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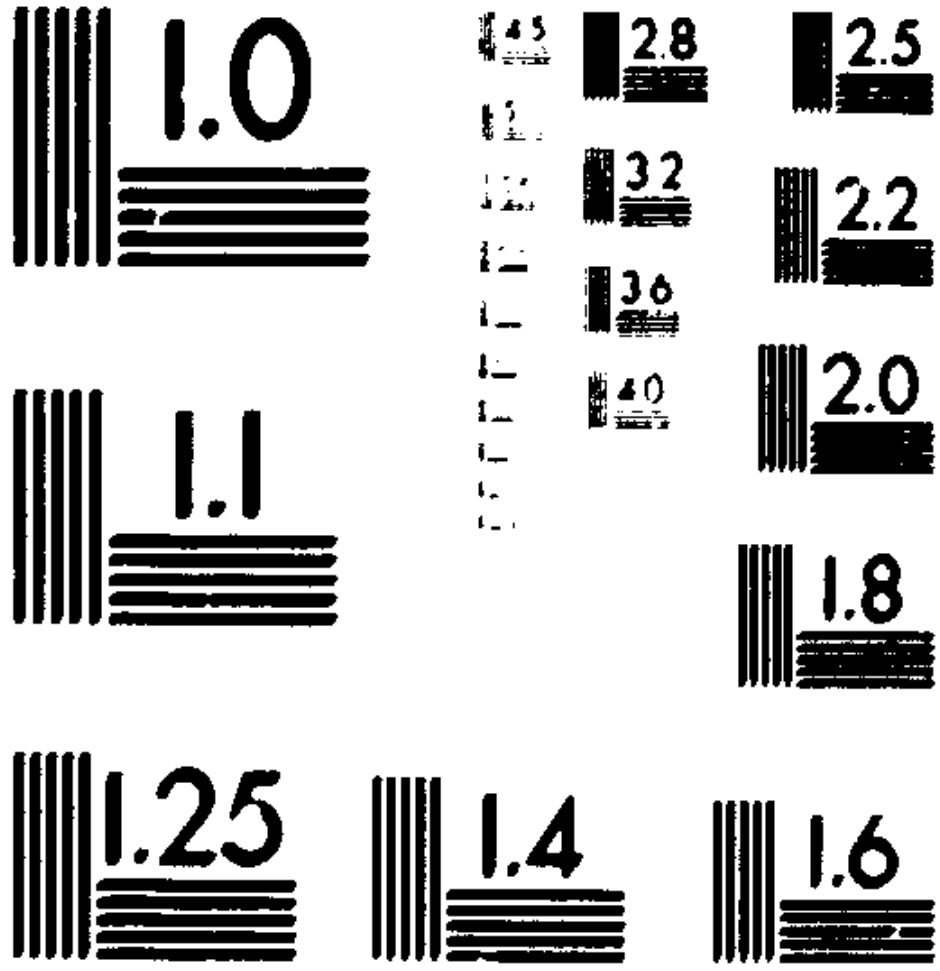

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FINAL REPORT
ON
UNIDO CONTRACT NO. 83/33
PROJECT NO. DP/VIE/80/038
FOR THE
PROVISION OF SERVICES AND SUPPLY OF MACHINERY, EQUIPMENTS AND SPARE PARTS
RELATING TO THE
IMPROVEMENT OF MAINTENANCE PROCEDURES AND PRODUCTION MANAGEMENT PRACTICES IN SELECTED TEXTILE FACTORIES IN THE SOUTH OF THE SOCIALIST REPUBLIC OF VIETNAM

Vietnam.

MARCH 1985

C. ITOH & CO., LTD
TOYOBO ENGINEERING CO., LTD.

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[SYNOPSIS]

Machinery, equipments, spare parts, accessories and materials required for the implementation of the Project arrived at Project area by the first trimester of 1984. As to misconducted or missing parts, replacement parts were supplied until completion of the Project. Receipt of new roller treatment equipment caused unexpected trouble, but this was settled later by appropriate follow-up.

Reconditioning work achieved the target within less time allowed. On the way of implementation, several problems such as oil leak of new drawframe were revealed but settled. The reconditioning work carried out for spinning, weaving and dyeing has restored original performance and function of machines and achieved a stable machine operation and contributed to upgrade productivity and quality of products. This can be verified objectively by data of function examination and machine speed up.

Setting up of preventive maintenance scheme in Viet Thang factory was carried out for reconditioning machinery on the basis of technical methods and documents coped with purposes to rectify defects of existing maintenance practice of the factory, to maintain continuously good machinery condition achieved by the reconditioning work and to attain good machinery running, productivity and quality. Maintenance workshop at each process was also undertaken its improvement of layout. In order to continue to maintain on right track the preventive maintenance scheme started and to operate it with utmost effectiveness, it is required to set up comprehensive understanding of whole factory about usefulness and significance of preventive maintenance and to make well known and thoroughgoing the primary technical requisites for preventive maintenance. Therefore, it is suggested to do partial revision of existing organization and to set up good working climate in Viet Thang factory. On the other hand, the plan to set up the preventive maintenance system in Thang Loi and Dong Nam factories was partially revised and convirted into the concrete guidance there for betterment of existing maintenance practice. We pointed out problems found in 2 factories and made technical guidance and demonstration to settle these and to fix correct maintenance procedure and necessary suggestions were made over a period of four weeks.

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Training contemplated in the Project is devided into lecture and on-the-job training. 27 courses by lecture were perform-ed by a full time instructor during 2 months. On-the-job training was proceeded by our supervisors in parallel with the work of reconditioning and preventive maintenance.

Study tour was performed as planned in the Project. All participants of the tour, key members for improvement of textile mills in the South of Vietnam, must have well recog nized big difference of technical and managerial levels in textile industry between Vietnam and developed countries. It is expected how they will make the most of the fruits of study tour for the evolution of textile industry of Vietnam.

TABLE OF CONTENTS

INTRODUCTION

This report aims at reflecting all works performed by the Contractor to fulfil his scope of supply. It describes about and in this order the contents of supply of hardware, reconditioning work, setting up of preventive maintenance scheme, training and study tour, 5 pillars of Project outputs.

BODY

I SUPPLY OF MACHINERY, SPARE PARTS, ETC

1 Summary of Shipment

First shipment of equipments, parts and accesories took place in middle January 1984. The ship "Oriental Carrier" sailed from Kobe port on 18th January, loading almost all goods for the Project. Some items not ready for the first shipment were carried by second vessel "Takasagomaru No.12" with B/L date on 14th March. It's consignment was parts for R.T.winder and roving frame. Last shipment was made by third vessel which sailed on 12th April, taking training equipments, travellers for ring spinning frame and motors for MURATA winder.

Above three shipments covered all items to be supplied for the Project, but as stated in para. 2 of this chapter, items which proved to have been mishandled or missing were managed to be supplied again by next ships or brought in by Japanese supervisors.

12 September	1984	Kaiseimaru
6 October	1984	Fortune Navigator
13 November	1984	Sincere Artemis
28 November	1984	Fortune Freighter

2 Question Raised and Its Settlement

2.1 Re-supply of misconstrued or missing parts and accesories

Several parts and accesories supplied were found to be irrelevant or missing by misconduct, therefore re-shipment of such parts was carried out until completion of the Project under responsibilities of the Contractor. The result is summerized in Appendix 1-1 "Misconducted or missing parts".

2.2 Roller treatment equipment

Regarding 1 set of roller treatment equipment of ultraviolet ray type (item No.20-31) shipped by Oriental Carrier, following problem was raised.

1) Package brought in Viet Thang factory was opend on 5th March in the presence of CTA, representative of the Contractor, leader of Contractor team and factory management staffs.
   - When the package was opened, an outbreak of corrosion was noted on lacquer painted body cover. Also conveyor metal, shaft, chain, sprocket wheel and stabilizer were found to be partially rusted. Packing condition, however, was confirmed to be normal and there was no indication of being damaged from outside. None the less, it cannot be denied as a cause of corrosion, besides an imperfect paint coating carried out by the manufacturer, that the machine was affected somehow by evaporated chemicals inside the hatch.
   - At that time it was agreed to remedy the situation by no more than removing rust of body cover as well as conveyor components and by polishing, since machine function itself appeared not to have been affected in the least.
2) Thereafter, we often ran across complaints from UTE to assert return and replacement of the equipment (in the meeting on May 12, July 10, 23, Aug 14). Then, it was agreed between UTE and UNIDO side to assess the situation of machine, work out list of replacement parts and carry out replacement and assembling of parts and trial run. In the meantime parts to be replaced were sent by Contractor's supervisors and by vessel Kaiseimaru. Re-painting of the cover, replacement of corroded parts and trial run was completed by the beginning of October and normal function of the machine was confirmed.
3) Meanwhile, each set of magnetizer and demagnetizer were donated to the Mill with a view to supplement insufficient function of existing magnetizer and demagnetizer for SACO LOWEL type magnetic top rollers.

4) The machine set in operation substantially from middle October and on 3rd November the performance and operation of the machine was checked and confirmed to be all right by factory management, CTA, reparesentative and team leader of the Contractor.

II RECONDITIONING WORK

1 Implementation of Reconditioning Work

Machinery to be reconditioned in Viet Thang factory is listed in Appendix 2-1 and its layout is shown in Appendix 2-2. The work was undertaken on 28th March 1984 to card No.47 and 48 and concluded on 31st August 1984 by 1 line of blowing machinery and 3 sets of R.T.winder, the reconditioning thus been fulfiled. Record of starting and finishing date for every machine involved in the reconditioning is shown in Appendix 2-3. Duration required for the work was about 5 months against 6 months allowed and the target was attained.

As the evidence record of the reconditioning work, handing over sheets of every number of machines were exchanged and confirmed by factory management and supervisor team leader. Detail of steps realized for the achievement of the work will not be referred to here, since monthly progress reports dealing with its detail were already issued and its copy is attached as Appendix 2-4.

2 Shooting of Troubles Which Arouse in the Reconditioning

2.1 Breakage of spiked lattice of blowing machinery

1) Outline and cause of trouble

20 pieces of wooden lag of spiked lattice newly fitted to 3 blending feeders were parted. The breakage was assumed due to extraordinary compression loaded on lattice by cotton choking in the space between spiked lattice and comb plate, resulting from both excessive quantity of cotton fed into the hopper of blending feeder and incomplete tear of waste sliver fed.

2) Measures taken

i) In spite of regualtion established for keeping fed quantity of cotton in the hopper in one third,

operatives did not necessarily observed this, therefore to regulate the supplied quantity in 1/4 for more effectiveness was instructed and made fully understood to every personnel involved.

ii) Plastic window plate was gotton rid of so as to enable direct watching of cotton in the hopper.

iii) Motion and working angle of the comb plate was modified in order to avoid extraordinary compression loaded on spiked lattice by cotton lump accumulated in comb plate.

3) Conclusion

Abovementioned measures taken solved this trouble and no further breakage arouse.

2.2 Oil leak of new drawframe

1) Outline and cause of trouble

Clip springs for oil seal of various gear boxes of oil bath type were broken, bringing about oil oozing out of gear box and impairing nearby timing belt, at the following gear boxes.

Gear box	Frame No.9		Frame No.10	
	1st pass	2nd pass	1st pass	2nd pass
Worm reduction box for turntable	X	X	X	X
Head end gear box		X		
Bevel gear box (creel)	X	X		X
Worm reduction box for counter				
Foot end gear box				

Note.- MarkX means oil leak part.

2) Measures taken

i) Broken clip spring for oil seal was repaired and its setting position was corrected for no further breakage.

ii) As precaution, 14 pcs of oil seal and 8 pcs of timing belt were handed to Viet Thang factory on 18th September as replacement parts.

3) Conclusion

Oil leak was observed to have stopped when step i) was taken, but watching was kept on after that and finally this was confirmed at on-the-spot inspection on 3rd November, 1984 by CTA, Project team leader and factory management staffs.

2.3 Teflon sheet for sizing cylinder

1) Outline and cause of trouble

Newly supplied teflon sheet, when sticked to 8 drying

cylinders as a part of reconditioning work for 2 sizers came to have bubbles or blisters scattered on the surface of cylinder after the machine came into operation and cylinders were reiteratedly heated and cooled, in spite of proper plastering work carried out carefully and in strict accordance with the written instruction of sheet supplier. This phenomenon caused by remaining air between teflon sheet and cylinder surface could not be avoided completely due to the reason that said cylinders have not been replaced by new ones for more than twenty years and its life came to an definite end. Because, innumerable hollows, holes and scars almost invisible on the cylinder surface cannot be removed simply and it is almost impossible to let the gap between teflon sheet and cylinder surface being free from air and to ensure it only by visual and feeling check.

2) Measures taken

Such blisters can readily be remedied by applying pinhole or notch to remove air inside, though flaws remain on surface and adhesive power of sheet weakens if this is repeated.

3) Conclusion

i) This trouble may sometimes make size drying a little insufficient and leave few starch dregs on the yarn, but it cannot become operational hitch of sizing machine all the same. And the machine rests assured of its performance by applying remedy of 2), although the appearance of cylinder becomes a bit ugly. It should be taken into account, however, that teflon sheet plastering is a substitute for replacement by teflon coated new cylinder.

ii) Sizing quality and recommendation

Pressure of squeezing rollers is not enough at present. Current pressure is 10 lbs/sq.in (approximately 0.7 kgs/sq.cm), but generally needed are more than 1.5kgs. Nowadays sizing machine is gradually adopting high pressure squeezing (1,000 to 1,500kg total squeezing pressure plus roll weight). Factors hindering enough pressurizing capacity consist in bad adhesion condition of size used

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in the Factory. That is to say, starch infiltration into yarn is not good and this is attributed to use of starch not cooked well. After all unripe surface membrane of yarn causes frequently starch coming off, making thus the beam slightly sized. Furthermore, size condition is always unstable owing to supply by hand of starch into size box without using pipe supply system and consequently without temperature control. And it is deducible that the beams are sometimes processed by almost raw state size. Other detrimental factor for sizing is bad quality of local starch containing many impurities which give rise to not only size dreg but damages to mechanical part of the machine. Therefore, it is essential to improve the size supply system and to use high quality starch.

3 Conclusion of Reconditioning Work

3.1 Improvement of machinery condition achieved by reconditioning

What was achieved by the reconditioning work is not only mechanical improvement of machinery function, but that practical skills to be attained through on-the-job training on fundamental maintenance technique such as machine dismantling, adjustment, parts replacement and assembling, etc. and theoretical knowledge on relevant machinery function and working procedure were achieved to be transferred to maintenance personnel, consolidating like this a foundation for setting up a preventive maintenance later. The implementation of function and small defects examination prior to and after reconditioning work was helpful for technicians to understand and recognize well which is normal condition of machinery as a control index of effectiveness of long-term preventive maintenance system.

3.2 Summary of reconditioning work of each process

1) Blowing machinery 1 line

- Unbalanced feeding of cotton by 2 blending feeders was normalized by replacement of spiked lattice, modification of setting gauge of combing blades, adjustment and repair of whole machinery and by the instruction of correct cotton feeding to blending feeders, etc. and normal cotton feeding condition by 4 blending feeders was restored.

- Repair and adjustment of fan condenser as well enabled usual running of 4 blending feeders.
- As for the reconditioning of superior cleaner, overall restoration such as replacement of grid bars was effective for better removal of dusts and short fibres.
- As for the opener, cotton feeding to whole line, stable machine running and better cotton opening was realized by restoration of 1 line which was out of operation and each filling motion mechanism.
- Stable cotton supply to scutchers, increase of operating time and less fluctuation of lap weight were materialized by overall reconditioning of hopper feeder such as replacement of spiked lattice and mercury switch, etc.
- Function of cotton opening and dust cleaning as well as lap forming was remarkably improved by major level reconditioning of double beater scutchers, among others maintenance of calender roller part, replacement of cage roller, restoration of auto-doffing mechanism, repair of 2 blades beater, adjustment of piano motion mechanism.
- Control and adjustment of lap weight was restored by installation of one new lap scale and reconditioning of one existing.
- Delivery speed of the fluted lap roller was maintained as it was, taking into account its durability.
- In relation to the roving waste opener, replacement of wooden lag and pin cylinder was carried into effect.

2) Card 32 frames
- As regards taker-in roller part, faulty ball bearings and garnet wire were replaced (for 32 cards). Under casing and mote knives were partially renewed. Overall maintenance and setting adjustment was carried out.
- Regarding cylinder part, cylinder balance and bearings were totally checked and metallic wire of 31 cards were replaced. Related under casing, back sheet, top sheet, flat belt and cylinder shaft were partially renewed. Handling of MCC mounting machine, mounting of wire, grinding and repairing procedure were guided.
- Concerning doffer part, MCC of 23 cards and fly comb blades of 32 cards were replaced. MCC monting and grinding as well as overall setting and adjustment was carried out.

