

**Maintenance  
and Spare Parts  
Manual**

**Matramatic**

CNC Twin Head Panel Quilting  
Machine

MATPARTS

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18/02

## Machine Description

The machine consists of three major parts; the frame change table, the beam and the moving carriage assembly.

The beam is stationary and fixed to the floor. The two sewing heads, hook assemblies, drive shafts, pneumatic valves and Heidenhain TNC control system are all attached to the beam.

Each sewing head is driven by its own motor. The RH head has its motor at the RH end of the beam, and the LH Head at the LH end of the beam. An HTD drive belt couples the lower shaft to the upper shaft for each head within the RH / LH end cabinets respectively. A further HTD belt couples each motor to the shafts.

Needle positioning is achieved by running the motors at 100 RPM and a proximity sensor detects needle TDC. Each head is tilted by a cylinder to allow the loading and unloading of material frames.

The carriage is moved in X and Y directions (X axis is parallel to the beam) on heavy duty rails and cast iron wheels. Both axes are powered by a combination of a motor, AT10 reduction belt and pulleys (4:1 reduction), and finally a long AT10 belt attached to the carriage. These long belts have dust guards over the lower section and side supports of the belt.

The frame change table consists of a table and a stacking mechanism; both of these are moved up and down by four cylinders in the corners. Each set of four cylinders is controlled by a solenoid valve, mounted in the centre of the base. The top rails of the stacking mechanism are pivoted on oilite bearings and rotated by clevis mounted cylinders.

The material frames are designed to hold materials of various sizes up to the maximum capacity of the machine. They would normally be fitted with large clips on a twin head machine. While one frame is in the machine being sewn, so the second frame, at the frame change table, will be unloaded and re-loaded with new materials. The frames incorporate adjustable ganged clip bars which easily move to alternative stud positions for different width materials. The frame design also has an effective stretching mechanism; this ensures excellent product quality.

The head mounted thread cutter is pneumatically operated by a cylinder. This operates at the end of the cycle when a frame is withdrawn from the carriage. Both top and bottom threads are dragged over the blade, ensuring both threads are cut. When the stacking mechanism is lowered in order to load the new frame into the machine the cutter is automatically reset.

## Sewing Heads - Introduction

The sewing heads are modified Newlong DD5 heavy duty lifting presser foot lockstitch heads. The top casting is mounted on a tilting arrangement on the top section of the beam. This allows the frames to slide under the heads.

The hook assemblies are re-mounted on the lower section of the beam. The hooks are mounted on a substantial shaft and sealed bearings in a purpose designed casting.

It is most important that the heads are lubricated regularly and the timing is set-up correctly. This may require adjustment according to the materials being sewn - the next section goes into this in detail.

Most maintenance problems are likely to be with the heads, so it is strongly recommended that good spares are always carried - as given in parts list 43300 (2 years spare parts).

Needle bars and presser bars are essential as it only requires one operator error in program selection / frame clip positions for these to be damaged!

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### Sewing Heads and Brackets (2 Heads)

2	41290	Rear Brush
2	41393	Front Brush
2	41200	Handwheel
2	37149	L/H Support Plate
2	37150	R/H Support Plate
2	37148	Base Plate
8	SL213ME	Base Support Plates Fixing
8	WL7ME	Base Support Plates Fixing
8	WL121ME	Base Support Plates Fixing
4	CS1	Dowel Pins
16	SL98ME	Jacking Screws
8	SL215ME	Heads to Beam Fixing
8	WL7ME	Heads to Beam Fixing
8	WL121ME	Heads to Beam Fixing
4	CS1	Heads to Beam Fixing
2	41198	Front Cover
2	KR1	Bkt Connector
2	SL538ME	Bkt Connector Fixing
2	WL5ME	Bkt Connector Fixing
2	WL119ME	Bkt Connector Fixing
2	KH9	Connector Bottom End
2	ZH470M	Connector Bottom End
2	KL8	Connector Bottom End
2	KZA2	Connector Top End
2	KJ7	Thread Break Wire Clip
2	AF201	Thread Break Wire Clip
2	WL4ME	Thread Break Wire Clip
2	WL118ME	Thread Break Wire Clip

## Sewing Heads and Brackets (2 Heads)

4	KJ7	Microswitch Cable Clamps
4	SL512ME	Microswitch Cable Clamps
4	WL3ME	Microswitch Cable Clamps
4	WL117ME	Microswitch Cable Clamps
2	43424A	Pivot Bkt
2	37183A	Pivot Bkt Spacer
2	SL195ME	Pivot Bkt Spacer Fixing
2	WL6ME	Pivot Bkt Spacer Fixing
2	WL120ME	Pivot Bkt Spacer Fixing
2	41288-1	Base Sealing Plate
2	AF201	Base Sealing Plate Drain Screw
2	W1421E	Base Sealing Plate Drain Washer



## Illustrated Parts Schedule

FIG: 52 PRESSER FOOT & LIFTER BAR PARTS

Item	Description	Qty.	Part No.
1	LPB Eccentric Connection	1	MAT-N54
2	Screw for MAT-N54	2	MAT-N562
3	Oil Felt for MAT-N54	1	MAT-N555
4	Split Pin for MAT-N54	2	MAT-N556
5	LPB Eccentric	1	MAT-N22
6	Screw for MAT-N22, N69	2	MAT-N550
7	LPB Stud	1	MAT-N41
8	LPB Crank Hinge Stud	1	MAT-N69
9	Screw for MAT-N22, N69	1	MAT-N550
10	LPB Bellcrank Connection	1	MAT-N63
11	LPB Stud	1	MAT-N41
12	LPB Bellcrank	1	MAT-N57
13	LPB Stud	1	MAT-N41
14	Screw for MAT-N41	3	MAT-N554
15	LPB Crank	1	MAT-N189
16	Screw for MAT-N189	2	MAT-N37
17	LPB Shaft	1	MAT-N73
18	LPB Lifting Collar	1	MAT-N42
19	Screw for MAT-N42	1	MAT-35
20	LPB Spring Washer	2	MAT-N45
21	LPB Front Lever	1	MAT-N62
22	Taper Pin for MAT-N62	1	MAT-N563
23	LPB Spring Sleeve	1	MAT-N43
24	LPB Spring	1	MAT-N24
25	Lifting Presser Bar	1	MAT-N20
26	LPB Guide Bracket	1	MAT-N56
27	Screw for MAT-N15, N26	2	MAT-N33
28	Presser Foot	1	MAT-N175
29	Screw for MAT-N175	1	MAT-N28
30	Nut for MAT-N28	1	MAT-N27
31	LPB Link Drive Assembly	1	MAT-N21
32	LPB Eccentric and Connection Assembly	1	MAT-N547



ILLUSTRATED PARTS SCHEDULE

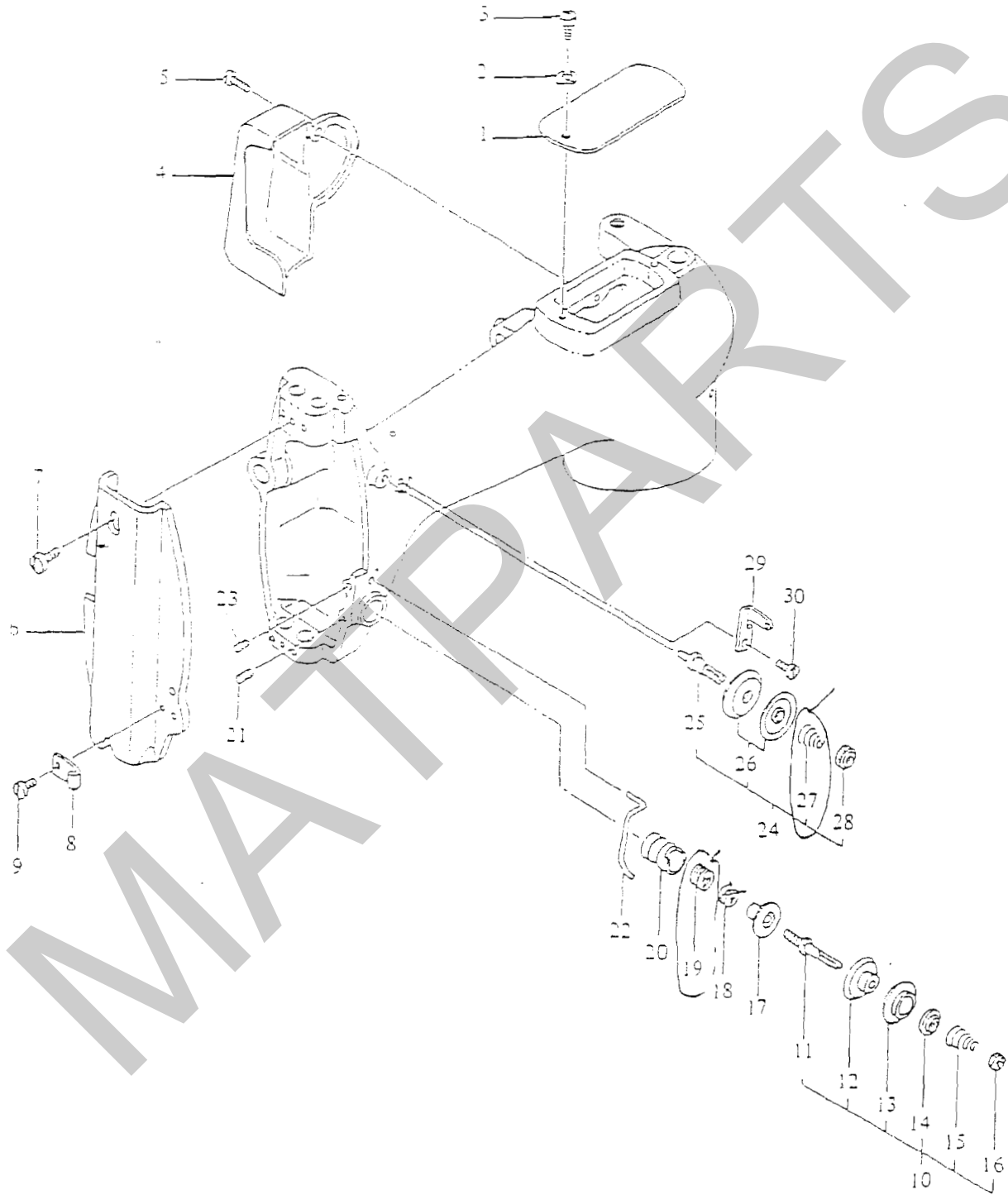


FIG. 59 THREAD TENSION & COVER PARTS

## Illustrated Parts Schedule

**FIG.50 THREAD TENSION & COVER PARTS**

Item	Description	Qty.	Part No.
1	Top Cover	1	MAT-N528
2	Spring Washer for MAT-N528	1	MAT-N558
3	Screw for MAT-N528	1	MAT-N559
4	Side Cover	1	MAT-41199
5	Screw for MAT-41199	1	MAT-N553
6	Front Cover	1	MAT-41198
7	Screw for MAT-41198	2	MAT-N552
8	Front Cover Thread Guide	1	MAT-N501
9	Screw for MAT-N501, N7	1	MAT-N532
10	Thread Tension Assy Large	1	MAT-N47
11	Tension Stud Large	1	MAT-N513
12	Tension Disc A	1	MAT-N514
13	Tension Disc B	1	MAT-N515
14	Tension Releasing Disc	1	MAT-N516
15	Tension Spring	1	MAT-N500
16	Tension Nut	1	MAT-N510
17	Tension Spring Presser	1	MAT-N512
18	Thread Take-up Spring Lever	1	MAT-N25
19	Check Spring	1	MAT-N6
20	Thread Tension Base	1	MAT-N505
21	Screw for MAT-41290, MAT-N47	1	MAT-N534
22	Needle Thread Guide	1	MAT-N11
23	Screw for MAT-N11	1	MAT-N551
24	Thread Tension Assy Small	1	MAT-N49
25	Tension Stud Small	1	MAT-N511
26	Tension Disc	2	MAT-N109
27	Check Spring	1	MAT-N149
28	Tension Nut	1	MAT-N510
29	Needle Thread Guide	1	MAT-N7
30	Screw for MAT-N501, N7	1	MAT-N532

ILLUSTRATED PARTS SCHEDULE

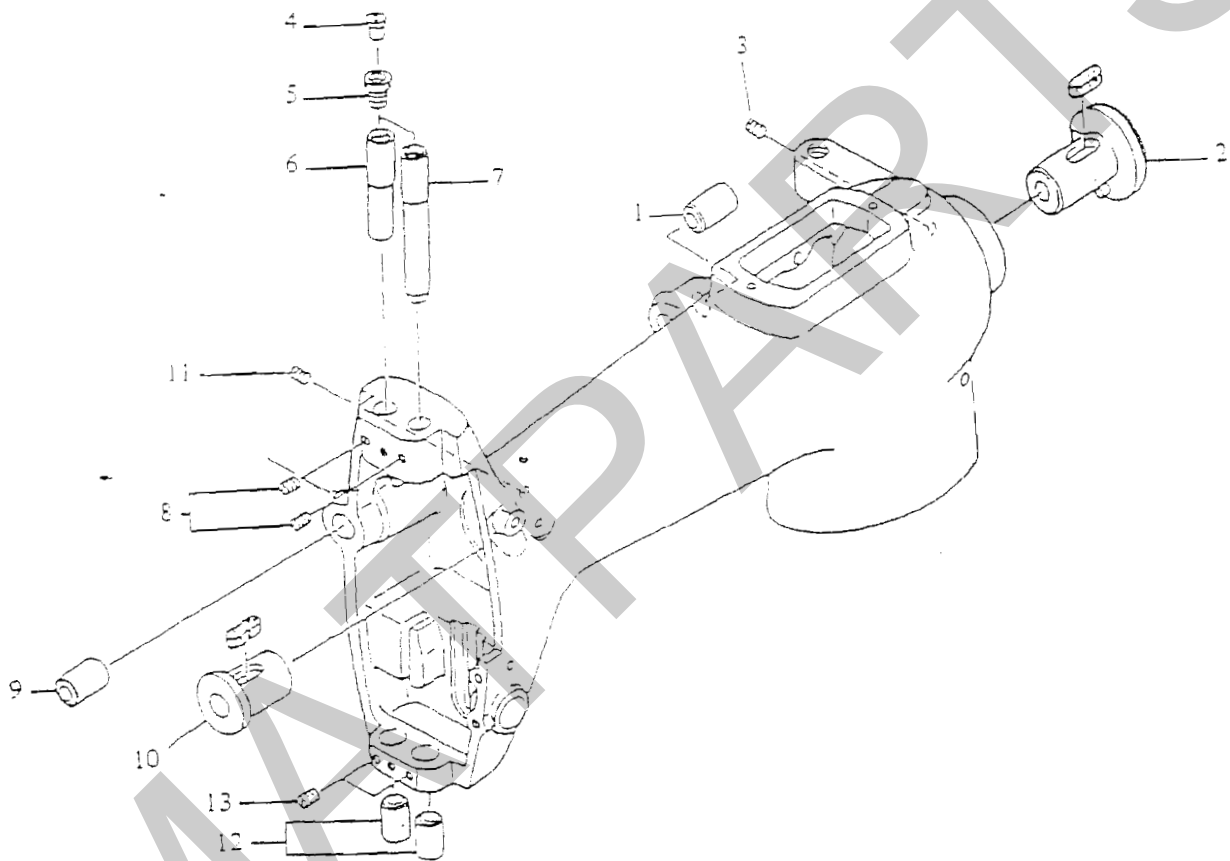


FIG. 49 MAIN FRAME BUSHING PARTS

## Illustrated Parts Schedule

FIG. 49 MAIN FRAME BUSHING PARTS

Item	Description	Qty.	Part No.
1	LPB Shaft Bush Rear	1	MAT-N174
2	Arm Shaft Bushing Rear	1	MAT-41290
3	Screw for MAT-41290 and MAT-N47	1	MAT-N543
4	Ball Cap	2	MAT-N503
5	Screw for MAT-N503	2	MAT-N540
6	LPB Bushing Upper	1	MAT-N58
7	Needle Bar Bushing Upper	1	MAT-N59
8	Screw for MAT-N58, N59, N60	2	MAT-N39
9	LPB Shaft Bushing Front	1	MAT-N61
10	Arm Shaft Bushing Front	1	MAT-41393
11	Screw for MAT-41393	1	MAT-N533
12	Needle Bar and LPB Bushing Lower	2	MAT-N60
13	Screw for MAT-N58, N59, N60	2	MAT-N39

ILLUSTRATED PARTS SCHEDULE

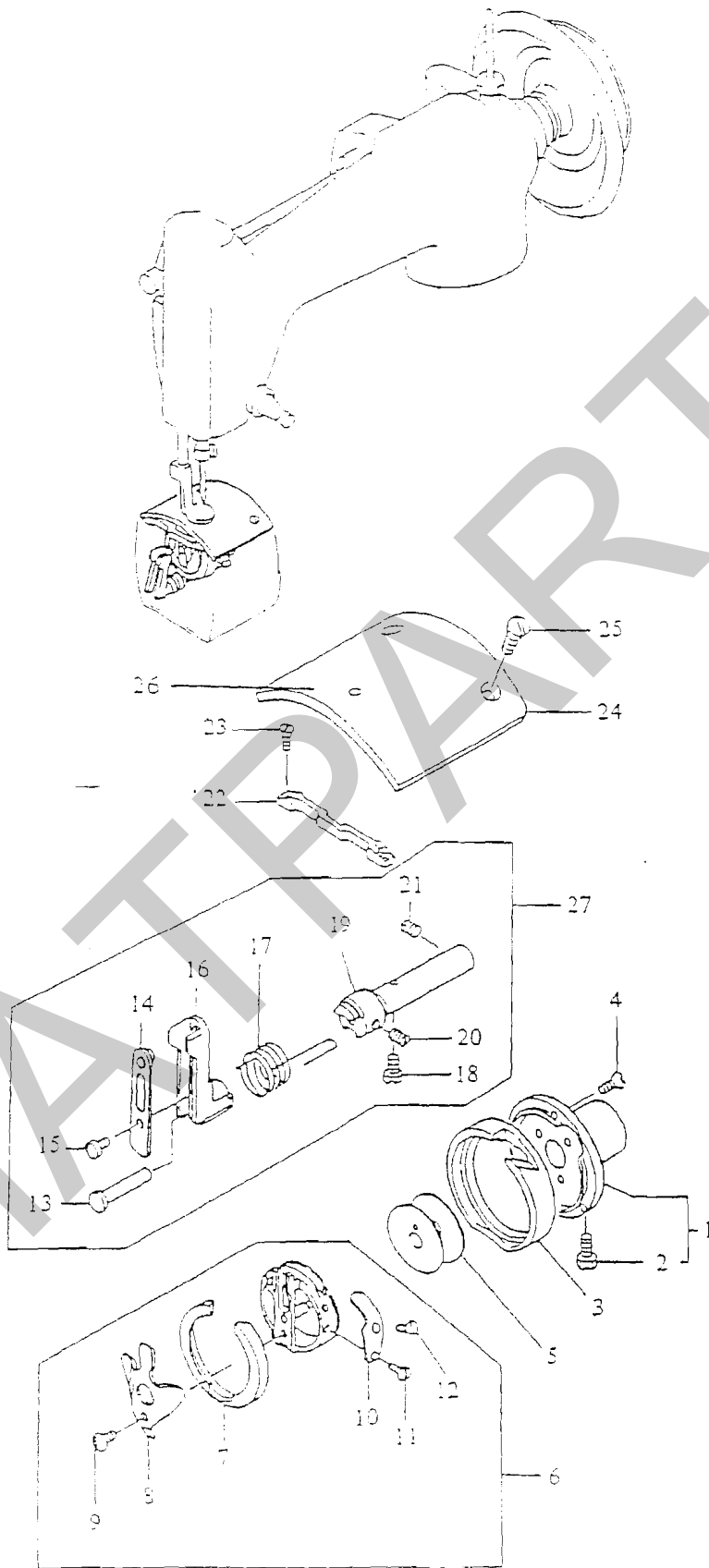


FIG. 53 SHUTTLE PARTS

## Illustrated Parts Schedule

**FIG. 53 SHUTTLE PARTS**

Item	Description	Qty.	Part No.
1	Rotating Hook Base	1	MAT-41158
2	Screw	3	SL-551ME
3	Hook Ring	1	MAT-41143
4	Screw for MAT-41143	3	MAT-N102
5	Bobbin	1	MAT-N26
6	Bobbin Case Assembly	1	MAT-N124
7	Inner Base Ring	1	MAT-N2
8	Bobbin Case Ring Spring	1	MAT-N105
9	Screw for MAT-N105	1	MAT-N545
10	Bobbin Case Spring	1	MAT-N3
11	Screw for MAT-N3	1	MAT-N544
12	Screw for MAT-N3	1	MAT-N543
13	Bobbin Case Retainer Hinge Stud	1	MAT-N52
14	Bobbin Case Retainer Spring	1	MAT-N5
15	Screw for MAT-N5	1	MAT-N546
16	Bobbin Case Retainer Bracket	1	MAT-N51
17	Bobbin Case Retainer Shaft Spring	1	MAT-N48
18	Screw for MAT-N48	1	MAT-N34
19	Bobbin Case Retainer Shaft	1	MAT-N53
20	Screw for MAT-N52	1	MAT-N557
21	Screw for MAT-N53	2	MAT-N564
22	Bridge	1	MAT-41153
23	Screw	2	SL-504ME
24	Throat Plate	1	MAT-41196
25	Screw for MAT-41196	2	MAT-41195
26	Throat Plate Eyelet	1	MAT-37154
27	Bobbin Case Retainer Assembly	1	MAT-N565

