR CONNECTION TO 220 OR 415 VOLTS MOVE THE (S) LINE TO 220 OR 415 ON THE TRANSFORMER AND INTERCHANGE MOTOR WIRED CORRESPOND 220 OR 415 VOLTS WITH POWER SUPPLY.

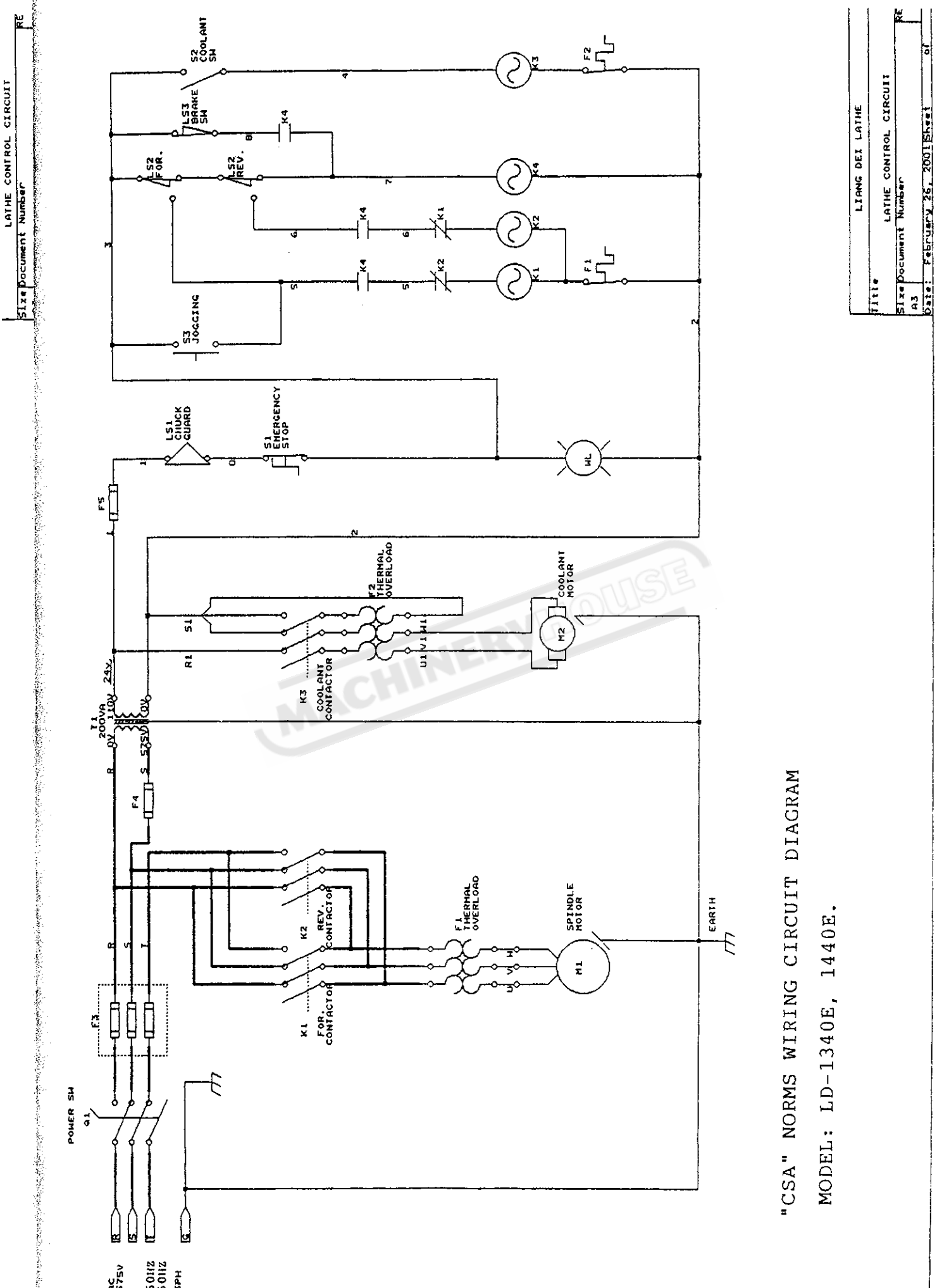
** THREE PHASE W/FOOT BRAKE AND PUMP **

CS1 : PUMP MOTOR SELECTING SWITCH
TR : CONTROL CIRCUIT TRANSFORMER
M1 : FOR MAIN MOTOR REVERSE AC MAGNETIC CONTACTOR COIL
M2 : FOR MAIN MOTOR FORWARD AC MAGNETIC CONTACTOR COIL
P : FOR PUMP MOTOR AC MAGNETIC CONTACTOR COIL
C1 : AC MAGNETIC CONTACTOR COIL
O.L : THERMAL OVERLOAD RELAY
F2 : FUSE 5A
B1 : EMERGENCY STOP BUTTON
PB2 : INCHING BUTTON
LS2 : LIMIT SWITCH FOR FOOT BRAKE
LS3 : LIMIT SWITCH FOR MAIN MOTOR REVERSE
LS4 : LIMIT SWITCH FOR MAIN MOTOR FORWARD



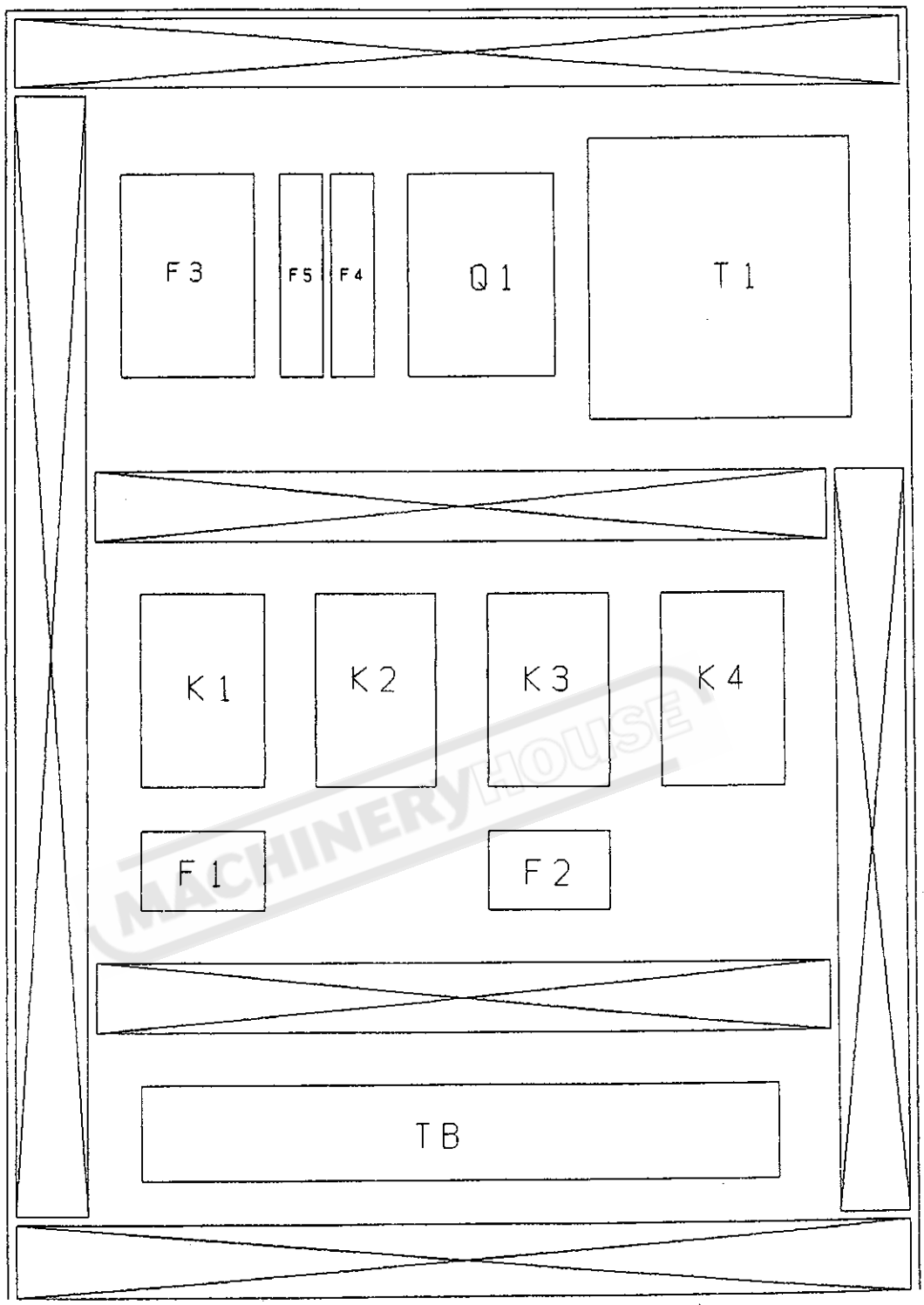
"CSA" NORMS WIRING CIRCUIT DIAMGRAM

MODEL: LD-1340E, 1440E.



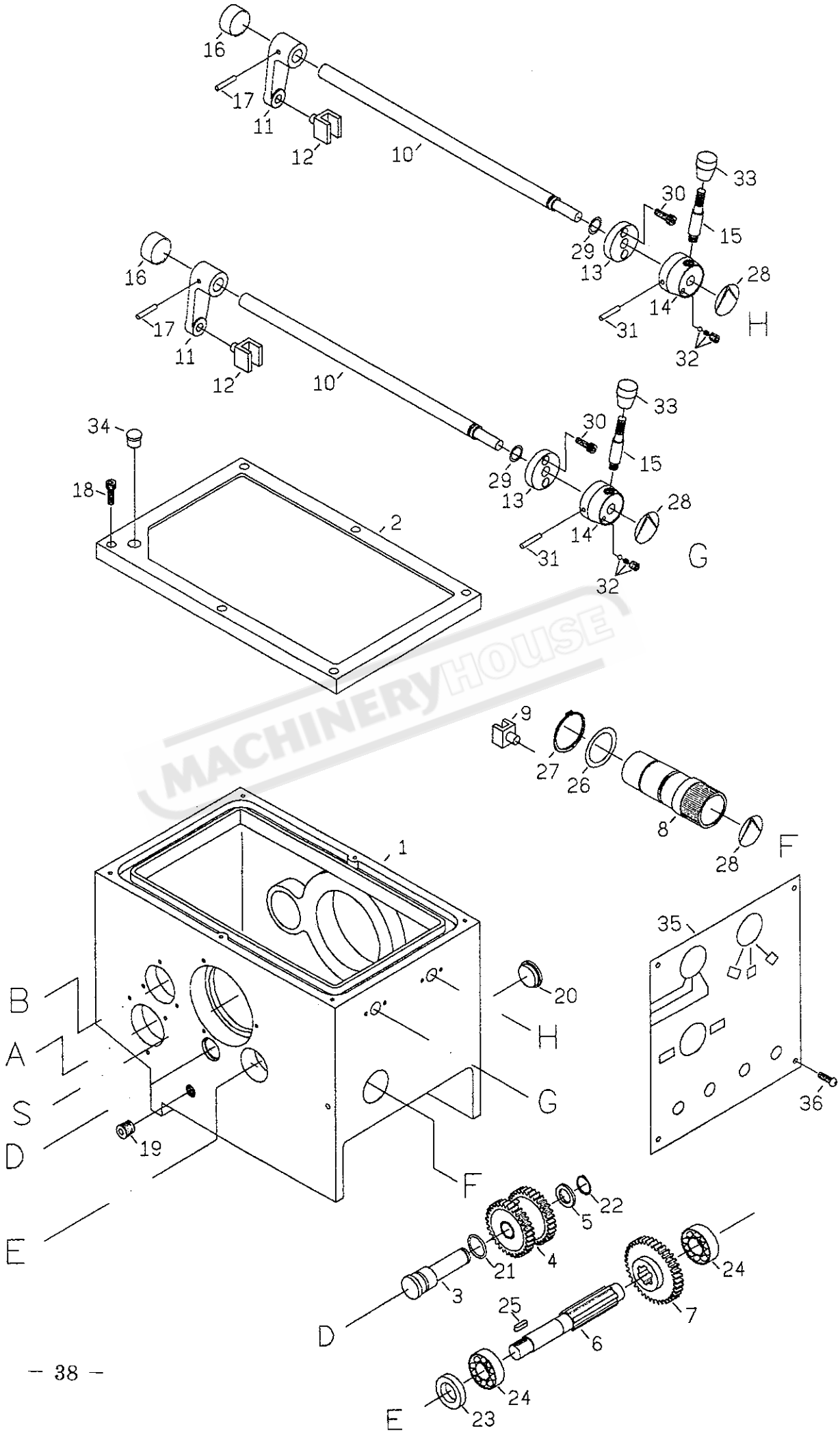
"CSA" NORMS WIRING CIRCUIT DIAGRAM

MODEL: LD-1340E, 1440E.



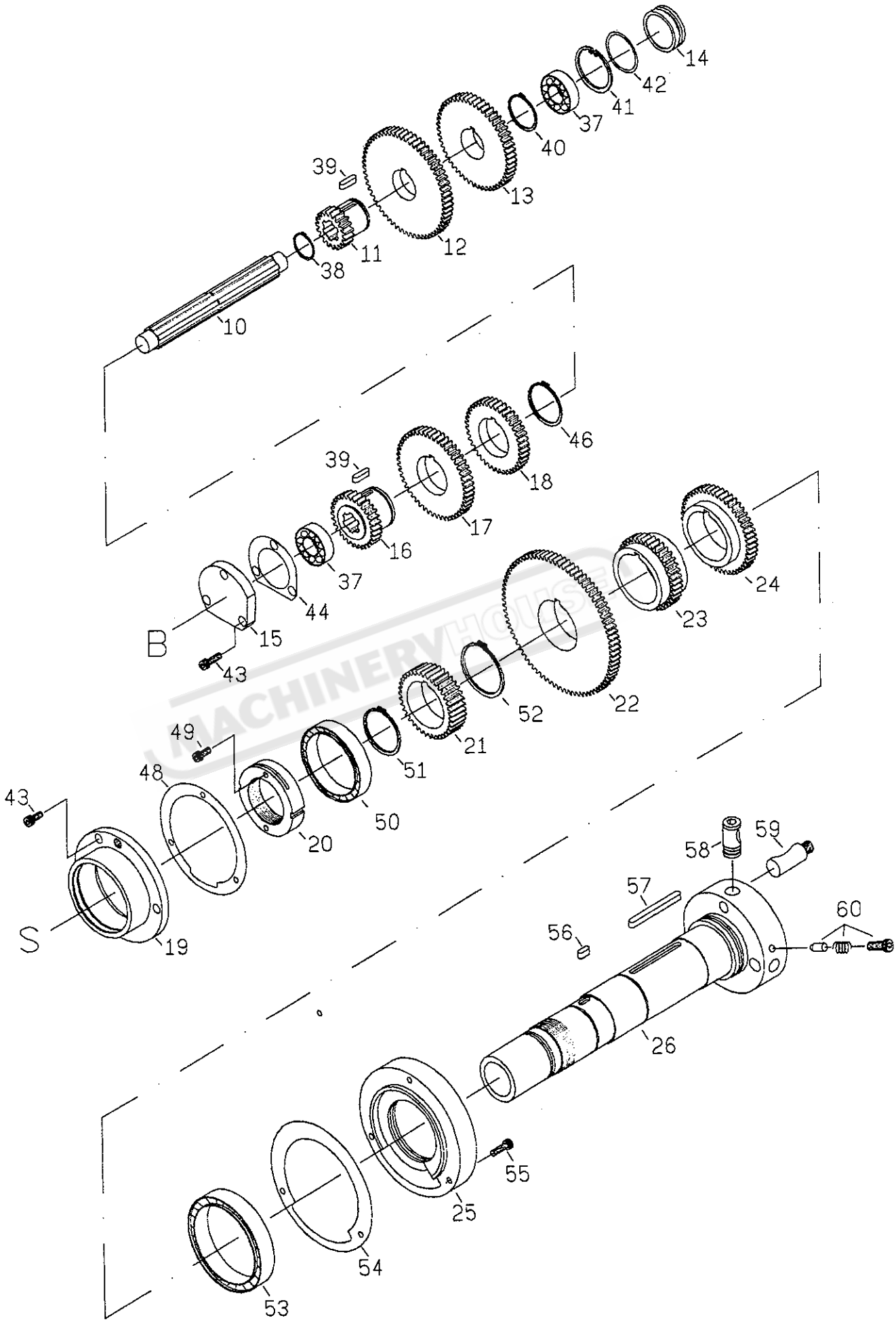
F3: MAIN FUSE.
F5.F4: FUSE.
Q1: DOOR SWITCH.
T1; CONTROL CIRCUIT TRANSFORMER.
K1: FOR MAIN MOTOR FORWARD AC MAGNETIC CONTACTOR COIL.
K2: FOR MAIN MOTOR REVERES AC MAGNETIC CONTACTOR COIL.
K3: FOR PUMP MOTOR AC MAGNETIC CONTACTOR COIL.
K4: AC MAGNETIC CONTACTOR COIL.
F1.F2: THERMAL OVERLOAD RELAY.
TB: TERMINAL BLOCK.