- With regard to flat part, 11 sets of flat carding cloth and 32 stripping combs were replaced. Training how to maintain flat clipping machine and flat grinding machine, replacement and grinding of flat carding cloth were carried out. Function of grinding brackets was restored to enable flat grinding on machine.
- In connection with coiler part, a trumpet type reducer was tentatively set to reduce sliver thickness. Test result being good, it was recommended to manufacture and fit the reducer on all cards.
- Renewal of taker-in garnet wire, cylinder and doffer MCC and flat cloth and restoration of good function by wire grinding, correct gauge setting and related maintenance steps made possible speed up of doffer revolution from 9 RPM to 11 RPM and deduction of nep counts from 47 pcs to 14 pcs per 36 square inches. (See Appendix 2-7, investigation of nep & foreign matters in card web).

3) Drawframe New drawframe DY-2 2 heads x 2 sets
Existing drawframe 2 heads x 2 sets

- New drawframes were installed on the basis of layout for place of SACO drawframes, taking into full account efficient operability in narrow space. Erection, performance test and start up and operation was put into effect without much difficulties. (See "Report on performance test run of new drawframes" attached as Appendix 2-5) Stable running and production of good quality sliver has been realized so far due to our reiterated instruction and suggestion (Uster U% 3.03%, sliver weight CV% 1.16%).
- As to existing drawframes, inspite of very poor machine condition, satisfactory function and productivity and good quality of sliver was restored by means of replacement of bottom roller, tube wheel, calender roller, top and bottom clearer, gear end parts and each stop motion parts as well as overall maintenance and setting adjustment.
- 600 delivery cans of new drawframe were guided to assemble.

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4) Roving frame 6 frames

1 frame of FAS type utterly paralized was restored and set in motion. What were carried out are repair of partial crack of gear end main frame, restore and replacement of parts detached of driving mechanism, cone drum, top and bottom roller, spindle, flyer presser, bobbin rail, apron, and various ball bearings. As to remaining 5 frames, machine function, productivity, large package of roving were achieved.

5) Ring spinning frame 39 frames

- One frame in complete stop became operable again after conducting repair of partial crack of gear end main frame, fitting of imported and available parts of main frame, tin roller, spindle, lifting mechanism, top apron, bottom roller nylon bearing and plastic tube, etc. and setting adjustment, restoring thus performance, productivity and quality.
- As to remaining nine frames for standard level reconditioning, restricted number of imported parts and accessories like spindle tape, tension device, thread lappet, snail wire, traveller, V-belts, etc. together with rings and spindles of factory stock were set on selected frames. Further, general maintenance, setting and adjustment were carried out.
- Machinery condition was improved by maintenance, setting and adjustment of main components, regarding 29 frames of partial level reconditioning.
- Fundamental condition for production increase was set up through establishment of condition to enable increase to 9,000 RPM from actual 8,290 RPM (mean figure of 9 frames) by applying 150mm dia. motor pulley.

6) R.T. winder 6 frames

1.5 frames suspended due to shortfalling and defective components were recovered together with
4.5 frames for partial reconditioning by implementing all-out reconditioning (recovery and adjustment of stop motion function, repair of cone holder, recovery and adjustment of tension device and slub catcher and replacement of defective drums, etc.).

7) Roller shop

Control and maintenance system of top roller of spinning machinery has been established by combination of cleaning, lubrication, grinding and surface treatment by ultraviolet treatment machine. It was stressed and made understood that implementation of roller treatment by ultraviolet was essential for good conservation of top roller of new drawframes as well as existing drawframes, roving frames and ring spinning frames.

8) Warper 4 frames

- Upgrading of function, productivity and beam sheet quality was achieved by renewal of drum brake shoe, all-out care, setting and adjustment to winding part, creel part and drop wire motion, etc. with reference to Barber Colman warper. Twelve new warpers beams were supplied and assembled.
- Adjustment and correction of defective setting of beam tension, beam stand level and sheet centre was carried out to 3 Kanamaru warpers.

9) Sizing machine 2 frames

- Regarding one frame of major reconditioning, new beaming head was installed and connected to existing cylinder part (Its performance test result is attached as Appendix 2-6). Moreover, repair, adjustment, correction of defective setting and general maintenance to squeezing roller, bottom roller, immersion roller, steam trap and steam leaking steam pipe were done, upgrading thus machine function, productivity and beam sheet quality. Winding speed was raised from 20m/min to usual 45m/min and teflon sheet was applied to 4 drying cylinders.
- Stable operation was realized by partial reconditioning effected to one frame where repair and adjustment, and correction of defective setting were done to main part of machine. Likewise, teflon sheet was plastered to 4 cylinders.

10) Sharer Pirn winder 8 frames

Renewal of spindle bearings, dividing shafts, winding wheels, threader heads, threader head inserts, etc. as well as overall maintenance care, setting and adjustment made possible restoration of automatic change motion mechanism. There remains yet, however, some problems

relating to stable operation of the machine due to quality of locally available parts and restricted number of imported parts. This was answered by means of shortening maitenance cycle, etc.. Automatic bobbin feeding system found in complete stop was restored by applying appropriate repair and using stock parts of Viet Thang factory.

11) Automatic spooler 1 set

Total maintenance, setting, adjustment and installation of knotter complete, spindle bracket, detector, snick plate, cheese core, and other parts supplied from overseas and diverted from resting frames were carried out. In the meantime, dust collector fan in stoppage were revived and machine running in stable condition was attained.

12) Loom

- 40 looms object of thorough reconditioning which were found to be almost naked were totally maintained, fixing imported ring temples, reed wires, wire healds, shuttles, weft pirns, etc. and locally manufactured parts and effecting repair, setting and adjustment. Function as manual cop change loom was revived.
- Improvement of machine function and steady running was aimed at for 160 looms in operation, by effecting care to main components, correct setting and adjustment.

13) 6 colours roller printing machine

- 4 colour printing was restored by fixing necessary parts and accessories (Machine was operating in 2 colours before the reconditioning.
- 8 drying cylinders were replaced by new cylinders (4 stainless steel and 4 teflon coated cylinders).
- Main drum (pressure bowl) and drip roll were replaced.

14) Raising machine

- All 36 bearings for 18 raising rolls were renewed.
- 20 wire fillets were replaced by new ones and ground.
- Bearings for driving were exchanged.
- Metal and rubber stripper were re-wound.
- Driving belt was exchanged.

15) Bleaching range

- 4 sets of cloth guiders were installed.
- Three 5-ton mangles were renewed. Pressurizing apparatus was repaired.

- 16 expanders were replaced by new ones.
- Roller bearings inside the bath were replaced by new ones.
- Steamer guide roll bearings were renewed.
- Gas singeing brush box was restored.
- 15 joints of cylinder dryer were repaired.
- Stripper was rewound.

Photographs of several machines before and after the reconditioning work are shown in Appendix 2-8.

3.3 Evaluation on the basis of machinery function examination

The function examination is to be carried out in order to judge and understand properly the present condition of the machines which are expressed in numerical figures. It is in turn expected to contribute to keep the perfect machinery performance and to enhance the morale of the maintenance workers and to make up the proper maintenance plan in conformity with the present mahcinery condition.

This test was carried out to main machinery both before and after the reconditioning work.

1) Card

The examination was carried out to 4 cards No.44,45,46 and 48. Marking calculation is made on the basis of 100 cards which are already given 900 marks, total of 11 functions to be examined such as gauge between cylinder and doffer, condition of web, etc. If defects are noted, these are convirted into the number of defects per 100 cards and deducted from 900 marks.

According to the examination test carried out on 31st March 1984 prior to the start of reconditioning work, the points obtained were minus 4,800 (Total number of defects is multiplied by 25, since 4 cards are object of the examination). As shown in the function examination table for card annexed as 2-9, the condition of setting gauges and webs (3 items) was found to be extremely poor among other things. However, another test carrie out at the same

date after 7 months verifies a remarkable improvement in this field, getting 2,900 marks improved.

[(-)475 + (+)100 + (-)650] - [(-)1,775 + (-)1,250 + (-)900] = 2,900

	Function to be checked	Marks per 100 cards	Number of defects checked	Number of defects per 100 cards	Points obtained
1st check	Gauge between cylinder and flat (1)	200	79	1,975	-1,775
	Gauge between cylinder and doffer (2)	100	27	1,350	-1,250
	Condition of web (10)	100	4	1,000	-900
	Other functions	500	-	-	-875
	Total	900	-	-	-4,800
2nd check	Gauge between cylinder and flat (1)	200	27	675	-475
	Gauge between cylinder and doffer (2)	100	0	0	100
	Condition of web (10)	100	3	750	-650
	Other functions	500	-	-	500
	Total	900	-	-	-525
Improvement					4,275

As for the function of 8 items, no faults were detected in second examination.

2) Roving frame

Regarding the roving frame, a considerable betterment is noted in the second deterioration check carried out after the reconditioning completion, that is among others, the items of number of roving breakages, centering of spindle and vibration of flyer got improvement points of 6,940. Total improvement amounts to 9,605 points.

3) Ring spinning frame

Improvement achieved in this machine by reconditioning work reflects on improvement points recorded over two tests before and after reconditioning work. At the first check, the deducted points of machinery function reached in fact minus 16,661, which indicate very defective condition of the ring frame to be reconditioned. The second check showed minus 4,836 points getting, thus attaining improvement of 12,051 points.

4) Loom

As regards loom, shuttle stopping position, picking mechanism section, beating section, etc. obtained marks and total improvement marks are assessed as 3,617.

As stated briefly above, the examination relating to machine function carried out verifies the improvement of machinery condition achieved by the reconditioning work.

In relation to ring spinning frame and loom, the function examination records still minus points. Although a remarkable betterment of ring frames was achieved by the reconditioning, majority of main parts were left intact without being renewed due to budgetary restriction. It will be unavoidable that obtained marks in the test remains below zero under such circumustances. In the event of looms, low quality and arreas of delivery of locally made parts often give rise to shortage of spare parts. This leads to low assessment of function of looms. Outcome of function examination is annexed as Appendix 2-9.

3.4 Evaluation on the basis of machine speed and production efficiency

As for 32 reconditioned cards, 9 revolution per minute of the doffer was raised to 10.8 RPM by chaging dandy and compound chage wheels. Regarding FAS and FAB roving frame, ring spinning frame and R.T. winder, the speed up of RPM has become feasible after the reconditioning, should necessary motor pulleys be available. RPM up of the blowing machinery is not expected, taking account of durability of lap roller.

Speed up is not relevant to maintain product quality for the case of drawframe DK as well as machinery of yarn preparation and loom. Condition for speed up and estimated increase of production efficiency of reconditioned machinery are given in Appendix 2-10.

4 Outstanding Issues to Settle Hereafter on Technical and Productive Aspect

4.1 Limit of locally manufactured parts

This project contemplated the supply of not a few parts of Viet Nam made for the implementation of reconditioning work. Among others, the parts for shuttle looms were object of local supply. Owing to the restriction of capacity of the engineering workshop at Viet Thang factory, not a few parts were ordered to engineering works of the City. Locally made parts are as a whole of poor quality and durability, lacking required precision. Therefore, frequency to change worn parts is relatively short, above all for the case of pirn winder and loom and new replacement parts often don't come in time, making thus less the effect of periodical maintenance. Unsatisfactory precision and strength of such parts requires ceaseless attention to machine running and workers must spare more time in repairing than preventive maintenance work. As another example of uncomplete precision of local parts, it is referred to that the fluctuation of dimension of front top roller cap bar of ring frame often causes the crook of top roller. In order to secure sure and prompt parts supply, factory management is expected to have connection with reputable engineering companies with excellent workmanship and processing facilities who can make free use of material (ingot) of good quality.

4.2 Technical issues to improve hereafter

There are several points to recommend to improve mechanically and in production field for better performance of reconditioned machinery.

1) Fitting of ring rail stopper

- At present the ring rail is lowered manually by operative to its lowest position prior to the doffing of bobbins

fully wound. The stopper regulating this lowest position, however, is not equipped in ring frames.

- Therefore, the ring rail sometimes descends passing the lowest point by unproper handling of operatives. In that case, yarn is wound on the spindle as indicated in the following diagramme 2.
- The yarn wound on the spindle becomes obstacle for an empty bobbin to be inserted firmly and when the frame starts to run, the bobbin is often disengaged from the spindle and rotates defectively. This phenomenon originates an insufficient twist and yarn breakage.
- In order to rectify this fault, it is proposed to fit such a stopper as shown in diagramme 3, i.e. to fit stopping bracket B and stopping nut C. All the operative has to do is to reverse the shaper wheel until B contacts with C. Then, the ring rail stops at the proper position indicated in the diagramme 1.

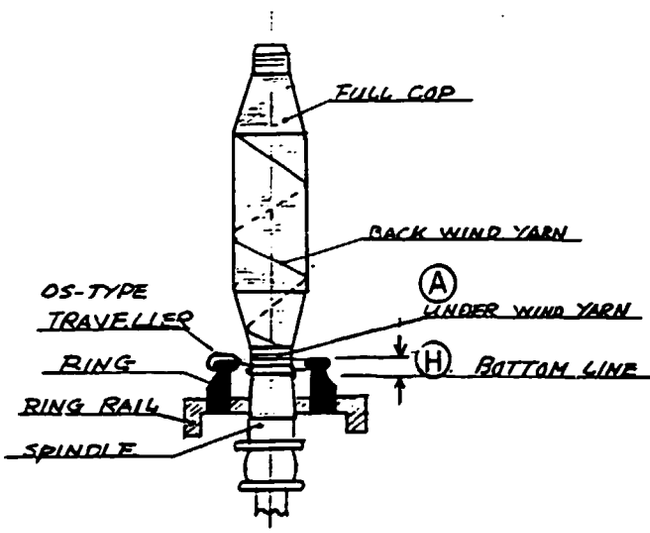


Diagramme 1
Proper position of ring rail descended

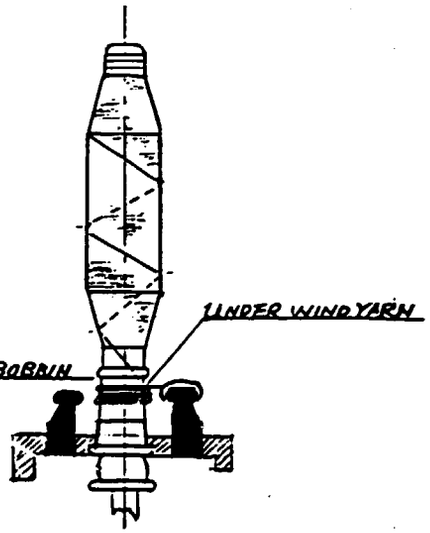
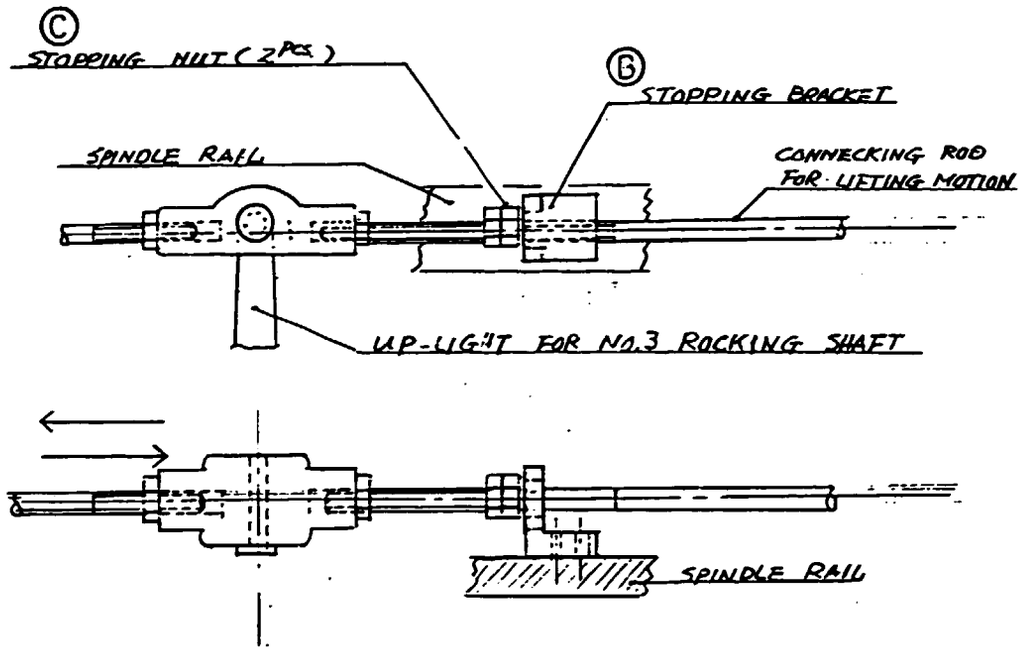


Diagramme 2
Unproper position of ring rail lower than specified position due to lack of a stopper and misconduct of an operative

The lowest position of ring rail is regulated so that the dimension H (distance between the lowest level of bobbin and the lowest yarn position) may be 5 to 7 mm. Standard winding number of under wind yarn A is generally two to three winds.