ILLUSTRATED PARTS SCHEDULE

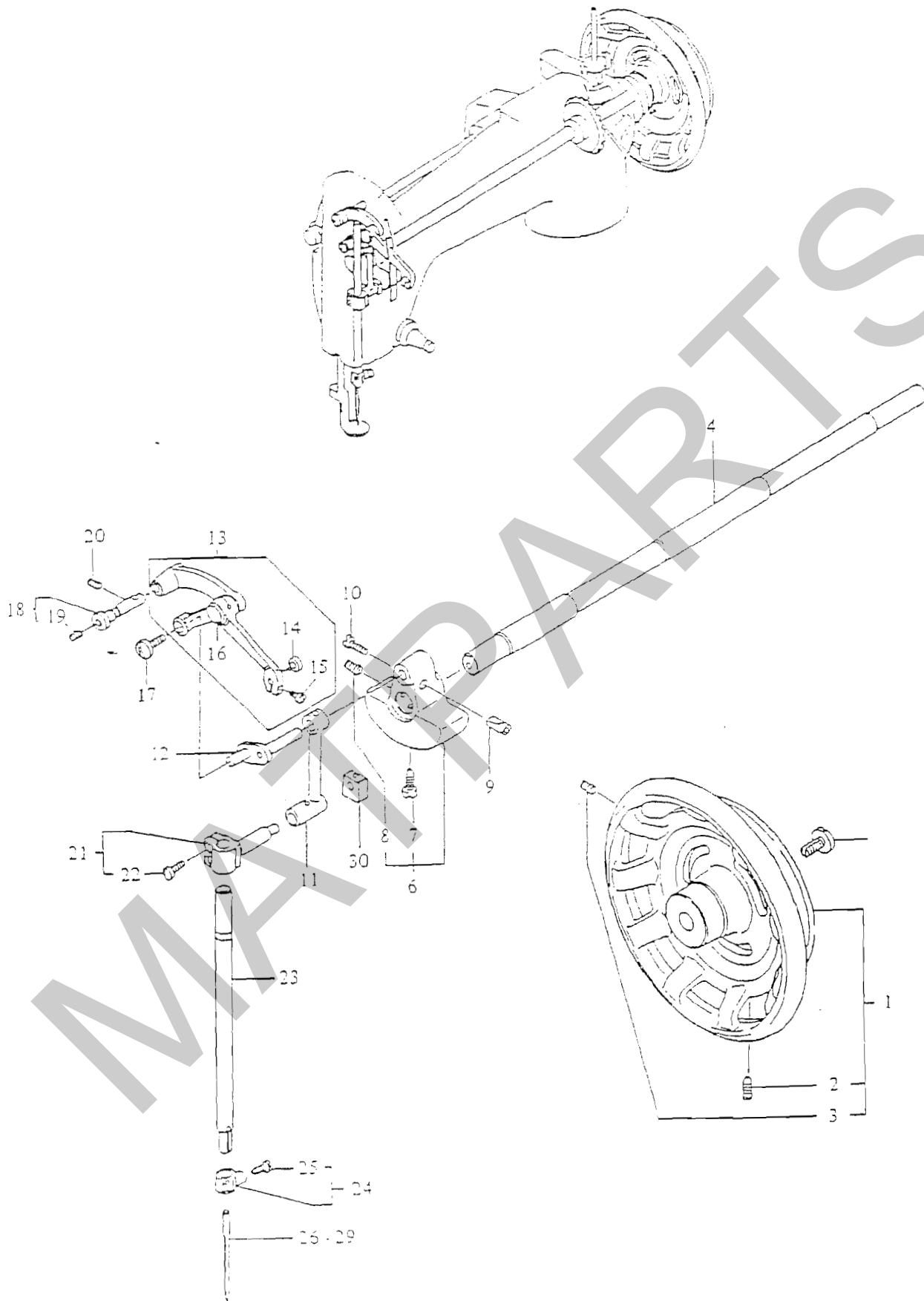


FIG. 51 ARM SHAFT & NEEDLE BAR PARTS

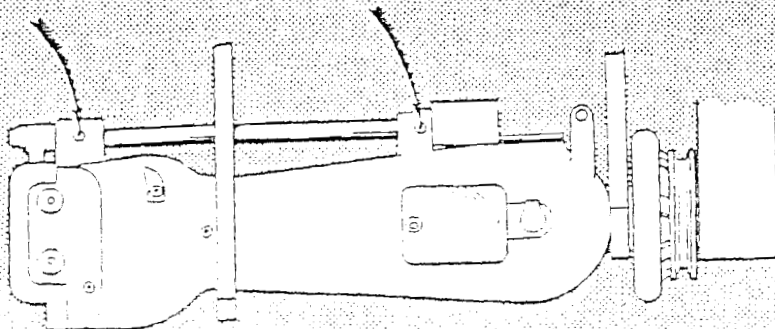
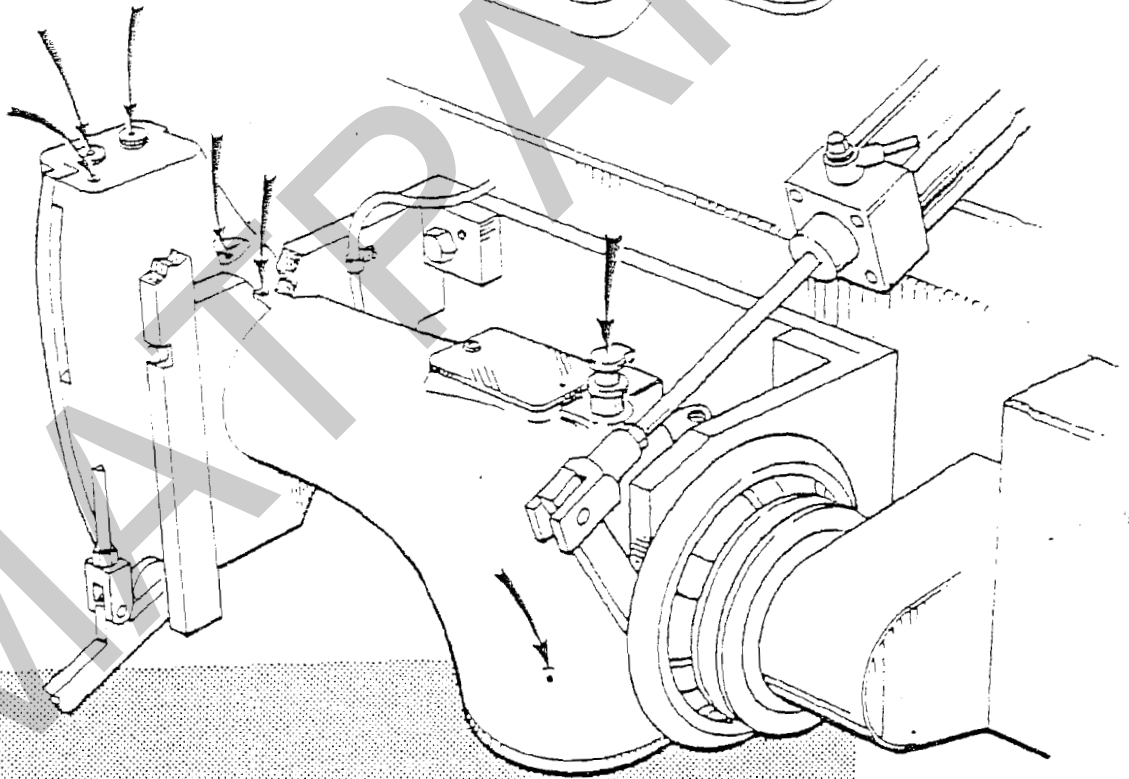
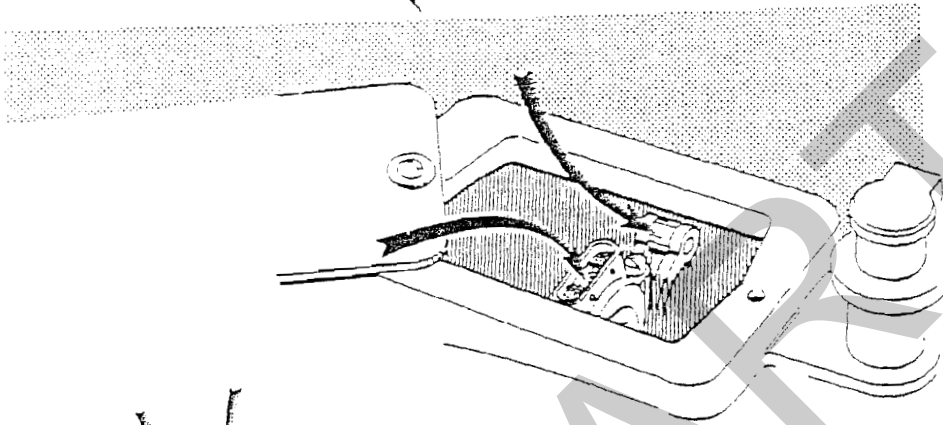
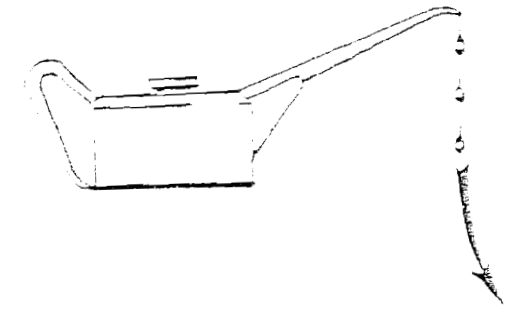
## Illustrated Parts Schedule

FIG. 51 ARM SHAFT & NEEDLE BAR PARTS

Item	Description	Qty.	Part No.
1	Handwheel	1	MAT-41200
2	Screw for MAT-41200	1	MAT-N535
3	Screw for MAT-41200	1	MAT-
4	Arm Shaft	1	MAT-N72
*5	Arm Shaft Complete with Bushes	1	MAT-N548
6	Needle Bar Crank	1	MAT-N55
7	Screw for MAT-N55	1	MAT-N46
8	Screw for MAT-N55	1	MAT-N537
9	Cotter Pin	1	MAT-N502
10	Screw for MAT-N502	1	MAT-N538
11	Needle Bar Connecting Link	1	MAT-N14
12	Thread Take-up Crank	1	MAT-N17
13	Needle Thread Take-up Assy	1	MAT-N539
14	Eyelet	1	MAT-N9
15	Screw for MAT-N9	1	MAT-N541
16	Thread Take-up Lever Pin	1	MAT-N40
17	Screw for MAT-N17	1	MAT-N18
18	Thread Take-up Lever Link Hinge Pin	1	MAT-N523
19	Screw for MAT-N523	2	MAT-N560
20	Screw for MAT-N523	1	MAT-N561
21	Needle Bar Connecting Stud	1	MAT-N15
22	Screw for MAT-N15, N26	2	MAT-N33
23	Needle Bar	1	MAT-N41340
24	Needle Bar Clamp	1	MAT-N10
25	Screw for MAT-N10	1	MAT-N29
26	Needle - Size 24/180	1	MAT-S12
27	Needle - Size 29/300 (Small Eye)	1	MAT-S290
28	Needle - Size 22/140	1	MAT-S291
29	Needle - Size 23/160	1	MAT-S292
30	Needle Bar Connecting Link Block	1	MAT-N16

\* Item Not Illustrated





## Routine Maintenance

### DAILY - MOST IMPORTANT

1. Lubricate sewing heads. Use a good quality oil.

BP: Maccurat 32 or Energol HP32  
Shell: Tellus T37  
Mobil: Vactra Oil No.1 or DTE 13

### WEEKLY

1. Check main air filter
2. Top-up lubricators use :

BP: Energol HP 32  
Shell: Tellus T37  
Mobil: DTE 13

*IMPORTANT - CHECK LUBRICATOR IS WORKING AT APPROXIMATELY 1 DROP PER MINUTE*

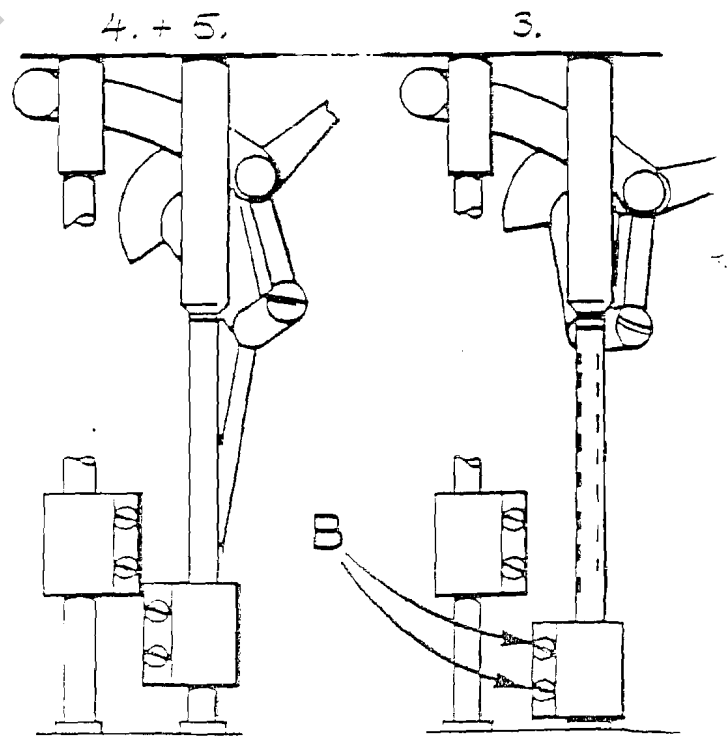
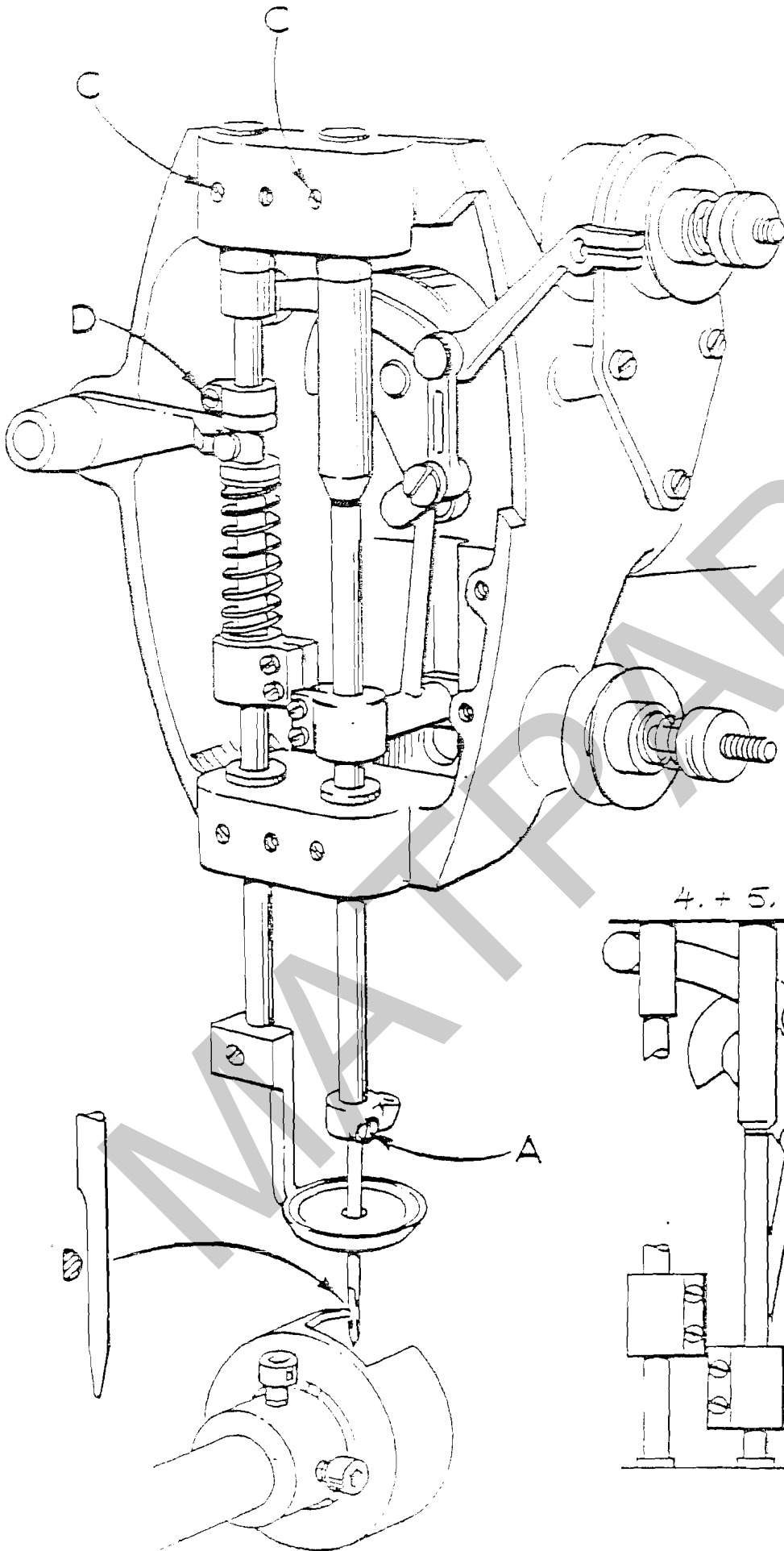
### EVERY MONTH

#### REMOVE ALL COVERS

1. Check all shafts for play, replace bearings if necessary
2. Tighten all screws on bearings, drives and sewing head
3. Check condition of belts - clean out debris from teeth - replace if in poor condition
4. Clean out all debris and loose threads

### EVERY SIX MONTHS

1. In addition to the monthly checks, look at all cylinders and valves, check for leaks -if necessary fit spare seal kit of new part.



## Sewing Heads - Timing and Setting

Please read through before commencing any alterations to timing

1. Remove sewing head face plate

Loosen top screw. Remove bottom screw, push plate upwards and pull off.

2. Check needle is correctly fitted

Scarf must be facing hook

Needle must be fully home - check by releasing clamp screw "A", push needle up, re-tighten screw.

3. Check timing marks on needle bar

Turn sewing machine handwheel towards you anti-clockwise to its lowest point - bottom Dead Centre or BDC.

Two marks should now be seen just below needle bar top bush. These marks are 5mm apart. The top mark should just be visible.

If adjustment necessary

Loosen needle bar clamp screws "B".

Set needle bar so that top mark is just visible. Re-tighten Screws.

4. Check hook to needle setting

Remove throat plate.

Turn sewing machine handwheel towards you until bottom mark on needle bar is just visible.

Hook point should be in the centre of needle and middle of scarfing.

Clearance between hook point and needle should be thickness of cotton being used.

## Sewing Heads Timing & Setting - Continued

### 4. Hook to needle setting - continued

If adjustment is required:-

Ensure that the head is still set on the bottom timing mark.

Loosen the two socket head screws which hold the hook ring to its shaft.

Turn hook ring so it is in the centre of needle scarf.

At the same time carefully set the hook point to needle clearance to the thickness of cotton being used.

Re-tighten screws firmly and recheck setting.

### 5. Check Needle to Hook setting - stage 2

Ensure that the head is still set on the bottom timing mark.

Check that the hook point is in the middle of the needle scarf.

If adjustment is necessary:-

Loosen needle bar screws "B" on the needle bar clamp.

Position needle bar so that the hook point is in the middle of the scarf.

Re-tighten screws.