PART LIST
MODEL:LD-1340E
LD-1440E
LD-1440V



HEADSTOCK (CASTING & CONTROLS)

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2101	HEADSTOCK CASTING	1	
2	2143	HEADSTOCK COVER	1	
3	2121	SHAFT	1	
4	2122	GEAR (M2X32T)	1	
5	2123	WASHER	1	
6	2124	SHAFT	1	
7	2125	GEAR (M2X38T)	1	
8	2126	HANDLE	1	
9	2127	GEAR SHIFT FORK	1	
10	2136	SHAFT	2	
11	2137	FORK ARMS	2	
12	2138	GEAR SHIFT FORK	2	
13	2139	COLLAR	2	
14	2141	HANDLE	2	
15	2142	CONTROL LEVER	2	
16	2194	OIL RING	2	
17	2193	PIN (5mmx32mm)	2	
18	2184	CAP SCREW (6mmx25mm)	6	
19	2195	PLUG (3/8 G.P.)	1	
20	2144	OIL SIGHT(29mm)	1	
21	2181	OIL RING(P20)	1	
22	2148	SNAP RING (S18)	1	
23	2178	WASHER	1	
24	2180	BEARING (6004)	2	
25	2145	KEY(5mmx18mm)	1	
26	2146	OIL RING (P12)	1	
27	2188	SNAP RING (S40)	1	
28	2185	INDICATOR PLATE	3	
29	2191	OIL RING (P12)	2	
30	2189	CAP SCREW (6mmx16mm)	4	
31	2192	SPRING PIN (5mmx40mm)	2	
32	2186	STEEL BALL SPRING & SET SCREW	2	8mmx6mm
33	2190	PVC KNOB	2	
34	2183	PLUG (5/8")	1	
35	2196	DATA PLATE	1	
36	2197	SCREW (3/16"x3/8")	4	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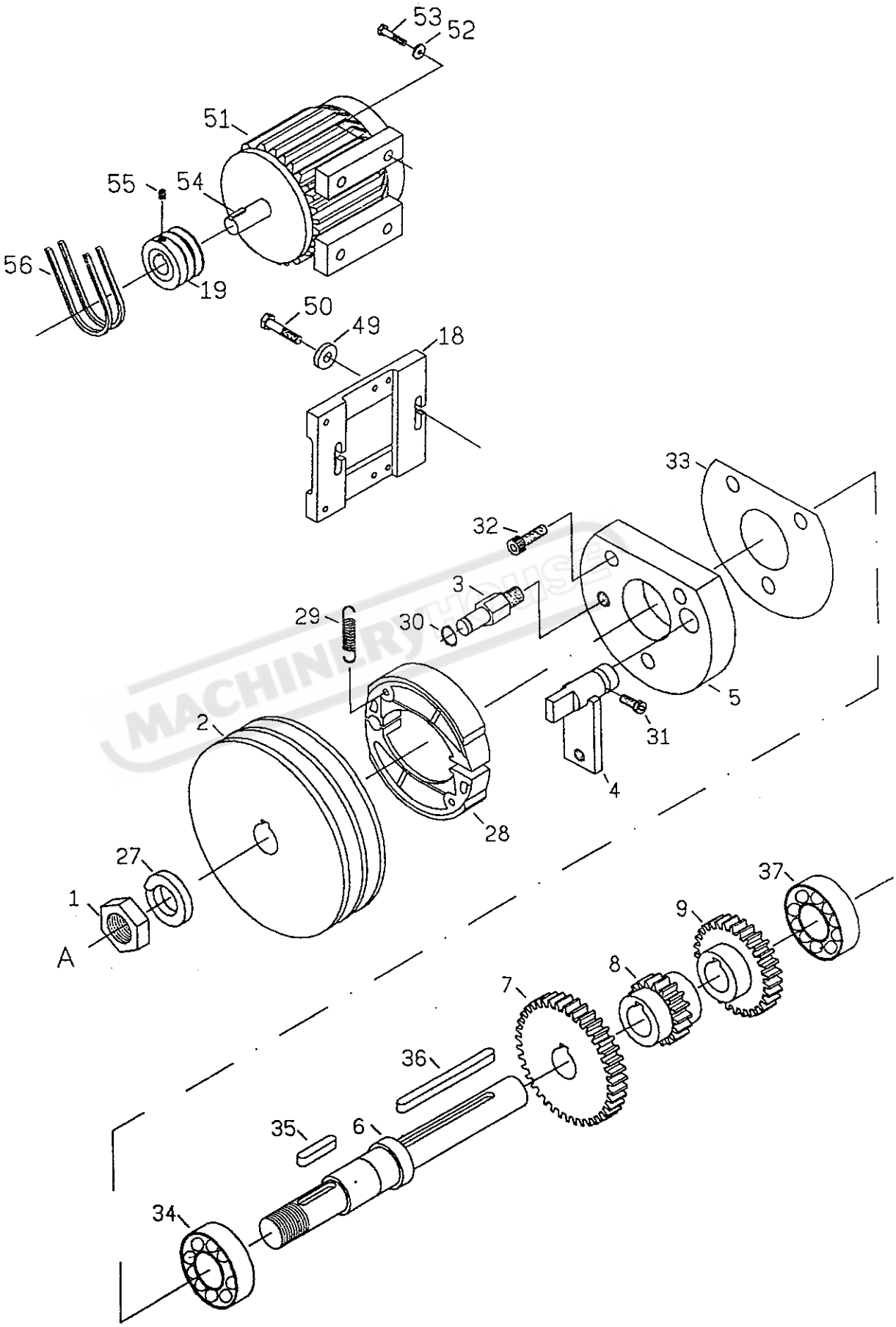
HEADSTOCK (SPINDLE & GEARS)

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
10	2112	SHAFT	1	
11	2116	GEAR (M2x19T)	1	
12	2117	GEAR (M2x60T)	1	
13	2118	GEAR (M2x52T)	1	
14	2119	BORE PLUG	1	
15	2120	COVER	1	
16	2113	GEAR (M2x30T)	1	
17	2114	GEAR (M2x50T)	1	
18	2115	GEAR (M2x40T)	1	
19	2135	COVER (BACK)	1	
20	2134	LOCK NUT	1	
21	2133	GEAR (M2x38T)	1	
22	2132	GEAR (M2x80T)	1	
23	2131	GEAR (M2x39T)	1	
24	2130	GEAR (M2x48T)	1	
25	2128	COVER (FRONT)	1	
26	2129	MAIN SPINDLE	1	
38	2162	SNAP RING (S25)	1	
39	2163	KEY (6mmx22mm)	2	
37	2158	BEARING (#6204)	2	
40	2164	SNAP RING (S35)	1	
41	2165	SNAP RING (R47)	1	
42	2166	OIL RING (P39.4)	1	
43	2159	SCREW (CAP 6mmx16mm)	6	
44	2180	GASKET	1	
46	2161	SNAP RING (S45)	1	
48	2167	GASKET	1	
49	2147	SCREW (CAP 6mmx25mm)	2	
50	2168	BEARING (#30211)	1	
51	2169	SNAP RING (S55)	1	
52	2170	SNAP RING (S58)	1	
53	2171	BEARING (#30212)	1	
54	2172	GASKET	1	
55	2173	SCREW (CAP 6mmx25mm)	3	
56	2174	KEY (6mmx15mm)	1	
57	2175	KEY (7mmx75mm)	1	
58	2176	CAM D1-4	3	
59	2182	STUD	3	
60	2177	DETENT PLUNGER,SPRING AND SCREW	3	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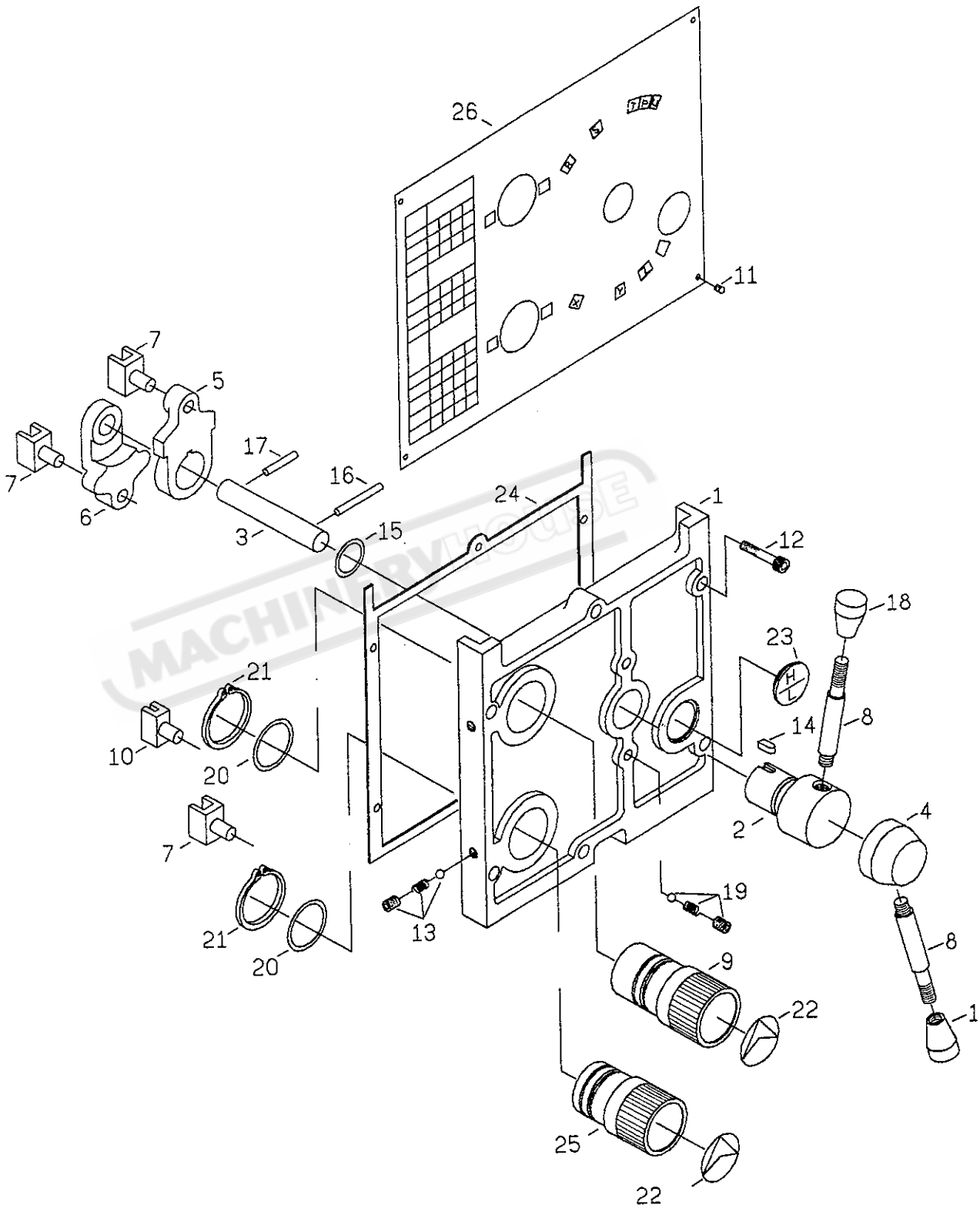
MAIN MOTOR AND BRAKE SHOES ASSY

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2111	NUT (M2xP1.5mm)	1	
2	2110	V-BELT PULLY	1	
3	2107	STUD	1	
4	2108	SHAFT LEVER	1	
5	2106	COVER	1	
6	2102	SHAFT	1	
7	2103	GEAR (M2x39T)	1	
8	2104	GEAR (M2x18T)	1	
9	2105	GEAR (M2x29T)	1	
18	2618	MOTOR PLATE	1	
19	2653	MOTOR PULLEY	1	
27	2149	WASHER	1	
28	2109	BRAKE SHOES ASSY	1	
29	2140	SPRING	2	
30	2151	SNAP RING	1	
31	2153	CAP SCREW	1	
32	2152	SCREW (CAP 6mmx25mm)	3	
33	2179	GASKET	1	
34	2155	BEARING (#6205)	1	
35	2156	KEY (6mmx30mm)	1	
36	2157	KEY (6mmx80mm)	1	
37	2158	BEARING (#6204)	1	
49	2619	WASHER	2	
50	2631	SCREW (CAP 10mmx35mm)	2	
51	2652	MAIN MOTOR	1	
52	2656	WASHER	4	
53	2657	SCREW (CAP 8mmx30mm)	4	
54	2659	KEY (8mmx45mm)	1	
55	2655	SCREW (SET 10mmx20mm)	1	
56	2654	V-BELT	2	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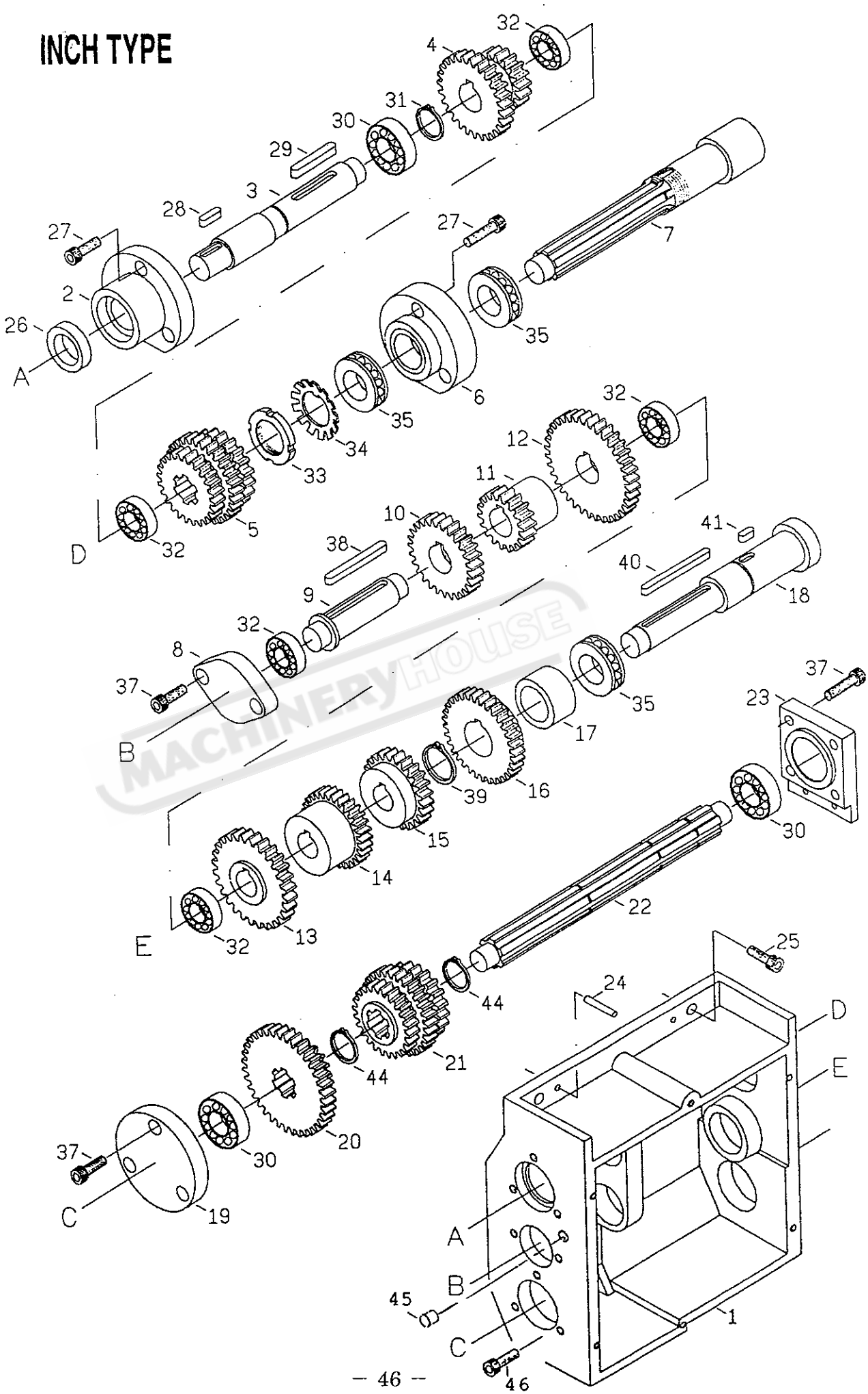
GEARBOX (CASTING & CONTROLS)