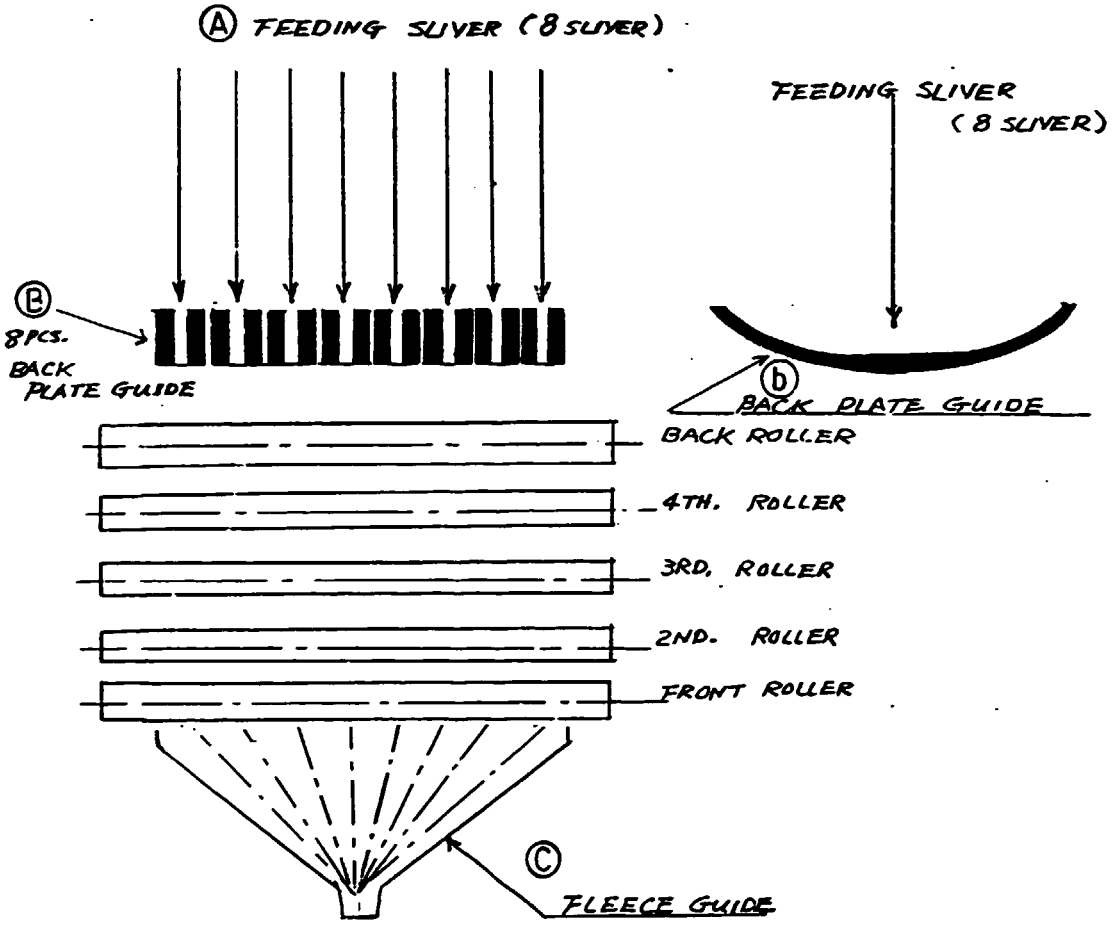
Under wind yarn A is wound on the spindle and remains there even after the doffing.



2) Fitting of traveller cup (Ring spinning frame)
Two traveller cups should be installed in one ring frame. They are to be set in the position one third distant from the out-end and the gear end respectively, and on different sides. Cups set in the out-end at present can be removed.

3) Improvement of back plate guide
- Feeding sliver A (8 slivers) pass through 8 back plate guide B, draft roller zone and fleece guides C. As present spaces between each back plate guide are a little wide, 8 slivers come out of draft zone to fleece guides C , being separated from each other.

- If the back plate guide is modified into the shape like B , each sliver comes out to the fleece guide sticking to each other. If delivery slivers are made into one complete sliver like this, fluffs are reduced and coiling condition is improved.



III SETTING UP OF PREVENTIVE MAINTENANCE SCHEME

1 Machines Object of Setting Up Preventive Maintenance at Viet Thang Factory

All reconditioned machinery including all mechanical and electrical parts and all related auxiliary and control equipment at Viet Thang factory are object of setting up of preventive maintenance.

[Spinning] Blowing, Carding, Drawing, Roving
Ring Spinning, Cone Winding

[Weaving] Beam Warping, Sizing, Pirn Winding
Spooler

It was agreed among factory management, CTA and Supervisor

team that application of new system would be adapted to the reconditioned line but also would be applied to all production line of Mill in the future.

2 Defects of Existing Maintenance Practice at Viet Thang Factory

Maintenance control in Viet Thang factory has been so far of character of breakdown maintenance. Maintenance activities periodically carried out are no more than mere cleaning and lubrication and change of deficient parts is partially being carried out. Therefore, it can be said that preventive maintenance activities required for preventing machine function from deterioration and maintaining it at a standard level within the limit economically permissible, such as check of machine action, gauge setting and adjustment, assessment of wearing degree of machine parts and estimating exchange timing and completion of data necessary for it, are hardly practiced. There is only repetition of dismantling, cleaning and assembling of components carried out by rote, without bearing in mind degrading of product quality. On the other hand there is no variety of maintenance activities and so-called maintenance A only is carried out and maintenance B enabling fulfilment of requirements abovestated of preventive maintenance is seldom put into effect.

Under such circumstance where the existing maintenance practice has been repeated habitually over a long period, the self-awakening of maintenance and production staffs over quality, productivity and economicality has been paralized, corrupting thus effective control system.

It is extremely difficult to stop generation of lots of small defects by means of periodical maintenance A and B only, since there are innumerable delivery units of spinning and weaving machinery to be controlled. To settle this problem, the visual and patrolling check on all delivery units to be carried out daily and incessantly by technicians of overall experience is indispensable. This daily maintenance affords us information enabling forecast future problems of facilities.
At Viet Thang factory (Dong Nam and Thang Loi factories either) such kind of daily maintenance is not being practiced at all, and there is no indication of answer-back of information

relating to quality and productivity in the existing control practice of Viet Thang factory.

3 Establishment of New Maintenance System

To cover faults of the existing maintenance system and to maintain the good condition of machinery achieved by the reconditioning work, preventive maintenance scheme was going to be developped.

3.1 Whole aspect of preventive maintenance scheme

We recommended a system to implement the preventive maintenance, which is described and compiled in a document delivered containing the following:

1) Positioning of preventive maintenance
   Positioning and significance of preventive maintenance among versatile maintenance activities is shown.
2) Organization
   A vertical and horizontal organization coping with efficient implementation of preventive maintenance and organizing and monitoring it is established.
3) Job description of key personnel
   The job and role of key personnel responsible for the implementation of preventive maintenance is explained in accordance with the organization.
4) Technical specification of maintenance activities
   Efficient and practical maintenance activities prevailing in Japan and taking full account of condition and feasibility in Viet Thang factory were arranged by us. Most relevant frequency of each activity is also set up.
5) In accordance with 4), job instruction cards for every task of each section are prepared, which will serve as work order sheet to technicians.
6) Forms and papers used for controlling purpose
   The flow of order giving and feed-answer-back are shown and necessary forms and informations are drawn up.
   i) Check sheet
      - Ordinary maintenance A,B,C,D
      - Daily check/maintenance
      - Lubrication
      - Cleaning
      - Other maintenance activites

ii) Form for function examination and small defects check

iii) Reporting and recording form
- Daily report
- Weekly report
- Machinery record sheet

iv) Control form
- General scheme of preventive maintenance
- Monthly programme (programme board/visual indicator of schedule)

Samples of aforesaid documents are selected and attached as Appendix 3-1.

3.2 Schedule and implemented outcome of the scheme

We have set up maintenance programme and carried out training and guidance of practical skills to erradicate existing defects cited in para 2.

The scheme started to be run by the factory management and staffs under the control of Japanese supervisors in the middle of August when the reconditioning work almost completed, and forms required for the implementation of the scheme were available, and relevant organization to manage the scheme related to the existing organization was about to be created. But, with respect to blowing machinery, ring spinning frame and winder, substancial start of the scheme had to be waited more than one month, due to delay of translation of documents. In addition, our 3 spinning supervisors were absent in September owing to another assignment. Detail of progress of the scheme is shown in the reports already compiled and their copies are attached as Appendix 3-2, and here is also included an appraisal of the factory maintenance staffs and instructor candidates. At the stage of 2 months after the commencement of preventive maintenance scheme, it was under way in good order, being put in total system of the factory. And it had been observed to be effective for maintaining good machinery condition and performance by eliminating faulty or broken parts and by affording an opportunity for staff to ensure consistently accurate machine settings.

3.3 Improvement of maintenance workshop

Existing maintenance workshop were inspected and an improvement plan to enable its best possible condition was put forward by us.

Its copy is attached at the end of this report as Appendix 3-3. The situation of maintenance room of each section was found to be in disorder and their main space was occupied illegally by piles of second hand spare parts. Good order of maintenance workshop is a supporting measure to enable smooth and effective implementation of the preventive maintenance and if the workshop is full of lumbers, it will exert bad influence on maintenance staffs' psychology. Factory management agreed to remove such unnecessary things from maintenance rooms, leaving effective space for maintenance activities.

4 Settlement of Problems for Better Effectiveness of the Scheme

4.1 Factors backing up the preventive maintenance scheme

First of all, it is very important the overall comprehension of whole factory toward the scheme. All factory management personnel, above all production management staffs must be familiar with the significance and requirements of the scheme, because they are liable to stick to the present concern such as production target or work quata linked to salary assessment and are not cooperative sometimes to the schedule laid down. From such viewpoint, an organic communication of maintenance department with production department is essential. Staffs engaged in maintenance activites are needed to possess workmanship and experience above the average. Staffs well trained by Japanese supervisors throughout the reconditioning and preventive maintenance activities should transfer in their turn technical knowledge and skills obtained to other technicians and workers. As shown in the "Technical appraisal of maintenance personnel" (part of appendix 3-2), two or three candidates for the instructor were borne in each section. How to spread and diffuse not only technical software but also self-consciousness of each staff in the whole factory will be a key to realize the stable fixation of preventive maintenance scheme.

4.2 Briefing of technically fundamental requisites for preventive maintenance

1) Check and adjustment about the condition of wear, flaw and precision of machine components where fibres pass (alignment, setting gauges and assembling), and finding and replacement of defective parts are to be programmed in relevant frequency.

2) Each rotating and movement transmitting parts are to be controlled to act without vibration (To do away with not smooth rotation of each bearing and metal, shaft, gear and belt, and shakiness, crook and unbalance of bearings, etc.)

3) Removal and cleaning of fly waste and how to decrease it is to be tried daily and incessantly in the all areas including machinery, floor, ceiling, wall and stock areas of semi-elaborated products.

Preventive maintenance activities should be programmed so as to fulfil the abovementioned conditions by means of relevant frequency, man power and time duration and utilization of appropriate tools and implements. At this time, sence and feeling by eyes, hands, ears and nose must be fully made the most of, in addition to the use of tools.

4.3 Partial modification of existing organization

1) Leaders and sub-leaders who were in charge of this UNIDO project showed a remarkable improvement in their leadership and theoretical and practical capacity and can be assessed as capable of fulfiling assigned responsibilities and managing roll in Viet Thang factory. They should be fixed in maintenance control position of whole factory, besides UNIDO project duties and be made the most of as a nuclear for improvement of maintenance organization and control system.

2) Organization of technical department of Viet Thang factory
Technical department seems to function as follows:

i) To be in charge of planning and control and back up line's work of production and maintenance

ii) To be advisory organ to the management

iii) To be monitoring organ to line's work of production and maintenance

However, its works in charge and scope of responsibilities in relation to those of line's department are not clear and there is not so clear distinction about respective responsibility that smooth implementation of line's work is sometimes hindered. The work of technical department and that of line should not overlap and it will be better that power given to this department do not interfere line's work.

To avoid this inconvenience, and taking into full account assessed ability, experience and capacity to conduct works of actual staffs of technical department, and in order to activate more actual capacity of maintenance and production staffs, we recommend to restrict the the responsibilities of this department to advisory work for factory management. And surplus man power of this department shall be incorporated in maintenance section to strengthen its staffs. This means that the organization of Technical Department is abolished substantially and that production and maintenance line is linked directly to the factory management.

3) Assignment of acting heads
Routine or urgent matters are often observed stangnant due to absence of head for any reason. To avoid such inconvenience, acting heads should be assigned and act for heads with the same competence bestowed.

4) It is indispensable to make closer and more solid an horizontal linking of personnel in charge of production, maintenance and laboratory.

5) It is required to the utmost to make a long term plan of bringing up talents and to make infiltrate thought of self-consciousness about control into every working area.

4.4 Improvement of working morale

When the working climate i observed in Viet Thang factory, employee's indifferent attitudes, for instance indifference to tidiness of their working area, is generally seen. Working attitude ruling the factory is boring and sluggish movement of workers. Working personnel is required to act energetically and habits of smoking and chattering in working area should be done away with. Such climate is doubted to have been created by the absence of leadership of management. Any negligence and irrelevant behavior of workers must be cautioned severely on the spot. Hard management is required. In order to achieve high productivity of the factory, it is urgently required to establish working discipline and morale of workers and the organization development to upgrade the climate of whole factory involving managements, leaders and workers into a body must be intended. For that purpose human relation theory and behavioral science as a part of modern management method

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is suggested to study for setting up most appropriate working climate.

5 Improvement of Maintenance Practice in Thang Loi and Dong Nam Factories

To establish the preventive maintenance system in two factories as well as in Viet Thang was one of the project outputs. However, during the subsequent period of time after the project formulated, the situation regarding spare parts deteriorated and obtainment of machinery manuals in English to enable the maintenance programme became impossible. Under such circumustances, work programme was considered to be revised partially.

At first on June 4th and 5th, on-the-spot investigation to Dong Nam and Thang Loi factories was carried out by Japanese members. On the basis of its findings, a proposal to contemplate work specification to guide improvement of maintenance practice in two factories was drawn up and submitted to CTA and UTE. Its copy is attached as Appendix 3-4.

It was determined officially between UNDP and MOLI that original plan is not excluded but revised. On 17th August, an implementing plan of revised scheme was discussed among UTE, CTA, team leader and general managers of two factories. The scheme started on 10th September at Dong Nam factory lasting 2 weeks at each factory.

5.1 Overall control system of maintenance in 2 factories

1) Maintenance control organization and existing problems

i) Leaders, middle and top management seem to lack understanding toward problems, therefore there is absence of control.

ii) There is no indication of any organized counteraction against raised difficulties. Nor is detected will to act voluntarily to settle or improve revealed problems or defects.

iii) In general, management class is short of decision making and concrete instruction in relation to which trouble has priority to attend to and which trouble should be undertaken to be shot at first, etc.

Even if lots of problems are presented, organized arrangement for settlement of these as whole factory don't take place and each process merely holds its problems and that is all. Therefore, we advise to adopt ABC Control Method in order to select most urgent items and establish an organized trouble shooting and improvement.

iv) Although many faults on productivity and quality are presented, these are not tried to be improved by maintenance action and this is attributable to absence of linkage, feed and answer back of information between production department and maintenance department. Production department is apt to attach importance to productive issues only and overlook necessity of improvement by maintenance.

2) Comment on maintenance practice

The observation of existing maintenance practice in two factories reveals that there is almost nothing but dismantling and cleaning and that repair and exchange of deficient parts, check and adjustment of defective machine setting are not carried out. Furthermore, grinding and surface treatment of top roller are hardly carried out and this fact shows a defect on control of productivity, quality and spinability. Earlier introduction of a roller treatment equipment is expected. We took occasion of visiting two factories to point out actual examples of aforesaid faults and to advise for improvement, trying as much as possible to do technical demonstration.

3) Comment on quality control and work in laboratory

With reference to current situation of these activities, we already referred to in said Proposal, but it can be summerized that data of quality tests done in tow factories are not fully made the most of, without being used for the control of production machine, nor for seeking cause of defective quality. Feed back and answer back to the production department on the basis of full grasp of realities of product quality should be carried out.

5.2 Improvement of maintenance practice at Dong Nam factory

Contents of technical demonstration and guidance carried out and our recommendation are shown in the following.