### 6. Top Needle Bar Bush

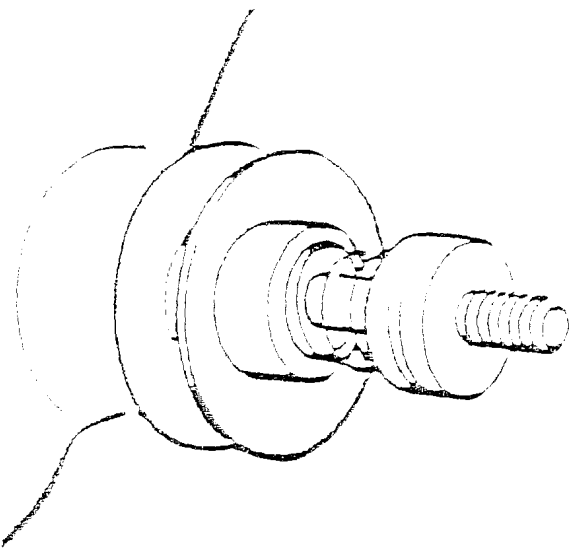
If no adjustment was necessary at both:-

Stage 3. (Top timing mark just visible at BDC).

And

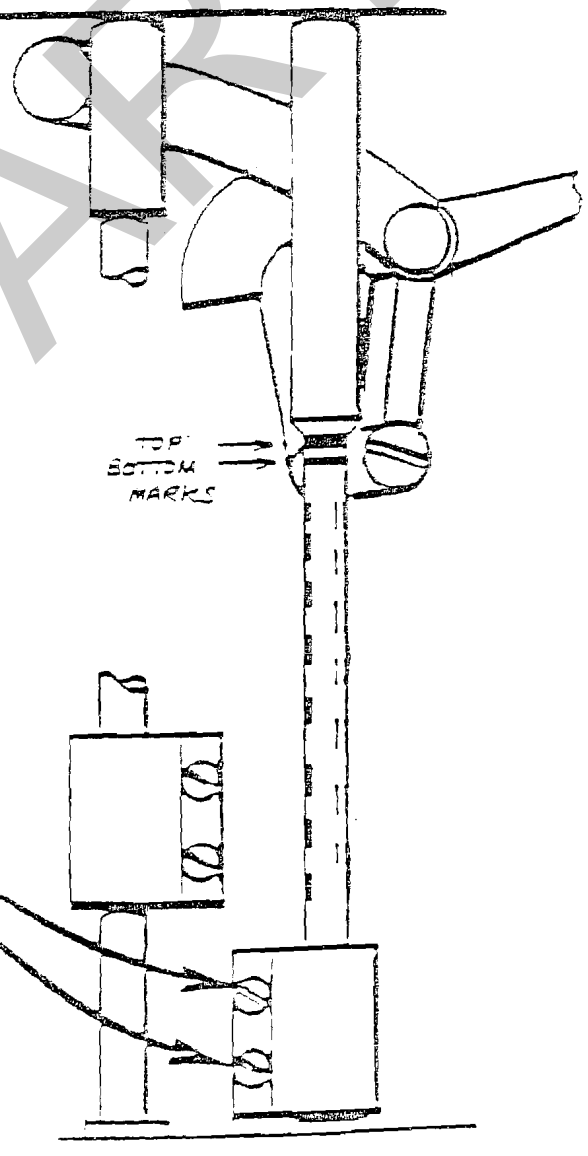
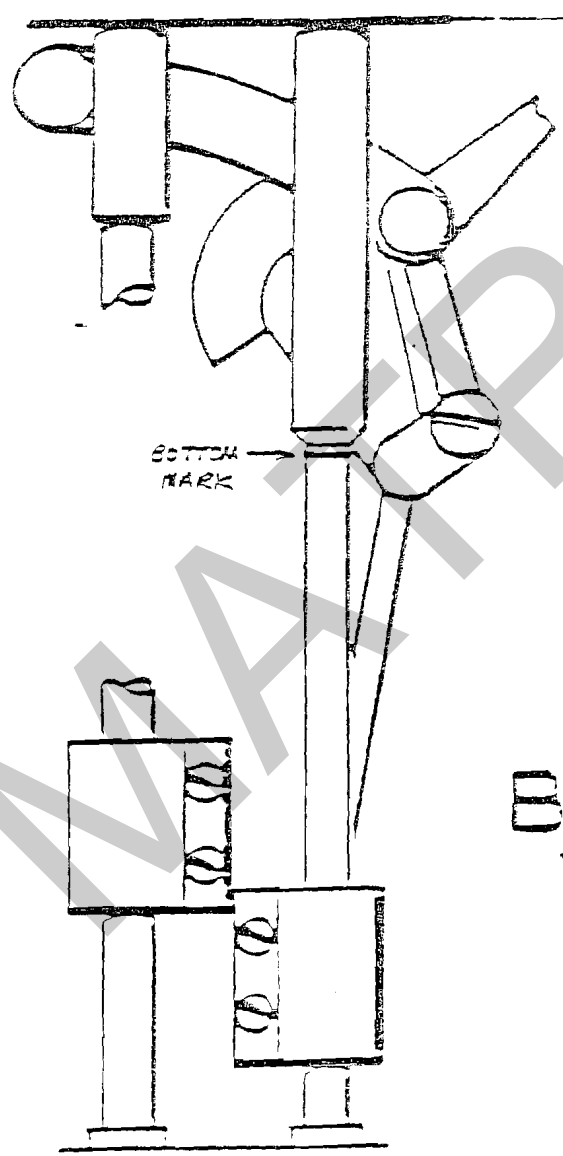
Stage 5. (Bottom timing mark just visible with hook point in middle of scarf).

Then Top Needle Bar Bush does not require adjustment.



4. + 5.

6.



A



## **Sewing Heads Timing & Setting - Continued**

### 6. Top Needle Bar Bush - Continued

If adjustment is required:-

(If for example a new bush has been put in, or head has been stripped).

Turn head over until needle bar is BDC.

Loosen needle bar bush lock screw "C". This is in the top casting.

Raise or lower bush so that top needle bar mark is just visible. Re-tighten screws to reclamp top bush.

### 7. Check Presser Foot

Rotate the handwheel towards you. The presser foot should start moving before the needle on the downward stroke.

The presser foot should be at the bottom of its stroke when the needle point is just entering the centre of the presser foot hole.

At this point of the underside of the foot should be approximately 5mm (less for thinner materials) from the top of the throat plate.

The presser foot should stay at the bottom of its stroke while the needle bar continues downwards to make the stitch.

Spring tension on the presser foot bar should be approximately 25mm from bottom foot bush casting to underside of presser spring clamp.

By eyesight check that the underside of presser foot clamp is in line with the top side of the needle bar clamp.

If adjustment is required:-

Turn head over until needle bar is BDC.

Release spring clamp screw "D" and top fibre washer clamp.

Place packing material of 5mm (or less if sewing thinner materials) between bottom of presser foot and throat plate.

## **Sewing Heads Timing & Setting - Continued**

### **7. Check Presser Foot - Continued**

If adjustment is required - continued:-

Pull presser foot down until it is resting on top of packing.

Top fibre washer and top clamp can be held down on top of lifting presser bar crank fork, and re-tightened.

Set spring and spring tension as given in the check procedure.

If the timing of the presser foot is incorrect then you will have to set the lifting presser crank fork lever front:-

Open top, rear cover, look inside and you will see a cam.

Rotate handwheel towards you until you see two screws in the boss on the left hand side of the cam.

Loosen screws, do not remove

Rotate head until needle bar is BDC.

Hold handwheel firmly with right hand, grip lifting presser crank fork front, push down to limit and hold

Let go with right hand, re-tighten screws.

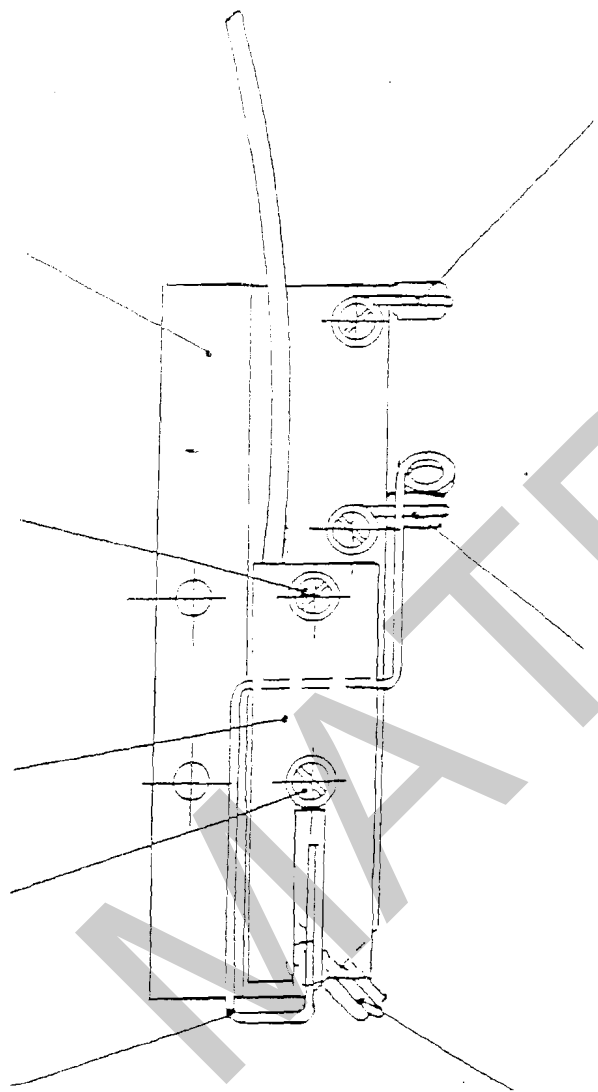
### **8. Finishing Off**

Oil all points on the sewing head.

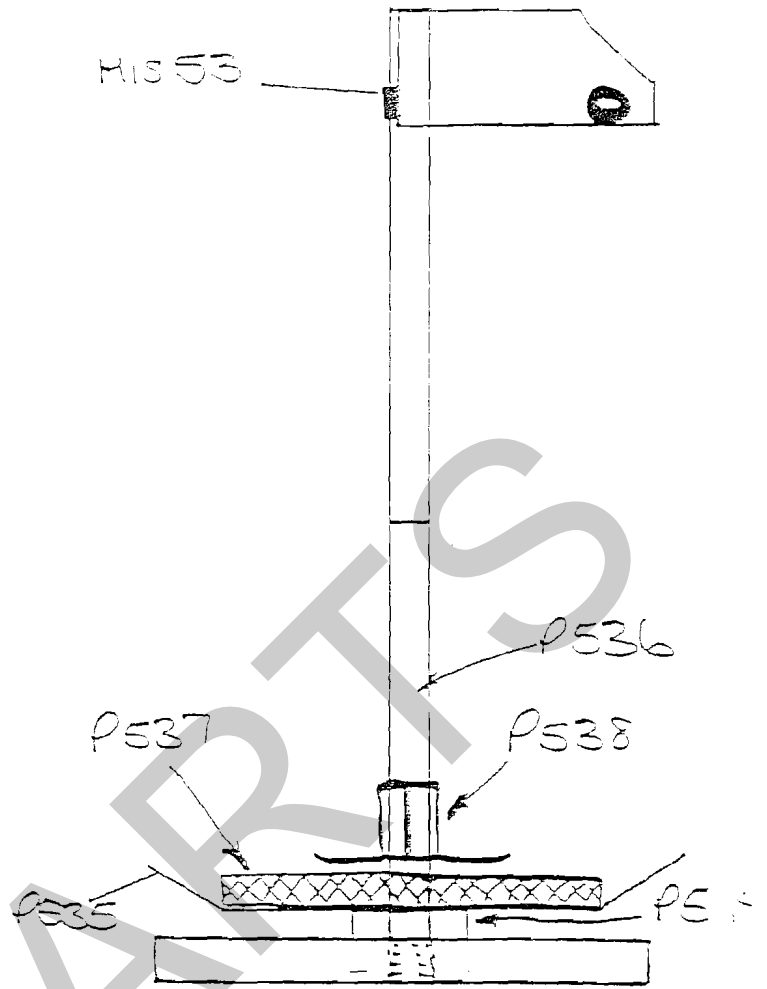
Replace all covers, tighten screws firmly.

Thread up, pull thread through and adjust tension on the main tension discs.

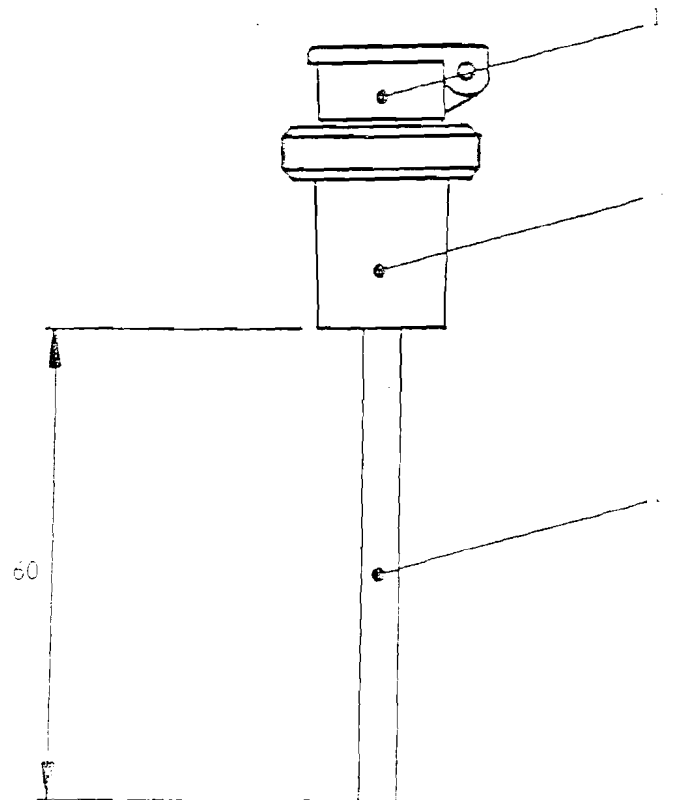




THREAD BREAK SWITCH ASSEMBLY



COTTON STAND



LUBRICATOR ASSEMBLY

**Cotton Stand Assembly 3 off**

1	45387	Cotton Stand	)	
3	MIS53	Eyelet	)	
1	P535	Thread Reel Disc	)	
1	P536	Thread Reel Pin	)	45145
1	P537	Foam Disc	)	
1	P538	Retaining Ring	)	
1	P539	Thread Reel Pin Nut	)	
4	SI461ME	Fixings	)	

**Thread Break Switch Assembly 2 off**

1	50006	Actuating Wire	)	
1	50005	Mounting Plate	)	
3	41449	Guide Clip	)	
5	SL391ME	Fixings	)	
1	ED1005	Magnet	)	41060B
1	ED1003	Switch	)	
3	N9	Eyelets	)	
4	SL511ME )	Final Assembly Fixings )		
4	WL3ME )			

**Lubricator Assembly 2 off**

1	43428	Lubricator Adaptor	)	
1	MIS69	Lubricator	)	41090
1	TFMB008F	Tube 65mm long	)	