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2224	COVER	1	
2	2225	HANDLE	1	
3	2226	SHAFT	1	
4	2227	HANDLE	1	
5	2228	SHIFT LEVER	1	
6	2229	SHIFT LEVER	1	
7	2230	SHIFT FORK	3	
8	2231	LEVER	2	
9	2233	HANDLE	1	
10	2234	SHIFT FORK	1	
11	2241	SCREW (3/16x3/8 IN)	6	
12	2248	SCREW (CAP 6mmx30mm)	6	
13	2247	SET SCREW SPRING AND STEEL BALL	2	
14	2251	KEY (5mmx10mm)	1	
15	2244	OIL RING (P24)	1	
16	2243	SPRING PIN (5mmx40mm)	1	
17	2242	SPRING PIN (5mmx30mm)	1	
18	2250	PVC KNOB	2	
19	2253	SET SCREW SPRING AND STEEL BALL	2	
20	2246	OIL RING (P34)	2	
21	2245	SNAP RING (S40)	2	
22	2249	INDEXING PLATE	2	
23	2252	OIL SIGHT (29mm)	1	
24	2254	GASKET	1	
25	2232	HANDLE	1	
26	2240	DATA PLATE	1	

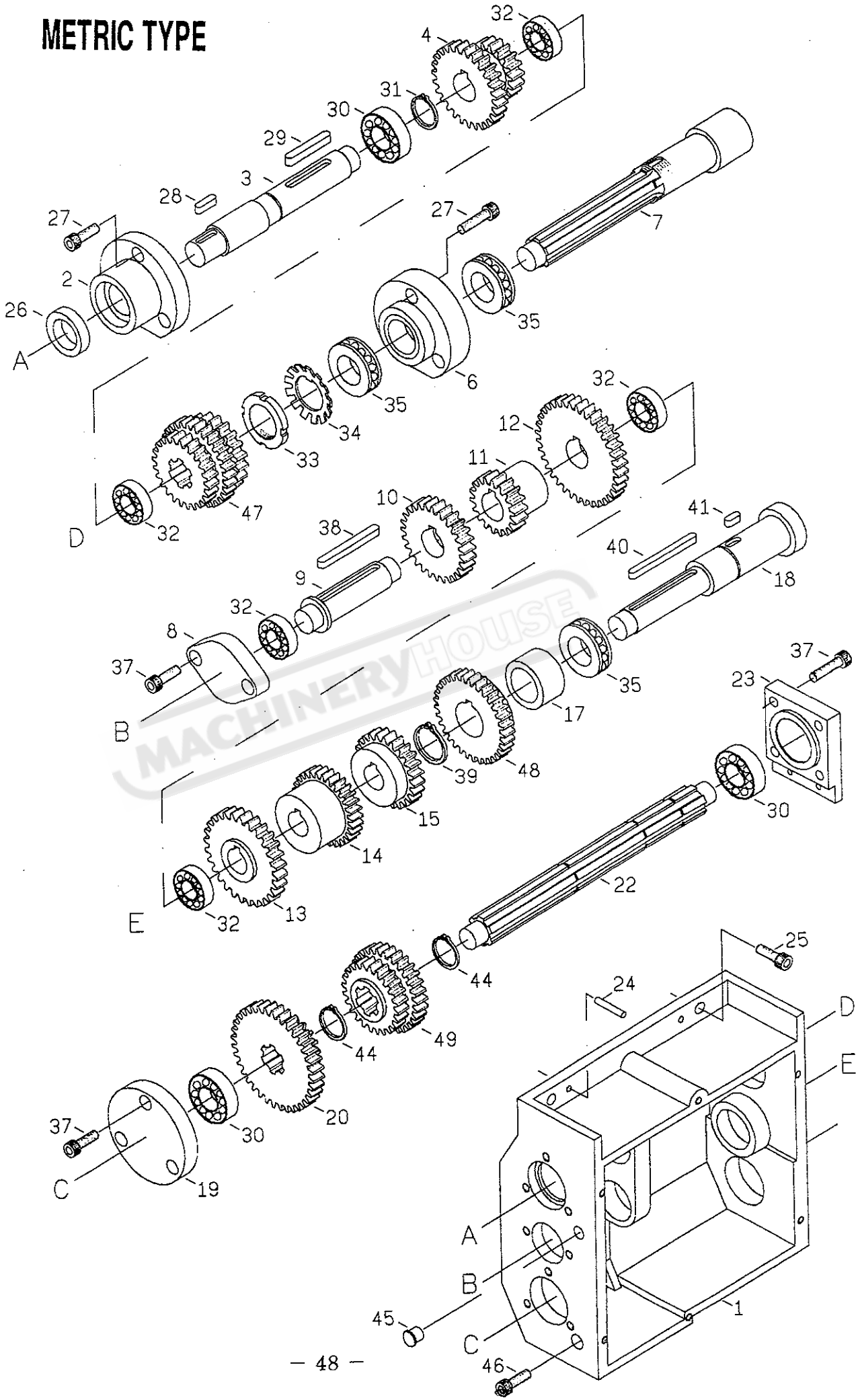
INCH TYPE



GEARBOX (GEAR & SHAFT) INCH TYPE

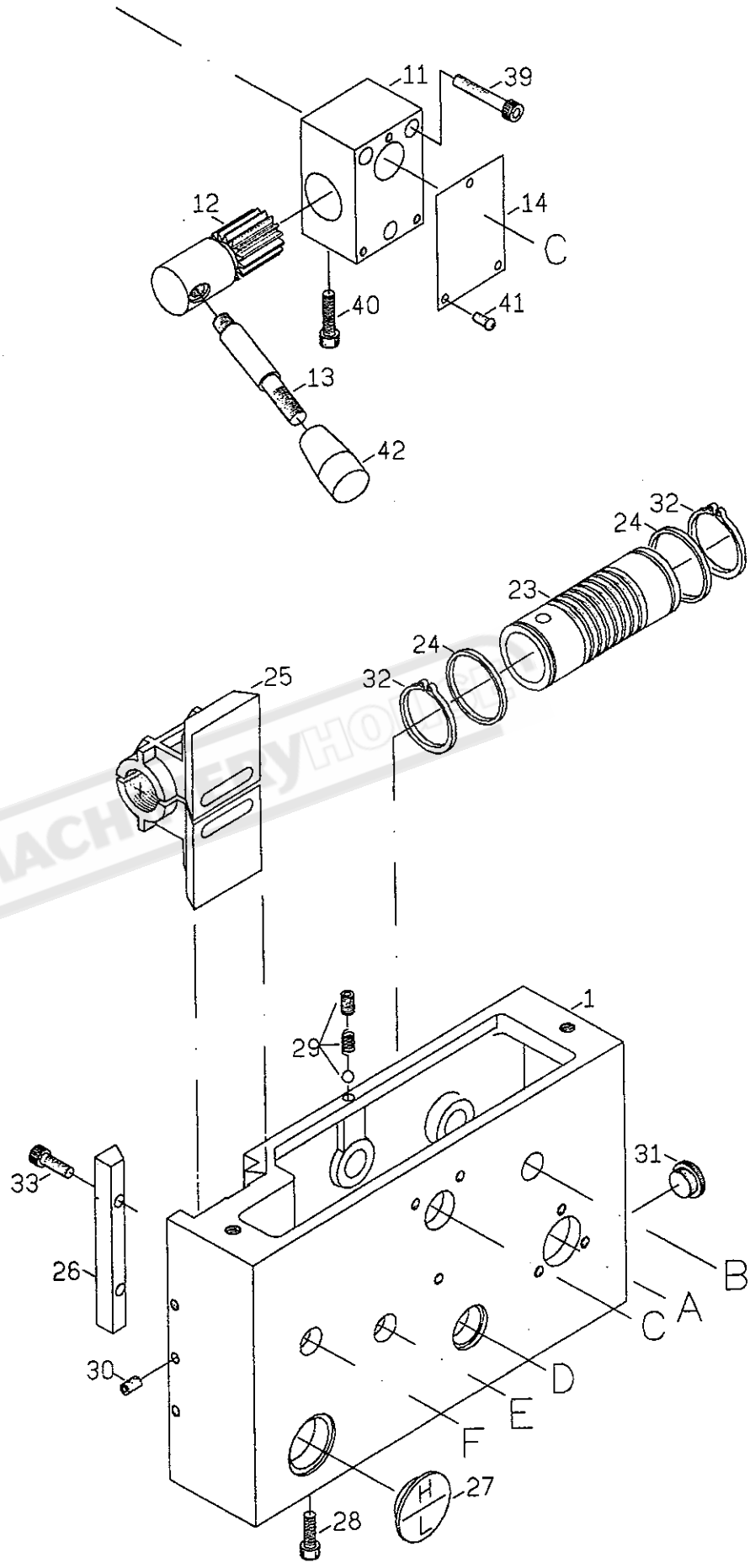
REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2201	GEAR BOX CASTING	1	
2	2204	COVER	1	
3	2202	SHAFT	1	
4	2203	GEAR (M2x27TX18T)	1	
5	2236	GEAR (14Px27Tx30T)(M2.25x21T)	1	
6	2205	COVER	1	
7	2206	SHAFT	1	
8	2218	COVER	1	
9	2208	SHAFT	1	
10	2209	GEAR (M2x27T)	1	
11	2210	GEAR (M2x18T)	1	
12	2211	GEAR (M2x36T)	1	
13	2217	GEAR (M2.25x28T)	1	
14	2216	GEAR (14Px30T)	1	
15	2215	GEAR (14Px24T)	1	
16	2237	GEAR (14Px33T)	1	
17	2212	SPACER	1	
18	2213	SHAFT	1	
19	2222	COVER	1	
20	2220	GEAR (M2x36Tx18T)	1	
21	2235	GEAR (14Px24Tx30T)(M2.25x20T)	1	
22	2219	SHAFT	1	
23	2223	COVER	1	
24	2272	PIN (5mmx28mm)	2	
25	2273	CAP SCREW (8mmx30mm)	3	
26	2256	OIL SEAL (22x35x7)	1	
27	2255	CAP SCREW (6mmx20mm)	6	
28	2267	KEY (5mmx18mm)	1	
29	2258	KEY (6mmx40mm)	1	
30	2259	BEARING (6004)	3	
31	2260	SNAP RING (S20)	1	
32	2261	BEARING (6003)	5	
33	2262	NUT	1	
34	2269	WASHER	1	
35	2263	THRUST (51105)	3	
37	2275	CAP SCREW (6mmx20mm)	9	
38	2268	KEY (6mmx55mm)	1	
39	2266	SNAP RING (S25)	1	
40	2264	KEY (5mmx60mm)	1	
41	2265	KEY (5mmx12mm)	1	
44	2274	SNAP RING (S22)	2	
45	2276	OILER (5/16 IN)	1	
46	2277	SCREW (CAP 8mmx10mm)	1	

METRIC TYPE



GEARBOX (GEAR & SHAFT) METRIC TYPE

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2201	GEAR BOX CASTING	1	
2	2204	COVER	1	
3	2202	SHAFT	1	
4	2203	GEAR (M2x27TX18T)	1	
47	2207	GEAR (M2.25x20T)(14Px30T)(M2x25T)	1	
6	2205	COVER	1	
7	2206	SHAFT	1	
8	2218	COVER	1	
9	2208	SHAFT	1	
10	2209	GEAR (M2x27T)	1	
11	2210	GEAR (M2x18T)	1	
12	2211	GEAR (M2x36T)	1	
13	2217	GEAR (M2.25x28T)	1	
14	2216	GEAR (14Px30T)	1	
15	2215	GEAR (14Px24T)	1	
48	2214	GEAR (M2x30T)	1	
17	2212	SPACER	1	
18	2213	SHAFT	1	
19	2222	COVER	1	
20	2220	GEAR (M2x36Tx18T)	1	
49	2221	GEAR (M2.25x21T)(14Px30T)	1	
22	2219	SHAFT	1	
23	2223	COVER	1	
24	2272	PIN (5mmx28mm)	2	
25	2273	CAP SCREW (8mmx30mm)	3	
26	2256	OIL SEAL (22x35x7)	1	
27	2255	CAP SCREW (6mmx20mm)	6	
28	2267	KEY (5mmx18mm)	1	
29	2258	KEY (6mmx40mm)	1	
30	2259	BEARING (6004)	3	
31	2260	SNAP RING (S20)	1	
32	2261	BEARING (6003)	5	
33	2262	NUT	1	
34	2269	WASHER	1	
35	2263	THRUST (51105)	3	
37	2275	CAP SCREW (6mmx20mm)	9	
38	2268	KEY (6mmx55mm)	1	
39	2266	SNAP RING (S25)	1	
40	2264	KEY (5mmx60mm)	1	
41	2265	KEY (5mmx12mm)	1	
44	2274	SNAP RING (S22)	2	
45	2276	OILER (5/16 IN)	1	
46	2277	SCREW (CAP 8mmx10mm)	1	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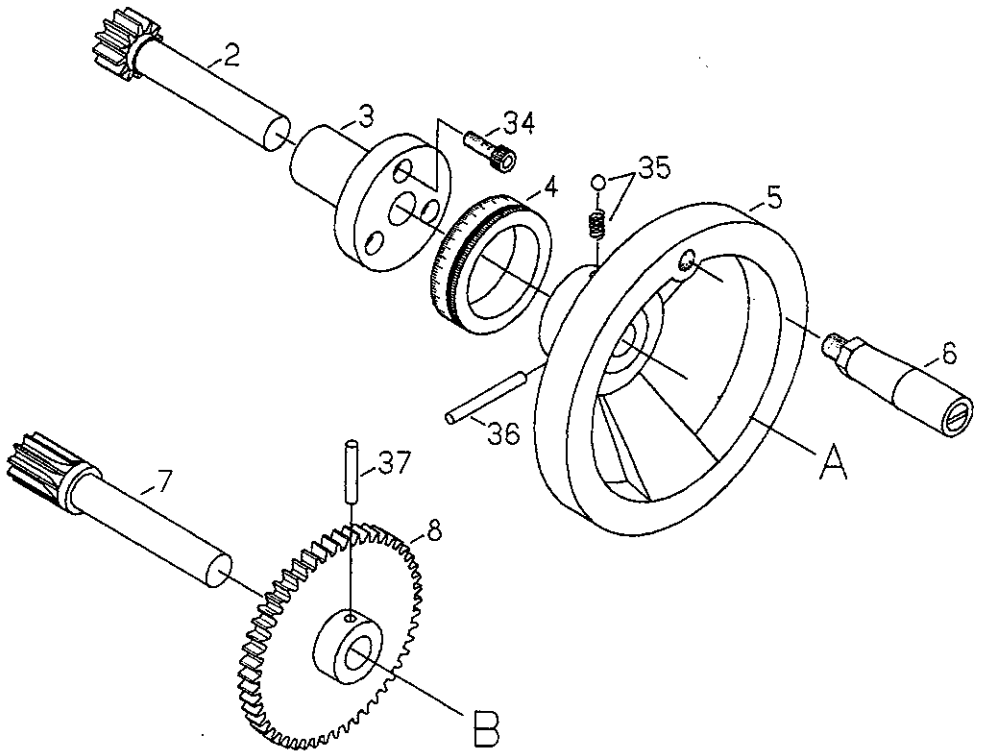
APRON (CASTING)