1) Blowing machinery

i) Shape of lap and insufficient hardness of lap

- Lap pressure was tentatively raised to 5.4kgs from actual 4kgs.
- Cleaning of cage roller parts and correction of defective blow
- Check of piano motion and adjustment of defective rotation of variable speed feeding motor.
- Advice to control always piano motion (electric motion) and lap scale
- CV% of ounce per yard of lap weight of machine No.1 was improved from 4.02% to 1.49%.

ii) Countermeasure for unstable supply of re-usable fibres

- There is no regulation about supply quantity to waste opener and classification by kinds of waste cotton. This fact brings about irregularity of lap weight and of number of neps at carding process.
- We recommend to supply always fixed quantity of re-usable cotton to waste opener and each blending feeder. We carried out a test to clear the influence of re-usable fibre over product quality. In this test, CV% of ounce per yard showed 4.62%, when re-usable fibres were thrown into machine No.1, whilst 2.39% when no re-usable fibres were mixed. We believe that this outcome made well understood that the regulation of re-usable fibre's quantity is a very important factor to affect the product quality.

iii) Thorough guidance of daily cleaning of each part of machinery

iv) Overall explanation about control of lap ounce per yard

v) Advice on maintenance cycle and contents

- Maintenance A 6 months
  (including lubrication excluding specified below)
- Daily maintennace 1 day
  Check on cotton feeding, re-usable fibre supply, action of filling motion, blow to cage roller, lap shape, machine vibration and extraordinary sound

- Daily cleaning — Once per 1 shift
- Lubrication — 1 month

  Ball bearing of high speed rotation and each transmission chain parts

2) Card

i) According to check result of 10 cards, doffer's metallic wire of 9 cards out of ten were found so defective with many scars. Repairing method of damaged wire was instructed to maintenance staffs who were made understood of difference of wire points before and after doing repair and metallic wire grinding, by using microsidescope.

ii) Very poor condition of flat wire
During practical guidance of maintenance A and B, grinding of flat wire by flat grinding machine, investigation and record of needle height and confirmation of needle points through microsidescope before and after the wire grinding, etc were instructed. At this time the difference of needle height was controlled within 10/100mm. It was advised needle height check to be done by dial gauge.

iii) Adjustment of taker-in part gauge and under casing fixing was carried out to make appropriate waste quantity under taker-in roller.

iv) Lap connection is usually done at high speed running of doffer but this causes irregularity of joint part, if lap jointing action loses timing. So, it was instructed to make lap joint when the doffer was rotating at low speed.

v) Training of maintenance A (at 1 card)
Dismantling/cleaning/gauge setting and adjustment/ lubrication of taker-in roller part/cylinder part/ doffer part/coiler part

vi) Training of maintenance B (at 1 card)
Investigation of flat wire height/investigation of eccentricity of cylinder and doffer/Inspection record of MCC and flat wire/adjustment of flat chain tension/ gauge setting and adjustment/lubrication and greasing/ grease change of cylinder shaft bearing

vii) Nep counts were reduced to 35pcs/100 sq.in from 90pcs

by carrying out the above maintenance A and B.

viii) Method to correct damaged tips of cylinder under casing was instructed.

ix) Practical technique to correct damaged MCC was guided and advised to put into practice in daily maintenance.

x) Instruction of care of flat chain

xi) Inspection and adjustment of flat grinding machine, flat clipping machine, taker-in wire mounting machine and flat stripping roller

xii) Advice and explanation of maintenance cycle and contents

- Maintenance A (including lubrication)	3 months
- Maintenance B (including lubrication)	6 months
- General lubrication	2 weeks
- Grinding of cylinder/doffer	3 months
- Grinding of flat at workshop	6 months
- Stripping and cleaning of casing	2 weeks

3) Drawframe

i) The fact that surface treatment of top roller is not practiced has been causing big faults such as scars and hollow of rubber cot, entwining and fluffs of sliver, etc. As is referred to at 5.1 2), we recommend procurement of roller treatment equipment and explained about treatment by sulfuric acid making use of actual equipment.

ii) Defective control of top and bottom clearer was pointed out.

- As rubber pat clearer is used without repairing impairments, its cleaning effect is very low.
- Repairing method of this was demonstrated making use of useless roving apron.
- Adjustment of defective up and down movement of rubber pat clearer was demonstrated.

iii) Load of top roller weighting arm is established unequally. Although second top roller of 27mm dia as standard is already replaced by roller of smaller dia of 23mm, load established for it is not adjusted, causing thus sliver irregularity. It is necessary to replace whole number of 2nd top roller rubber cot. As emergency measure, load adjustment was directed.

iv) The diameter of sliver coil put in can is bit larger, which causes much of sliver fluffs leading to roving faults. Sliver fluff is produced, when sliver is coiled into can and is drawn out of it at roving frame. It was directed to adjust the diameter of coiling to be 5 to 10mm smaller than that of can.

v) Grinding of top roller rubber cot is apt to be belated.

vi) Guidance of procedure of preventive maintenance A of 7 heads and preventive maintenance B of 2 heads

vii) Supply condition of sliver is not good due to being placed in wrong position of feeding can. This causes sliver fluff.

viii) It was observed that delivery sliver overran and protruded from can's edge, immediately after machine starting after doffing and that approximate 200m sliver was not coiled normally and put in coil in complete disorder. When this part of sliver is supplied to next roving frame, it arouses sliver partition and fluff becoming roving defects. To correct the situation, can top plate level is required to be adjusted and controlled to stick to beneath of tube wheel at machine starting after doffing. Piano wire of can spring is short of strength for that purpose and necessary to be replaced by new one. But, how to adjust it was demonstrated.

ix) Advice and explanation of maintenance cycle and procedure

- Maintenance A (including lubrication)	20 days
- Maintenance B (including lubrication)	6 months
- Daily check/maintenance	1 day
- Daily check/cleaning	1 shift

4) Roving frame

i) It was observed that an end of roving wound around the bobbin and fly attached to bobbin rail and flyer, etc. flew about and was involved in spun roving, immediately after machine starting after doffing. This causes much slubs in roving. It was advised and guided to remove utterly fly attached to bobbin rail and flyer after every doffing and to wind tip of roving only 2 cm around the bobbin.

ii) It was guided to adjust and correct defective rotating of top rotating clearer.

iii) Disunity of winding number to flyer presser was pointed out and corrected.

iv) Guidance of correction of flyer vibration, crook and unbalance

v) Much fouling, wear and scars were found on top roller rubber cot and apron. This is due to that surface grinding and treatment of top roller rubber cot and apron is much behind time, despite its remarkable stain, wear and flaw. It was pointed out and advised that much delay of top roller grease up caused its revolution not smooth.

vi) Necessity of daily check/maintenance at every spindle was pointed out and its contents was technically demonstrated.

vii) Guidance of preventive maintenance A of 3 frames and maintenance B of 2 frames

viii) Advice and explanation about maintenance cycle and procedure

- Maintenance A (including lubrication)	1 month
- Maintenance B (including lubrication)	6 months
- Daily check/maintenance	1 day
- lubrication to spindle	1 shift

5) Roller shop

i) Work of surface grinding and treatment of rubber cot is hardly carried out and top roller greasing is fairly delayed, as stated in detail in para of drawframe, roving frame and ring frame. We made fully understood of importance of such work to personnel of roller shop.

ii) Surface treatment by sulfuric acid was demonstrated.

iii) Correction of vibration and grinder dressing was demonstrated.

iv) There were lots of rubber cots not well adhered to drawframe rollers. Irrelevant adhesive should be replaced.

6) Ring spinning frame

i) Life expectancy of bottom apron in this factory is already finished and they are featured with roughness

and scars on the surface. Replacement of total number is required. It was advised to establish renewing plan of aprons and to clean periodically top apron's stains.

ii) Almost all blow cleaners were found paralized due to faults of power source cord which is advised to be repaired or renewed according to pre-arranged plan.

iii) Disunity of top weighing arm pressure applied to front top roller was advised to be corrected. All top weighing arms of one ring frame were checked and it was guided to use top arm setting height gauge to adjust the disunion and to adopt colour mark system of indicating applied pressure.

iv) As cleaning of drafting roller part is not made much of (or cleaning is fairly delayed), it was recommended to get rid of fly by means of cleaning bar and cleaning places were indicated.

v) Many of brake wires for roving bobbin hanger are missing. It is recommended to fit all brake wires in order to unite tension of roving drawn from the creel.

vi) Due to many scars, dislocated setting position and insufficient suction of pneuma nozzle, repairing method of damaged parts was coached.

vii) Both edges of top roller rubber cot are often damaged due to lack of circumferential cutting finishing to both edges. Necessity of this cutting was advised.

viii) Important checking points of machine function such as appropriate quantity of spindle bolster oil, setting position of roving rod, setting alignment of spindle, etc.

ix) Guidance of preventive maintenance A of 1 frame and maintenance B of 1 frame

x) Advice and explanation of maintenance cycle and procedure

- Maintenance A (including lubrication) — 1 month
- Maintenance B (including lubrication) — 6 months
- Daily check/maintenance — 1 day
- Cleaning of roller part — 3 days
- Cleaning of frame and spindle part — 1 day

7) R.T. Winder

i) It was observed that yarn was not caught by slub catcher after yarn piecing or winding start. This means that defects of yarn are not removed by the slub catcher and this is due to that yarn guide and veil of tension device are not correctly set. It was coached to correct setting position of yarn guide and veil and to check and repair slit gauge of slub catcher.

ii) Bad traverse function and yarn fluff was sometimes noted. This was due to damaged yarn path and tension device and replacement of defective yarn guide and veil was pointed out.

iii) Contact of drum with cone package is not released when yarn is broken, because many of yarn breakage stop motion mechanism is not working, thus bringing about disorder of yarn lease of cone and yarn damage. How to adjust and work stop motion was guided.

iv) Defective setting and alignment of peg for cop and yarn guide of tension device, which give rise to not good balooning and yarn breakage at rewinding, was largely noted. Setting position and height of peg and its related position with yarn guide was guided to correct.

v) It was noted that cleaning of yarn path and winding part was not satisfactory. It was suggested to clean once per one doffing and cleaning places to attach importance to were explained.

vi) It was advised to carry out daily check and maintenance per one drum, especially to slub catcher, tension washer and yarn breakage stop motion.

vii) Guidance of preventive maintenance A and B of each 1 frame

viii) Advice and explanation of maintenance cycle and procedure

- Maintenance A (including lubrication)	1 month
- Maintenance B (including lubrication)	6 months
- Daily check/maintenance	1 day
- Machine cleaning	1 doffing

5.3 Improvement of maintenance practice at Thang Loi factory

Contents of technical demonstration, guidance and recommend ation are shown in the following.

1) Blowing machinery

i) Re-usable fibres occupy 15 to 17% in supply quantity of polyester, three times more than normal case. It was advised and demonstrated to minimize defective laps returned and outbreak of sliver waste in carding to drawing process and to pay full attention to raw material input of fixed and uniform quantity.

ii) All lap scales are not in service owing to defective function. This device is indispensable for check and adjustment of lap weight and its earlier restoration is required.

iii) It was pointed out not to delay cleaning of cotton choke in piano motion and cage roller part, which otherwise will deform lap shape.

iv) It was coached to dismantle cotton feeding pipe of polyester line and clean and get rid of oiling agent of polyester fibre attached inside the pipe, doing thus away with cause of cotton choking and clogging inside the pipe. The situation was that no cleaning had been carried out for 4 years since start up of the machine, therefore dismantling and cleaning of this pipe was advised to carry out with frequency of one year, as well as periodical cleaning (at every maintenance A) of cotton feeding path such as feeding hopper, scutcher feed roller, piano motion pedal and cage roller surface, etc.

v) It was advised and guided as measure to minimize CV% of lap weight fluctuation to carry out relevant supply of re-usable cotton, uniform supply quantity of cotton, check of piano motion action, adjustment of pedal gauge and hopper filling motion, appropriate RPM of beater, etc.

vi) It was advised to re-fit lap licking preventor.

vii) It was pointed out delay of cleaning of calender roller part and cage roller part of cotton line.

viii) As the strength of cross shaft for working rack was insufficient, it was suggested to replace it (1-1/2" dia) by a shaft of 2" dia.

ix) Correct handling of full lap change was coached to

prevent lap surface from deformation due to rough handling of operatives.

x) Preventive maintenance A to hopper part was coached.

xi) Advice and explanation of maintenance cycle and procedure

- Maintenance A (including lubrication) — 6 months
- Maintenance of lap scale — 1 month
- Daily check/maintenance — 1 day
  Check of cotton feeding condition, condition of re-usable cotton supply, filling motion working, blow to cage roller, lap form, machine vibration and abnormal sound, etc.
- Daily cleaning — 1 shift
- Lubrication to ball bearing part and transmission chain part — 1 month
- ditto to remaining part — at every maintenance A

2) Card

i) Preventive maintenance A of 1 frame and maintenance B of 2 frames was carried out in order to coach practical technique and procedure (dismantling, check and adjustment) and important notes to take were explained.

ii) According to the investigation of metallic wire of 10 cards, 6 cards were not in good condition due to scars and no grinding practice. Repairing method of damaged MCC and MCC grinding was demonstrated.

iii) According to the investigation of flat wire of 10 cards, all were in defective condition. So, flat wire grinding and adjustment of wire height not uniform was practically directed. Condition of wire point before and after grinding was confirmed by use of microscope.

iv) Adjustment of gauge setting between flat and cylinder was demonstrated.

v) Unsmooth rotation of flat due to oil shortage in flat chain and flat fixing bolt was noted, so it was directed to clean and dip them in oil.

vi) Checking and setting of gauge between doffer and cylinder, cylinder and taker-in roller, dish plate gauge, and gauge of cylinder under casing and taker-in roller under casing was practically guided.

vii) Adjustment of lap selvage guide setting and catch of cylinder under casing was practically coached.

viii) Nep count of 85pcs per 100 sq.in of card No.10 was deducted to 45pcs after doing maintenance B.

ix) Advice and explanation of maintenance cycle and procedure

- Maintenance A (including lubrication)	1.5 month
- Maintenance B (including lubrication)	6 months
- General lubrication	2 weeks
- Grinding of cylinder/doffer	2 months
- Grinding of flat at workshop	6 months
- Stripping and casing cleaning	
cotton line	1 week
polyester line	2 weeks

3) Drawframe

i) Top roller treatment (same as Dong Nam)

ii) Top and bottom clearer (same as Dong Nam)

iii) Top roller weighting arm and 2nd top roller rubber cot (same as Dong Nam)

iv) Coiling diametre in sliver can(same as Dong Nam)

v) Grinding of top roller rubber cot (same as Dong Nam)

vi) Overrun of delivery sliver at coiling start (same as DN)

vii) Irrelevant positioning of card sliver cans at creel part

viii) Preventive maintenance A and B (same as DN)

ix) Advice and explanation of maintenance cycle and procedure

- Maintenance A (including lubrication)	20 days
- Maintenance B (including lubrication)	6 months
- Daily maintenance	1 week
- Daily check/cleaning	1 shift

4) Comber

i) Many of needles of needle cylinder were missing, bringing thus about defective combing action which affects product quality. According to check of needle cylinder, it turned out to be due to imperfect needle soldering. Needle embedding work including correction of defective shape of solering iron and upgrading of soldering quality.

ii) As fouling of bottom detaching rollers was remarkably noted, cleaning by brush and polishing work was guided. It was pointed out cleaning of detaching top roller clearer was too late.

iii) Many scars were found on the trumpet for calender roller. As sliver gets caught in such scars, their correction was demonstrated.

iv) Late cleaning of drafting roller part of draw box was cautioned.

v) Serious defects were not detected in machinery of combing section (Sliver lap machine, ribbon lap machine, and comber).

vi) Advice and explanation of mantenance cycle and procedure

- Maintenance A 20 days
- Daily check 1 day

5) Roving frame

i) Flying about of roving tip and fly (same as Dong Nam)

ii) Defective rotating of top rotating clearer (same as D.N.)

iii) Disunity of winding number to flyer presser (same as D.N.)

iv) Manufacturing of flyer balance correcting tool and balance correcting method was demonstrated to cope with flyer vibration. Further, alignment of spindle was carried out.

v) According to check of drafting roller part, unsmooth rotating of middle top cradle roller due to non-execution of lubrication turned out to be giving rise to outbreak of many slubs on roving. As the greasing up had not been carried out for one year, greasing up to 1 frame was carried out for the time being. In addition, breakage draft set at 1.096 was modified to 1.136 and the outbreak of slub was nearly settled.

vi) Fouling, wear and scars of top roller rubber cot and apron (same as D.N.)

vii) Adjustment of roving tension is carried out by each operative in this factory. This produces difference of roving tension at every frame and every doffing. We suggest the control by maintenance staff to settle disunity of balance.

viii) Breakage of main motor base occured frequently. This was attributed to vibration of cushion starter caused by

slackness and wear of coupling of driving cushion starter. We guided such modification as reinforcement of coupling key for cushion starter and addition of one more rivetting.

ix) Preventive maintenance A of 3 frames and maintenance B of 1 frame

x) Advice and explanation of maintenance cycle and procedure

- Maintenance A (including lubrication)	1 month
- Spindle oiling	1 shift
- Maintenance B (including lubrication)	6 months
- Daily check/maintenance	1 day

6) Roller shop

i) Surface grinding and treatment of top roller rubber cot (same as D.N.)

ii) It was suggested to carry out check, cleaning and assortment of defective apron.

iii) Many of top rollers had so much vibration that correction of vibration was practically taught.

iv) Defective rotation of grinder of rubber cot grinding machine was guided to correct.