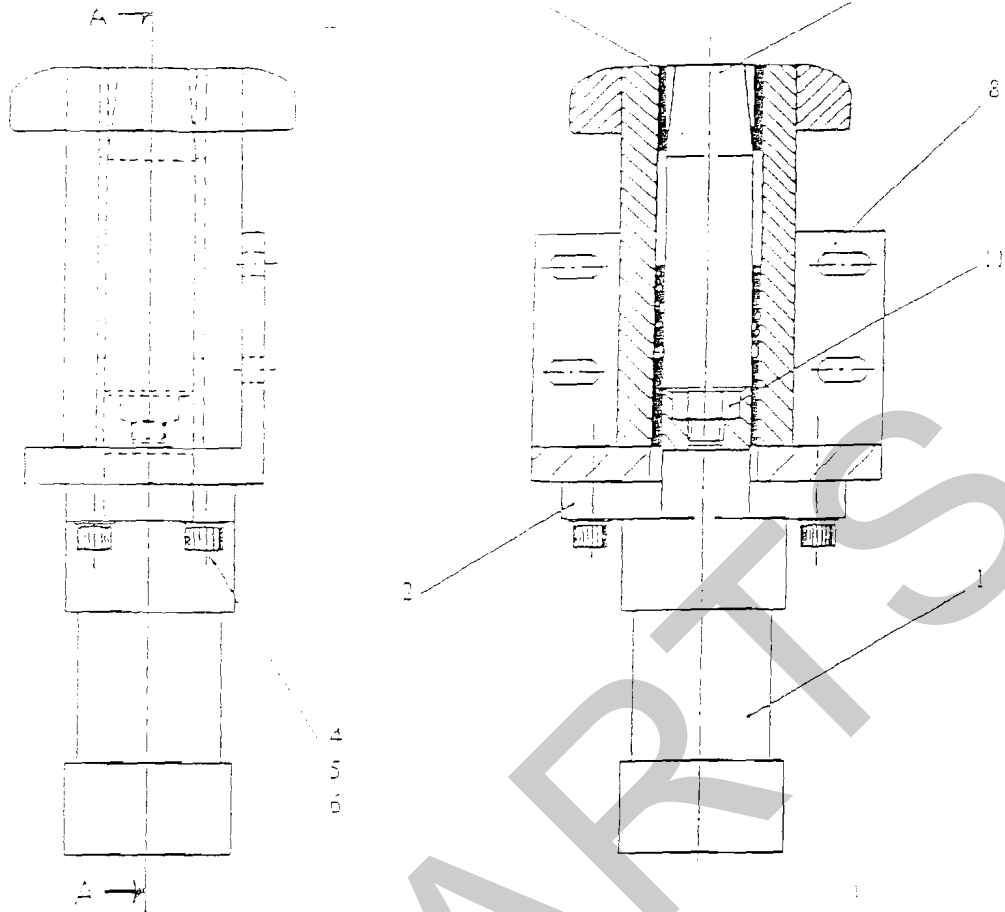


FIG. 13 FRAME LOCK ASSEMBLY

ILLUSTRATED PARTS SCHEDULE

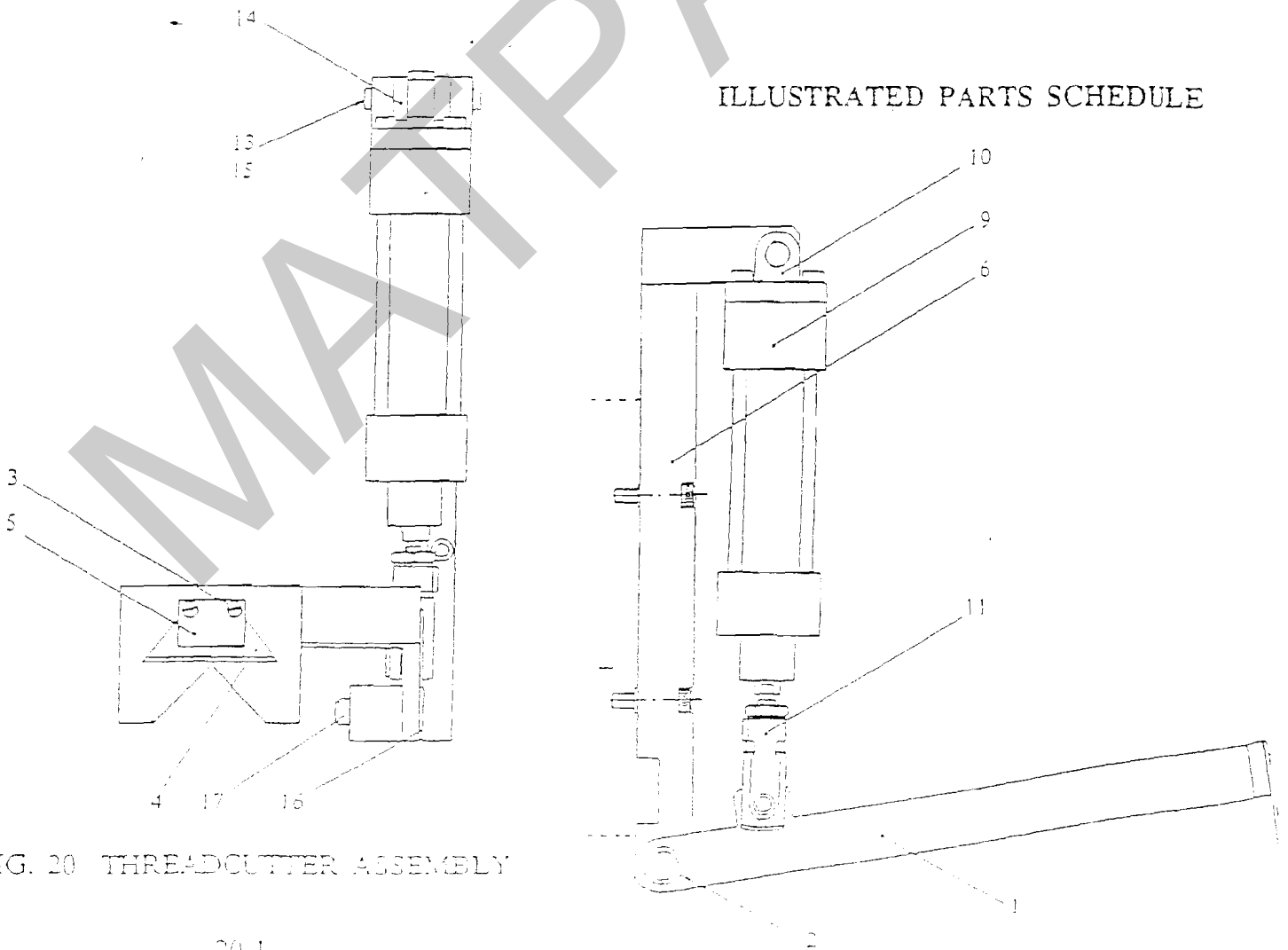


FIG. 20 THREADCUTTER ASSEMBLY

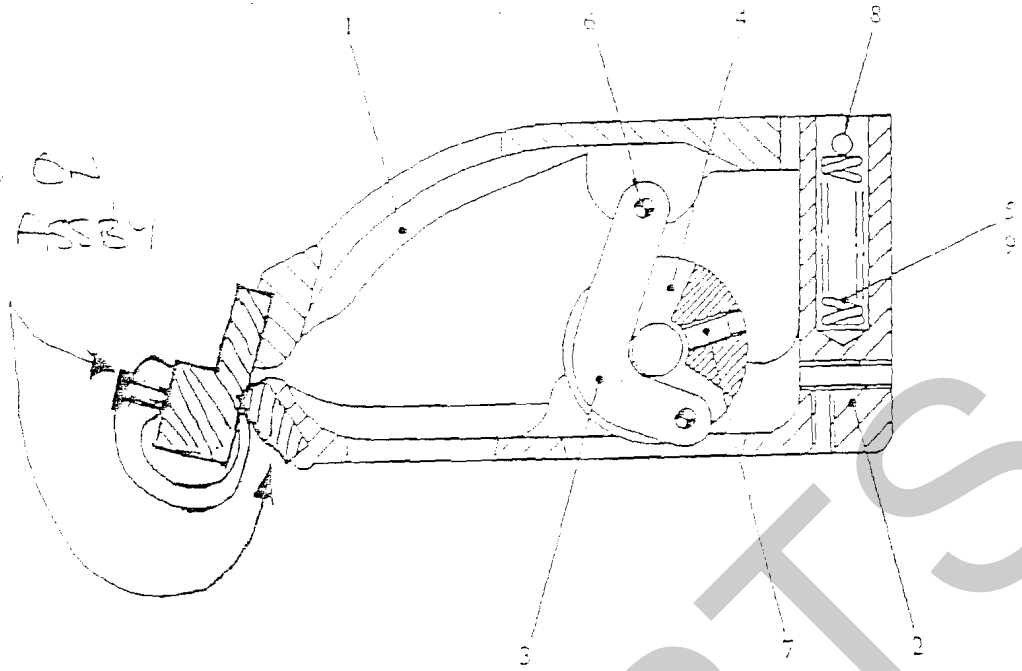
**Frame Lock Assembly 1 off**

1	41225	Frame Lock Bkt	)	
1	41226	Frame Lock Plunger	)	
1	41491	Frame Lock Material Guide	)	
3	HA76	Oilite Bush	)	
1	KA48	Cylinder	)	41078
1	KT35	Cylinder Flange	)	
2	KZC1	Cylinder Elbow	)	
4	SL538ME )		)	
4	WL5ME )	Final Assembly Fixings	)	
4	WL119ME )		)	

**Threadcutter Assembly 2 off**

1	41345	Cutting Arm	)	
1	41346	Blade Clamp	)	
2	SL511ME	Blade Clamp Fixing	)	
2	WL3ME	Blade Clamp Fixing	)	
1	41347	Support Bkt	)	
2	41348	Spacers	)	
1	41349	Spacers Shaft	)	
1	CA202	Washer	)	
2	ZH703M	Circlip	)	41089
1	CO37	Star Ring	)	
2	HA79	Olite Bush	)	
1	KA48	Cylinder	)	
1	KX6	Cylinder Clevis	)	
2	KZC1	Cylinder Elbow	)	
1	ZH1055M	Cylinder Trunnion Mounting	)	
1	MIS24	Cutting Blade	)	
4	SL539ME )	Final Assembly Fixing	)	
4	WL119ME )		)	

FITTED ON  
FINAL ASSEMBY

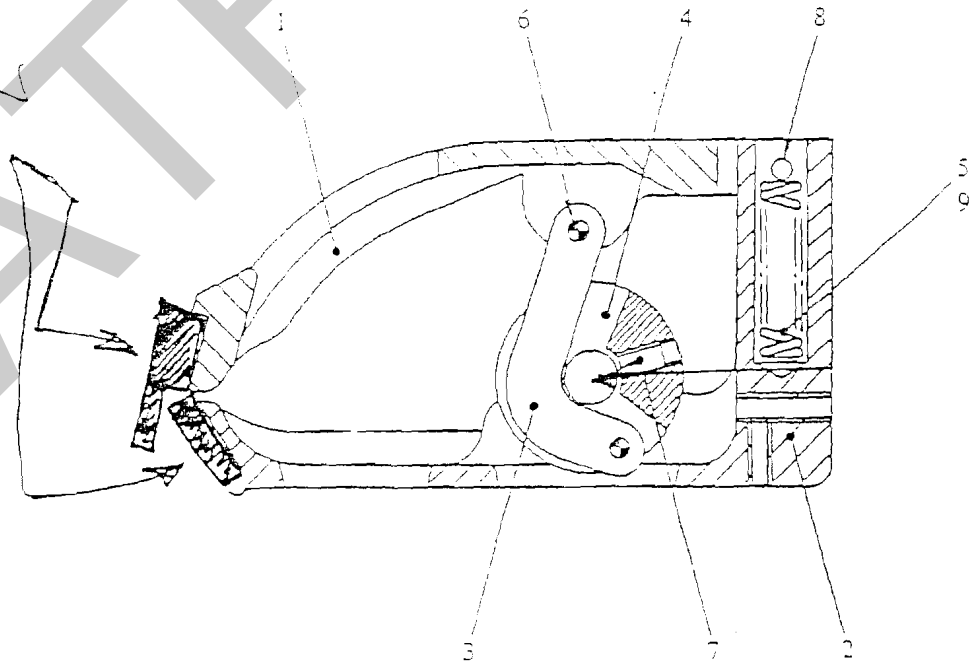


SECTION A A

SEE 31-1

FIG. 22 STRONG CLIP ASSEMBLY

FITTED ON  
FINAL  
ASSEMBY



SECTION A A

SEE 32-1

FIG. 23 WEAK CLIP ASSEMBLY

**Strong Clip Assembly 14 off**

1	37121	Clip Top	)	
1	37122	Clip Base	)	
1	37123	Cranked Link	)	
1	41376	Clip Pivot Shaft	)	
1	41387	Control Link	)	41091
2	CO38	Star Ring	)	
2	CS1	Pin	)	
1	EB2	Spring	)	
1	SL79ME	Set Screw	)	

**Weak Clip Assembly 6 off**

1	37121	Clip Top	)	
1	37122	Clip Base	)	
1	37123	Cranked Link	)	
1	41376	Clip Pivot Shaft	)	
1	41387	Control Link	)	41092
2	CO38	Star Ring	)	
2	CS1	Pin	)	
1	EB13	Spring	)	
1	SL79ME	Set Screw	)	

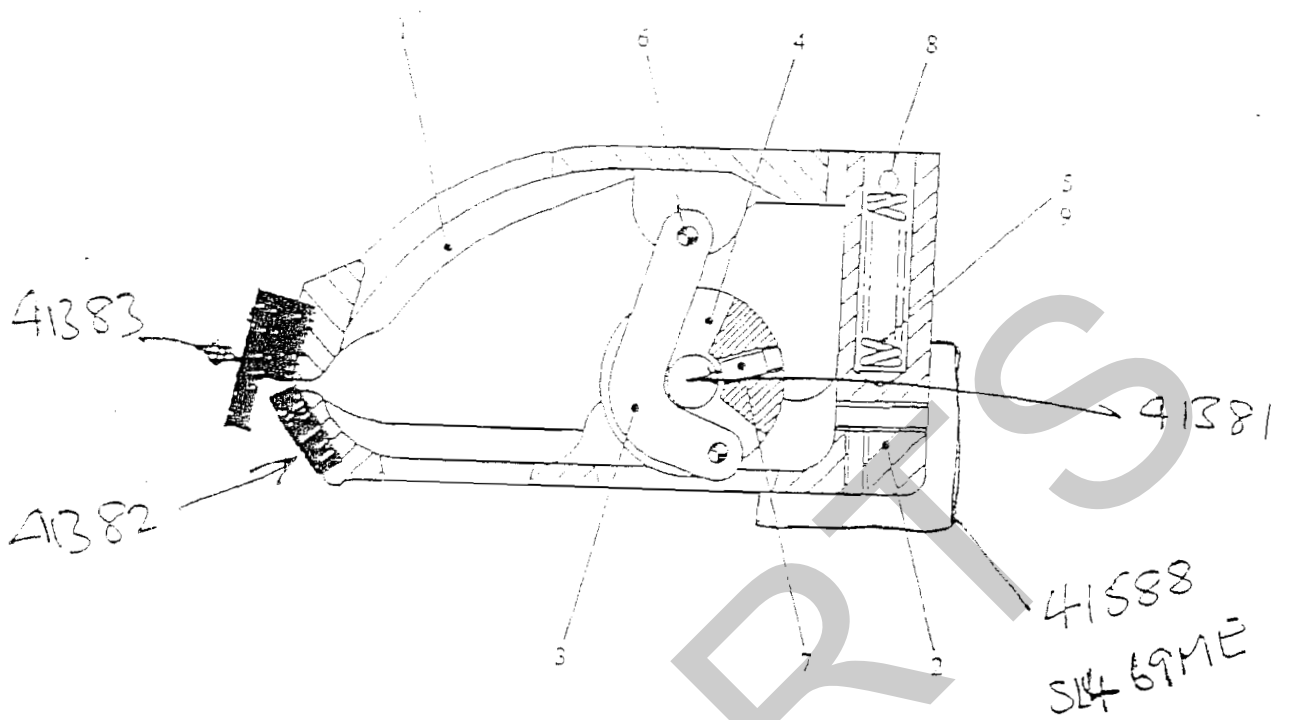
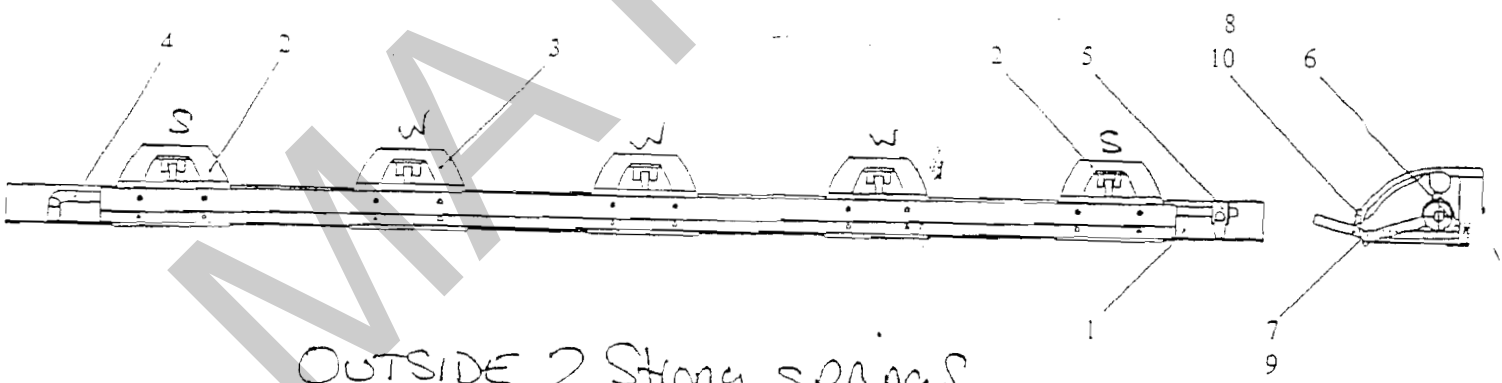


FIG. 24 FIXED CLIP ASSEMBLY



OUTSIDE 2 Strong springs  
 INNER 3 weak springs

STRETCHER BAR ASSEMBLY - WEAK GRIP

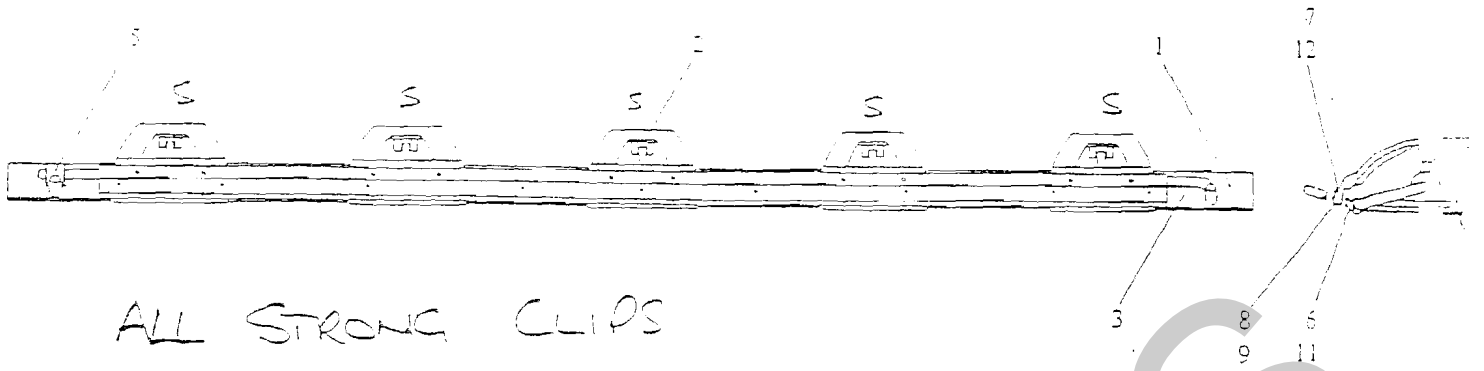
**Fixed Clips 8 off**

1	37121	Clip Top	)	
1	37123	Cranked Link	)	
1	41376	Clip Pivot Shaft	)	
1	41387	Control Link	)	
1	41406	Clip Base	)	
2	CO38	Star Ring	)	
2	CS1	Pin	)	41096
1	EB2	Spring	)	
1	41382	Short Bottom Bar	)	
1	41383	Short Top Bar	)	
1	SL79ME	Set Screw	)	
1	41381	Short Control Bar	)	
2	CE4	Pop Rivet Lower	)	
2	CE7	Pop Rivet Upper	)	

**Stretcher Bar Weak Grip 2 off**

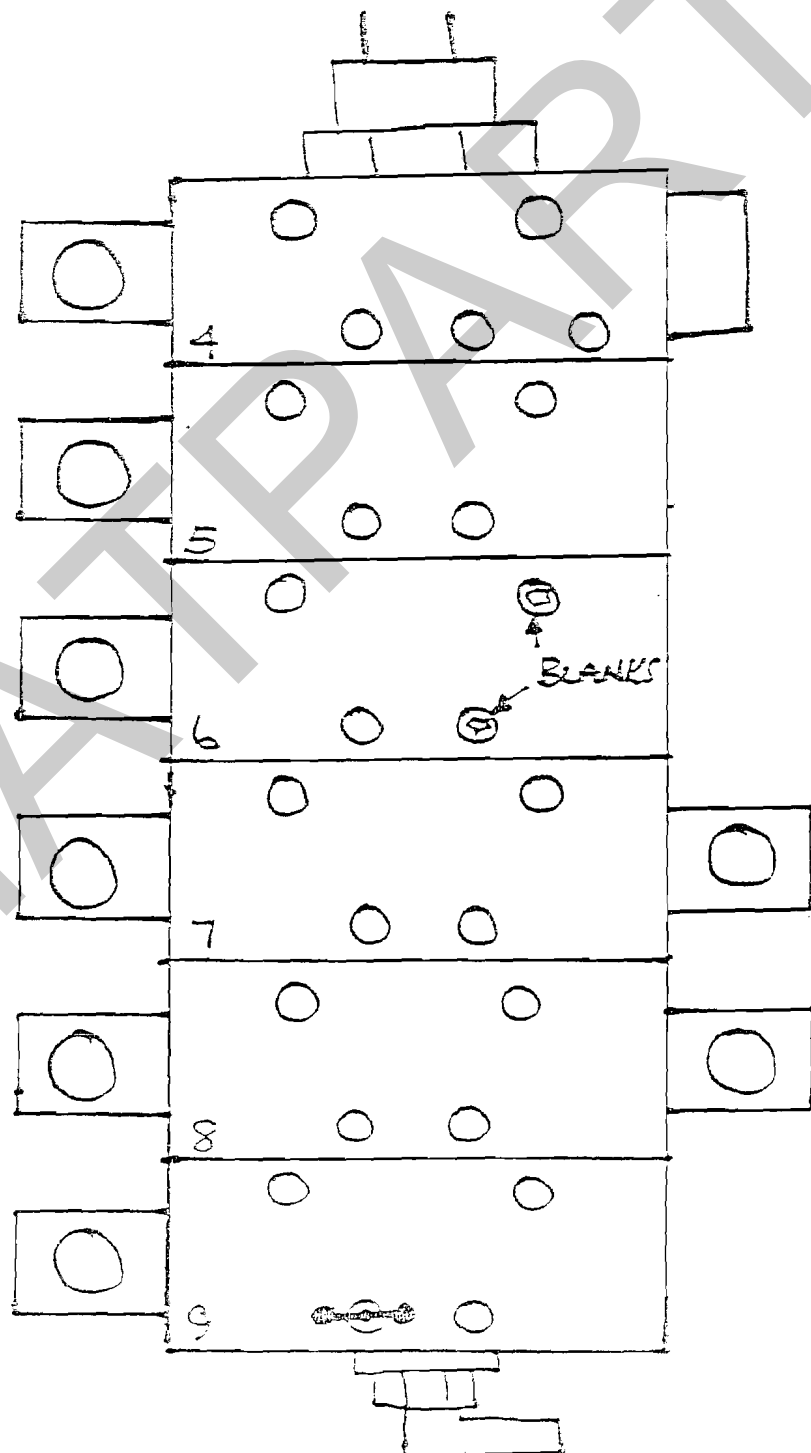
1	43294	Stretcher Bar Weak Grip	)	
2	41091	Strong Clip	)	
3	41092	Weak Grip Clip	)	
1	43296	Long Clip Handle	)	
1	41386	Control Bar Handle	)	43054
1	43297	Top Clip	)	
1	43298	Bottom Clip	)	
10	CE7	Pop Rivet	)	
10	CE4	Pop Rivet	)	
2	SL77ME	Control Bar Handle Screw	)	





ALL STRONG CLIPS

STRETCHER BAR ASSEMBLY - HIGH GRIP



C.N.C. MANIFOLD

**Stretcher Bar High Grip 2 off**

1	43293	Stretcher Bar High Grip	)	
5	41091	Strong Clip Assembly	)	
1	43295	Long Clip Handle	)	
1	41386	Control Bar Handle	)	
2	SL77ME	Control Bar Handle Screw	)	
1	43297	Top Clip	)	43053
1	43298	Bottom Clip	)	
1	MIS33	Rubber Hose (Top Clip)	)	
14	CE7	Rubber Hose Rivet	)	
14	CA6	Rubber Hose Rivet Washer	)	
10	CE4	Pop Rivet	)	
10	CE3	Pop Rivet	)	

**CNC Manifold 1 off**

1	43165	Manifold	)	
23	KZA2	Adaptor	)	
1	KZC8	Elbow	)	
1	KZT1	'Y' Piece (Port on V9)	)	43060
2	KZ1	Blanking Plugs	)	
4	SL531ME	Fixings	)	
4	WL4ME	Fixings	)	
4	WL118ME	Fixings	)	