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2301	APRON CASTING	1	
11	2316	BRACKET	1	
12	2317	GEAR SHAFT (M1.5x16T)	1	
13	2318	LEVER	2	
14	2362	INDEXING PLATE	1	
23	2309	WORM	1	
24	2310	COLLAR	2	
25	2325	HALF NUT CLUTCH	1	
26	2326	GIB	1	
27	2358	OIL SIGHT (29mm)	1	
28	2357	CAP SCREW (8mmx10mm)	1	
29	2355	STEEL BALL SET SCREW AND SPRING	1	
30	2354	SET SCREW (6mmx10mm)	3	
31	2356	PLUG (5/8 IN)	1	
32	2352	SNAP RING (S 30)	2	
33	2353	CAP SCREW (6mmx20mm)	2	
39	2363	CAP SCREW (6mmx40mm)	4	
40	2360	CAP SCREW (8mmx25mm)	1	
41	2361	SCREW (3/16x3/8 IN)	3	
42	2359	PVC KNOB	2	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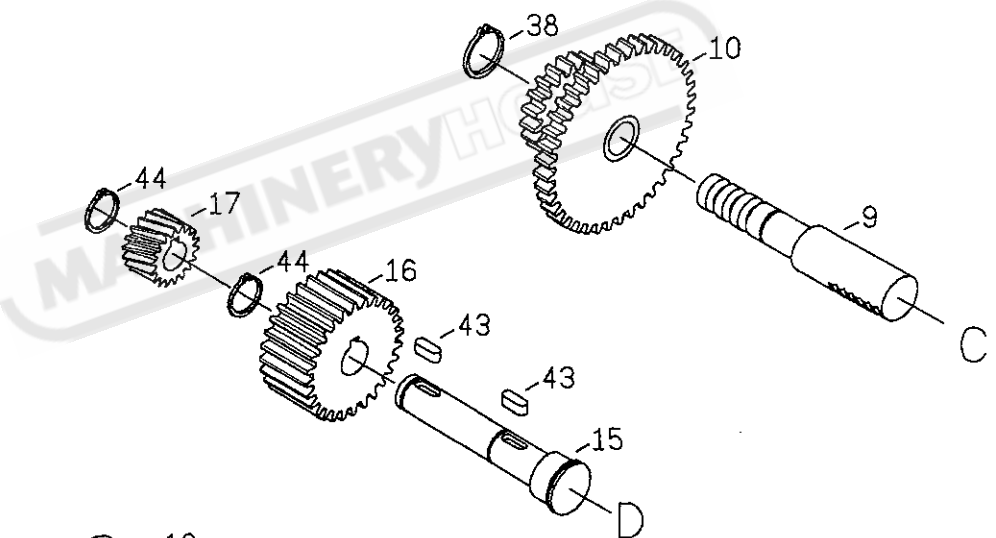
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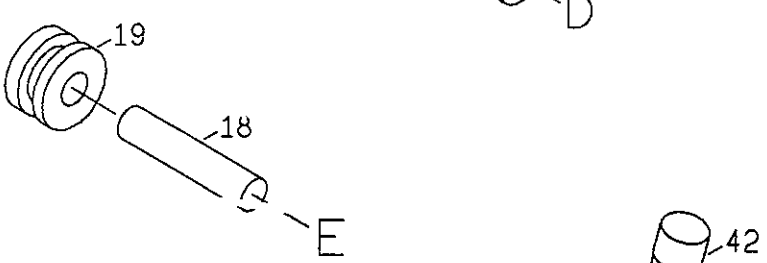
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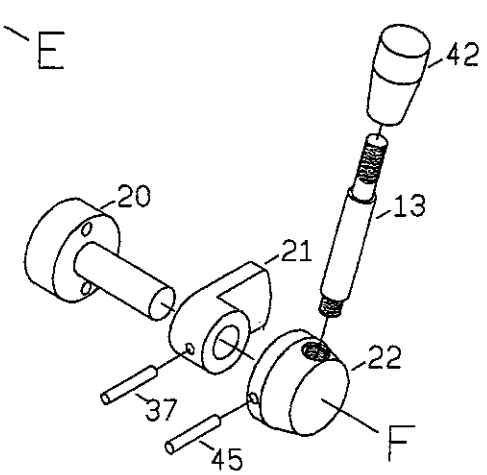
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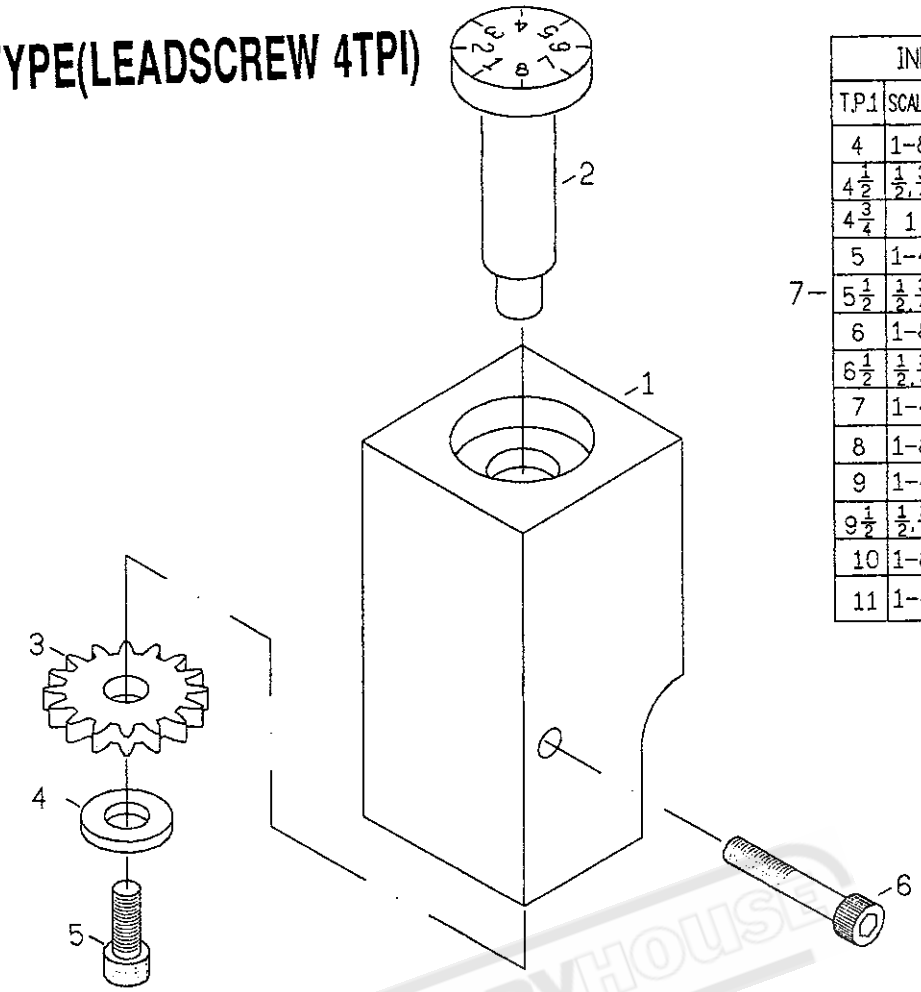
APRON (GEAR & SHAFT)

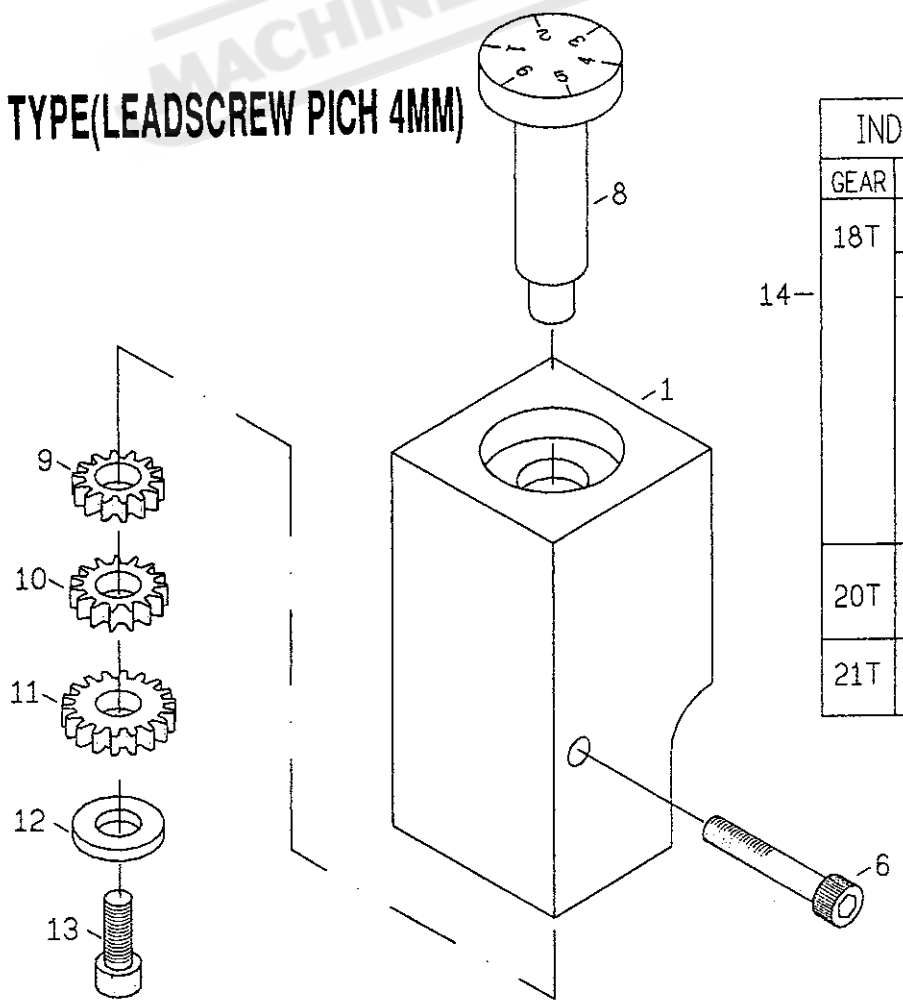
REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
2	2302	CEAR SHAFT(M2x12T)	1	
3	2303	KEEP ASSY	1	
4	2304	INDEX RING	1	
5	2305	HANDWHEEL	1	
6	2306	HANDLE	1	
7	2307	GEAR SHAFT (M1.5x13T)	1	
8	2308	GEAR (M2x50T)	1	
9	2314	SHAFT	1	
10	2315	GEAR(M2x22T)(M2x44T)	1	
15	2311	SHAFT	1	
16	2312	GEAR(M2x22T)	1	
17	2313	GEAR(M1.5x18T)	1	
18	2319	SHAFT	1	
19	2320	COLLAR	1	
20	2321	SHAFT	1	
21	2322	LEVER	1	
22	2323	HANDLE	1	
34	2340	CAP SCREW(6mmx16mm)	3	
35	2341	STEEL BALL AND SPRING	1	
36	2342	PIN (5mmx50mm)	1	
37	2343	PIN (5mmx30mm)	2	
38	2344	CIRCLIP (E12)	1	
43	2348	KEY (5mmx14mm)	2	
44	2346	SNAP RING (S14)	2	
45	2351	PIN (5mmx40mm)	1	

INCH TYPE(LEADSCREW 4TPI)



INDICATOR TABLE					
T.P.I	SCALE	T.P.I	SCALE	T.P.I	SCALE
4	1-8	12	1-8	38	1-8
$4\frac{1}{2}$	$\frac{1}{2}, \frac{3}{4}$	13	1-4	40	
$4\frac{3}{4}$	1	14	1-8	44	
5	1-4	16		48	
$5\frac{1}{2}$	$\frac{1}{2}, \frac{3}{4}$	18		52	
6	1-8	19	1-4	56	
$6\frac{1}{2}$	$\frac{1}{2}, \frac{3}{4}$	20	1-8	64	
7	1-4	22		72	
8	1-8	24		76	
9	1-4	26		80	
$9\frac{1}{2}$	$\frac{1}{2}, \frac{3}{4}$	28		96	
10	1-8	32		104	
11	1-4	36		112	