7) Ring spinning frame

i) Bottom apron's problem (same as D.N.)

ii) Blow cleaner's problem (same as D.N.)

iii) Pressure and height gauge of top roller weighting arm (same as D.N.)

iv) Scars and dislocated setting position of pneuma nozzle (same as D.N.)

v) Circumferential cutting finishing of both edges of top roller rubber cot (same as D.N.)

vi) Important item about function of machine were explained and guided.

vii) Preventive maintenance A, explanation and demonstration
Preventive maintenance B, explanation and demonstration

viii) Advice and explanation of preventive maintenance cycle and procedure

- Maintenance A (including lubrication)	2 months

- Maintenance B (including lubrication) 6 months
- Daily check/maintenance 1 day
- Machine cleaning for roller part 3 days
- ditto for frame and spindle part 1 day

8) R.T.winder

i) Incorrect setting position of yarn guide related to veil of tension device, incorrect adjustment of slub catcher slit gauge (same as D.N.)

ii) Damaged yarn path and tension device (same as D.N.)

iii) Yarn breakage stop motion was working normally and well maintained.

iv) Defective setting and alignment of peg for cop and yarn guide of tension device (same as D.N.)

v) Vibration of cradle bobbin holder was not detected this time by good maintenance.

vi) We suggest like Dong Nam factory to intensify daily check and maintenance per one drum. Above all, revolving part and drum groove must be carefully checked, because scars on here always cause a problem for rewinding quality of polyester cotton blended yarn.

vii) Maintenance B was carried out on one frame to demonstrate technique and procedure. In this occasion maintenance A was also explained about its procedure.

ix) Suggestion and explanation about maintenance cycle and procedure

- Maintenance A (including lubrication) 1 month
- Maintenance B (including lubrication) 6 months
- Daily check/maintenance 1 day
- Machine cleaning 1 doffing

IV TRAINING PROGRAMME

1 Plan and Implementation of Training

Training programme is devided into training by lecture and on-the-job training. A series of lectures were programmed to be implemented from the end of June till

the beginning of September and a full-time trainer was called from TOYOBO. On the other hand, on-the-job training in Viet Thang Factory was carried out at machine side by TOYOBO supervisors from the end of march till November.

1.1 Training by lectures

Courses of lecture were programmed to cope fully with the term of reference given in the Contract. Courses took place at every other day for 4 hours per one day. Its schedule and contents are as follows:

Jun 29	Technical management seminar (Senior course) 1
Jul 2	Technical course for blowing 1
Jul 4	Technical course for card 1
Jul 6	Technical management seminar (Middle course) 1
Jul 9	Technical course for drawing & roving 1
Jul 11	Technical course for ring spinning 1
Jul 13	Technical management seminar (Senior course) 2
Jul 16	Technical course for winding
Jul 18	Technical course for roller shop
Jul 20	Technical management seminar (Middle course) 2
Jul 23	Technical course for laboratory 1
Jul 25	Technical course for blowing 2
Jul 27	Technical management seminar (Senior course) 3
Jul 30	Technical course for card 2
Aug 1	Technical course for drawing & roving 2
Aug 3	Technical management seminar (Middle course) 3
Aug 8	Technical course for ring spinning 2
Aug 10	Technical course for card 3
Aug 13	Technical course for drawing & roving 3
Aug 15	Technical course for ring spinning 3
Aug 20	Preventive maintenance course for weaving
Aug 22	Technical course for combing 1
Aug 24	Technical course for laboratory 2
Aug 27	Technical management seminar (Middle course) 4 (Statistical quality control)
Aug 29	Technical course for combing 2
Aug 31	Technical course for laboratory 3
Sep 4	Technical management seminar (Senior course) 4 (Free discussion)

Materials for course (in Japanese) were prepared by the instructor and handed to each attendant on all such occasions of sessions. These were translated later into Vietnamese. Detail of training items of each course is listed as Appendix 4-1. The courses were geared to each section of machinery and all maintenance technicians of each section as well as technical and operating staffs concerned attended sessions. Management and technical staffs of other factories also attended the sessions. When the project activities was completed at project area, we left all documents relating to training material for Vietnam side for their reference. It is listed in Appendix 4-4.

1.2 On-the-job training

On-the-job training in Viet Thang factory intends to carry out practical training of fundamental maintenance work throughout the maintenance practice such as replacement and fixing of machine components, checking, dismantling, setting adjustment and alignment, and technical explanation about relevant maintenance procedure and theory, thus completing technical transfer necessary for building up the foundation for setting up the preventive maintenance system. Supervisors of TOYOBO of blowing/carding, drawing/roving, ring spinning/winding, yarn preparation and weaving took charge of OJT and the contents of the training are shown as appendix 4-2.

Accumulative total of man-day from March to October of trainees has become 12,971 man-day. Its detail is found in Appendix 4-3.

1.3 Conclusion and recommendation on training

Training has been fulfiled with success and fructified. Almost all technicians participant in reconditioning and preventive maintenance group have improved their workmanship and leader and sub-leader of each group have attained good advance and are ranked as instructor candidates.

What should be suggested in order to make any training more effective, taking account of actual situation of the Project are:

1) Whether a training is lecture or OJT, trainees should take

more note to avoid forgetfullness later and without relying only on materials given.

2) However excellently a lecture may be prepared and done, what is trained by it will be less helpful to technicians than OJT which is well coped with necessary skills for maintenance job.
3) Skills and knowledge adquired by any training must be transferred to more people.
4) Taking a step forward, family training should be undertaken. (Family training is one of techniques of behavioral science to aim at improvement of climate of working place contributing to establish a good leadership and raise the productivity and all members constituting a workshop are expected to join.)

V STUDY TOUR

1. Summary on the Study Tour

We, C. Itoh & Co., Ltd. and Toyobo Engineering Co., Ltd., had made up and proposed the schedule of the study tour, which was consisted of the study on the machinery and equipment management and maintenance, and the visits to the manufacturers of textile machinery and parts, and operational accessories in accordacne with the objectives of the project. Since the requests from Vietnamese side were taken into account in the proposed schedule and UNIDO Vienna agreed with the schedule, all arrangements were made and the study tour was implemented in accordance with the proposed schedule and contents.

Although the dates of the study tour was originally planned to be from late August, 1983, it was actually between the departure from Vietnam on 24th November, 1983 and arrival in Vietnam on 22nd December, 1983, which means about 3 months delay due to unknown reasons to the contractor.

The proposed plan was made up for the participants of managerial class people in conformity with the purposes of the project. Although the information given beforehand from Vietnam/UNIDO said that the participants would be mostly the Deputy General Managers and Deputy Production Managers of 3 factories concerned, about a half of them were supervisors and maintenance eingineers. Namely they were 3 Deputy General Managers, 4 Production Managers, 1 Manager of UTE, 9 Supervisors or Engineers, and 4 Interpreters.

During the study period in the textile factories, they studied the planning, implementation, personnel, organization, and costs for maintenance and on the actual conditions of machinery as scheduled. In addition, the explanations were given on the factory organization, duties of each position, detailed production processes, production management, and outlines of installed machines upon the request of participants.

To our regret, there were several cases for which it was very difficult and almost impossible to reply to the questions on the limited manufacturing know-hows considered to be secret. As regards these issues, these knowledge and data are considered useless as taken into account the present conditions in Vietnam, since there are no such production processes which can reasonably apply them. In addition, the studies on the utility equipments including boilers, PVA recovering system, etc., and introductions of new technology and new machines were carried out in order to provide some ideas for the future of Vietnamese textile industry. Finally, plenty of time was allocated for the discussion or question/answer for the clarificaion of any doubts and questions of the participants to their satisfaction.

2. Date and Major Contents of Study Tour

Nov. 30 (Wed) - Dec. 7 (Wed) · 21 persons

Place : Toyobo Co., Ltd. Shogawa and Shogawa Dyeing Mills.

Contents :
a) General outline of the integrated mills and study tour of the whole mills.
b) Maintenance, production processes, organization, production management, etc. for the spinning processes for combed cotton yarns Ne 30's, 40's.
c) Maintenance, production processes, organization, production management, PVA recovering system, etc. for the weaving processes for mainly cotton broad clothes.
d) Maintenance, production processes, machinery, standard recipes of dye stuffs and chemicals for bleaching, dyeing and finishing process for cotton and polyester/cotton fabrics.
e) Factory administrative organization, boiler equipments, etc.

Dec. 7 (Wed) : 21 persons

Place : Takagi Manufacturing Co., Ltd.

Contents : Manufacturing processes of injection molded products of plastic of thermoplastic property, and mould manufacturing processes. Some examples of products are ring spinning bobbins, roving bobbins, parts for motorcycles.

Dec. 7 (Wed) : 21 persons

Place : Takagi Seiki Co., Ltd.

Contents : Manufacturing processes of plastic products of thermohardening property. Some examples of products are collectors, silent gears, heatproof ring spinning bobbins.

Dec. 9 (Fri) : 21 persons

Place : Toyobo Engineering Co., Ltd.

Contents : Outline of Toyobo Engineering Co., Ltd.

Dec. 9 (Fri) : 21 persons

Place : Kanai Juyokogyo Co., Ltd.

Contents : Manufacturing processes of rings, travellers, metallic carding clothes and flat carding strip.

Dec. 10 (Sat) : 21 persons

Place : Nippon Wire Heald Manufacturing Co., Ltd.

Contents : Manufacturing processes of steel wire healds.

Dec. 10 (Sat) : 21 persons

Place : MIC Industrial Co., Ltd.

Contents : Manufacturing processes of heald frames of alminium.

Dec. 10 (Sat) : 21 persons

Place : Miyawaki Industrial Co., Ltd.

Contents : Manufacturing processes of shuttles, picking sticks, side levers, etc.

Dec. 12 (Mon) - 13 (Tue) : 16 persons

Place : Toyobo Co., Ltd. Ise Mills.

Contents : a) General outline of the mills and study tour of the whole mills.

b) Maintenance, production processes and organization for the spinning processes for the polyester/cotton blended yarns of Ne 45's and 50's.

c) Maintenance, production processes and organization for the weaving processes for the polyester/cotton blended fabrics.

Dec. 12 (Mon) : 5 persons

Place : Daido-Marta Dyeing Co., Ltd.

Contents : Printing processes for cotton and cotton/polyester blended fabrics by the Roller Printing Machines, Rotary Screen Printing Machines and Flat Screen Printing Machines.

Dec. 13 (Tue) : 5 persons

Place : Kyoto Machinery Co., Ltd.

Contents : Manufacturing processes of dyeing and finishing machines, and the new technology in the dyeing and finishing processes.

Dec. 14 (Wed) : 21 persons

Place : Kureha Rubber Co., Ltd.

Contents : Manufacturing processes of rubber cots, rubber aprons, and rubber strips, and rubber roller treatment.

Dec. 15 (Thu) : 21 persons

Place : Toyobo Co., Ltd. Tomida Mills.

Contents : a) General outline of the mills and study tour of the whole mills.

b) Production processes of the fine cotton yarns of up to Ne 200's.

c) Twisting, dyeing, and winding process for sewing threads.

47

Dec. 16 (Fri) : 21 persons

Place : Toyoda Automatic Loom Works, Ltd.
Kariya Factory and Show Room

Contents : Manufacturing processes of spinning machines, shuttle looms, air-jet looms, lapier looms, and gripper looms.

Dec. 16 (Fri) : 21 persons

Place : Toyoda Automatic Loom Works, Ltd. Obu Factory.

Contents : Manufacturing processes of parts of cast iron for textile machines and automobiles.

3. Outcomes and Utilization

The study tour was duly implemented as described in the previous chapter. Although it was a rather short tour, the participants seem to have recognized the great differences between the state in Vietnam and in Japan not only in the levels of textile industry but also in various cultural aspects. We are strongly hoping that the participants will utilize the experiences and what they learnt during the course of the UNIDO project and improve the way of factory management in the near future. It is also expected that the study tour will give some impacts for the progress and improvement of the textile machinery industry, and various indusries which support the textile indusry.

At any rate, the true outcomes of the study tour are dependent upon the activities of the participants in their country. It is hoped that they will make their efforts for utilizing the fruits of study tour.

The following is the issues which the participants seemed to understand and comprehend:

a) Actual status of the machinery management and preventive maintenance in Japan.
b) Good machinery conditions and operating efficiency as the result of the preventive maintenance scheme.

c) Organization for efficient factory management, production and maintenance.
d) Actual status of factory management and production control in Japan.
e) The necessity of wide industrial bases for supporting the textile industry such as textile machinery manufacturing industry, manufacturing industry for spare parts and operational necessities, etc.
f) New technical information on the new textile machinery.

TERMINAL SECTION

As stated in body section, Project activities in 5 main fields have been thus concluded. This report, in addition to reporting outcome of those, has dealt with various issues to be settled from now on and suggestions related. One may rest assured of that this report will be useful at being read by any personnel concerned of textile mills in the South of Vietnam, among others Viet Thang, Dong Nam and Thang Loi, when they recognize actual situation and make a strategic move for the future.

END

TABLE OF CONTENTS OF APPENDIX

MISCONDUCTED OR MISSING PARTS

Process	Item No.	Parts Name	Catalog No. Specification	Unit Price	Q'ty	Remarks
Blow Room Machinery	S08-45	Doffer complete: RH head	BL62 ED11	54,900	2	One surplus right side plate can be convirted into middle plate. No replacement is made.
	S08-49	Doffer complete: Blade	BL62 D15	72,300	3	These were not supplied. Shipped E/August '84 per KAISEIMARU
	S08-24	Cage roller complete	E116 Assembled with shaft	214,000	4	4 shafts to be assembled were not supplied. Shipped E/August per KAISEIMARU.
Card	S10-10	Ball bearing for fly comb box	1205K+H205	909	10	Adaptors wrongly listed (H205) were already replaced by correct ones (H305) on 20th June '84.
	S10-20	Mote knife	B157	79,000	2	Undercasing provided cannot be fitted to existing mote knives reconstructed by Factory. Therefore, 8 pcs mote knives, slide plates (CEEB 147/151 & 148/152 ea. 10 pcs were snipped E/Oct per FORNUTE NAVITATOR.
	S10-21	Taker-in undercasing	B146A	26,800	10	
	S10-32A	Back sheet (A)	EE40 "EC"-1	60,200	10	Shipped sheets are different from existing sheets and unable to be fitted. Shipped E/Oct per FORTUNE NAVIGATOR.
	S10-32B	Back sheet (B)	EE40 "EC"-2	56,200	10	
Drawframe	S13-04	O-ring (Spare parts for new DF)	TMS-PG-EM-50	80	1	This missing was handed on 20th June.
Roving Frame	S14-56	Double roller chain for spindle driving	RC-RS40x132-A	1,880	20	Wrong parts were replaced on 15th May.
	S14-87	Loose boss roller	FS ED115xKK FC20	2,810	124	Rubber cot is not included inthis item.
	S14-123	Short spindle footstep	FSEE50xT FC15	3,750	248	73 among 248pcs have no cover. 73 pcs of cover shipped E/August KAISEIMARU.
	S15-02	2nd top roller complete with cradle	FSD115VN-2	7,900	192	Missing cradles shipped B/Oct F.Navigator.
	S16-19	Thread lappet	E9SR "15"	370	1,600	This item has been supplied as other items.
	S16-20	Snail wire for thread lappet E98R	REF98-6L "15"	100	3,200	Wrong parts were replaced on 27th June.
	S16-37	Bearing and adaptor	1209K + H209	1,740	20	Wrong adaptors (H209) were replaced by correct ones (HE209) on 15th May '84.
	S16-43	Bearing and adaptor	1309K + H309	2,345	30	Wrong adaptors (H309) were replaced by correct ones (HS309) on 15th May '84.
RT-Winder	S18-03	Veil	012-52390-61	1,240	240	Shipped B/Oct by FORTUNE NAVIGATOR.