ILLUSTRATED PARTS SCHEDULE

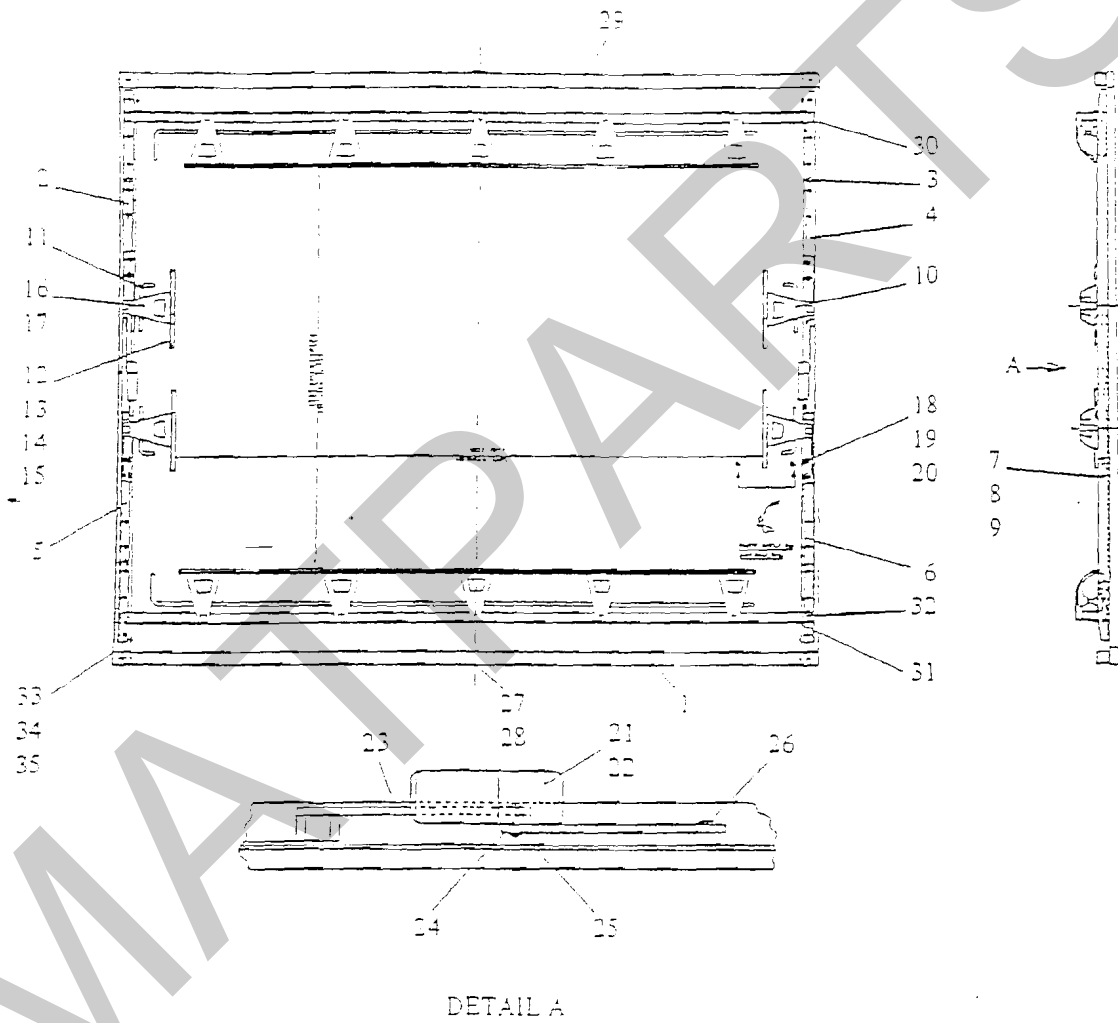


FIG. 29 STRETCHER FRAME ASSEMBLY - SIZE 1

**Stretcher Frames 2 off**

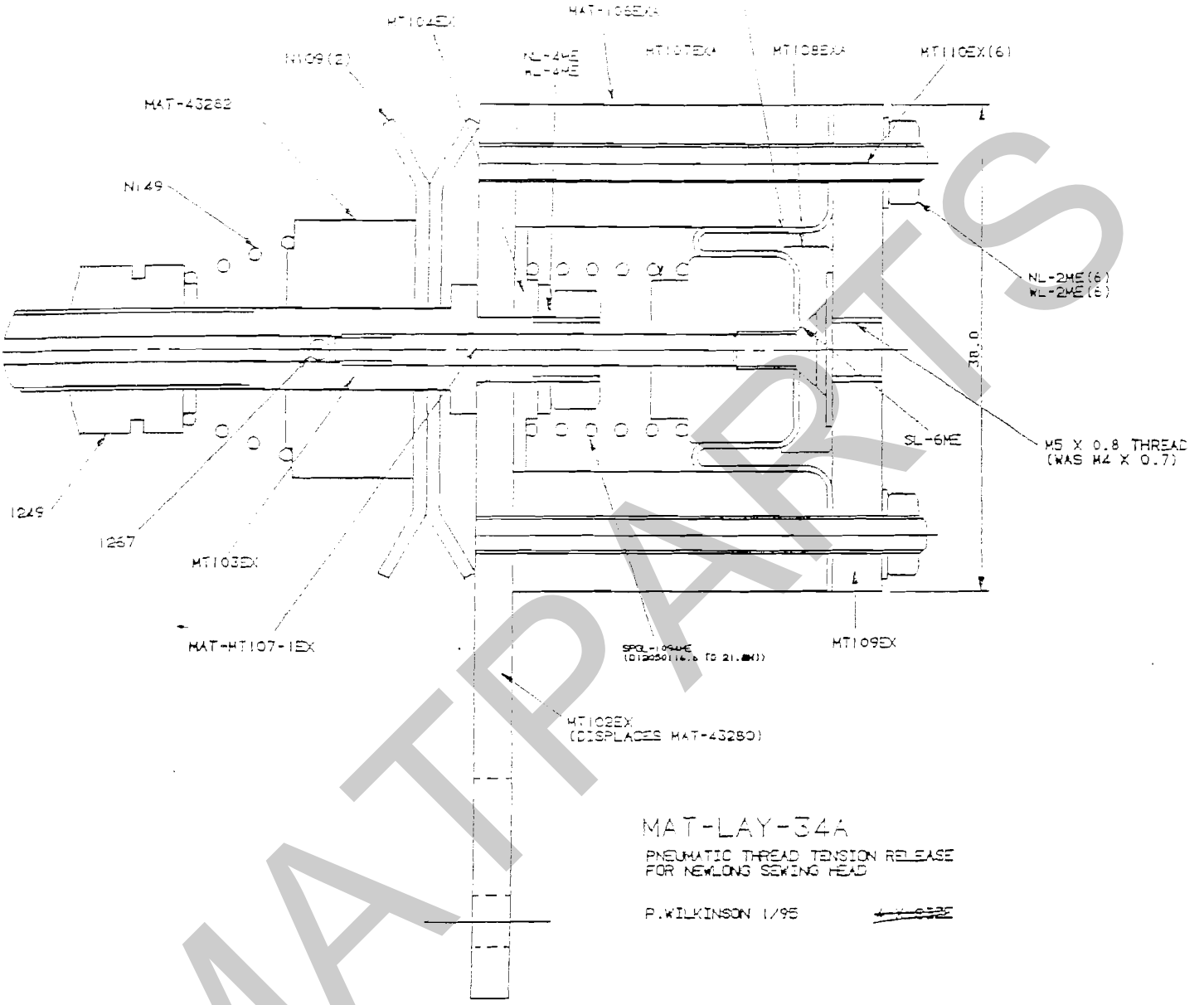
1	43290	Stretcher Frame	)	
1	43291	Fixed Rail L/H	)	
1	43292	Fixed Rail R/H	)	
8	SL470ME	Fixed Rail Fixings	)	
1	43278	Sliding Rail L/H	)	
1	43279	Sliding Rail R/H	)	
4	CC2	Coil Washer	)	
4	WL1303E	Coil Washer Fixing	)	
4	NL5ME	Coil Washer Fixing (242E Loctite)	)	
4	41588	Fixed Clamp Bkt (41096)	)	
8	SL469ME	Fixed Clamp Bkt Fixing to 41096	)	
4	43442	Extension Plates	)	
8	SL213ME	Extension Plates Fixing	)	
16	WL7ME	Extension Plates Fixing	)	to 41096
8	WL121ME	Extension Plates Fixing	)	
8	NL7ME	Extension Plates Fixing	)	
8	WL7ME	Fixing	)	
8	WL121ME	Fixing	)	To Rails
8	NL7ME	Fixing	)	
1	41587	Lever L/H	)	
1	41586	Lever R/H	)	
2	41372	Lever Link	)	
2	41373	Lever Link Pivot Pin	)	
4	ZH805M	Lever Link Pivot Pin Circlip	)	
4	CM39	Shoulder Bolt (242E Loctite)	)	
1	45398	Frame Identity Plate (1 Frame Only)	)	
2	AD318	Frame Identity Plate Fixing (242E Loctite)	)	
1	41129	Keep Plate	)	
2	AD318	Keep Plate Fixing (242E Loctite)	)	
4	41398	Wear Pads	)	
8	AF214	Wear Pads Fixing	)	
8	WL120ME	Wear Pads Fixing	)	
4	37142	Stretcher Bar Hand Nuts	)	

## Bobbin Winder Assembly 42057

1	42235	Mounting Board
4	MIS56	Rubber Feet
4	CK5	Rubber Feet Fixing
1	45145	Cotton Stand
4	CK5	Cotton Stand Fixing
1	32120A	Label
4	ZH987M	Label Fixing
3	CJ5	Dowel
3	AE108	Dowel Screw (242E Loctite)
6	WL3ME	Dowel Screw
3	WL117ME	Dowel Screw
1	N71	Bobbin Winder
2	AF206	Bobbin Winder Fixing
2	NL5ME	Bobbin Winder Fixing
2	WL119ME	Bobbin Winder Fixing
4	WL5ME	Bobbin Winder Fixing
1	DK7	Bobbin Winder Ring
1	XA18	Bobbin Winder Motor
1	SL535ME	Bobbin Winder Motor Fixing
1	-WL5ME	Bobbin Winder Motor Fixing
1	WL119ME	Bobbin Winder Motor Fixing
1	41286	Motor Pulley
1	SL60ME	Motor Pulley Fixing
1	41284	Motor Plate
2	SL510ME	Motor Plate Fixing

29.5

MAT-HT102EX  
14-11.7E-0.62-0.62-0.40  
BELLIFRAM SEAL 1001787



**Thread Tension Release Assembly 2 off**

1	MT102	Tension Release Plate	)
1	MT103	Thread Tension Screw	)
1	MT104	Tension Screw Spring Plate	)
2	N109	Tension Disc	)
1	43282	Actuator	)
1	1267	Pin	)
1	N149	Spring	)
1	1249	Tension Spring Nut	)
1	SPGL1094ME	Compression Spring	)
1	MT107	Tension Release Piston	)
1	MT112	Diaphragm Seal	)
1	MT108	Piston Seal Cap Plate	)
1	SL6ME	Piston Seal Cap Screw	) 43095A
6	MT110	Tie Rods	)
1	MT106	Cyl Body	)
1	MT109	Cyl Plate	)
1	ZH-10354R	Banjo Fitting	)
1	N7	Thread Guide	)
1	43287	Spacer	)
2	AF305	Screw (1 on Final Assembly)	)
1	BA311	Screw Nut	)
1	CA211	Screw Nut Washer	)
1	AF201	Screw (Final Assembly)	)
1	43286	Spacer	)
6	WL2ME	Tie Rod Washer	)
6	NL2ME	Tie Rod Nut	)
2	WL4ME	Tension Screw Washer	)
		(1 on F/Assembly)	)
1	NL4ME	Tension Screw Nut	)

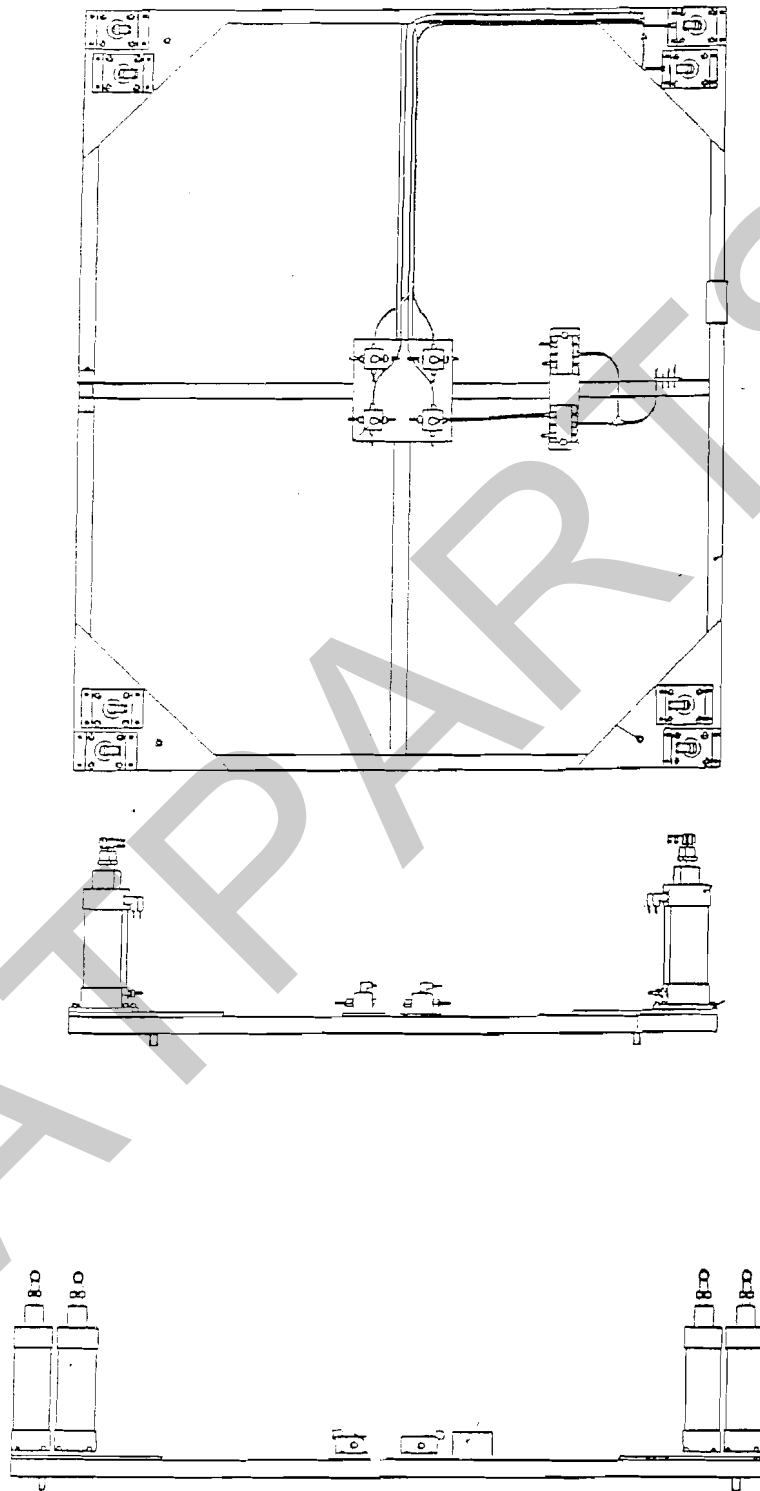


FIG. 30 BASE ASSEMBLY



**Base Fab 43062 1 off**

1	41409	Base Fab
7	KA70	Cyls
1	KA69	Magnetic Cyl.
8	45414	Modified Flange
32	SL82ME	Set Screw
32	SL569ME	Cyl Fixing
32	WL7ME	Cyl Fixing
32	WL121ME	Cyl Fixing
8	DN1	Cyl Rod End
8	41405	Shoulder Bolt
8	41407	Shoulder Bolt Spacer
8	NL9ME	Shoulder Bolt Fixing
8	WL9ME	Shoulder Bolt Fixing
8	WL123ME	Shoulder Bolt Fixing
12	KZC7	Cyl Elbow
4	KZA7	Cyl Adaptor
4	AA329	Jacking Screw
4	WL9ME	Jacking Screw Fixing
4	WL123ME	Jacking Screw Fixing
4	MIS57	Eyebolt
2	KB150	Solenoid Valve
2	NWZH3397	Solenoid Valve Base
4	KZA7	Outlet Adaptor
2	KZC6	Inlet Adaptor
4	KZU3	Exhaust
4	SL174ME	Solenoid Valve Base Fixing
4	WL5ME	Solenoid Valve Base Fixing
4	WL119ME	Solenoid Valve Base Fixing
1	KZF4	Equal Tee
4	NL9ME	Jacking Screw Nut
4	41419	Manifolds
16	KZA4	Manifolds Adaptor
4	KZC4	Manifolds Elbow
8	SL543ME	Manifolds Fixing
8	WL119ME	Manifolds Fixing
1	KZM4	Bulkhead Connector 12mm
4	KZM5	Bulkhead Connector 4mm
2	ZH1204M	'Y' Piece 4mm (Displaces KZT3)

1	KZF4	Equal Tee 12mm
1	KZP3	Reducer 12mm to 8mm
1	KB119	Blowgun
1	KZA4	Blowgun Adaptor

Also

8 x 80"	8mm Black Tube
8 x 84"	8mm Black Tube
4 x 24"	8mm Black Tube
1 x 48"	12mm Black Tube
1 x 12"	8mm Blue Tube (Blowgun)