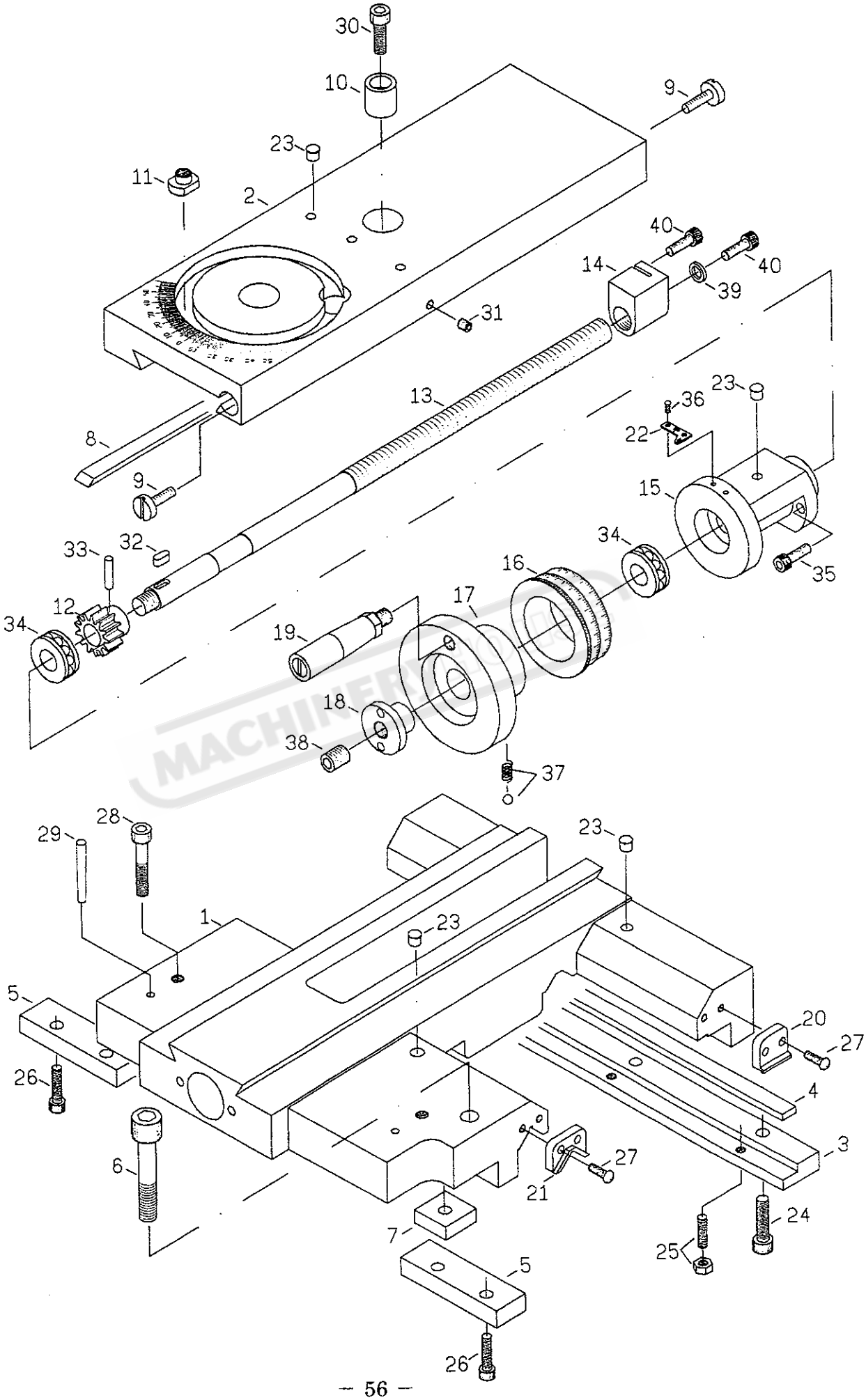
METRIC TYPE(LEADSCREW PICH 4MM)



INDICATOR TABLE			
GEAR	PITCH		SCALE
18T	0.45	0.9	1, 4
	0.3	0.6	13, 5
	0.25	0.75	1-6
	0.5	1.5	
	1	3	
	2	6	
	4		
20T	1.25	60	1, 4
	2.5		
21T	1.75	70	1, 3, 5
	3.5		

THREADING INDICATOR

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2327	THREAD BODY INDICATOR	1	
2	2328	THREAD DIAL BODY (INCH TYPE)	1	
3	2329	GEAR (M2x16T)	1	
4	2366	FLAT WASHER	1	
5	2365	CAP SCREW (6mmx12mm)	1	
6	2364	CAP SCREW (6mmx45mm)	1	
7	2336	THREAD CHART PLATE (IN TYPE)	1	
8	2328-1	THREAD DIAL BODY (METRIC TYPE)	1	
9	2330	GEAR (M1.25x18T)	1	
10	2331	GEAR (M1.25x20T)	1	
11	2332	GEAR (M1.25x21T)	1	
12	2366	FLAT WASHER	1	
13	2365	CAP SCREW (6mmx12mm)	1	
14	2337	THREAD CHART PLATE (METRIC TYPE)	1	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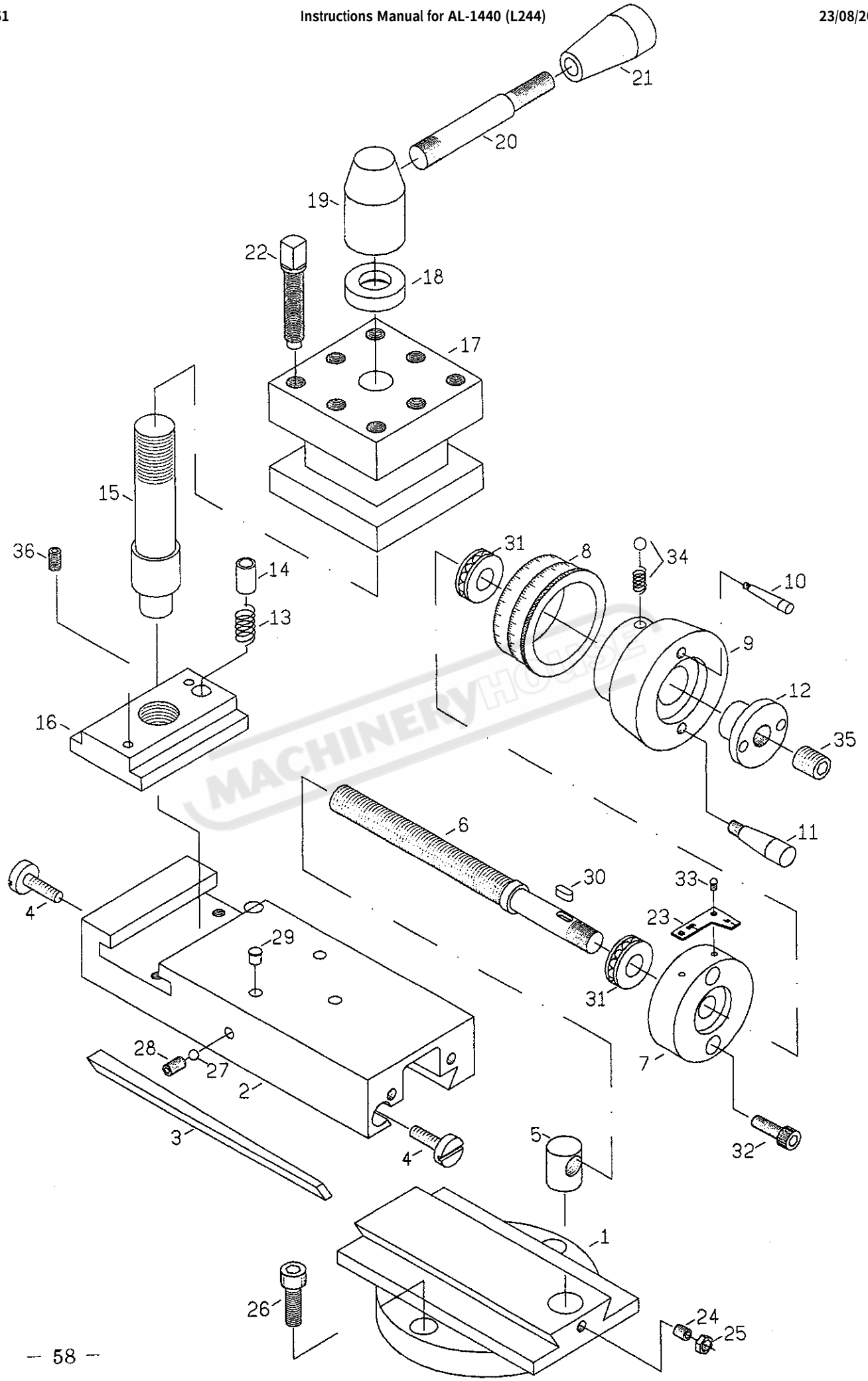
SADDLE & CROSS-SLIDE

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2401	SADDLE CASTING	1	
2	2402	CROSS-SLIDE	1	
3	2403	CLAMP REAR	1	
4	2404	GIB	1	
5	2405	CLAMP FRONT	2	
6	2406	CAP SCREW (7/16x2-1/2 IN)	1	
7	2407	WASHER	1	
8	2408	GIB	1	
9	2409	GIB SCREW	2	
10	2410	COLLAR	1	
11	2419	NUT	2	
12	2411	GEAR (M2x13T)	1	
13	2412	SCREW	1	
14	2413	NUT	1	
15	2414	KEEP ASSY	1	
16	2415	INDEX RING	1	
17	2417	HANDWHEEL	1	
18	2416	PLUG	1	
19	2418	HANDLE	1	
20	2439	WIPER	2	
21	2440	WIPER	2	
22	2465	DIAL	1	
23	2450	OILER (1/4 IN)	5	
24	2454	CAP SCREW (8mmx20mm)	3	
25	2453	SCREW AND NUT	1	
26	2451	CAP SCREW (8mmx16mm)	2	
27	2452	SCREW (3/16x1/2 IN)	8	
28	2466	CAP SCREW	2	
29	2467	PIN	2	
30	2462	CAP SCREW (8mmx20mm)	1	
31	2461	CAP SCREW (8mmx20mm)	1	
32	2460	KEY (5mmx12mm)	1	
33	2459	PIN (5mmx22mm)	1	
34	2457	THRUST (2902)	2	
35	2458	CAP SCREW (6mmx25mm)	2	
36	2468	NAIL (2mm)	2	
37	2456	STEEL BALL AND SPRING	1	
38	2455	SCREW (12mmx12mm)	1	
39	2464	WASHER	1	
40	2463	CAP SCREW (6mmx12mm)	2	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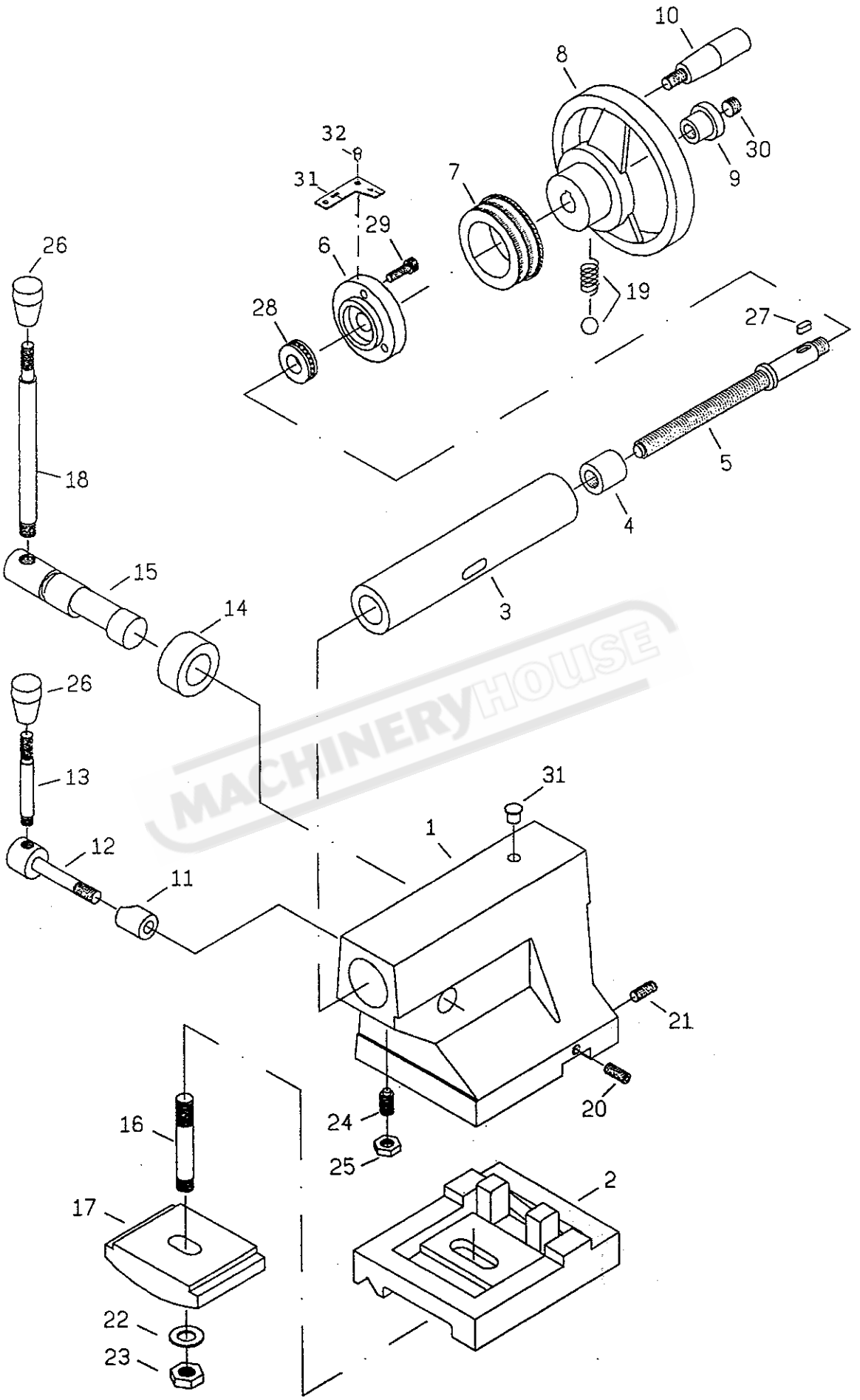
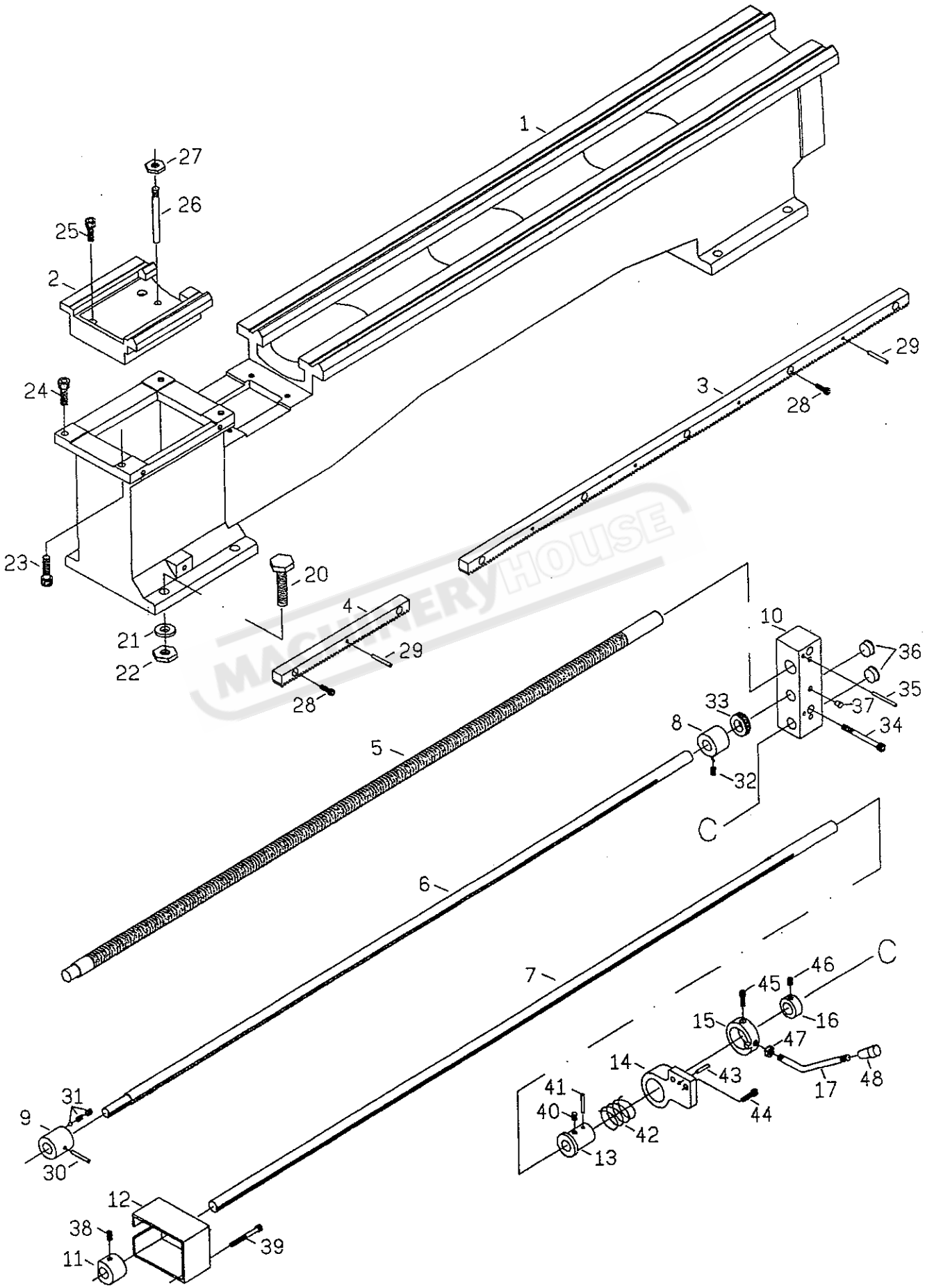
TOP-SLIDE