1-1 MISCONDUCTED OR MISSING PARTS

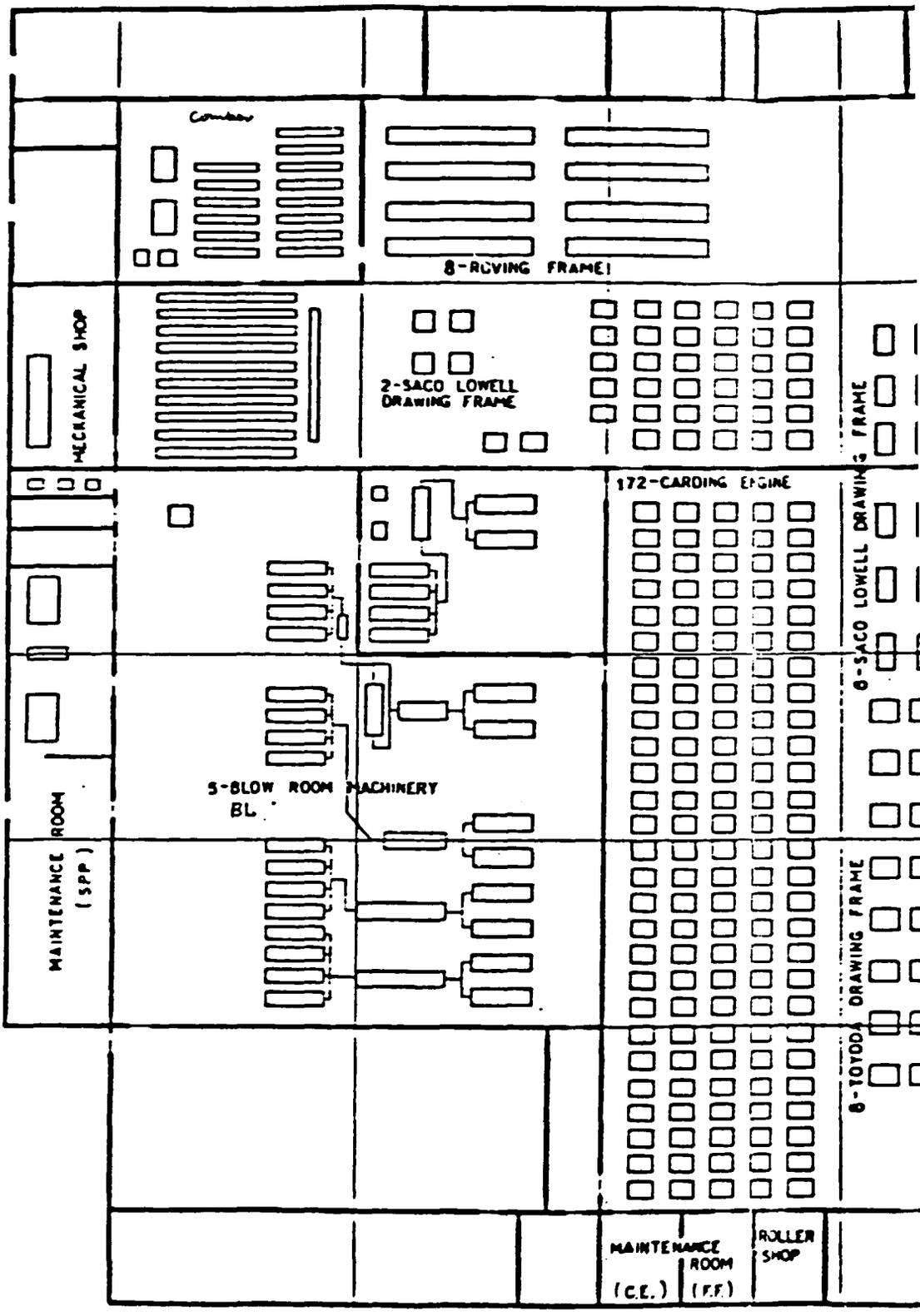
No.

Process	Item No.	Parts Name	Catalogue No./ Specification	Unit Price	Q'ty	Remarks
RT-Winder	S18-04	Yarn guide	012-52330-60X	895	240	-ditto-
	S18-24	Ball BRG for driving shaft	Z31-10111-00 6205	535	150	-ditto- (Correct BRG is 1205K + H205)
	S18-32	Cradle	014-96320-63	4,130	120	-ditto-
Auxiliary Equipment	S20-20	Spare grinding stone	GC 100K WA601 175mm d. x 50W	16,000	1	Dimension is wrong. Already replaced by correct one on late April '84.
Labo's Equipment	LAB-36	Stroboscope		260,000	1	1 transformer 220/100 was supplied by Eastern Vargo.
	LAB-33	Balance scale with digital readout		319,000	1	-ditto-
Printing Machine	F1-5	2-ton pneumatic diaphragm (for printing roll)		576,000	8	Spring only not suitable shipped B/Nov SINCERE ARTEMIS
	F1-7	Diagram of handle operation	PAT/#391232	648,000	2	Gear of 30T only not suitable shipped B/Nov SINCERE ARTEMIS
	F1-17	Flexible tube	15Ax305L (drain)	4,480	24	305mm not suitable. 500mm shipped B/Nov by SINCERE ARTEMIS
	F1-18	-ditto-	20Ax305L (steam)	5,920	24	305mm not suitable. 700mm shipped B/Nov by SINCERE ARTEMIS
Bleaching Range	F3-25	Bearing (washer bottom roll)	Needle BRG (special made) Viet Thang DWG No. 15/MTT	13,200	70	Material should be of stainless steel. 2 BRGs were already fitted. Remaining 68 pcs shipped B/Nov. by SINCERE ARTEMIS
	F3-48	Seal (10 ton mangle BRG)	SC110.3x133.35x11.5	5,365	4	Dimension is not suitable. Correct one shipped B/Nov by SINCERE ARTEMIS.
	F3-49	Seal (5 ton mangle BRG)	-ditto-	5,365	8	-ditto-
Raising Machine	F8-10	Bearing adaptor	H311	720	10	Slightly modified and fitted. No replacement will be made.
Training Equipment		Duplicator	Rex rotary 794	572,500	1	One roller missing shipped B/Nov. by SINCERE ARTEMIS.
Bleaching Range	F3-40	Fittings for rotary joint	Rotary joint Bushing/hose nipple /Hose band Chemiflex hose		3 ea.10 5m	)) Shipped B/Nov. by SINCERE ARTEMIS.)

RECONDITIONED MACHINERY

Section	Standard level	Partial level
Blowing	Toyoda Scutcher Lines 3 & 4	Roving Waste Opener
Carding	Toyoda Cards 43 to 48, 51 to 56, 59 to 64, 67 to 72, 73 to 80.	
Drawing	Toyoda New Frames 9/1 + 9/2, 10/1 + 10/2	
	Toyoda Old Frames 8/1 + 8/2	7/1 + 7/2
Roving	Toyoda FAS 4 - 11	FAS 12
	Toyoda FAB 13 + 14	FAB 15
Ring Spg.	Toyoda Frames 23,25,27,29,31	1,3,5,7,9,11,13,15,
	33,35,37,39,41	17,19,21.
		8,10,12,14,16,18,20,22,24,
		26,28,30,32,34,36,38,40,42.
Cone Wdg.	Murata Frames 4 & 6	5,7,8 & 9.
Spooler	Barber Colman	
Warper		Barber Colman (1 machine) Kanamaru (3 machines)
Sizing	West Point No. 1	West Point No. 2
Pirn Wdg.		Scharer 1,2,3,4,5,6,7,8. (76 spindles)
Weaving	Toyoda Looms 52" 1706 - 1710 2106 - 2110 1806 - 1810 2206 - 2210 1906 - 1910 2306 - 2310 2006 - 2010 2406 - 2410	1711 - 1730 2111 - 2130 1811 - 1830 2211 - 2230 1911 - 1930 2311 - 2330 2011 - 2030 2411 - 2430
Finishing	Morrison Bleaching Range Kyoto Roller Printing Machine King Kong Raising Machine No. 2.	

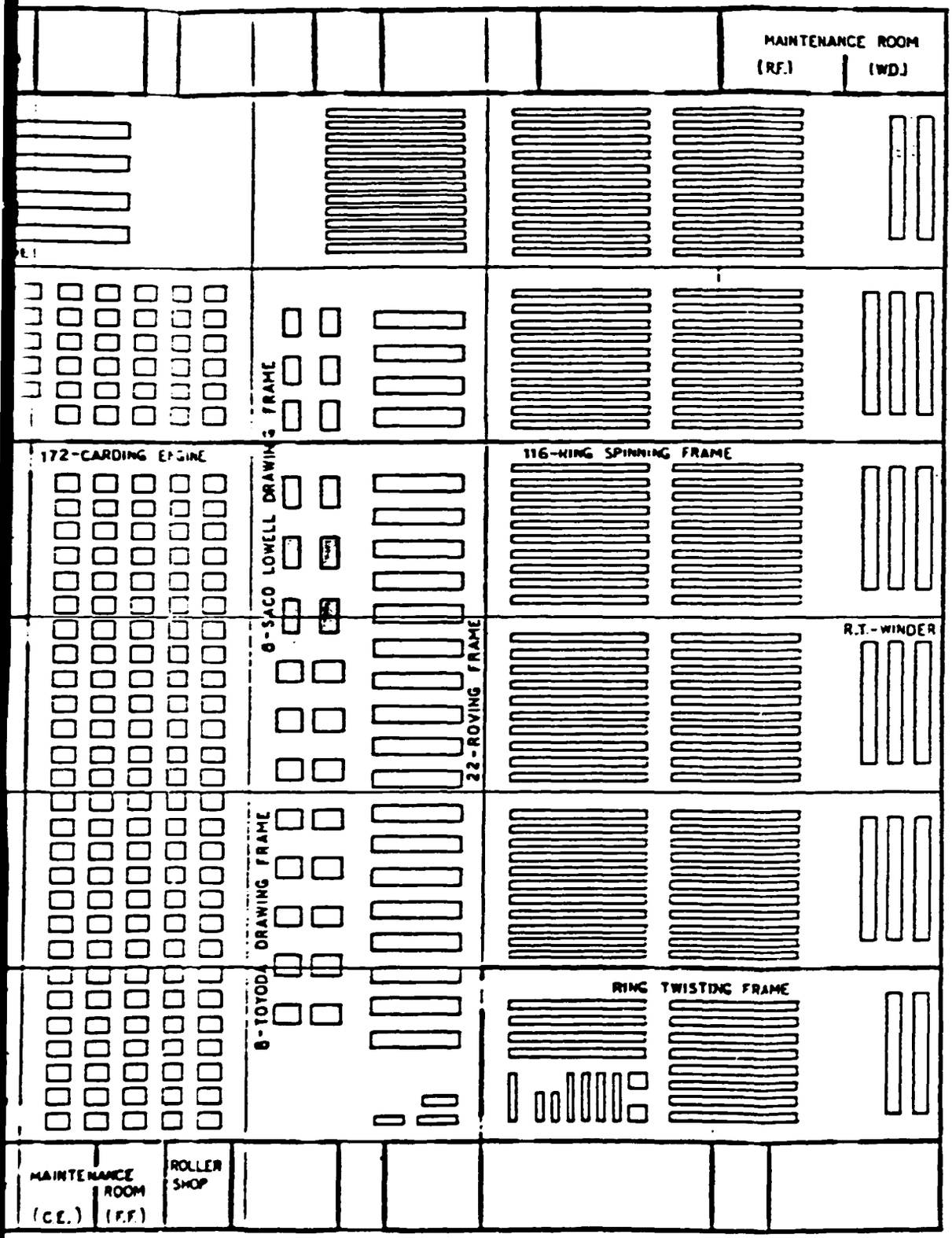
2-2 LAYOUT OF RECONDITIONED MACHINERY



Major Reconditioning

Partial Reconditioning

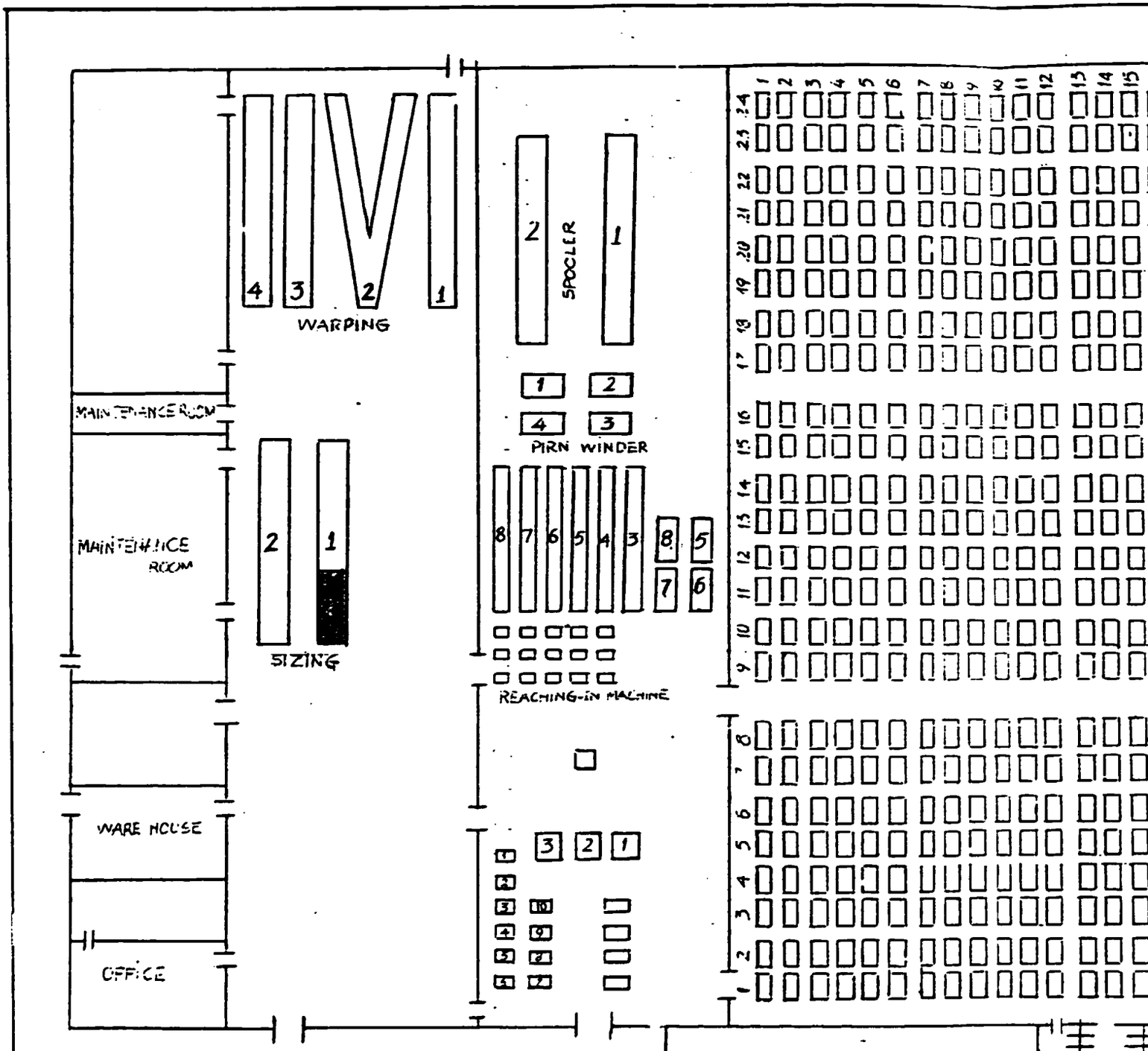
New Setting



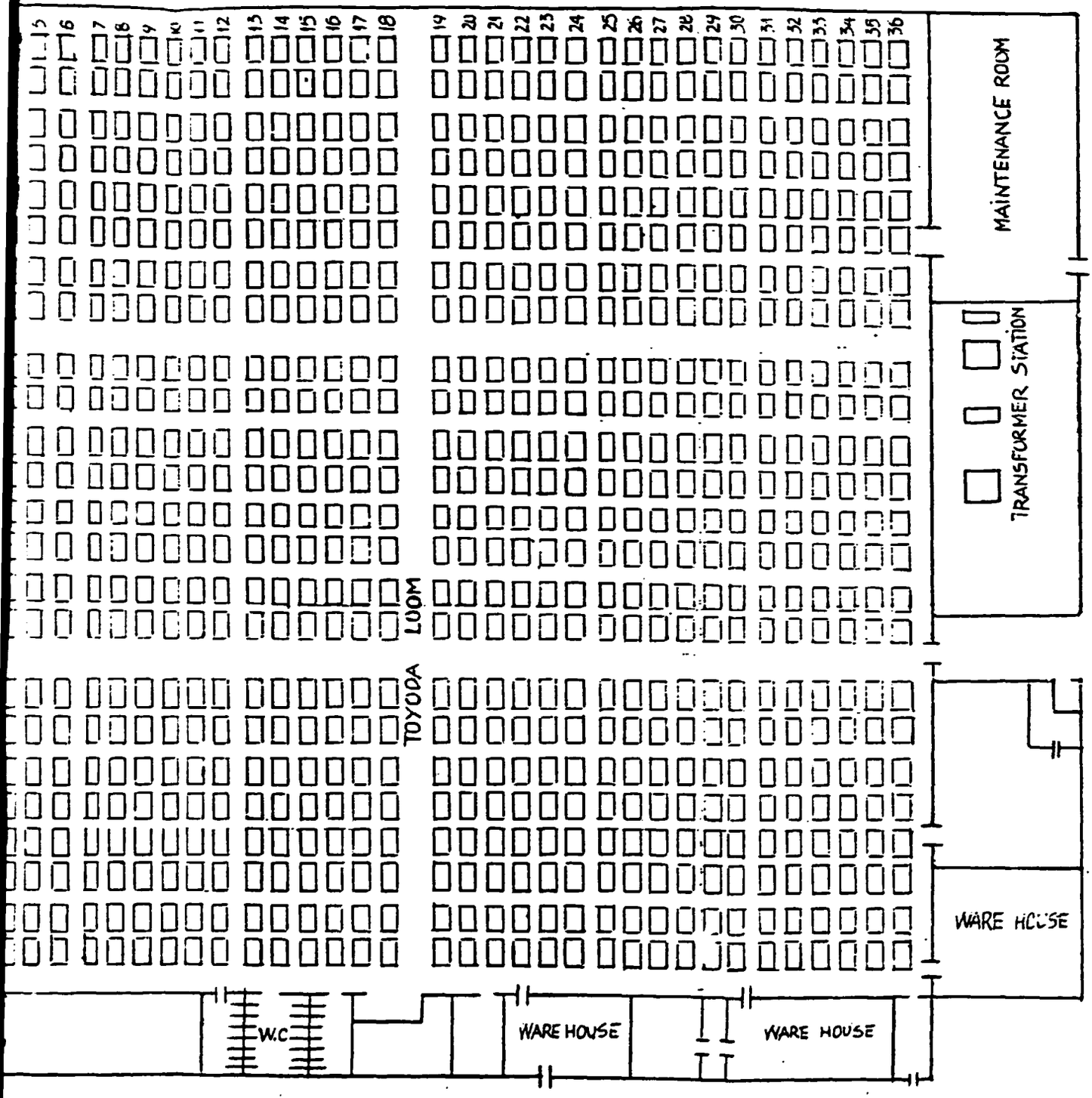
SECTION 2

TITLE	LAYOUT OF FIRST SPINNING SECTION VIET THANG TEXTILE FACTORY	
DRAWN BY	DATE 10 MAR. 1983	SCALE
CHECKED BY	DWG. NO. EX-106	△
APPROVED BY		

TOYOBO TOYOBO ENGINEERING CO.,LTD.