CNC Table Assembly Size 3

1	43276	Table Fab
2	43277	Table Boards
28	SL470ME	Table Boards Fixings

MATPARTS

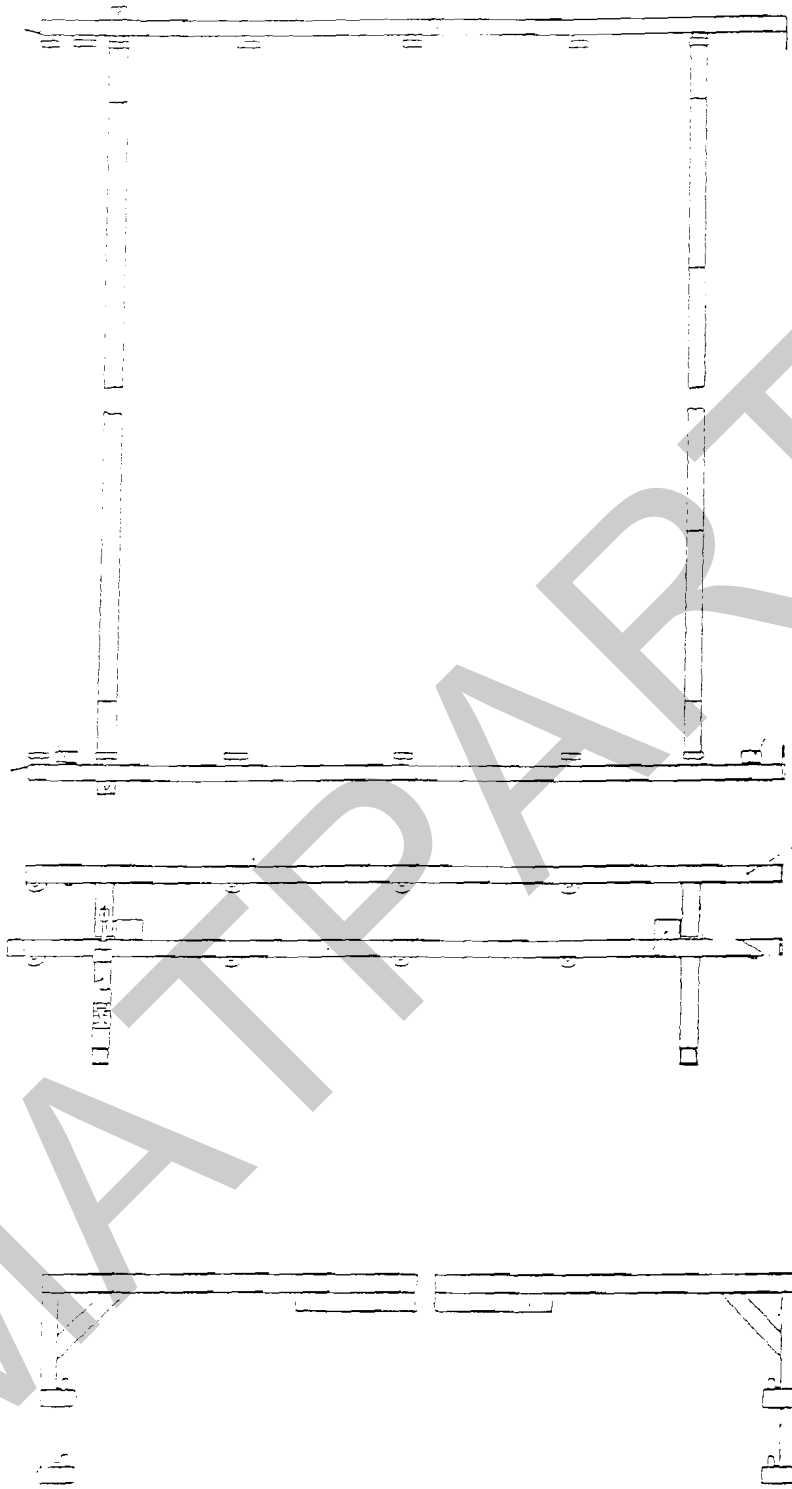
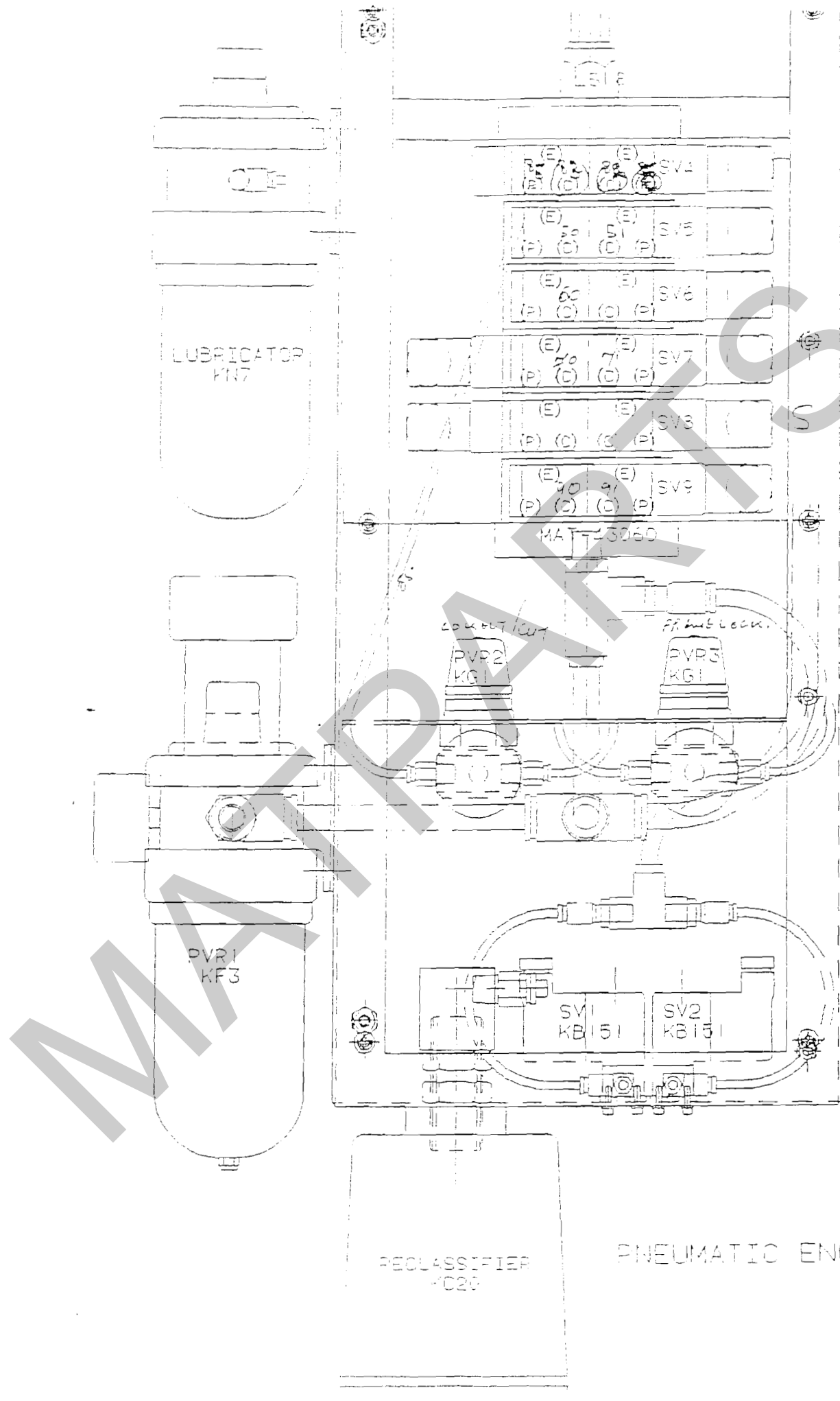


FIG. 28 STACKING MECHANISM ASSEMBLY



RECLASSIFIER  
RC20

PNEUMATIC ENCLOSURE

## Pneumatic Enclosure Beam Assembly

1	43420	Enclosure	
6	WL4ME	Enclosure Fixing	
6	NL4ME	Enclosure Fixing	
4	WL118ME	Enclosure Fixing	
2	ED15381	Enclosure Fixing	
1	KN7	Lubricator	
2	KZC5	Lubricator Elbow	
1	ZH1089M	Mounting Bkt	
4	SL536ME	Mounting Bkt Fixing	
4	WL5ME	Mounting Bkt Fixing	
4	WL119ME	Mounting Bkt Fixing	
1	KF3	Filter Regulator Unit	
1	ZH1089M	Mounting Bkt	
4	SL536ME	Mounting Bkt Fixing	
4	WL5ME	Mounting Bkt Fixing	
4	WL119ME	Mounting Bkt Fixing	
1	KZC8	Elbow	
1	KE31	Tailpipe	
1	41408	Elbow	
1	ZH470	Adaptor	
1	ADN59E	Gauge	
1	QC11	Air Pressure Switch	
2	KB151	Solenoid Valves	
4	KZC1	Elbow	
4	SL502ME		
4	WL2ME		
4	WL116ME		
2	KG1	Regulator With Gauge	
4	KZC1	Regulator Elbow	
2	BUPL1676	Regulator Locking Ring (Disp KT33)	
2	SL537ME	Enclose Lock Screws	
2	WL5ME	Enclose Lock Screws	
2	WL119ME	Enclose Lock Screws	
1	KC20	Reclassifier	
1	KS8	Reclassifier Manifold	
1	43432	Union	
2	ZH1918	Union Nuts	
3	KZA4	Adaptor	
2	ZH588M	Blanking Plugs	
3	KZT4	Y Piece	
1	45421	Cover	)
6	AF201	Cover Fixing	) in Guards
6	WL4ME	Cover Fixing	)
6	WL118ME	Cover Fixing	)
1	ED385ME	Blanking Gromet	

## Hook Assembly Beam Assembly

2		Hook Castings
8	SL551ME	Hook Castings Fixing
8	SL89ME	Hook Castings Fixing
4	CS1	Hook Castings Fixing Dowel
2	ZH10354R	Hook Castings Banjo Fitting
2	41152	Hook Shaft
4	DE5	Hook Shaft Bearings
2	41154A	Hook Shaft Lock Ring
2	AD312	Hook Shaft Lock Ring Screw
2	JA39	Taper Lock Bush
2	EC1	Timing Pulley
2	ZH52M	Key
2	41158	Hook Base
2	41143	Hook Ring
4	SL551ME	Hook Ring Fixings
2	41153	Bridge
4	SL502ME	Bridge Fixing
2	41196	Throat Plate
2	37154	Throat Plate Eyelet
4	41195	Throat Plate Fixing
2	SL515ME	Fixing Screw (NS65)
1	QE32	Gromet (1 makes 2)

Also Used But Taken From Head Strip Down

2	N565	Bobbin Retainer)
2	N124	Bobbin Case Assembly ) Information Items Only
6	N102	Hook Ring Fixings )

### Head Tilt Cyls Beam Assembly

2	KA52	Cyls
4	43422	Cyls Side Plates
2	43423	Cyls Base Plates
8	SL543ME	Cyls Base Plates Fixings
8	WL5ME	Cyls Base Plates Fixings
4	KZK1	Banjo Fittings
2	KX6	Fork Ends
8	SL537ME	Fixings
8	WL5ME	Fixings
8	WL119ME	Fixings

### Bulkhead Bkt Beam Assembly

1	43299	Bulkhead Bkt
2	KZM5	Bulkhead Connector
2	AF201	Bulkhead Fixings
2	WL4ME	Bulkhead Fixings
2	WL118ME	Bulkhead Fixings

### Beam Assembly

3	QE9	Trunking
26	CN2	Self Tappers
8	AF201	Screen & Touch Panel Fixing
8	WL118ME	Screen & Touch Panel Fixing
1	41339	Cover Plate
6	CE7	Rivets

### Parts For Tubing

2	KZF4	12mm Tee
1	KZP3	Reducer
1	KZP4	Reducer
4	KZT1	'Y' Equal Tee
2	ZH1204M	Push in 'Y'
6	ED7657E	Anchor Pads
2	KO30	Curly Pipes

### Beam End Cabinet Doors & Rear Covers

41	AF201	Fixings
41	WL4ME	Fixings Washer
41	WL118ME	Fixings Washer Lockwasher
4	CU3	Door Catches
1	43467	P.C. Shelf
2	43468	P.C. Shelf Binding Screws



## Lower Drive Shafts 43080

1	43141	Lower L/H Drive Shaft
4	DB101	Bearings
8	SL569ME	Bearings Fixing
8	WL7ME	Bearings Fixing
8	WL121ME	Bearings Fixing
1	EC13	Timing Pulley
1	JA46	Taperlock
1	HC37	Woodruff Key
1	ED1	Timing Belt 210L x 100
1	EC81	Timing Pulley
1	JA53	Taperlock
1	HC37	Woodruff Key
1	ED102	Timing Belt
1	ED104	Timing Belt
1	43140	Lower R/H Drive Shaft
4	DB101	Bearings
8	SL569ME	Bearings Fixing
8	WL7ME	Bearings Fixing
8	WL121ME	Bearings Fixing
1	EC13	Timing Pulley
1	JA46	Taperlock
1	HC37	Woodruff Key
1	ED1	Timing Belt
1	EC81	Timing Pulley
1	JA53	Taperlock
1	HC37	Woodruff Key
1	ED102	Timing Belt
1	ED104	Timing Belt
2	XA28	Servo Motors
8	AD302	Servo Motors Fixing
2	46070	Motor Plates
2	46071	Motor Plates
8	SL538ME	Motor Plates Fixings
16	WL67ME	Motor Plates Fixings
8	WL119ME	Motor Plates Fixings
8	NL5ME	Motor Plates Fixings
2	EC80	Pulley
2	JA50	Taperlock

New Parts Displace Those Above

2	YEDU1095Z	Motor
8	SL470ME	Motor Fixing
2	43457	Motor Mounting Plate
8	SL536ME	Motor Mounting Fixing
8	WL67ME	Motor Mounting Fixing
8	WL119ME	Motor Mounting Fixing
2	45458	Taperlock Bush

MATPARTS

## Upper Drive Shafts 43081

2	43144	Drive Spigots
2	41413	Timing Pulleys
4	SL77ME	Timing Pulleys Fixing
2	CG3	Dowel Pins
2	DC101	Bearings
4	SL192ME	Bearings Fixing
4	W6ME	Bearings Fixing
4	WL120ME	Bearings Fixing
2	43152	Cam Plate
2	SL76ME	Cam Plate Fixing
1	43145	Upper L/H Drive Shaft
1	43150	Bearing Mounting Bkt
2	DC101	Bearing
4	SL193ME	Bearing Fixing
4	WL6ME	Bearing Fixing
4	WL120ME	Bearing Fixing
1	43151	Bracket (Px)
2	SL536ME	Bracket Fixing
2	WL5ME	Bracket Fixing
2	WL119ME	Bracket Fixing
1	QC9	Proximity Switch
1	41413	Timing Pulley
2	SL77ME	Timing Pulley Fixing
1	CG3	Dowel Pin
1	ED2	Timing Belt
1	DD101	Oval Bearing
2	SL213ME	Oval Bearing Fixing
2	WL7ME	Oval Bearing Fixing
2	WL121ME	Oval Bearing Fixing
1	EC79	Timing Pulley
1	JA46	Taperlock
1	HC37	Woodruff Key
1	43142	Upper R/H Drive Shaft
1	41413	Timing Pulley
2	SL77ME	Timing Pulley Fixing
1	CG3	Dowel Pin
1	ED2	Timing Belt
1	43150	Bearing Mounting Bkt
1	DC101	Bearing

2	SL193ME	Bearing Fixing
2	WL6ME	Bearing Fixing
2	WL120ME	Bearing Fixing
1	43151	Px Bkt
2	SL536ME	Px Bkt Fixing
2	WL5ME	Px Bkt Fixing
2	WL119ME	Px Bkt Fixing
1	QC9	Proximity Switch
1	DD101	Oval Bearing
2	SL213ME	Oval Bearing Fixing
2	WL7ME	Oval Bearing Fixing
2	WL121ME	Oval Bearing Fixing
1	EC79	Timing Pulley
1	JA46	Taperlock
1	HC37	Woodruff Key

#### Micro Switch Parts

4	QC1	Micro Switch
8	AE213	Micro Switch Fixing
8	WL3ME	Micro Switch Fixing
8	WL117ME	Micro Switch Fixing

#### Upper Drive Shafts 43081

2	37152	Stop Pins
2	WL7ME	Stop Pins Fixing
2	WL121ME	Stop Pins Fixing
2	NL7ME	Stop Pins Fixing
4	37151	Mounting Block
4	SL77ME	Mounting Block Fixing
2	41361	Mounting Block Bkt
4	AF201	Mounting Block Bkt Fixing
4	WL118ME	Mounting Block Bkt Fixing

Assembly Note

Micro Switch Wire Nos.

R/H Head

8 Front  
10 Rear

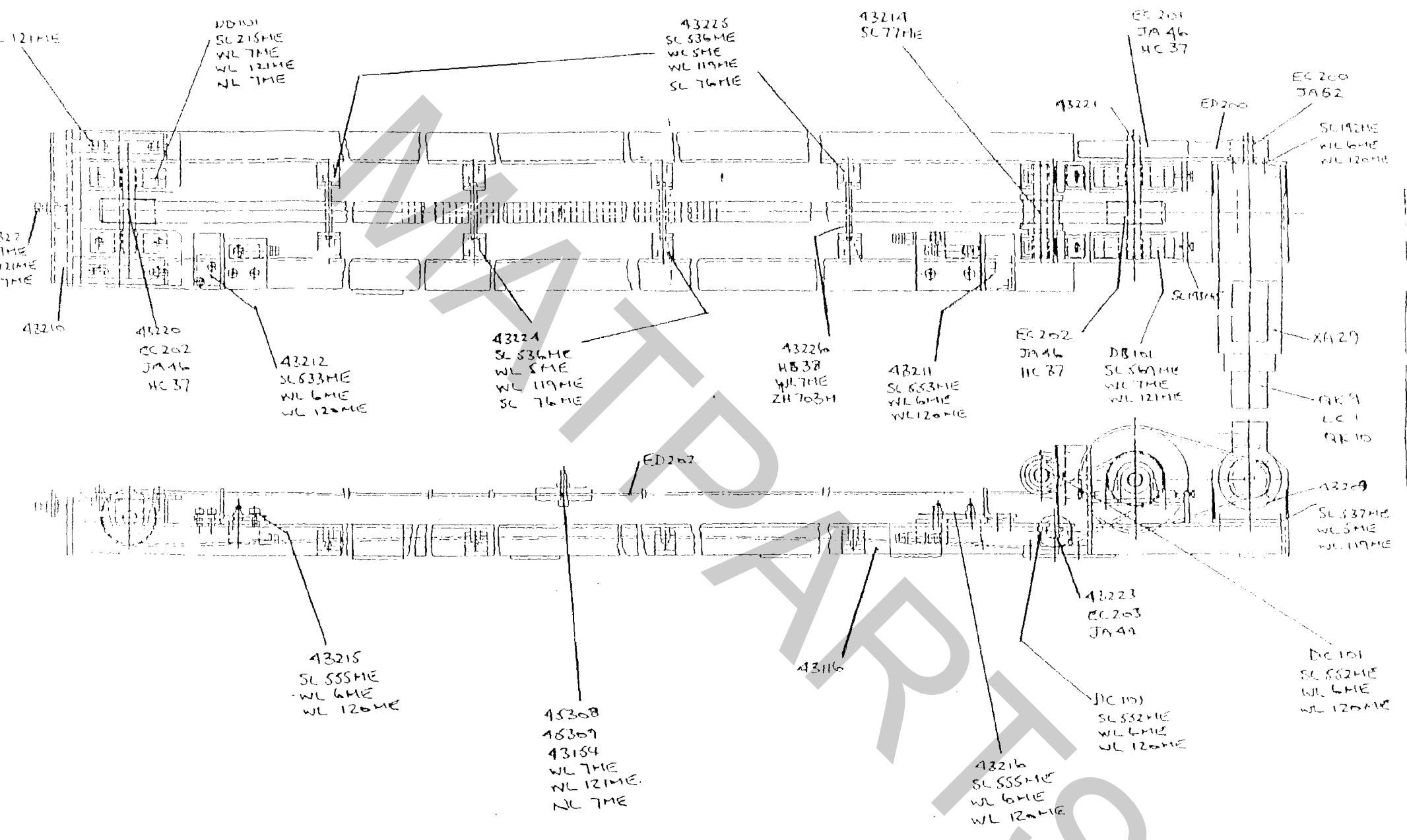
L/H Head

7 Front  
9 Rear

**Belt Tension Pulley**

2	MAT50001	Bkt
4	NWBL303	Bearings
2	SL213ME	Bearings Screw
2	4†392/3	Screw/Washer
2	WL121ME	Screw Washer Lockwasher
2	SL552ME )	
1	SL553ME )	
5	WL6ME )	Per End
3	WL120ME)	
2	NL5ME )	

Using C/L of jig holes drill and tap 1 hole M8 Tap 67 mm from back hole (both ends).