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2420	SWIVEL SLIDE	1	
2	2421	TOP-SLIDE (T-SLOT)	1	
3	2422	GIB	1	
4	2423	SCREW	2	
5	2424	NUT	1	
6	2425	LEAD SCREW	1	
7	2426	BRACKET	1	
8	2427	INDEXING RING	1	
9	2428	HANDWHEEL	1	
10	2429	GRIP (LONG)	1	
11	2430	GRIP (SHORT)	1	
12	2416	NUT	1	
13	2442	SPRING	1	
14	2431	PIN	1	
15	2432	BOLT	1	
16	2441	T-SLOT NUT	1	
17	2433	4-WAY TOOL POST	1	
18	2434	WASHER	1	
19	2435	HUB	1	
20	2436	LEVER	1	
21	2437	PVC KNOB	1	
22	2438	SCREW (3/8 IN)	8	
23	2443	DIAL	1	
24	2463	SET SCREW (6mmx12mm)	1	
25	2444	NUT	1	
26	2462	CAP SCREW (8mmx16mm)	2	
27	2445	STEEL BALL	1	
28	2469	SCREW	1	
29	2450	OIL CAP (1/4 IN)	3	
30	2464	KEY (4mmx10mm)	1	
31	2465	THRUST BEARING (51101)	2	
32	2466	CAP SCREW (6mmx25mm)	2	
33	2446	NAIL (2mm)	2	
34	2467	STEEL BALL & SPRING	1	
35	2455	SCREW (12mmx12mm)	1	
36	2468	SET SCREW	2	



TAILSTOCK

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2501	TAILSTOCK CASTING	1	
2	2502	ATILSTOCK BASE	1	
3	2503	TAILSTOCK BARREL	1	
4	2504	NUT	1	
5	2505	FEED SCREW	1	
6	2506	BRACKET	1	
7	2507	DIAL	1	
8	2508	HANDWHEEL	1	
9	2509	NUT	1	
10	2510	HANDLE	1	
11	2511	NUT	1	
12	2512	SHAFT	1	
13	2513	LEVER	1	
14	2514	COLLAR	1	
15	2515	CAM SHAFT	1	
16	2516	CLAMP STUD	1	
17	2517	CLAMP	1	
18	2518	CLAMP HANDLE LEVER	1	
19	2519	STEEL BALL & SPRING	1	
20	2520	SET SCREW (8mmx30mm)	2	
21	2521	SET SCREW (8mmx30mm)	2	
22	2522	WASHER	1	
23	2523	NUT	1	
24	2524	CAP SCREW (8mmx20mm)	1	
25	2525	NUT	1	
26	2526	PVC KNOB	2	
27	2528	KEY (5mmx12mm)	1	
28	2529	THRUST BEARING(2902)	1	
29	2530	CAP SCREW (6mmx20mm)	3	
30	2531	SCREW (12mmx12mm)	1	
31	2527	DIAL	1	
32	2532	SCREW(3/16"x3/8")	2	
33	2533	OIL CAP(1/4")	1	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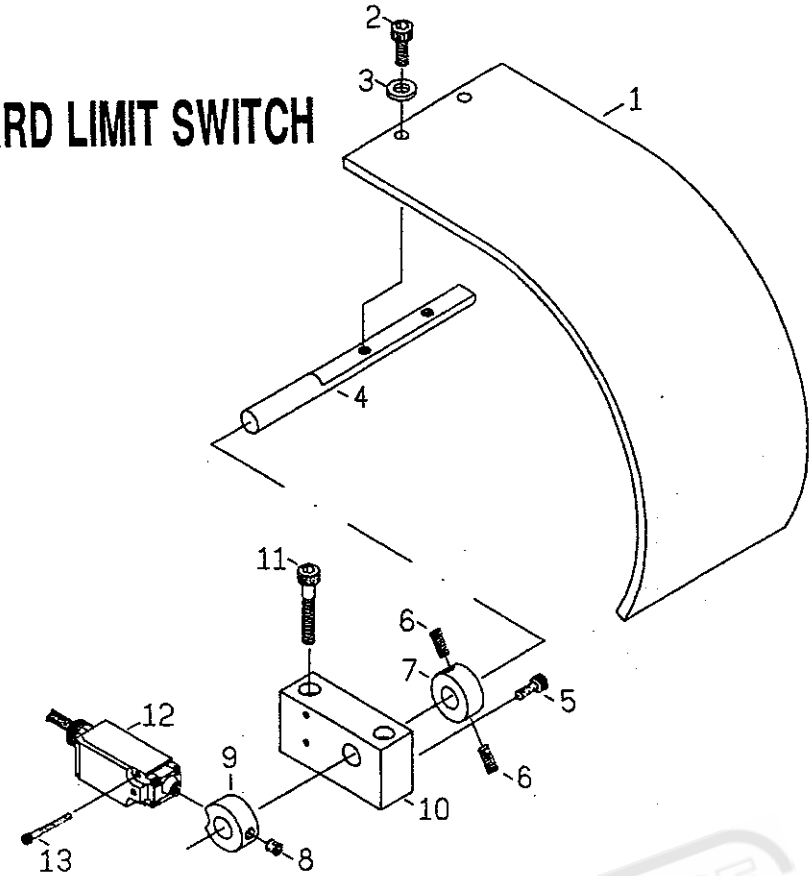
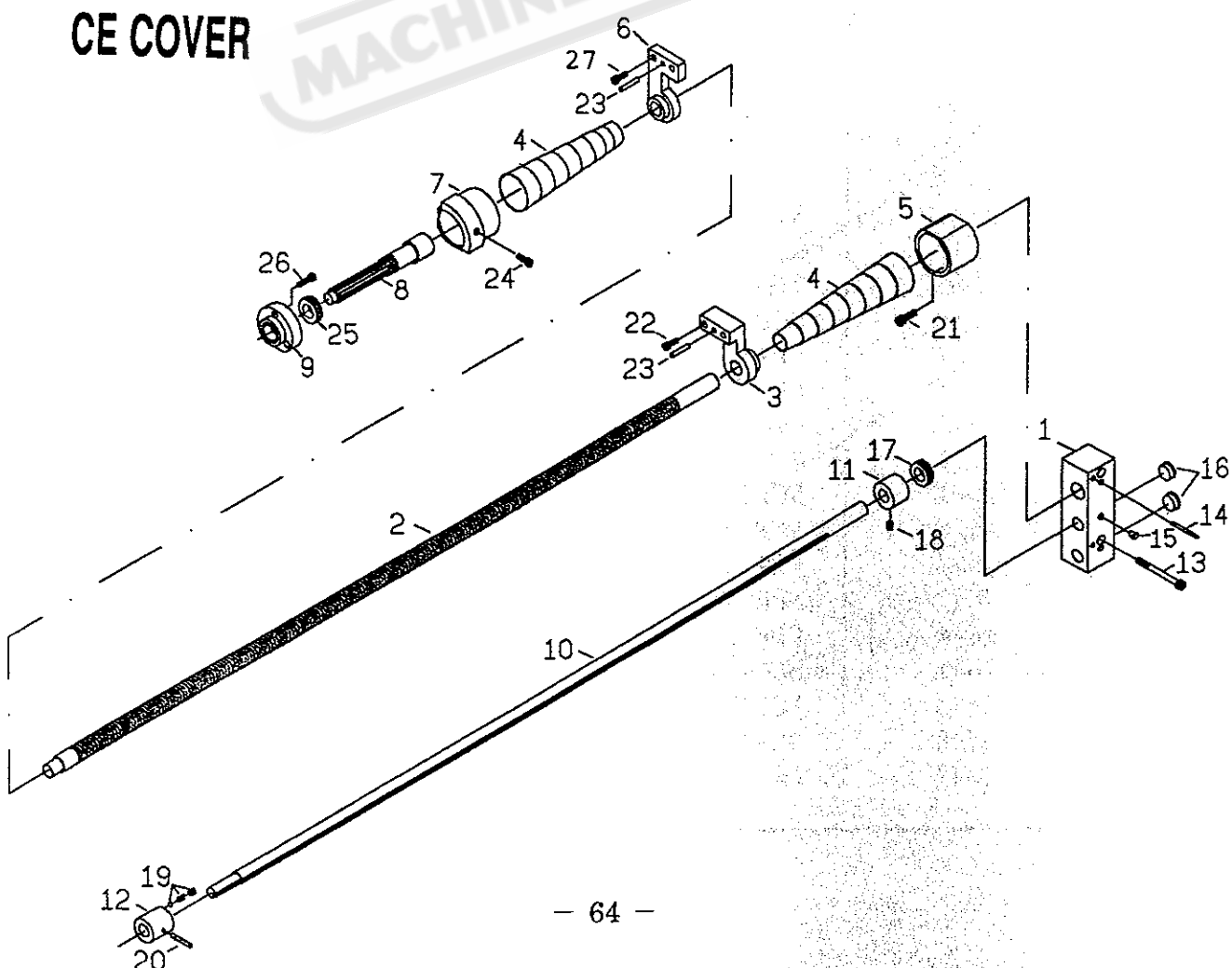
BED RACK LEAD SCREW AND SHAFTS

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2601	BED	1	
2	2602	GAP	1	
3	2603	RACK	1	
4	2604	RACK	1	
5	2605	LEAD SCREW (4 T.P.I.)(4 MM)	1	
6	2606	SHAFT	1	
7	2607	FOR/REV CONTROL,THIRD-ROD SHAFT	1	
8	2609	COLLAR	1	
9	2608	COLLAR	1	
10	2617	END BRACKET	1	
11	2611	BUSH	1	
12	2610	BOX	1	
13	2612	BUSHING	1	
14	2613	BRACKET	1	
15	2614	BUSH	1	
16	2615	BUSH	1	
17	2616	LEVER	1	
18	2630	PVC KNOB	1	
20	2634	SCREW (CAP 1/2"x2")	6	
21	2621	WASHER	6	
22	2622	NUT	6	
23	2623	SCREW (CAP 10mmx40mm)	2	
24	2624	SCREW (CAP 10mmx35mm)	2	
25	2632	SCREW (CAP 10mmx35mm)	4	
26	2633	SCREW TAPER PIN	2	
27	2627	NUT	2	
28	2636	SCREW (CAP 6mmx20mm)	6	
29	2635	PIN (5mmx28mm)	4	
30	2637	SCREW (SET 8mmx12mm)	1	
31	2638	STEEL BALL AND SPRING	2	
32	2639	SCREW (SET 8mmx10mm)	1	
33	2640	THRUST (#51104)	1	
34	2651	SCREW (8mmx60mm)	2	
35	2650	PIN (5mmx50mm)	2	
36	2658	PLUG	2	
37	2649	OIL CUP (1/4")	3	
38	2642	SCREW (SET 8mmx10mm)	1	
39	2641	SCREW (CAP 6mmx16mm)	2	
40	2628	SCREW (SET 6mmx16mm)	1	
41	2629	PIN (5mmx28mm)	1	
42	2643	SPRING	1	
43	2646	PIN (5mmx28mm)	1	
44	2644	SCREW (CAP 6mmx20mm)	2	
45	2645	SCREW (CAP 6mmx10mm)	1	
46	2648	SCREW (SET 8mmx8mm)	1	
47	2647	NUT	1	