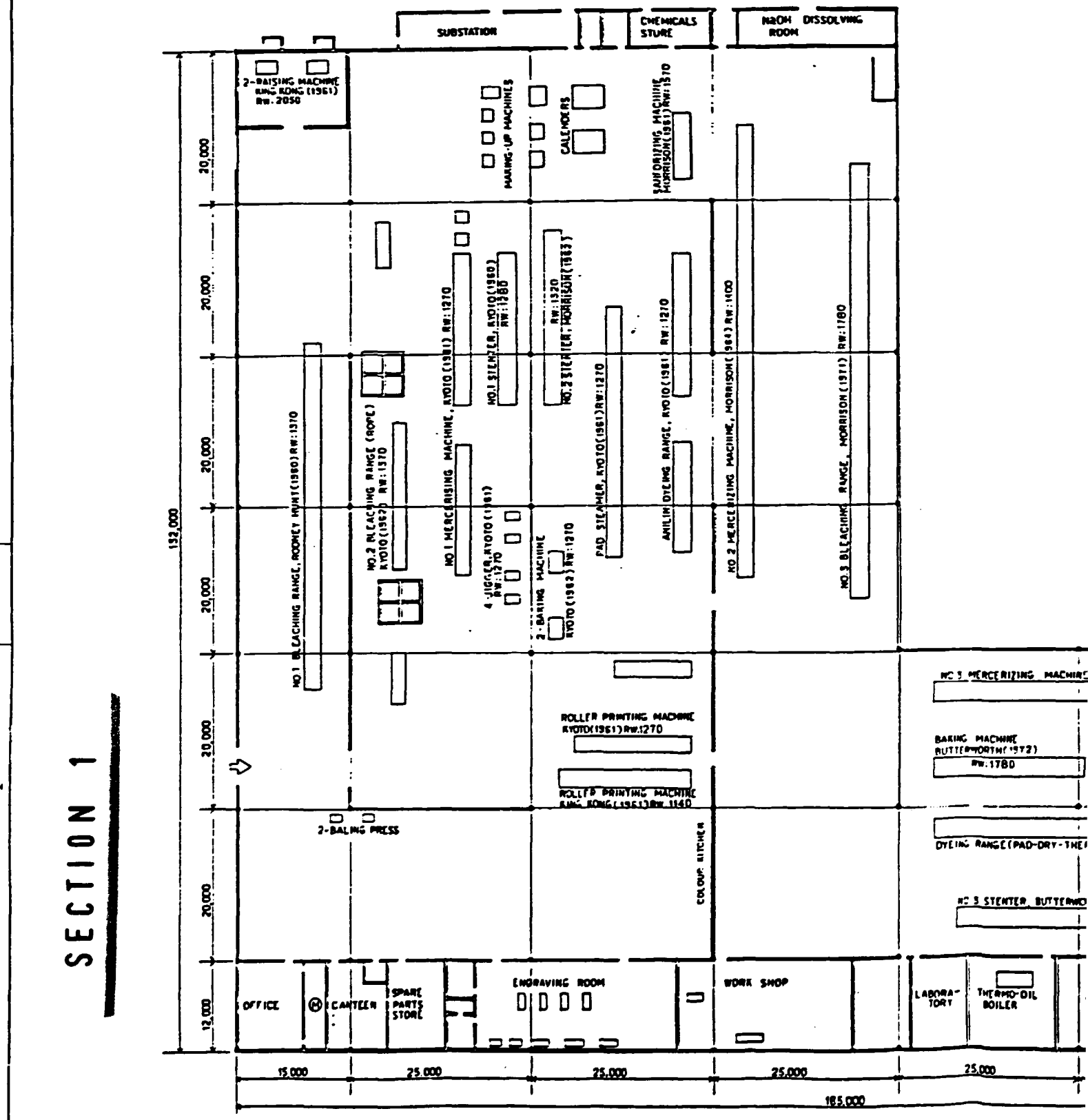

WARPING
4
3
2
1
SPOOLER
2
1
PIRN WINDER
1
2
4
3
MAINTENANCE ROOM
MAINTENANCE ROOM
2
1
SIZING
8 7 6 5 4 3 8 5
7 6
REACHING-IN MACHINE
WARE HOUSE
OFFICE
3 2 1
OFFICE
W.C
Major Reconditioning
Partial Reconditioning
New Setting

SECTION 1



LAYOUT OF FIRST WEAVING SECTION
VIET THANG TEXTILE FACTORY

SECTION 2

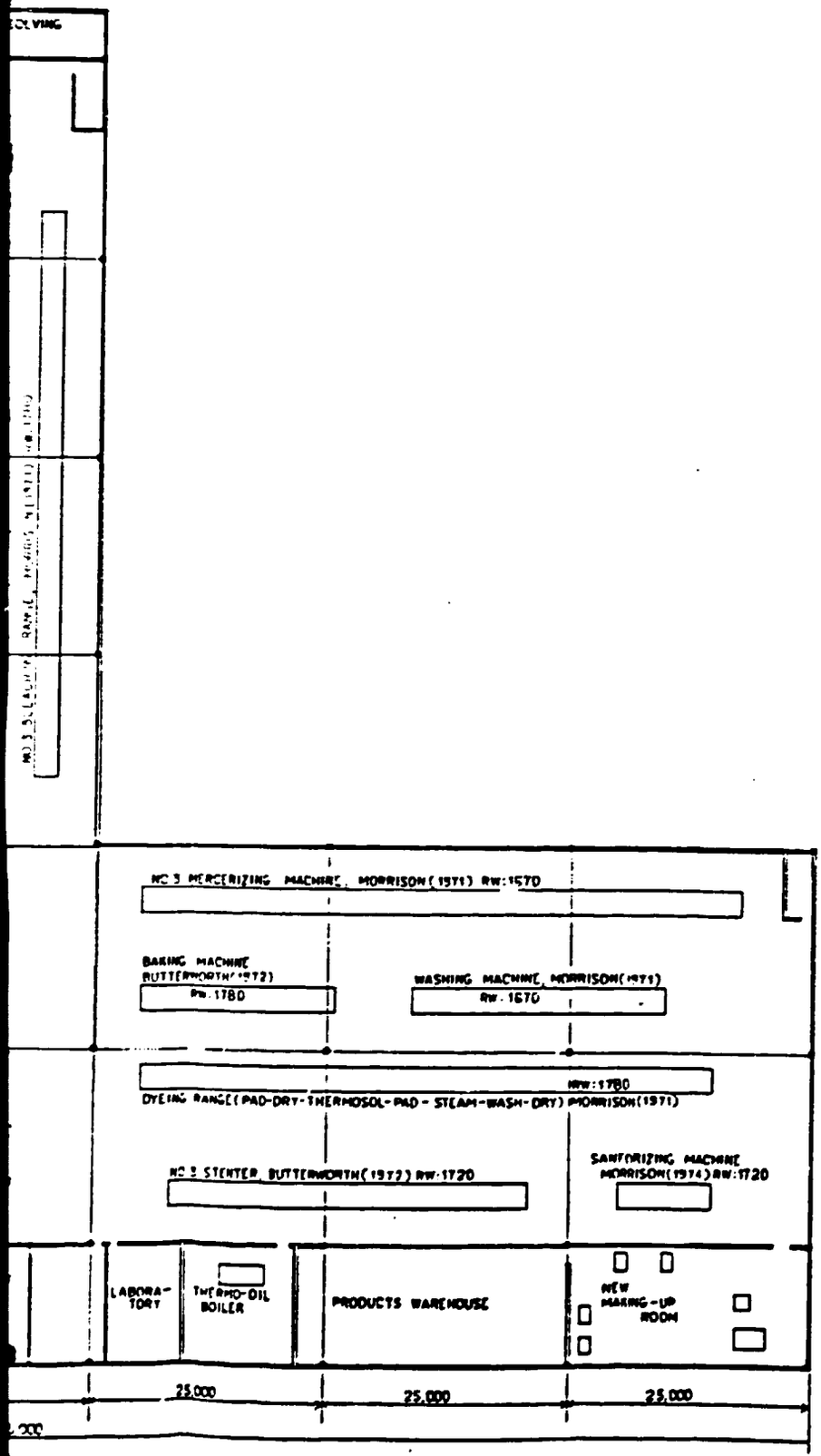


SECTION 1

Ⓜ: MAINTENANCE ROOM for SEWING MACHINE

Major Reconditioning

MARK	DESCRIPTION	DATE	CHECKED
	REVISIONS		



SECTION 2

TITLE LAYOUT OF DYEING AND FINISHING DPT. VIET THANG FACTORY IN HO CHI MINH.

DRAWN | DATE 25 FEB 1984 | SCALE mm

CHECKED | DWG No.

APPROVED | EX-127 UNIDO

TOYOBO ENGINEERING CO., LTD.

RESULTS OF RECONDITIONING WORK SCHEDULE

Blowing Machinery

Date started May 24

Date finished August 31

Card

Frame No.	Date started	Date finished	Frame No.	Date st.	Date fin.
43	May 14	Jun 2	44	May 4	Jul 7
45	Apr 25	May 21	46	Apr 17	May 10
47	Mar 28	Apr 28	48	Mar 28	Apr 28
51	May 21	Jun 2	52	May 7	May 28
53	May 29	Jun 7	54	Jun 4	Jun 13
55	May 29	Jun 19	56	May 23	Jun 7
59	Apr 9	May 3	60	Jun 10	Jun 21
61	Jun 13	Jun 23	62	Jun 20	Jun 29
63	Jun 22	Jul 2	64	Jul 21	Aug 10
67	Jul 6	Jul 16	68	Apr 20	May 1[illegible]
69	Jul 2	Jul 13	70	Jul 2	Jul 11
70	Jun 28	Jul 7	72	Jun 26	Jul 3
73	Jul 6	Jul 14	74	Jul 7	Jul 21
75	May 9	May 21	76	Apr 28	May 17
77	Jul 11	Jul 20	78	Jul 16	Jul 25
79	Jul 17	Jul 27	80	Jul 20	Jul 28

Drawframe

F.No.7	Date started	Jul 25	Date finished	Aug 11
8	"	Jul 2	"	Jul 20

Roving Frame

F.No. 4	Date started	Apr 3	Date finished	May 15
12	"	May 2	"	May 30
13	"	May 17	"	Jun 2
14	"	May 30	"	Jun 13
11	"	Jun 22	"	Jul 5
15	"	Jun 12	"	Jun 21

Ring Spinning Frame

Frame No.	Date started	Date finished	Frame No.	Date st.	Date fin.
23	May 3	May 22	25	Apr 4	May 15
27	May 15	May 29	29	May 23	Jun 4

Frame No.	Date started	Date finished	Frame No.	Date st.	Date fin.
31	May 29	Jun 7	33	Jun 5	Jun 13
35	Jun 8	Jun 21	37	Jun 14	Jun 27
39	Jun 22	Jul 4	41	Jun 28	Jul 9

29 frames of partial level reconditioning
Date started Jul 9 Date finished Aug 7

R.T.Winder

F.No.		Date started		Date finished	
4	R.H	Jul 19		Jul 26	
4	L.H	"	Jul 19	"	Aug 31
6		"	Jun 18	"	Aug 13
5		"	Jul 27	"	Aug 1
7		"	Aug 15	"	Aug 20
8		"	Aug 21	"	Aug 23
9		"	Aug 23	"	Aug 31

Warper

F.No.		Date started		Date finished	
2		Apr 30		May 14	
(Barber Colman)					
1		"	May 15	"	May 18
3		"	May 26	"	May 28
4		"	Jun 1	"	Jun 11
(Kanamaru)					

Sizing Machine

F.No.		Date started		Date finished	
1		May 5		May 31	
2		"	Jul 16	"	Jul 31

Sharer Pirn Winder

F.No.		Date started		Date finished	
1		Jul 6		Jul 11	
2		"	Jun 1	"	Jun 11
3		"	Jun 8	"	Jun 20
4		"	Jul 3	"	Jul 7
5		"	Jun 16	"	Jun 26
6		"	Jun 20	"	Jun 30
7		"	Jun 30	"	Jul 7
8		"	Jun 26	"	Jul 3

Automatic Spooler

F.No.2 Date started Jul 12 Date finished Aug 18

Loom

F.No.	Date started	Date finished	F.No.	Date started	Date finished
17-06	Jul 18	Aug 15	18-06	Jul 18	Aug 11
19-06	Jun 28	Aug 6	20-06	Jun 27	Aug 3
21-06	Jul 2	Aug 3	22-06	Jun 25	Jul 31
23-06	Jun 26	Jul 31	24-06	Jun 23	Jul 31
17-07	Jun 7	Jun 28	18-07	Jun 13	Jun 28
19-07	Jun 14	Jul 3	20-07	Jun 5	Jul 4
21-07	Jun 20	Jul 6	22-07	Jun 21	Jul 6
23-07	Jun 21	Jul 6	24-07	Jun 22	Jul 18
17-08	Jun 8	Jun 28	18-08	Jun 9	Jun 28
19-08	Jun 15	Jul 3	20-08	Jun 5	Jul 4
21-08	Jun 20	Jul 6	22-08	Jun 20	Jul 6
23-08	Jun 21	Jul 7	24-08	Jun 22	Jul 16
17-09	Jun 1	Jun 26	18-09	May 28	Jun 4
19-09	May 25	Jun 4	20-09	May 22	Jun 4
21-09	May 22	May 31	22-09	May 21	May 30
23-09	May 9	May 21	24-09	May 9	May 21
17-10	May 30	Jun 26	18-10	May 29	Jun 14
19-10	May 26	Jun 13	20-10	May 21	Jun 4
21-10	May 21	Jun 1	22-10	May 15	May 30
23-10	May 9	May 21	24-10	May 7	May 21

160 frames of partial level reconditioning

Date started Jul 5 Date finished Aug 25

Printing Machine

Date started Jun 15 Date finished Jul 18

Raising Machine

Date started Jun 15 Date finished Jul 9

Bleaching Range

Date started Jul 9 Date finished Aug 1

2-4 MONTHLY REPORT ON MACHINERY RECONDITIONING
APRIL - AUGUST

PROJECT DP/VIE/80/038

REPORT ON MACHINERY RECONDITIONING

AT VIET THANG FACTORY

AS AT 30 APRIL 1984

From: T.M. Haworth
Chief Technical Adviser 9 May 1984

INTRODUCTION

The work is being carried out by Supervisory Staff from Toyobo Engineering Co. acting as Subcontractor to C. Itoh and Co. Ltd, Tokyo. Japan.

Several members of the staff have already arrived:

February	23	Mr. E. Watanabe	Team Leader
March	22	Mr. S. Murayama	Blowing/Carding
March	22	Mr. M. Murata	Drawing/Roving
March	22	Mr. K. Hirose	Spinning/Winding
April	12	Mr. H. Hayashi	Yarn Preparation
April	12	Mr. M. Hashioka	Weaving
April	19	Mr. K. Tsumori	Assistant Team Leader

The arrival of the Assistant Team Leader was delayed by two months owing to the Government's rejection of the visa application of the candidate first selected by C. Itoh.

In order to establish arrangements for effective communication, the transfer of the information, and the use of suitable work procedures, assistance from interpreters was specified.

Interpreters were assigned as follows:

February	23	Mr. Long	Temporarily on loan from Phong Phu
March	2	Ms. Thu	From Nha Trang
March	9	Mr. Luc	From Nha Trang
March	11	Ms. Hai	From Nha Trang
April	5	Ms. Hai	Returned to Nha Trang
April	20	Ms. Dong Thi Lieu	From Hanoi
April	20	Ms. Ngo Thanh Thuy	From Hanoi
April	20	Ms. Nguyen Thi Nga	From Hanoi
April	20	Ms. Le Thuy Mai	From Hanoi

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At the present time six interpreters are working with the supervisors. Two more supervisors are expected on May 10.