NO.	DESCRIPTION	QTY	UNIT	REMARKS
1	SL 555ME	1	ME	
2	WL 6ME	1	ME	
3	WL 120ME	1	ME	
4	SL 536ME	1	ME	
5	WL 5ME	1	ME	
6	WL 119ME	1	ME	
7	SL 76ME	1	ME	
8	SL 633ME	1	ME	
9	WL 6ME	1	ME	
10	WL 120ME	1	ME	
11	SL 537ME	1	ME	
12	WL 5ME	1	ME	
13	WL 119ME	1	ME	
14	SL 536ME	1	ME	
15	WL 7ME	1	ME	
16	ZH 703H	1	H	
17	SL 653ME	1	ME	
18	WL 6ME	1	ME	
19	WL 120ME	1	ME	
20	SL 552ME	1	ME	
21	WL 6ME	1	ME	
22	WL 120ME	1	ME	
23	SL 555ME	1	ME	
24	WL 6ME	1	ME	
25	WL 120ME	1	ME	
26	SL 536ME	1	ME	
27	WL 5ME	1	ME	
28	WL 119ME	1	ME	
29	SL 76ME	1	ME	
30	SL 215ME	1	ME	
31	WL 7ME	1	ME	
32	WL 121ME	1	ME	
33	NL 7ME	1	ME	
34	SL 536ME	1	ME	
35	WL 5ME	1	ME	
36	WL 119ME	1	ME	
37	SL 76ME	1	ME	
38	SL 653ME	1	ME	
39	WL 6ME	1	ME	
40	WL 120ME	1	ME	
41	SL 537ME	1	ME	
42	WL 5ME	1	ME	
43	WL 119ME	1	ME	
44	SL 552ME	1	ME	
45	WL 6ME	1	ME	
46	WL 120ME	1	ME	
47	SL 555ME	1	ME	
48	WL 6ME	1	ME	
49	WL 120ME	1	ME	
50	SL 536ME	1	ME	
51	WL 7ME	1	ME	
52	ZH 703H	1	H	
53	SL 653ME	1	ME	
54	WL 6ME	1	ME	
55	WL 120ME	1	ME	
56	SL 552ME	1	ME	
57	WL 6ME	1	ME	
58	WL 120ME	1	ME	
59	SL 555ME	1	ME	
60	WL 6ME	1	ME	
61	WL 120ME	1	ME	
62	SL 536ME	1	ME	
63	WL 5ME	1	ME	
64	WL 119ME	1	ME	
65	SL 76ME	1	ME	
66	SL 215ME	1	ME	
67	WL 7ME	1	ME	
68	WL 121ME	1	ME	
69	NL 7ME	1	ME	
70	SL 536ME	1	ME	
71	WL 5ME	1	ME	
72	WL 119ME	1	ME	
73	SL 76ME	1	ME	
74	SL 653ME	1	ME	
75	WL 6ME	1	ME	
76	WL 120ME	1	ME	
77	SL 537ME	1	ME	
78	WL 5ME	1	ME	
79	WL 119ME	1	ME	
80	SL 552ME	1	ME	
81	WL 6ME	1	ME	
82	WL 120ME	1	ME	
83	SL 555ME	1	ME	
84	WL 6ME	1	ME	
85	WL 120ME	1	ME	
86	SL 536ME	1	ME	
87	WL 7ME	1	ME	
88	ZH 703H	1	H	
89	SL 653ME	1	ME	
90	WL 6ME	1	ME	
91	WL 120ME	1	ME	
92	SL 552ME	1	ME	
93	WL 6ME	1	ME	
94	WL 120ME	1	ME	
95	SL 555ME	1	ME	
96	WL 6ME	1	ME	
97	WL 120ME	1	ME	
98	SL 536ME	1	ME	
99	WL 5ME	1	ME	
100	WL 119ME	1	ME	
101	SL 76ME	1	ME	
102	SL 215ME	1	ME	
103	WL 7ME	1	ME	
104	WL 121ME	1	ME	
105	NL 7ME	1	ME	

## 'X' Axis Assembly 43041

1	43116	X Axis Fab
1	XA29	Servomotor
1	QK9	Encoder
1	LC1	Encoder Coupling
3	QK10	Encoder Clamps
3	SL391ME	Encoder Clamps Fixing
3	WL2ME	Encoder Clamps Fixing
3	WL116ME	Encoder Clamps Fixing
4	SL192ME	Servo Fixing
4	WL6ME	Servo Fixing
4	WL120ME	Servo Fixing
1	43209	X Axis Servo Mounting Bkt
4	SL537ME	X Axis Servo Mounting Fixing
4	WL5ME	X Axis Servo Mounting Fixing
4	WL119ME	X Axis Servo Mounting Fixing
1	EC200	Servo Pulley
1	JA52	Servo Pulley Taperlock Bush
1	ED200	Servo Belt
2	DB101	Bearing Block
4	SL569ME	Bearing Block Fixing
4	WL7ME	Bearing Block Fixing
4	WL121ME	Bearing Block Fixing
4	SL193ME	Bearing Block Jacking Screw
1	43221	Driven Shaft
1	EC202	Pulley
1	JA46	Pulley Taperlock
2	HC37	Woodruff Key
1	EC201	Driven Pulley
1	JA46	Taperlock
2	DC101	Pressed Bearing Block
4	SL552ME	Pressed Bearing Block Fixing
4	WL6ME	Pressed Bearing Block Fixing
4	WL120ME	Pressed Bearing Block Fixing
1	43214	Plain Guide Pulley
1	43222	Plain Guide Pulley Shaft
2	SL77ME	Plain Guide Pulley Fixing
2	DC101	Pressed Bearing Block
4	SL552ME	Pressed Bearing Block Fixing
4	WL6ME	Pressed Bearing Block Fixing
4	WL120ME	Pressed Bearing Block Fixing

'X' Axis Assembly 43041 Cont'd

1	43223	Pulley Shaft
1	EC203	Pulley
1	JA44	Taperlock
1	43129	Guard
3	AF201	Fixing
3	WL4ME	Fixing
3	WL118ME	Fixing
1	43210	Mounting Plate
4	SL213ME	Mounting Plate Fixing
4	WL7ME	Mounting Plate Fixing
4	WL121ME	Mounting Plate Fixing
1	AA327	Jacking Screw
1	WL7ME	Jacking Screw Fixing
1	NL7ME	Jacking Screw Fixing
2	DB101	Cast Bearing Block
4	SL215ME	Cast Bearing Block Fixing
4	WL121ME	Cast Bearing Block Fixing
8	WL7ME	Cast Bearing Block Fixing
4	NL7ME	Cast Bearing Block Fixing
1	43220	Pulley Shaft
1	EC202	Pulley
1	JA46	Taperlock
1	HC37	Woodruff
1	43189	Guarding
4	SL510ME	Guard Fixing
1	ED202	Long Belt
1	45308	Long Belt Connect Plate Top
1	45309	Long Belt Connect Plate Bottom
1	43154	Long Belt Connect Plate Screw
4	43226	Tension Roller
8	HB38	Tension Roller Bush
8	MAT50021	Spacer Shims
8	ZH703M	Tension Roller Circlip
4	43224	Roller Bkt Inner
4	43225	Roller Bkt Outer
16	SL536ME	Roller Bkt Fixing
16	WL5ME	Roller Bkt Fixing
16	WL119ME	Roller Bkt Fixing
16	SL76ME	Jacking Screw



**'X' Axis Assembly 43041 Cont'd**

1	43212	Stop Bkt L/H
2	SL555ME	Stop Bkt L/H Fixing
2	WL6ME	Stop Bkt L/H Fixing
2	WL120ME	Stop Bkt L/H Fixing
1	43211	Stop Bkt R/H
2	SL555ME	Stop Bkt R/H Fixing
2	WL6ME	Stop Bkt R/H Fixing
2	WL120ME	Stop Bkt R/H Fixing
1	43215	Micro Switch Plate L/H
2	SL555ME	Micro Switch Plate Fixing
2	WL6ME	Micro Switch Plate Fixing
2	WL120ME	Micro Switch Plate Fixing
1	43216	Micro Switch Plate R/H
2	SL555ME	Micro Switch Plate R/H Fixing
2	WL6ME	Micro Switch Plate R/H Fixing
2	WL120ME	Micro Switch Plate R/H Fixing
3	QC7	Micro Switches
1	43194	Belt Guard Front
1	43195	Belt Guard Rear
8	SL551ME	Belt Guard Fixings
8	WL6ME	Belt Guard Fixings
8	WL120ME	Belt Guard Fixings
1	43193	Belt Guard
14	AF201	Belt Guard Fixing
14	WL4ME	Belt Guard Fixing
14	WL118ME	Belt Guard Fixing
1	WL7ME )	
1	WL121ME )	'X' to 'Y' Fixing
1	NL7ME )	

## Floor Rails 43024

1	41181	Floor Rail Tie R/H Rear
1	43444	Floor Rail Tie R/H Front
4	SL195ME	Floor Rail Fixing
8	WL6ME	Floor Rail Fixing
4	WL120ME	Floor Rail Fixing
4	NL6ME	Floor Rail Fixing
1	43203	R/H Rear Member
2	SL192ME	R/H Rear Fixing )
2	WL6ME	R/H Rear Fixing ) To 'X' Axis
2	WL120ME	R/H Rear Fixing )
2	SL193ME	Fixing )
4	WL6ME	Fixing ) To Tie 41181
2	WL120ME	Fixing )
2	NL6ME	Fixing )
1	43204	R/H Front Member
2	SL192ME	R/H Front Fixing )
2	WL6ME	R/H Front Fixing ) To 'X' Axis
2	WL120ME	R/H Front Fixing )
2	-SL193ME	Fixing )
4	WL6ME	) To Tie 43444
2	WL120ME	)
2	NL6ME	)
1	43201	Centre Front Rail
1	43205	Centre Rear Rail
4	SL192ME	Centre Rear Fixings )
4	WL6ME	Centre Rear Fixings ) To 'X' Axis
4	WL120ME	Centre Rear Fixings )
2	43206	L/H Tie
4	SL195ME	L/H Tie Fixing To Beam
8	WL6ME	L/H Tie Fixing To Beam
4	WL120ME	L/H Tie Fixing To Beam
4	NL6ME	L/H Tie Fixing To Beam

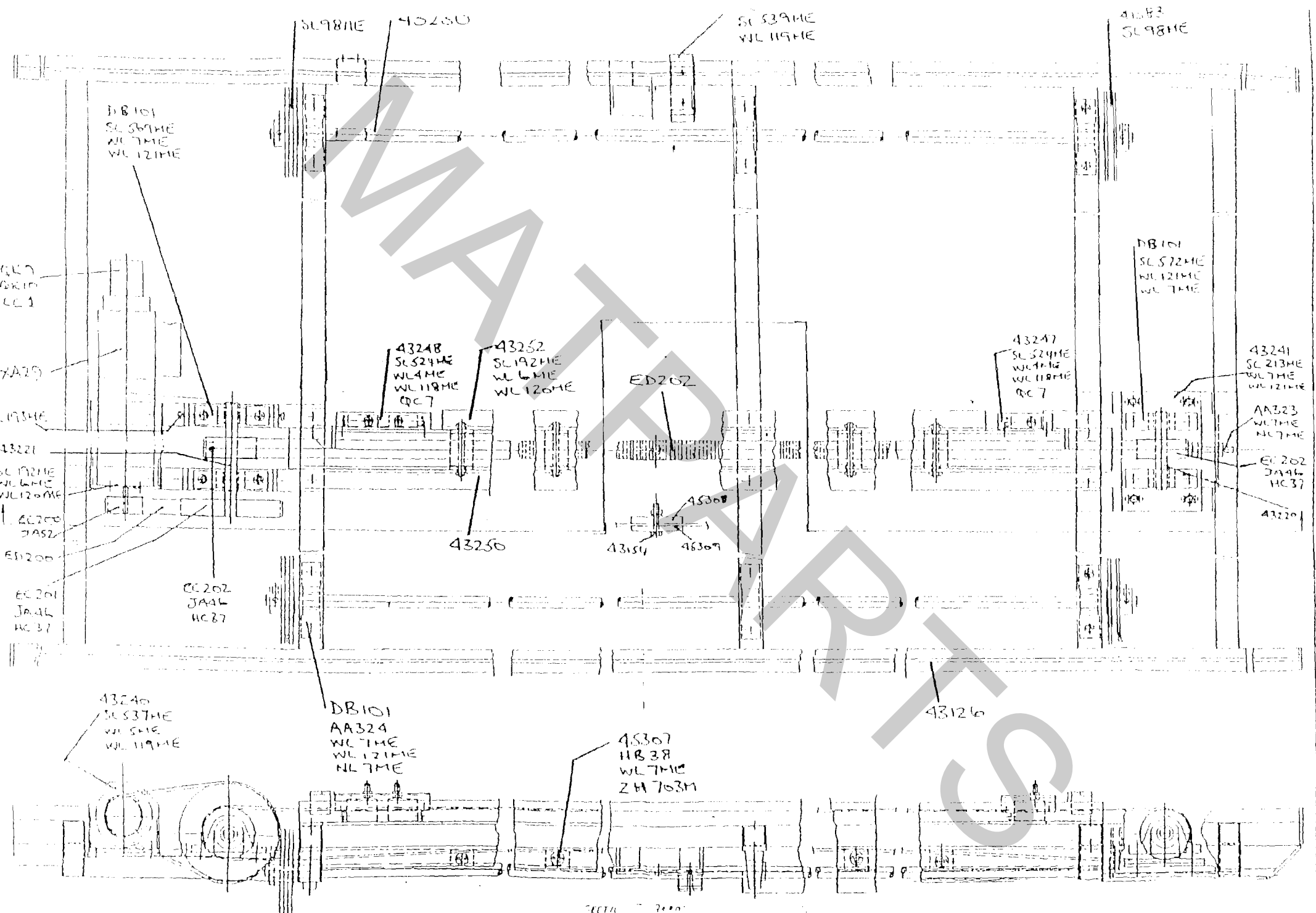
**Floor Rails 43024 Cont'd**

1	43202	L/H Floor Member
4	SL193ME	L/H Floor Fixing )
8	WL6ME	L/H Floor Fixing ) To 43206
4	WL120ME	L/H Floor Fixing )
4	NL6ME	L/H Floor Fixing )
2	43207	Floor Rails
12	SL193ME	Floor Rails Fixing
12	WL6ME	Floor Rails Fixing
12	WL120ME	Floor Rails Fixing
20	41392/10	Spacers
20	41392/8	Spacers
20	41392/6	Spacers
20	41392/5	Spacers
30	41392/3	Spacers
30	41392/2	Spacers
30	41392/1	Spacers
1	43208	Large Drag Chain Tray
2	SL171ME	Large Drag Fixing
2	43323	Spacers Fixing
2	SL175ME	Spacers Fixing
4	WL5ME	Spacers Fixing
4	WL119ME	Spacers Fixing
1	45477	Large Tray Support
1	43322	Small Drag Chain Tray
1	SL171ME	Small Drag Chain Fixing
1	SL173ME	Small Drag Chain Fixing
2	WL5ME	Small Drag Chain Fixing
2	WL119ME	Small Drag Chain Fixing
1	45478	Small Tray Support
1	QE36	Drag Chain
1	QE37	Drag Chain Ends
8	SL1193ME	Drag Chain Ends Fixing
8	WL5ME	Drag Chain Ends Fixing
8	WL119ME	Drag Chain Ends Fixing
8	NL5ME	Drag Chain Ends Fixing

**Floor Rails 43024 Cont'd**

2	SL537ME	Drag Chain Box Fixing Lower
4	WL5ME	Drag Chain Box Fixing Lower
2	WL119ME	Drag Chain Box Fixing Lower
2	NL5ME	Drag Chain Box Fixing Lower
1	43434	Drag Chain Upper Bkt
2	SL540ME	Drag Chain Upper Bkt to Box
4	WL5ME	Drag Chain Fixing
2	WL119ME	Drag Chain Fixing
2	NL5ME	Drag Chain Fixing
2	SL536ME	Drag Chain Fixing
2	WL67ME	Drag Chain Fixing
2	WL119ME	Drag Chain Fixing

MATPARTS



'Y' Axis Assembly 43031

1	43126	'Y' Axis Lower Carriage
2	43230	Lower Carriage Shaft
6	DB101	Cast Bearings
12	AA324	Cast Bearings Fixings
24	WL7ME	Cast Bearings Fixings
12	WL121ME	Cast Bearings Fixings
12	NL7ME	Cast Bearings Fixings
2	41583	Track Wheel (Wide)
2	41584	Track Wheel (Narrow)
8	SL98ME	Track Wheel Fixings
1	43240	'Y' Servo Mounting Bkt
4	SL537ME	Servo Mounting Bkt Fixing
4	WL5ME	Servo Mounting Bkt Fixing
4	WL119ME	Servo Mounting Bkt Fixing
1	XA29	Servomotor
4	SL192ME	Servomotor Fixing
4	WL6ME	Servomotor Fixing
4	WL120ME	Servomotor Fixing

**'Y' Axis Assembly 43021 Cont'd**

1	QK9	Encoder
1	LC1	Encoder Coupling
3	QK10	Encoder Clamps
3	SL391ME	Encoder Clamps
3	WL116ME	Encoder Clamps
3	WL2ME	Encoder Clamps
1	JA52	Taperlock
1	EC200	Taperlock Pulley
1	ED200	Taperlock Pulley Belt
1	43221	'Y' Driven Motor Shaft
2	DB101	Bearing
4	SL569ME	Bearing Fixing
4	WL121ME	Bearing Fixing
4	WL7ME	Bearing Fixing
4	SL193ME	Bearing Jacking
1	EC202	Pulley
1	JA46	Pulley Taperlock
1	HC37	Pulley Taperlock Key
1	EC201	Pulley Motor Driven
1	JA46	Pulley Taperlock
1	-HC37	Pulley Taperlock Key
1	43241	'Y' Driven Pulley Plate
4	AB324	Driven Pulley Plate Fixing
4	WL7ME	Driven Pulley Plate Fixing
4	WL121ME	Driven Pulley Plate Fixing
1	SL223ME	Driven Pulley Plate Jacking
2	WL7ME	Driven Pulley Plate Jacking
1	WL121ME	Driven Pulley Plate Jacking
1	NL7ME	Driven Pulley Plate Jacking
2	DB101	Bearing
4	SL569ME	Bearing Fixing
4	WL7ME	Bearing Fixing
4	WL121ME	Bearing Fixing
1	43220	Bearing Shaft
1	EC202	Pulley
1	JA46	Pulley Taperlock
1	HC37	Pulley Taperlock Key

**'Y' Axis Assembly 43021 Cont'd**

1	ED202	Belt
1	45308	Belt Top Plate
1	45309	Belt Bottom Plate
1	43154	Special Screw
4	45307	Belt Roller
8	HB38	Belt Roller Bush
8	MAT50004	Spacing Shims
8	ZH703M	Circclip
1	43250	'Y' Belt Guard L/H
4	SL192ME	'Y' Belt Guard Fixing
4	WL6ME	'Y' Belt Guard Fixing
4	WL120ME	'Y' Belt Guard Fixing
1	43252	'Y' Belt Guard R/H
4	SL192ME	'Y' Belt Guard Fixing
4	WL6ME	'Y' Belt Guard Fixing
4	WL120ME	'Y' Belt Guard Fixing
1	43247	Front Micro Switch Bkt
1	QC7	Microswitch (13 Limit)
2	SL523ME	Microswitch (13 Limit) Fixing
2	WL4ME	Microswitch (13 Limit) Fixing
2	WL118ME	Microswitch (13 Limit) Fixing
1	43248	Rear Microswitch Bkt
2	QC7	Microswitches
2	SL523ME	Microswitches Fixing
2	WL4ME	Microswitches Fixing
2	WL118ME	Microswitches Fixing
1	43434	Drag Chain Fixing Upper
2	SL537ME	Drag Chain Fixing To 'Y'
2	WL5ME	Drag Chain Fixing To 'Y'
2	WL119ME	Drag Chain Fixing To 'Y'
2	SL540ME	Drag Chain Box Fixing
4	WL5ME	Drag Chain Box Fixing
2	WL119ME	Drag Chain Box Fixing
2	NL5ME	Drag Chain Box Fixing
1	43219	'X' Micro Actuator
2	SL192ME	'X' Micro Actuator Fixing
2	WL6ME	'X' Micro Actuator Fixing
2	WL120ME	'X' Micro Actuator Fixing



## Upper Carriage Assembly

1	43136	Upper Carriage
2	41190	Shafts
4	DC101	Shafts Bearings
8	SL200ME	Shafts Bearings Fixings
16	WL6ME	Shafts Bearings Fixings
8	WL120ME	Shafts Bearings Fixings
8	NL6ME	Shafts Bearings Fixings
2	41583	Track Wheel Wide
2	41584	Track Wheel Narrow
8	SL98ME	Track Wheel Fixings
1	43155	Carriage Rail R/H
1	43156	Carriage Rail L/H
4	SL224ME	Carriage Rail Fixings
4	WL7ME	Carriage Rail Fixings
4	WL121ME	Carriage Rail Fixings
12	BUAR-3449	Bearings (LOC 601)
1	43289	Bulkhead Bkt
2	AF201	Bulkhead Bkt Fixings
2	WL4ME	Bulkhead Bkt Fixings
2	WL118ME	Bulkhead Bkt Fixings
2	KZM5	Bulkhead Connector
1	EB100	Shock Absorber
1	43158	Shock Absorber Bkt
4	SL536ME	Shock Absorber Bkt Fixing
4	WL5ME	Shock Absorber Bkt Fixing
4	WL119ME	Shock Absorber Bkt Fixing
1	QC8	Proximity Switch (Lower)
2	AD315	Proximity Switch Fixing
1	43305	Proximity Switch Bkt

## Upper Carriage Assembly

2	SL536ME	Proximity Switch Bkt Fixing
2	WL5ME	Proximity Switch Bkt Fixing
2	WL119ME	Proximity Switch Bkt Fixing
1	QC8	Proximity Switch (Upper)
2	AD315	Proximity Switch Fixing
1	41445	Proximity Switch Bkt
2	SL531ME	Proximity Switch Bkt Fixing
2	WL4ME	Proximity Switch Bkt Fixing
2	WL118ME	Proximity Switch Bkt Fixing
4	CL299E	Spacing Collars
6	KJ8	Tube Clips
6	CN2	Tube Clips Fixing
1	43249	Microswitch Activator
2	SL192ME	Microswitch Activator Fixing
2	WL6ME	Microswitch Activator Fixing
2	WL120ME	Microswitch Activator Fixing
1	43435	Upper Carriage Board
4	SL470ME	Upper Carriage Board Fixing

## Guards 43091

1	43180	Top R/H Guard
8	CN2	Self Tappers
1	43181	Top L/H Guard
12	CN2	Self Tappers
1	32044A	Machine Label
6	CE4	Pop Rivets
1	43182	R/H Sewing Head Guard
2	AF207	Fixing
2	WL5ME	Fixing
2	WL119ME	Fixing
2	CN2	Self Tappers

**Guards 43091**

1	43183	L/H Sewing Head Guard
2	AF207	Fixing
2	WL5ME	Fixing
2	WL119ME	Fixing
2	CN2	Self Tappers
1	43192	'X' Motor Guard
3	AF201	Fixing
3	WL4ME	Fixing
3	WL118ME	Fixing
1	43189	'X' Driven Pulley Guard
4	SL510ME	Fixing
2	41307	Hook Guards
8	SL1193ME	Fixing
8	WL5ME	Fixing
8	WL119ME	Fixing
1	43190	'Y' Motor TopGuard
4	AF201	Fixing
4	WL4ME	Fixing
4	WL118ME	Fixing
1	43191	'Y' Motor Bottom Guard
2	CN2	Self Tappers
1	43187	'Y' Driven Pulley Guard
2	SL522ME	Fixing
2	WL4ME	Fixing
2	WL118ME	Fixing
1	43421	Enclosure Cover
6	AF201	Fixing
6	WL4ME	Fixing
6	WL118ME	Fixing
2	41199	Sewing Head Rear Covers
1	43459	Belt Guard (Enclosure End)

## SEWING HEADS - FAULT FINDING - CONTINUED -

### BOTTOM THREAD BREAKS

<u>Possible Cause</u>	<u>Remedy</u>
1. Thread is not strong enough	Use correct thread.
2. Bobbin is over tensioned	Decrease tension by unscrewing adjusting screw on bobbin case.
3. Bobbin badly wound	Rewind bobbin or use prewound bobbins.
4. Damaged bobbin	Change bobbin.
5. Incorrectly inserted needle	See (1) Top thread breaks.
6. Needle blunt or bent	Replace.
7. Rough or sharp point on needle hole	Smooth out and polish. Replace throat plate eyelet or pressure foot plate if hole is too large.