CHUCK GUARD LIMIT SWITCH

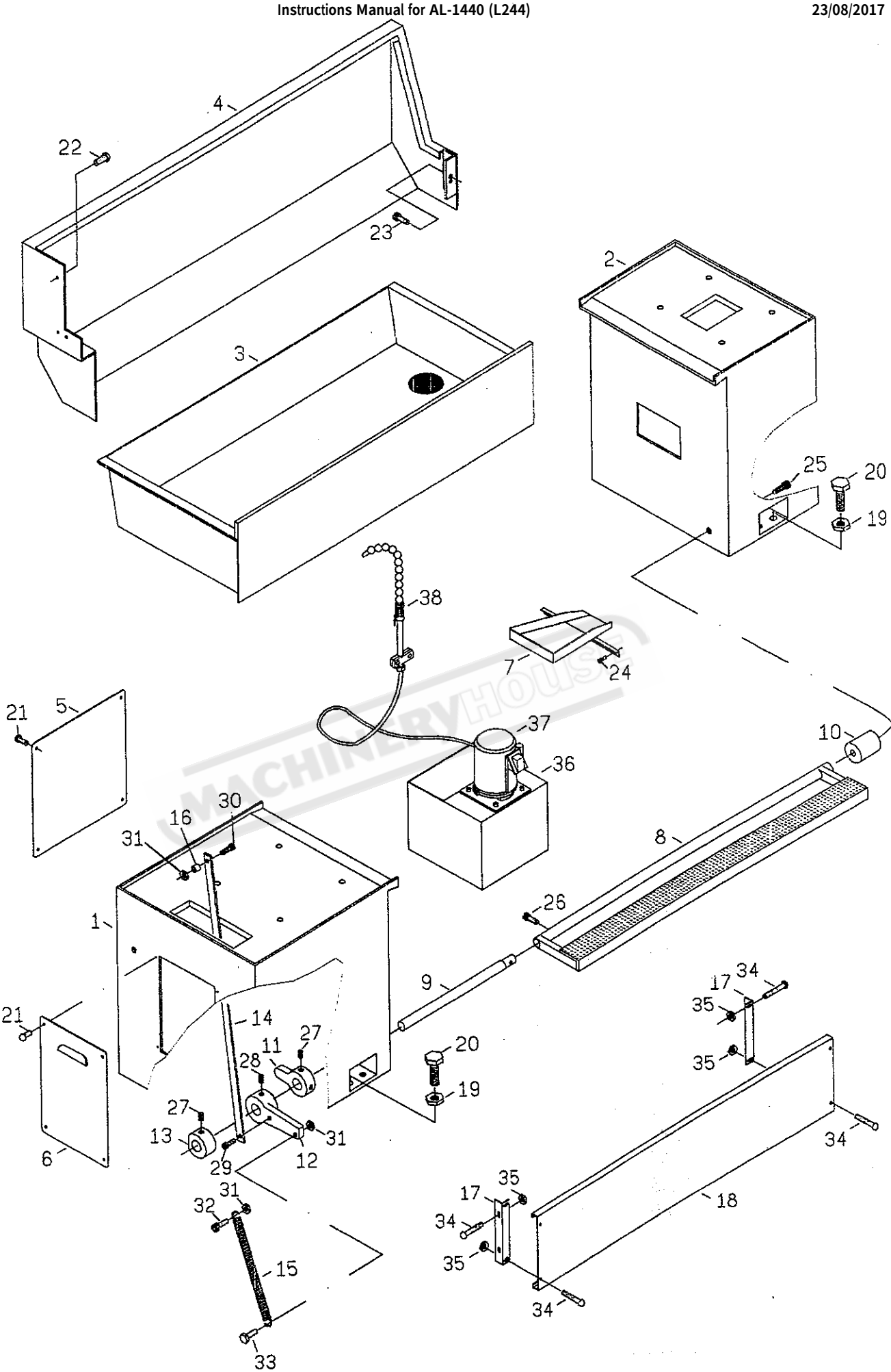


CE COVER



CHUCK GUARD LIMIT SWITCH & CE COVER

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2901	COVER	1	
2	2912	CAP SCREW (8mmx20mm)	2	
3	2913	WASHER	2	
4	2914	ROD	1	
5	2911	SCREW (CAP 6mmx16mm)	1	
6	2906	SCREW (SET 8mmx20mm)	2	
7	2907	COLLAR	1	
8	2908	SCREW (SET 8mmx10mm)	1	
9	2909	COLLAR	1	
10	2910	FRAME	1	
11	2903	SCREW (CAP 8mmx55mm)	2	
12	2902	SWITCH AND COVER	1	
13	2904	SCREW (CAP 4mmx30mm)	2	
		CE COVER		
1	2617	END BRACKET	1	
2	2605	LEAD SCREW	1	
3	2625	ARM	1	
4	2668	PROTECTION HOOD	2	
5	2626	BUSH	1	
6	2620	ARM	1	
7	2618	COVER	1	
8	2206	SHAFT	1	
9	2205	COVER	1	
10	2606	SHAFT	1	
11	2609	COLLAR	1	
12	2608	COLLAR	1	
13	2651	SCREW (CAP 8mmx60mm)	2	
14	2650	PIN (5mmx50mm)	2	
15	2649	OIL CUP (1/4")	3	
16	2658	PLUG	2	
17	2667	THRUST (51104)	1	
18	2666	SCREW (SET 8mmx10mm)	1	
19	2665	STEEL BALL SPRING & SCREW	2	
20	2664	SCREW (SET 8mmx12mm)	1	
21	2661	SCREW (CAP 6mmx20mm)	2	
22	2663	SCREW (CAP 8mmx50mm)	2	
23	2653	PIN (5mmx50mm)	2	
24	2662	SCREW (CAP 8mmx16mm)	1	
25	2263	THRUST (51105)	1	
26	2255	SCREW (CAP 6mmx20mm)	3	
27	2660	SCREW (CAP 8mmx30mm)	2	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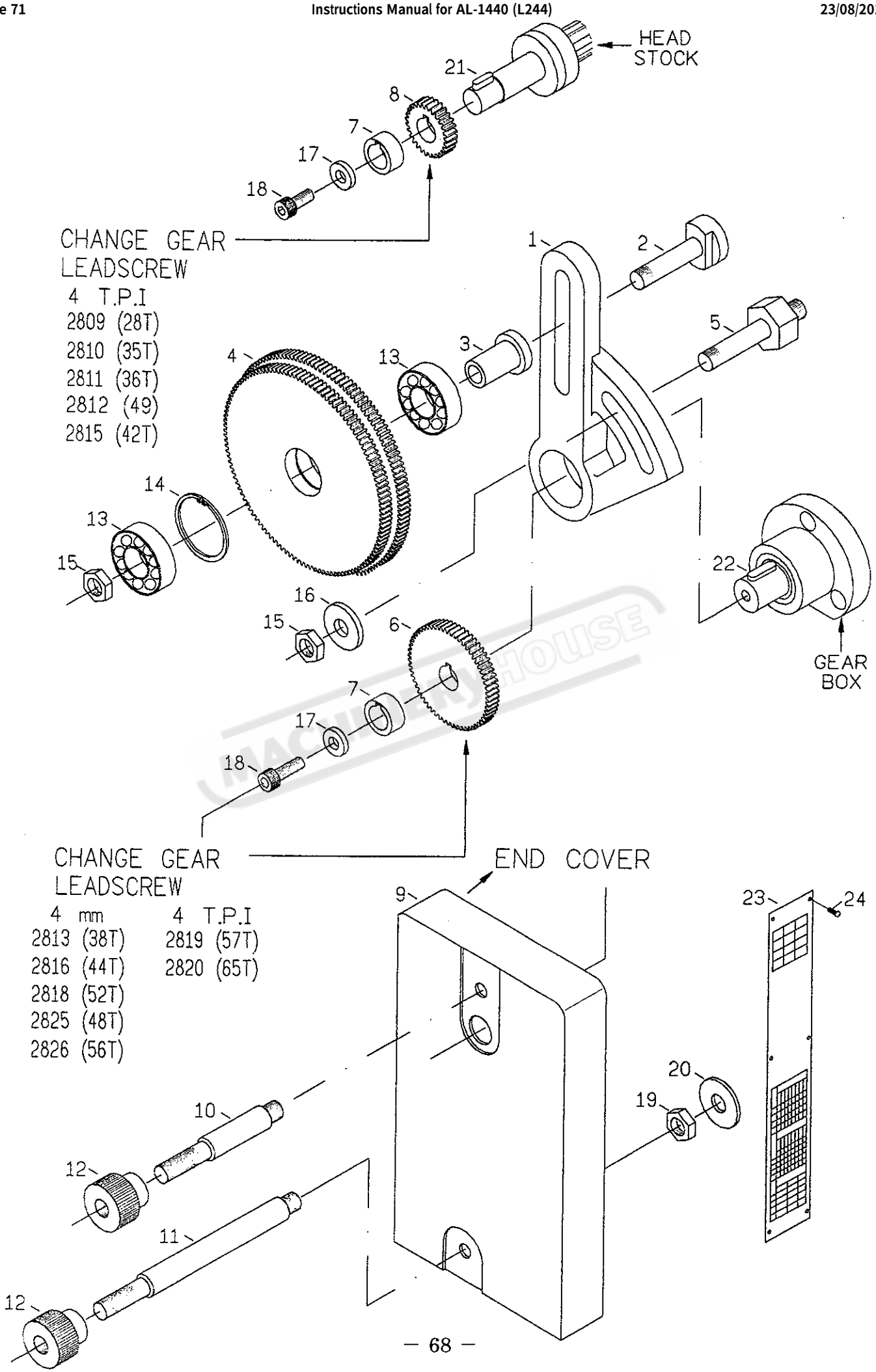
CABINET AND PANELS, PUMP SYSTEM

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2701	LEFT PEDESTAL HEAD-END	1	
2	2702	RIGHT PEDESTAL TAIL-END	1	
3	2704	CHIP PAN	1	
4	2705	SPLASH GUARD	1	
5	2709	COVER	1	
6	2708	COVER	1	
7	2707	CHUTE	1	
8	2703	FOOT BRAKE PEDAL	1	
9	2715	CONNECTOR SHAFT	1	
10	2716	COLLAR	1	
11	2714	LEVER	1	
12	2713	LEVER	1	
13	2712	COLLAR	1	
14	2711	BAR	1	
15	2745	SPRING	1	
16	2730	WASHER	1	
17	2719	BAR	2	
18	2718	CONNECT PLATE	1	
19	2710	NUT	2	
20	2732	SCREW (1/2"x2")	4	
21	2741	SCREW (6mmx12mm)	8	
22	2737	SCREW (CAP 6mmx12mm)	3	
23	2736	SCREW (CAP 8mmx20mm)	1	
24	2735	SCREW (CAP 6mmx16mm)	2	
25	2734	SCREW (CAP 8mmx20mm)	1	
26	2733	SCREW (CAP 8mmx20mm)	2	
27	2742	SCREW (SET 10mmx20mm)	2	
28	2743	SCREW (SET 10mmx40mm)	2	
29	2731	SCREW (CAP 8mmx10mm)	1	
30	2740	SCREW (8mmx10mm)	1	
31	2746	NUT	3	
32	2738	SCREW (CAP 8mmx25mm)	1	
33	2739	SCREW (8mmx30mm)	1	
34	2747	SCREW (6mmx16mm)	8	
35	2748	NUT	8	
36	2706	TANK	1	
37	2717	PUMP (1/8 HP)	1	
38	2720	HOSE	1	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2810 (35T)
2811 (36T)
2812 (49)
2815 (42T)
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GEAR BOX
CHANGE GEAR LEADSCREW
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2813 (38T)
2816 (44T)
2818 (52T)
2825 (48T)
2826 (56T)
4 T.P.I
2819 (57T)
2820 (65T)
END COVER
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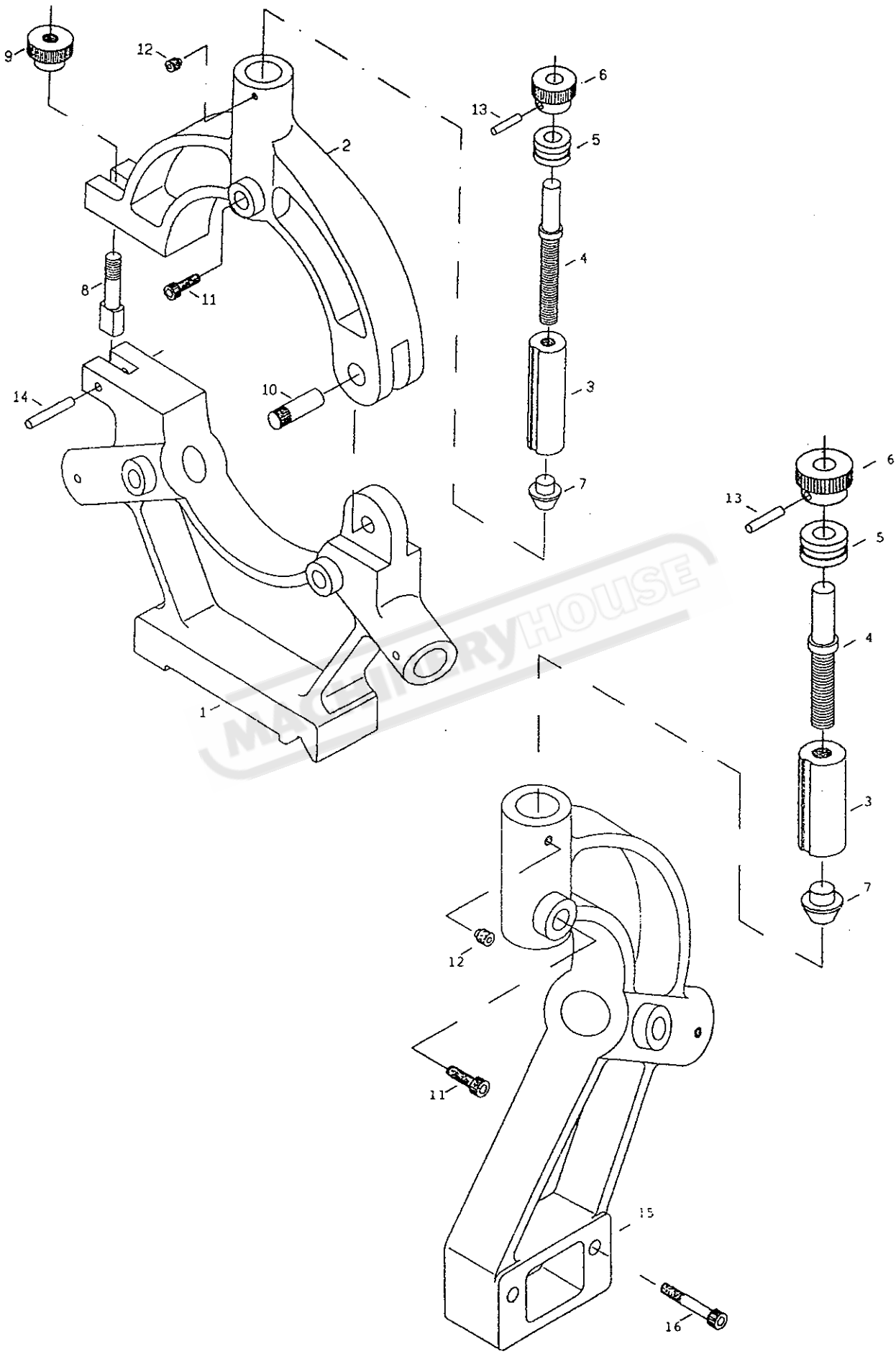
SWING FRAME & GEARS, END COVER

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2801	SWING FRAM	1	
2	2802	BOLT	1	
3	2803	COLLAR	1	
4	2804	GEAR(M1.25x120T,127T)	1	
5	2805	SCREW	1	
6	2808	GEAR(1.25x60T)	1	
7	2806	COLLAR	1	
8	2807	GEAR(1.25x30T)	1	
9	2821	END COVER	1	
10	2822	STUD	1	
11	2824	STUD	1	
12	2823	NUT	2	
13	2833	BEARING(6202Z)	2	
14	2836	CIRCLIP(R 35)	1	
15	2835	NUT	2	
16	2837	WASHER	1	
17	2839	WASHER	2	
18	2840	SCREW(CAP 6mmx16mm)	2	
19	2838	NUT	1	
20	2831	WASHER	1	
21	2830	KEY (5mmx18mm)	1	
22	2841	KEY (5mmx18mm)	1	
23	2827	DATA PLATE	1	
24	2817	SCREW (3/16"x3/8")	6	
25	2809	CHANGE GEAR (M1.25x28T)	1	
26	2810	CHANGE GEAR (M1.25x35T)	1	
27	2811	CHANGE GEAR (M1.25x36T)	1	
28	2812	CHANGE GEAR (M1.25x49T)	1	
29	2815	CHANGE GEAR (M1.25x42T)	1	
30	2813	CHANGE GEAR (M1.25x38T)	1	
31	2816	CHANGE GEAR (M1.25x44T)	1	
32	2818	CHANGE GEAR (M1.25x52T)	1	
33	2825	CHANGE GEAR (M1.25x48T)	1	
34	2826	CHANGE GEAR (M1.25x56T)	1	
35	2819	CHANGE GEAR (M1.25x57T)	1	
36	2820	CHANGE GEAR (M1.25x65T)	1	
37	2814	CHANGE GEAR (M1.25x40T)	1	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STEADY REST AND FOLLOW REST

REF.NO.	PART NO.	DESCRIPTION	Q'TY	REMARKS
1	2917	CASTING	1	
2	2918	CASTING	1	
3	2919	SHAFT	5	
4	2920	SCREW	5	
5	2905	COLLAR	5	
6	2921	HANDLE	5	
7	2922	SHAFT	5	
8	2923	SCREW	1	
9	2924	HANDLE	1	
10	2925	SHAFT	1	
11	2926	SCREW	5	
12	2927	SCREW	5	
13	2928	SPRING PIN	5	
14	2929	SPRING PIN	1	
15	2915	CASTING	1	
16	2916	SCREW	2	

ELECTRIC EQUIPMENTS

CONSTRUCTION

THE CLECTRIC EQUIPMENTS ARE CONSISTS OF SPINDLE MOTOR, CONTROL PANEL, MAGNETIC CONTACTOR, MAGNETIC SWITCH, CONTROL CONDUIT AND TRANSFORMER.

A. THE SPINDLE MOTOR IS TOTALLY ENCLOSED, 3 PHASES 3.7KW(5HP) 4 POLES.
B. THE CONTROL PANEL INCLUDES POWER ON AND OFF SWITCHES, COOLANT PUMP SWITCH AND PILOT LAMP.
C. THE MAGNETIC CONTROL PANEL HAS SPINDLE MOTOR, REVERSIBLE MAGNETIC VALVE. AND SUBSIDIARY MAGNETIC CONTACTOR.
D. THE FORWARDING AND REVERSING RUNNING CONTROL LEVER IS CONTROLLED BY A MICRO SWITCH.
E. A MICRO SWITCH FOR FOOT BRAKE PEDAL IS FITTED SEPARATELY. WHEN THE PEDAL IS USED, THE MAGNETIC SWITCH ON SPINDLE MOTOR WILL CUT OFF AUTOMATICALLY.

RUNNING STEPS

1. A POWER SWITCH IS FITTED ON THE CONTROL PANEL. PUT THIS SWITCH ON POSITION "ON" THEN THE PILOT LAMP IS LIGHTING.
2. PUSH OR PULL THE FORWARDING AND REVERSING RUNNING CONTROL LEVER THEN THE SPINDLE STARTS TO RUN.
3. UPON EMERGENCY STOP IS NEED, USE THE FOOT BRAKE PEDAL THEN THE SPINDLE MOTOR WILL CUT OFF AUTOMATICALLY. MEANWHILE, THE BRAKE IS ACTIVATED TO STOP RUNNING OF THE SPINDLE.
4. SUALLY, WHEN THE MACHINE NEEDS STOP, TO PUT ONLY THE LEVER CONTROL SWITCH ON THE MIDDLE POSITION. THUS, THE MAGNETIC SWITCH WILL CUT OFF AND THE MACHINE WILL SOP RUNNING.
5. UPON OPERATION IS COMPLETED, BE SURE TO PUT THE POWER SWITCH LOCATED AT THE CONTROL PANEL ON POSITION "OFF".

DISMOUNTING OF THE GAP BED

FIRST, TO TAKE OFF THE FOUR SCREWS MOUNTED ON THE SURFACE AND REMOVE THE PIN IN THE MIDDLE THEN MOVE THE GAP BED HORIZONTALLY AND GET IT DOWN. BE CAREFUL TO ITS PIN AND EDGES. KEEP THE GAP BED CAREFULLY AND DO NOT HIT IT. TO FOLLOW THE OPPOSITE STEPS FOR MOUNTING THE GAP BED BACK TO THE MACHINE. BEFORE MOUNTING, THE BED WAYS AD THE GAP HAVE TO BE CLEANED.

NOTES

1. BE SURE TO OPERATE ALWAYS THE MACHINE CAREFULLY AND KEEP IT WITH GOOD MAINTENANCE. IF SO, THE MACHINE'S LONGEVITY AND PRECISION CAN BE ASSURED.

2. EVERY DAY, WHEN THE OPERATION IS COMPLETED, BE SURE TO CLEAN OUT THE CHIPS LEAVE ON THE MACHINE AND OIL THE SLIDE WAYS TO PREVENT RUST AND MEANTIME, TURN OFF THE POWER SWITCH.

3. EVERY DAY, BEFORE OPERATION, BE SURE TO CHECK OIL LEVEL FOR OIL VOLUME AND FILL IT UP IF NECESSARY. ESPECIALYY, THE OIL SUPPLEMENT FOR FEED BOX IS EASILY FOGOTTEN BY THE OPERATOR. THE BEST WAY IS FEEDING OIL DAILY IN THE MORNING AND IN THE AFTERNOON SEPARATELY BEFORE RUNNING OF THE MACHINE.

4. FOR A NEW MACHINE, AFTER OPERATION OF 3 MONTHS, THE OIL IN HEAD-STOCK HAS TO BE REPLACED OR FILTERED IF IT TO BE USED REPEATEDLY. THUS, TO PROTECT THE GEARS INSIDE OF THE HEADSTOCK AND LESSEN THE NOISE.

5. IF HEADSTOCK IS OVER HEATED, HIGH WOBBLED, OIL LEAKED AND OIL SHORTED, THEN PLEASE STOP THE MACHINE IMMEDIATELY AND ARRANGE A PEOPLE TO SOLVE THE PROBLEM. WHEN THE PROBLEM IS SOLVED, THEN THE MACHINE CAN BE RUN AGAIN. OTHERWISE, MORE BIGGER PROBLEM IS COM-ING BECAUSE THE LITTLE CASE NOT CURED.

6. WHILE CLAMPING THE WORKPIECE, PLEASE DO NOT HIT IT BY HAMMER OR WEIGHT OTHERWISE THE SPINDLE WILL BE COLLIDED AND THE ACCURACY OF PRECISION IS EFFECTED.

7. AFTER OPERATION, THE HAND TOOLS, CUTTING TOOLS AND CLAMPING KITS SHOULD BE PUT ON APPROPRIATE POSITIONS. PLEASE DO NOT PUT ANY THING ON THE SLIDE WAYS OR BED WAY TO PREVENT COLLISION TO THE SLIDE WAYS AND EFFECT TO THE PRECISION.

8. BESIDES THE OPERATOR, PLEASE DO NOT LET ANYBODY ADJUST OR MOVE THE POSITION OF HANDLES OR CONTROLLING LEVERS, OR OPERATE THE MA-CHINE.

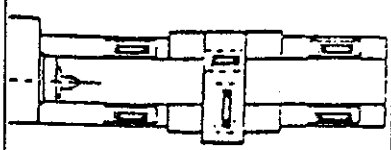
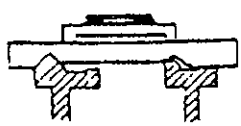
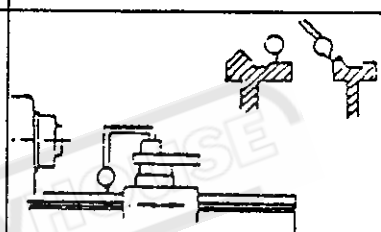
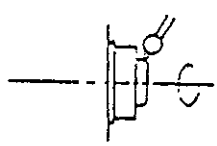
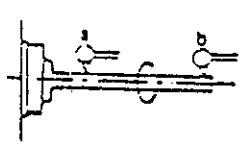
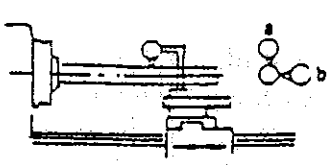
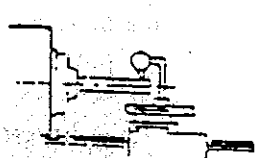
9. MAKE A TIME TABLE OF MACHINE MAINTENANCE AND MAINTAIN IT PERIODI-CALLY ACCORDING TO THE SCHEDULE, AND THUS TO BENEFIT THE PRECISION AND LONGEVITY OF THE MACHINE.

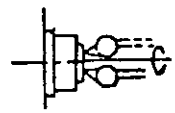
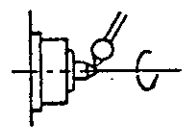
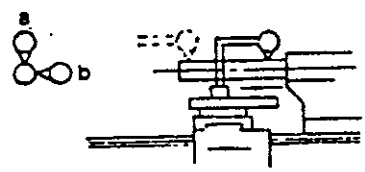
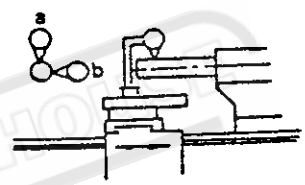
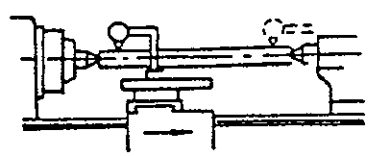
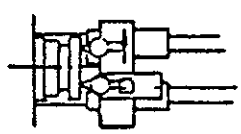
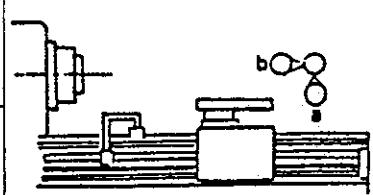
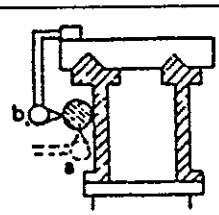
TROUBLE SHOOTING

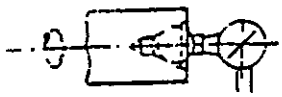
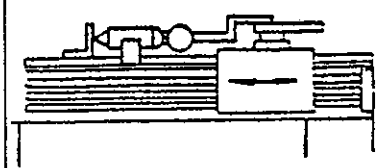
TROUBLES	FACTORS	REMEDY
HEADSTOCK BEARINGS ARE OVER HEATED	1. OIL LEVEL IN HEADSTOCK IS TOO LOW. 2. OIL VISCOSITY IS WRONG. 3. OIL PIPE IS OBSTRUCTED OR LEAKED. 4. MAIN SPINDLE IS WOBBLED OR OVER LOADED. 5. OIL FILTER IS OBTRUCTED.	1. CHECK IF OIL LEVEL IN CORRECT POSITION AND FILL IT UP IF NECESSARY. 2. CHECK IF THE RECOMMENDED OIL IS USED. 3. CLEAN OIL PIPE OR REPLACE A NEW ONE IF NEED. 4. CHECK IF THE SPINDLE IS LOCKED UPON FREE RUNNING. 5. FILTER THE OIL OR REPLACE NEW OIL.
OIL LEAKAGE ON SPINDLE FLANGE OR GEAR BOX COVER	1. BOLT IS LOOSE. 2. OIL PACKING IS WORN. 3. OIL VOLUME IS OVER. 4. OIL SEAL IS CRACKED. 5. THE SURFACE FINISH IS COARSE.	1. LOCK THE BOLT. 2. REPLACE THE PACKING. 3. LOWER THE OIL. 4. REPLACE OIL SEAL. 5. CORRECT THE FINISH.
CHATTER	1. WORKPIECE IS NOT CLAMPED SECURELY. 2. WORKPICE LEAVES TOO LONG AT LEET SIDE OF THE CLAMPING POSITION. 3. IMPROPER CUTTING TOOL IS USED. 4. CUTTING TOOL IS TOO HIGH OR TOO LOW TO THE CENTER OF SPINDLE. 5. CHIP IS NOT REMOVED FREELY FROM THE TOOL. 6. WORKPIECE IS TOO LONG.	1. CLAMP IT SECURELY. 2. LESSEN THE LENGTH TO AVOID WOBBLE HAPPENED. 3. SELECT SUITABLE CUTTING TOOL ACCORDING TO MATERIAL OF WORKPIECE AND THE CUTTING SPEED. FOR SMALL DIAMETER OF WORKPIECE, A SMALL ANGLE OF CUTTING TOOL TO BE USED. IF OPPOSITE, USE THE BIG ANGLE OF CUTTING TOOL. 4. ADJUST THE CUTTING TOOL TO THE CENTER OF SPINDLE. 5. MOUNT A CHIP CUTTER OR ADJUST THE FRONT ANGLE OF CUTTING TOOL. 6. USE A CENTER TO SUPPORT LONGER WORKPIECE.
BENT FINISH ON LONG WORKPIECE CUTTING	1. MATERIAL IS OVER HEATED. 2. DEEP CUT IS MADE. 3. HOT IS HAPPENED TO THE CENTER AND WORKPIECE.	1. USE COOLANT OIL FOR CUTTING. 2. REDUCE THE DEPTH FOR EACH CUTTING. 3. USE ROLLING CENTER FOR HIGH SPEED RUNNING.
PRECISION IS GETTING WORSE	1. WORKPIECE IS NOT BALANCE CLAMPED. 2. ALWAYS HIT THE WORKPIECE BY HAMMER. 3. CENTER OF SPINDLE IS NOT ALIGNMENT WITH THE CENTER OF TAILSTOCK. 4. MACHINE IS OUT OF THE HORIZONTAL.	1. CLAMP WORKPIECE IN BALANCE 2. DO NOT HIT IT BY HAMMER. 3. ADJUST THE TAILSTOCK TO ALIGNMENT WITH THE CENTER OF SPINDLE. 4. CHECK PERIODICALLY HORIZONTAL OF MACHINE.
LEVER SWITCH IS HARD OPERATED	THE OPERATOR IS NOT FAMILIAR WITH OPERATION OF THE MACHINE.	THE LEVER SWITCH IS FITTED WITH A SAFETY DEVICE. DURING OPERATION, THE LEVER MUST BE MOVED SLIGHTLY TO RIGHT THEN OPERATE UPWARD OR DOWNWARD FOR RUNNING THE SPINDLE CLOCKWISE AND ANTICLOCKWISE.

TOLERANCE PERMISSIBLE DIAGRAM

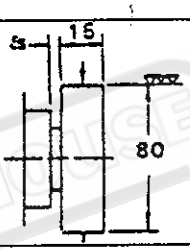
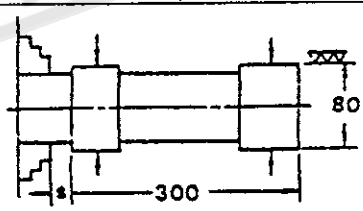
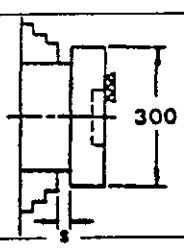
1.ACCURACY TEST.(mm)

NO.	INSPECTION ITEM		DIAGRAM	TOLERANCE PERMISSIBLE
1	Straightness of bed slideway	a.Longitudinal direction (In vertical Llane'		0.04
		b.Transverse direction (In veritical plane)		0.04
2	Parallelism of bed slideways.			0.02
3	Spindle nose runout			0.01
4	Spindle taper hole runout	a.Nearest spindle nose		0.01
		b.At a distance of 300nn		0.02
5	Parallelism of center line of main spindle to longitudinal motion of carriage	a.In vertical plane		0.025
		b.In horizontal plane		0.025
6	Movement of compound slide parallel with main spindle in vertical plane (Hand feed)			0.01/150

NO.	INSPECTION ITEM		DIAGRAM	TOLERANCE PERMISSIBLE
7	Main spindle for axial slip. mearsured at 2 points, displaced by 180°			0.015
8	True running of center point of main spindle.			0.015
9	Parallelism of tailstock spindle with bed ways.	a.In vertical plane (Front end rising)		0.015/100
		b.In horizontal pland(Front end inclined to wards the direction of tool p\resure.		0.015/100
10	Parallelism of bed ways with center line of tailstock spindle hole.	a.In vertical plane (Free end of mandrel rising)		0.02/300
		b.In borizontal pland (Free end of mandrel inclined to wards tailstockend)		0.02/300
11	Difference in center hight between headstock and tailstock (Mandrel rising towards tailstock end)			0.025
12	Squareness of motion of cross slide with center line of main spindle			0.02/300
13	Parallelism of center line of lead screw end bearing to carriage slide ways	a.In vertical plane		0.1
		b.In horizontal plane		0.1
14	Diviations in alignment of center line of lead screw end bearing with center line of half nut.	a.In vertical plane		0.15
		b.In horizontal plane		0.15

NO.	INSPECTION	DIAGRAM	TOLERANCE PERMISSIBLE
15	Axial displacement of lead screw by turning		0.01
16	Pitch error of lead screw		0.03/300

2.PRACTICAL

NO.	JESTING ITEM	DIAGRAM	TOLERANCE PERMISSIBLE
1	Accuracy of outside turning		0.01
2	Accuracy of cylindrical turning		0.025
3	Accuracy of face turning		0.02

3. CHECK OF MOTOR SPECIFICATION

ITEM	HP	Ph	V	Hz	R.P.M.
Rating	2 / 3	1 / 3		50 / 60	1420 / 1700
Actual	/	/		/	/

THE DRAWINGS SHOWN HEREIN ARE ONLY FOR REFERENCE. A CHANGE OR AN IMPROVEMENT MADE ON THE MACHINE FOR BEST PERFORMANCE IS UNAVOIDABLE.
IF ANY DIFFERENCE AMONG THEM PLEASE FOLLOW THE SPECIFICATIONS ON THE MACHINE.