### MIS-STITCHING

1. Hook mechanism is dirty	Clean with paraffin.
2. Damaged or blunted hook point	Smooth out & polish or replace hook ring.
3. Thread controlling spring broken	Replace.
4. Incorrect timing of hook	Re-time as in previous section.
5. No pressure on foot	Check for broken spring and/or adjust spring pressure.
6. Pressure foot timing out	Re-time according to previous section.
7. Pressure foot too high	Adjust height sufficiently to give clearance for work passing underneath.
8. Bobbin case touches on needle	Adjust. Read (8) of sewing machine hints. Or replace worn hook ring or bobbin case ring.

## CONTROL SYSTEM - INTRODUCTION

The machine is controlled by the Heidenhain TNC 360 Control. This up to date solid state control incorporates a very powerful Programmable Controller which controls all the digital functions of the machine. The control unit is mounted on the inside of the RH beam door. All inputs are optically isolated here and all outputs switched by transistors. The logic of operation is held within the main TNC unit. The logic program has been developed by Matramatic to correctly control all machine functions. It is permanently held in an EPROM. Do not get confused between the "PC Program" which can only be altered by Matramatic and the "Pattern Programs" which are under your control. The TNC control allows several very powerful features:-

1. Control of the X and Y axes so that the operator programmed pattern is carried out. For example a circle is programmed using only circle centre and end of arc - the control moves the X and Y axes in tiny increments in order to move the carriage in a true circle.
2. Control of both sewing head drives.
3. Allow input of a new pattern program while machine is sewing a different pattern.
4. Operation of set sequences via "M" functions.
5. Programming is "dialogue" LED.
6. Powerful program "Check" feature to show up dimensions outside software limits or circle end point which are incorrect.
7. Inbuilt fault diagnostics. Control does a check sequence on powering up.
8. Memories up to 32 programs.
9. Interfaces with the Personal Computer for long term & backup storage of programs.

The sewing heads are driven by AC motors controlled by inverters mounted within the lower compartment at the RH end of the beam as are the Maestro (DC drive amplifiers) that control the two DC motors for driving the X & Y Axis.

To the rear of the upper compartment at the RH end of the beam is the pneumatic cabinet which is the location for the pneumatic valves and pneumatic pressure switch.

The valves are easily replaced by just undoing the 4 posidrive screws which hold them to the manifold.

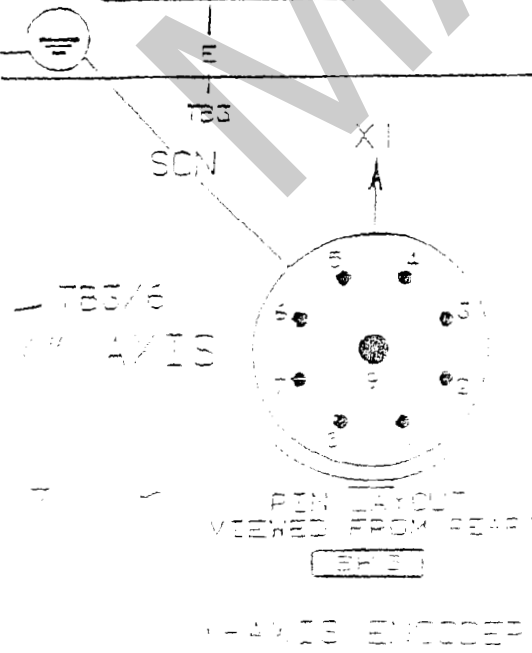
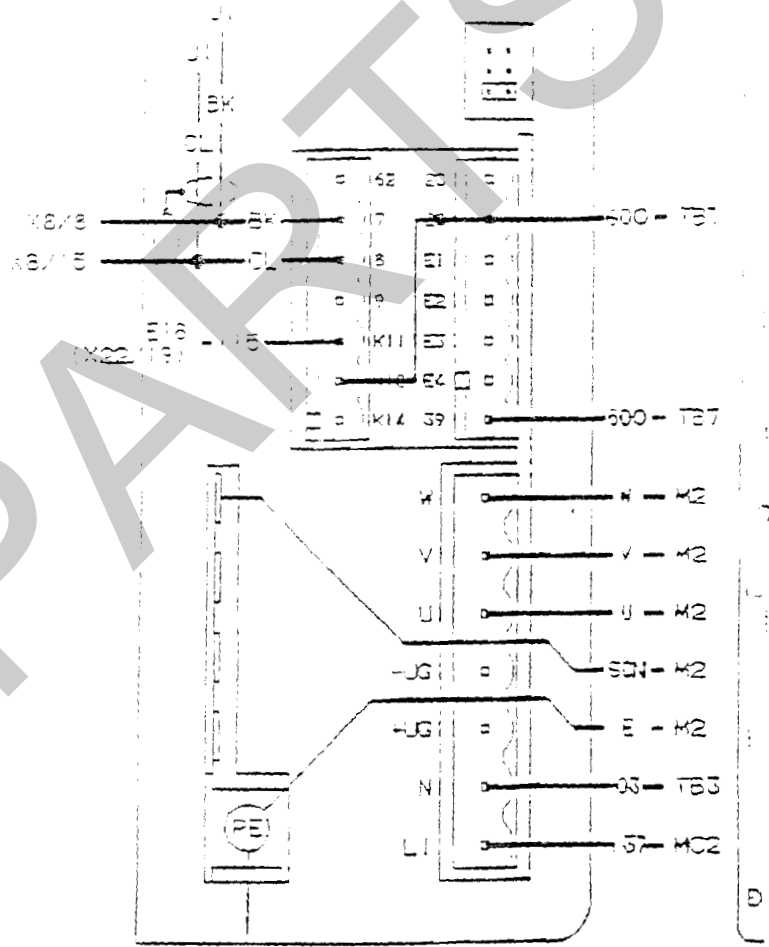
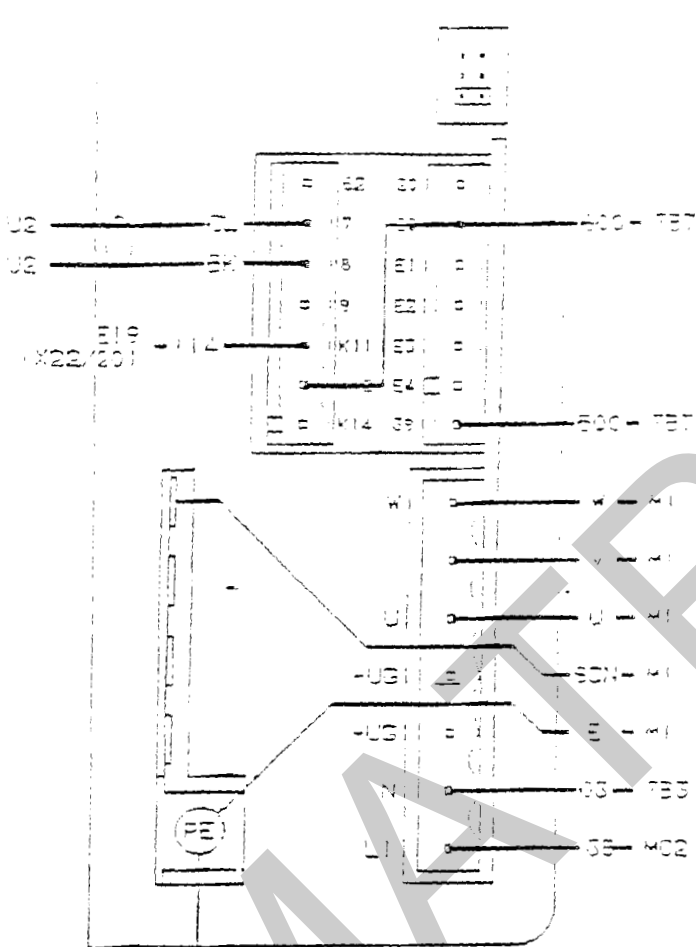
The single phase power is brought into the LH end of the beam, where the main transformer is housed in the lower compartment. This allows input of a wide range of mains voltages.

The upper compartment door at the LH end allows access to the HTD belts driving the LH head.

Two conduits connect between the machine and the frame change table. These carry cables and pipes to from the link between the control and the frame change table.

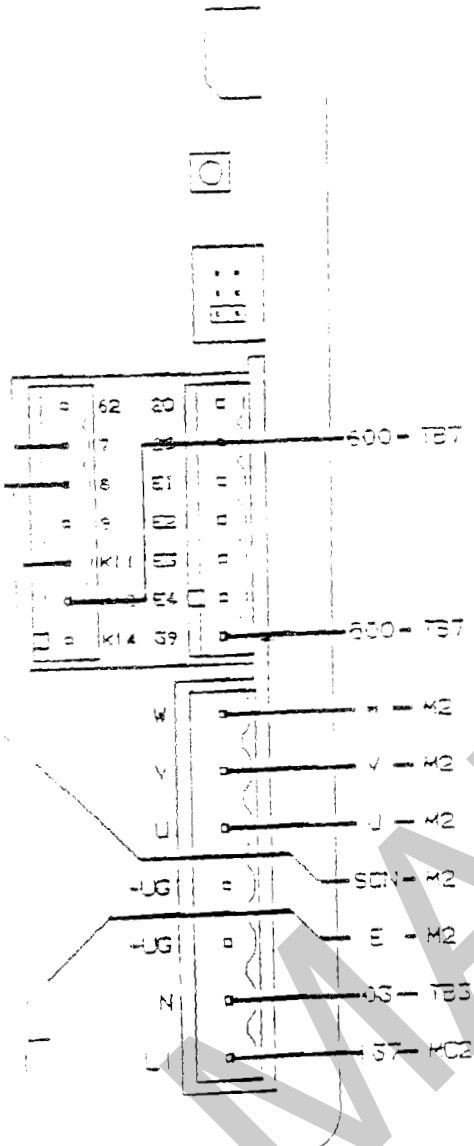
RIGHT SEWING  
HEAD MOTOR  
CONTROL

LEFT SEWING  
HEAD MOTOR  
CONTROL



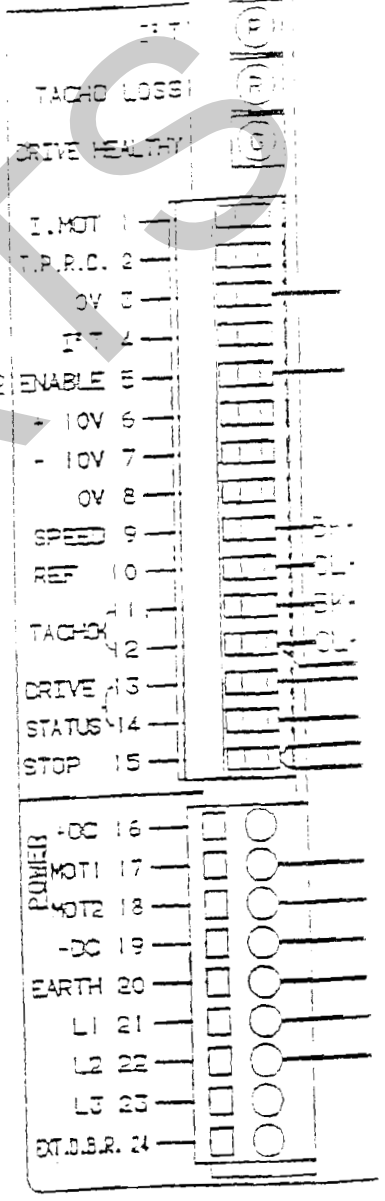
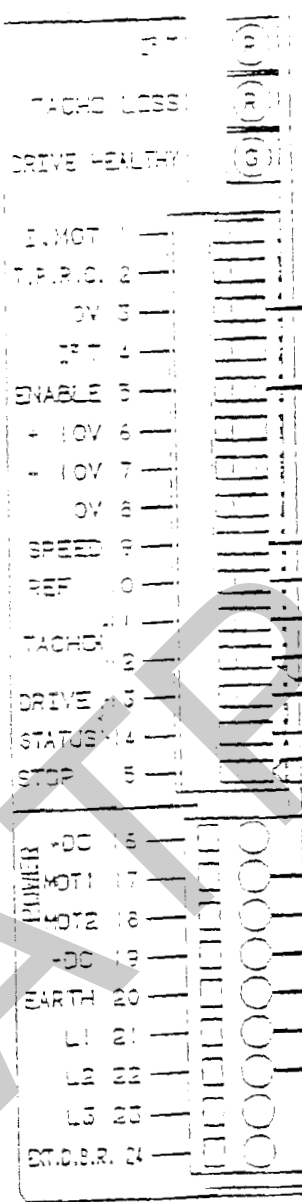
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# LEFT SEWING HEAD MOTOR CONTROL



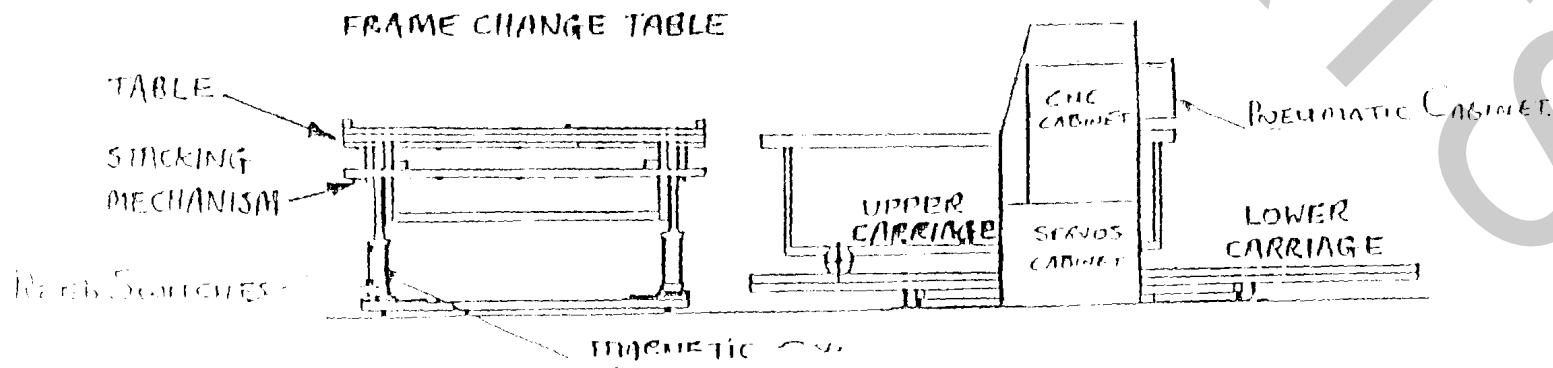
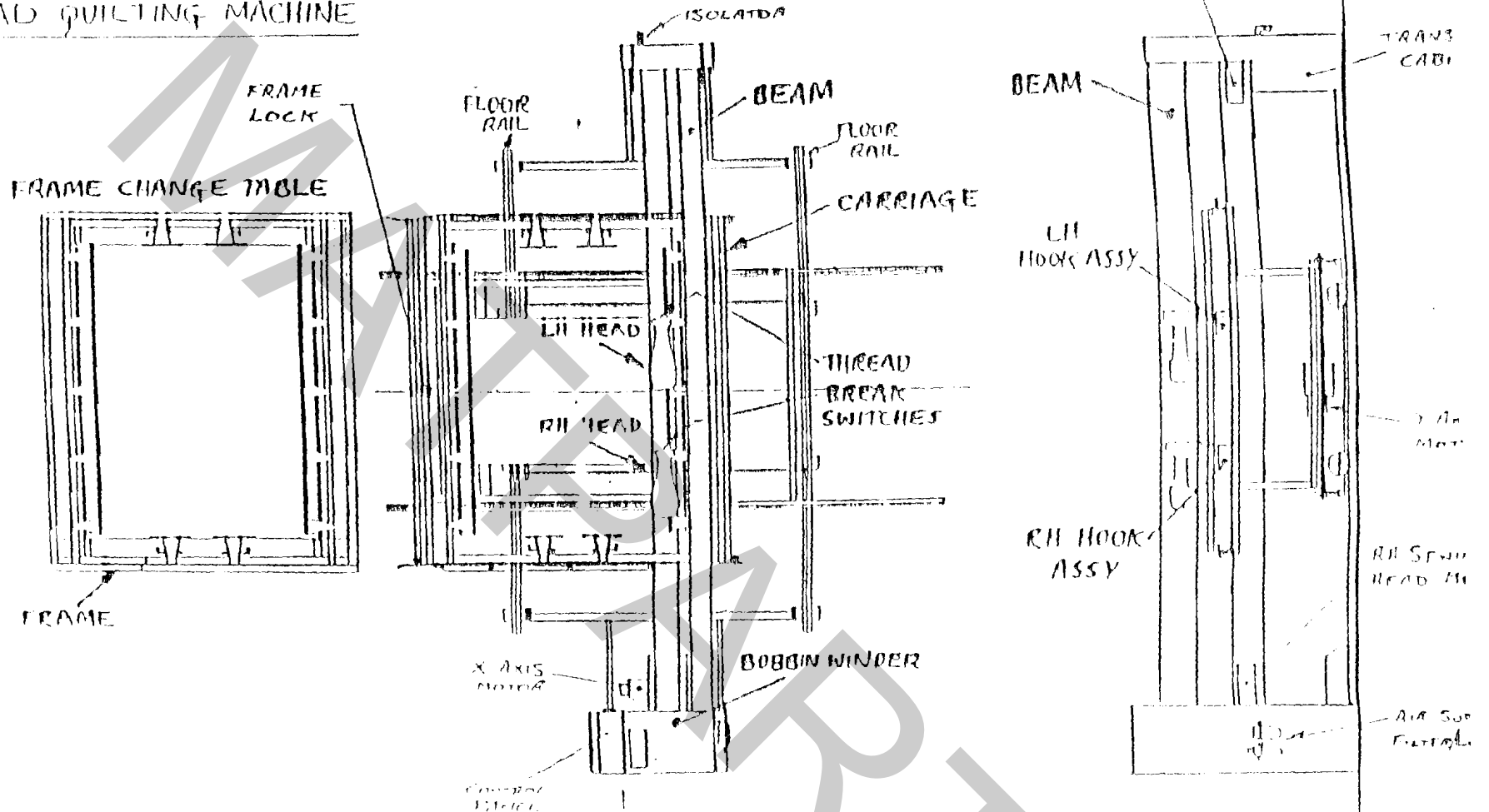
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DERIVATIVE	0
RAMP	0
PROPORTIONAL	0

ZERO OFFSET	0
MAX. SPEED	0
DERIVATIVE	0
RAMP	0
PROPORTIONAL	0



Y-AXIS MOTOR  
& UNIFLEX

# CNC TWIN HEAD QUILTING MACHINE







Parts required when changing from size 3 to size 1

Qty	Parts Required	Description	Parts Displaced
1	43251	"Y" Belt Guard R.H.	43252
2	41566	Stretcher Frames	43290
2	41567	Fixed Rail L.H.	43291
2	41568	Fixed Rail R.H.	43292
2	41569	Sliding Rail L.H.	43278
2	41570	Sliding Rail R.H.	43279
8	-----	Extension Plates	43442
2	41130	Sub. High Grip	43053
2	41131	Sub. Weak Grip	43054
1	41577	Table Bottom Rail	43267
1	41575	Top Rail R.H.	43265
1	41576	Top Rail L.H.	43266
1	41572	Table Fab.	43276
2	41571	Table Boards	43277
1	43135	Upper Carriage	43136
1	41562	Carriage Rail R.H.	43155
1	41563	Carriage Rail L.H.	43156
1	43128	Shock Absorber Bracket	43158