The machines to be reconditioned are those specified in the Memorandum prepared by the CTA ref: TMH 10/83 with the following amendments:

Roving Frames Type FAS
Major reconditioning Nos. 4 and 12
Partial reconditioning No. 11

Roving Frames Type FAB
Major reconditioning Nos. 13 and 14
Partial reconditioning No. 15

ASSESSMENT OF MACHINE CONDITION

Following the arrival of the spinning supervisors on March 22 and the preparation and loom supervisors on April 12 an assessment of actual machine condition was made on a sample basis. This was carried out in the presence of factory maintenance technicians by using prepared forms and assigning points to give an indication of the incidence of defects.

In general it was found that the condition of machinery was poor owing to deficient parts, incorrect settings, and incorrect maintenance practices.

The work of all supervisors was hampered for several weeks owing to insufficient interpreters being present to assist in the factory departments and machine sections.

CARDING SECTION

At the start of the reconditioning work, the following cards were out of production:

Nos. 47 52 59 68 75 76

In general the condition of all cards was characterised by very deficient carding surfaces on the taker-in, cylinder, doffer, and flats. Also some undercasings, fly comb blades, and flat stripping combs were in bad condition. Driving belts of various

types had been made from materials which were unable to give adequate service life thus greatly increasing the attention required from maintenance technicians to simple replacement and adjustment work.

In order to carry out the required reconditioning work 13 technicians were assigned to follow the guidance of the Japanese blowing/carding supervisor. The initial tasks were to put maintenance equipment in order. This involved obtaining a replacement tension device for the taker-in mounting machine, ensuring the satisfactory operation of the flat clipping machine, and replacing the unsatisfactory grinding wheel on the top roller grinding unit with the correct type of grinding stone. The last-mentioned item was supplied free-of-charge by Toyobo.

Machinery reconditioning work consisted of completely stripping down each card to the basic framework supporting the bare cylinder and doffer. After ensuring that the main frame was correctly aligned and centred and the cylinder and doffer were each concentric and balanced, new metallic wire was re-mounted on the cylinder and doffer. New tops were also clipped to the flats and the taker-in was re-covered. After grinding all carding surfaces to ensure a level and satisfactory condition other parts were checked, replaced if necessary and possible, reassembled and set. Toyobo also provided free-of-charge 64 small bearings for use on the driving assembly of the flats.

Reconditioning work on cards was started as follows:

Card No.	Date
48	March 28
47	March 29
59	April 9
46	April 17
68	April 20
45	April 25
70	April 29

The mounting of metallic wire on cylinders and doffers was carried out using the existing factory equipment. During the work of card re-assembling the opportunity was taken of removing an obsolete and incomplete waste collecting unit below the taker-in region. A small slot left in the rear section of the main framework will be covered by a strip of sheet metal.

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Unfortunately no card could be returned to the factory for production purposes as simple parts, such as a belt safety guard, had not been made available.

The coiler unit on all cards was found to be set too low owing to a new flooring surface having been added to the existing floor some years ago. The supervisor demonstrated what adjustments were necessary to correctly position the coiler unit in relation to the front of the card and one card was completed to act as a guide for the factory to carry out the same alteration on other cards.

During the work of reconditioning information was given on the following subjects as part of the training course:

- correcting eccentricity in cylinder and doffer and re-balancing
- frame alignment
- mounting of metallic wire on cylinder and doffer
- re-clothing flats, grinding and checking for wire height
- re-covering taker-in
- aligning and re-setting cylinder bends
- grinding and setting of cylinder and doffer
- all settings and test running
- inspection of web.

ROVING SECTION

Reconditioning work in this section started with Frame No. 4 on March 3. The frame had been idle for a considerable period of time and basically consisted of the main framework, i.e. gearing-end, off-end, spring pieces, roller beam, spindle drive section, and bobbin drive carriage.

Twelve factory technicians were engaged in checking and rebuilding the frame under the control of the Japanese drawing/roving supervisor. The first job was to make a new repair of an old crack in the metal plate of the gearing-end.

Checking and assembling then progressed at a modest rate as the factory gradually supplied missing assemblies and parts, including some gearing, whilst other parts were taken from the first shipment of spares from Japan. During this period poor alignment in the lifter slide was corrected and the building mechanism was taken down and rebuilt.

Some important items, such as fluted rollers, spindles, cone drums, and gears for the differential included in the second shipment were not available until after April 19.

At the end of the period under review the frame was largely rebuilt up to and including the bottom fluted rollers. Other work which had been completed covered the re-assembling of gearing including the main drive gearing, drafting, spindle drive, and bobbin drive; checking, adjusting, and aligning of fluted rollers, cap bars, and top rollers; and the fitting of new spindles and long collars. Flyers were checked, adjusted, and balanced.

Trial running to test the mechanical functioning of the frame is expected to start on May 14.

While the work of reconditioning was taking place the following subjects were covered as part of the training course:

- checking, installing, and adjusting gearing
- correctly adjusting the building mechanism
- alignment of roller stands
- correcting bottom roller eccentricity
- checking, installing, and adjusting the drafting assembly
- setting of cap bars using gauges
- setting up lifter slides, spindles, long collars, and clearers
- checking and adjusting of flyers and pressers.

RING SECTION

Work started on Ring Spinning Frame No. 25 on April 4.

The frame had been badly cannibalized and largely consisted of the two frame ends, spring pieces, roller beam and stands, spindle rails, some sections of tin roller, and creel.

Although the condition of the tin foller was found to be bad no replacement parts were available. Furthermore, the position of the line of the bottom fluted rollers was not parallel to the roller beam and the condition of the broken-end suction unit indicated some deficient parts ought to be replaced for satisfactory operation.

To reduce the risk of fire from fibre accumulations and to improve the level of lighting the power and guide rails from an obsolete overhead cleaning system were removed.

Six factory technicians were engaged in the collection and preparation of many missing parts. They worked under the direction of the Japanese spinning/winding supervisor. Progress was slow largely owing to the delay in finding all the required parts. However, the frame was gradually re-assembled although only a few new parts, such as bottom roller bearing, jockey pulleys, and aprons were available to contribute towards an improved condition.

It had been thought that some unused old rings could be fitted to the frame but the supervisor found that the diameter was less than had been stated by the factory and so they were unsuitable for the spinning of Ne 20s.

The main items of work carried out were:

- dismantling, checking, re-assembling, and aligning of tin roller
- dismantling, checking, re-assembling, and adjusting all gearing
- adjustment and alignment of spindle rails and lappets
- fitting new bearing and correcting the eccentricity of the bottom fluted rollers
- setting all rollers and roving bobbin positions.

It was found that the thread guides to be attached to the lappets were of the wrong hand and the Toyobo Team Leader arranged for the correct replacement to be supplied.

BARBER COLMAN WARPER

This machine was found to have the following defects:

- the thread guide roller badly grooved
- poor operation of the thread guide roller brake
- incorrect operation of the clutch presser lever
- poor brake action of reset motor and driving drum
- predetermined length counter does not function correctly
- drops wires improperly cleaned
- badly positioned cheese bars
- inoperative creel fans
- insecure cone/cheese holders

The warper was dismantled starting on April 28 and corrective action organised including the use of some parts from the factory stock pending the opening of the damaged case of Barber Colman parts from the second shipment in the presence of VINACONTROL for the purpose of carrying out an insurance survey.

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PROJECT DP/VIE/80/038

REPORT ON MACHINERY RECONDITIONING
AT VIET THANG FACTORY

AS AT 31 MAY 1984

INTRODUCTION

The work was carried out by TOYOBO's supervisor staffs stated in the former report plus the following staffs from textile machine manufacturers in Japan who have arrived at this month.

May 10th	Mr. E. Iwai	Erection supervisor of drawing frame
May 10th	Mr. H. Kawamata	Erection supervisor of headstock

The arrival of the above 2 supervisors was as scheduled and the installation work of 4 new drawing frames of TOYODA and a new headstock of BABA has been taken up, in addition to the reconditioning work of existing equipments.

Following interpreters were assigned to 2 supervisors.

May 11th	Ms. Dinh Thi Hong Anh	From MOLI
May 11th	Ms. Le Thuy Mai	Already arrived in April

CARDING SECTION

On this month the following cards were undertaken for the reconditioning.

Card No.	Date
44	May 4
75	May 9
52	May 7
43	May 14
51	May 21
56	May 23
53	May 29
55	May 29

The condition of the above cards can be characterised by very deficient carding surfaces on the taker-in, cylinder, doffer and flats and bad condition of such parts as undercasings, fly comb, stripping combs, etc. as it was stated in the former report on April.

16 technicians already assigned for the reconditioning work kept on working and in order to carry out the reconditioning new metallic wire mounting equipment of shipment was used for the first time, in addition to the existing factory equipment. The supervisor demonstrated and trained the reconditioning technicians how to use it, since the new equipment was different from the existing one in several mechanism. Necessary tools for changing cylinder shaft were arranged for manufacturing in workshop and added to the line-up of tools required for the card reconditioning work.

The contents of machinery reconditioning work carried out this month is almost same as what was carried out on last month, but this time the cylinder shaft of No.52 card was withdrawn and replaced by new cylinder shaft. Also, cylinder casings of No. 45 and 76 were renewed.

This month the following cards were completed in reconditioning and some of them were returned to factory control.

	Date started	Date completed	Date returned to Factory
No.48	March 28	April 28	May 14
47	March 28	April 28	May 14
59	April 9	May 3	May 14
46	April 17	May 10	May 14
68	April 20	May 10	May 14
45	April 25	May 21	May 21
76	April 28	May 17	
75	May 9	May 21	May 21
52	May 7	May 28	

During the work of reconditioning, information was given on the subjects stated in Annex 1 as part of the training course.

BLOW ROOM MACHINERY SECTION

Reconditioning work in this section started with Frame No.3, BL-62 and BL-20 scutcher on 24th May. The opportunity of stoppage of this scutcher due to mechanical defect was taken of to carry out the reconditioning. Rollers and their surrounding areas on the way to lap forming part from the calender part were found to be considerable deteriorated and damaged on surface. Breakage of neck part of a fluted roller and many spots of cage rollers was also noted.

The reconditioning work was started by 6 technicians assigned for it to follow the guidance of the Japanese blowing/carding supervisor.

Surface grinding was done to scars of calender roller and broken neck of fluted roller was repaired and reinstalled. Side frames of auto lap feeder was replaced by new frames. Damaged cage roller and pin beater blades were also replaced. Piano motion part was corrected in gauge setting, adjusted and rebuilt up.

During the work information referred to in the Annex 1 was given by the supervisor as part of the training course.

ROVING SECTION

During this month the progress of reconditioning was as follow:

Frame No.	Date started	Date completed	Date returned
FAS 4	April 3	May 15	May 18
FAS 12	May 2	May 30	May 31
FAB 13	May 17		
FAB 14	May 30		

Frames No.12, 13 and 14 were running when the reconditioning work was undertaken. However, their mechanism and function were largely fatigued and worn out. Abrasion of long collar and footstep was notable and extent of flyer unbalance and botton roller eccentricity was considerable. The number of clearers for top and bottom rollers was seriously scarce and gearing condition of main gears was found poor.

Spindles, long collars, bobbin wheels and cone drums were replaced by new ones and correct alignment and centering was carried out. Footsteps worn out were also replaced. Furthermore, clearer cloth for bottom and top roller was reclothed. Correct balance was set for flyers and poor alignment in the lifter slide was corrected and the building mechanism was taken down and rebuilt. Main gearings were dismantled, correctly adjusted and reassembled.

Trial running to test the renewed mechanical function of reconditioned frames No.4 and 12 was successfully completed and returned to the factory control.

The above work was carried out by 13 technicians under direction of drawing/roving supervisor. While the work of reconditioning on-the-job training took place as part of the training course.

RING SECTION

Subsequent to ring frame No.25, Nos.23, 27, 29 and 31 were started during May, being taken care of by 13 technicians assigned under the guidance of ring spinning/winding Japanese supervisor.

Such frames were on operation prior to the start of reconditioning but the condition of tin roller and spindles was found to be bad. No replacement parts were available for the last mentioned item and pneumafil equipment which was found as a whole to be fairly deficient. For example, the connecting joint of pneuma duct was dislocated. The flutes were bended and blocked in the holes. Gum sockets and fitting metals of pneuma nozzle were defective.

Bottom roller nylon metal, jockey pulley, top apron and separator were replaced to contribute towards an improved condition. Other works which had been completed covered the mending of eccentric bottom roller, correct setting of spindle gauge and alignment and centering of snail wire, lappet and spindle rail. Tin rollers were dismantled and rebuilt and deficient bearings were replaced.

Slow pitched progress hitherto has been improved this month and frames No.25 and 23 were completed and handed over to the factory and No.27 was almost completed. Whilst the work of reconditioning was taking place subjects specified in attached Annex 1 as part of the training course.

WARPER SECTION

The reconditioning of Barber Colman warper No.2 was commenced on the end of April and handed over to the factory on 14th May. The damaged case of this parts from the second shipment was opened in the presence of VINACONTROL for insurance survey and fortunately no serious damage to any parts was detected.

Some important items such as clutch and brake cylinder were dismantled and rebuilt after being repaired and adjusted. The brake part for thread roller and reset motor was also repaired. Other work which had been completed covered the replacement of clutch plate as well as checking and repairing of drop wire, tension bar and cheeze peg spring.

As to two Kanamaru warpers, the dismantling, repair and adjusting of clutch, drum brake and brake cylinder, etc. were carried out. Furthermore, the drop wire were checked and corrected. The frames No.1 was completed on 18th May and No.3 on 28th May.

SIZING SECTION

The machine was found to have the following defects:

-Teflon coating condition of drying cyl-nder was bad and marked roughness was noted on the surface.

-Steam leak was noted from cylinder steam pipe.

-The stiffening and rough surface of the squeezing rollers gave rise to insufficient squeezing and high speed running was impeded.

- The bracket metals of the immersion roller were worn out.

-The beam tension was uneven.

The main items of work carried out were:

-Dismantiling of drying cylinder and teflon sheet covering
-Greasing up of bearings of drying cylinder and repair of steam pipes
-Repair of top and lower squeezing rollers including packing replacement
-Repair of immersion rollers, guide rollers, creel metals and creel stands
-12 warpers beam (Barber Colman) were assembled.

The reconditioning work for preparatory for weaving was carried out by 13 technicians under guidance of Japanese preparatory supervisor.

LOOM SECTION

The work of weaving supervisors was hampered for several weeks owing to absence of interpreters and the major reconditioning work for 40 looms badly cannibalized was started on 7th May at a modest progress rate owing to the considerable delay in collecting all required parts to be locally supplied amounting to 840 items. Fifteen looms were taken up for reconditioning, among which seven were completed and 4 looms were returned to the factory control for production on this month.

The main items of work carried out were:

-Alignment and adjustment of shafts
-Setting and adjustment of letting off motion
-Setting and adjustment of warp tension motion
-Setting and adjustment of taking up motion
-Setting and adjustment of warp stopping motion
-Setting and adjustment of beating up motion
-Setting and adjustment of shedding motion
-Setting and adjustment of weft stop motion
-Setting and adjustment of shuttle box motion
-Setting and adjustment of brake and driving motion
-Setting and adjustment of picking motion

In the reconditioning of looms 3[illegible] technicians were assigned to follow the guidance of weaving supervisor.

TOYODA DRAWING FRAMES

The installation of 4 new drawing frames started on 11th May under the guidance of the erection supervisor. The erection and necessary adjustment and setting of new machines were completed on 26th May. Necessary instruction was given in writing and orally to the factory side by the Contractor in order to avoid any damage caused by improper operation contrary to it or negligence or lack of proper maintenance.

Upon completion of installation, the performance test was programmed to be carried out on the basis of assessment standards prepared by CTA and the team leader and the first load running test was carried out on 29th May and the second test was planned as on 1st June both in the presence of CTA and team leader. The check on mechanical function of the machine was also carried out and ten slivers of 6 yards in consecutive length were collected with a view to test the variation of weight and U% and CV% together with its spectrograph and sent to Thang Loi Factory's testing laboratory.

After handing the machines to the factory, the training of operative and technicians by the supervisor was programmed to be carried out in May and June and this was planned to include video filming of essential steps of operation and maintenance demonstrated by the supervisor.

SIZING HEADSTOCK

The installation of new headstock got under way on 11th May under the guidance of erection supervisor from Japan. Installation and necessary adjustment and setting were completed on 28th May. Mechanical check and performance test was carried out on 30th May in the presence of the CTA and the team leader of Project. Five warpers beams from Barber Colman Warper were prepared for the test under the specification of:

Yarn count; Ne20
389 ends x 4 beams + 383 ends x 1 beam, Total 1,944ends
Beam length : 26,000 yds

The bump and trembling of related part caused by uneven covering of flannel cloth on the press roller of beaming part was pointed out by CTA and the situation was corrected by recovering cloth in different way. Standing ready to operation, the headstock was handed to the factory on 31st May. Training of operatives and technicians by the supervisor was planned including video filming of essential steps of operation and maintenance.

PROJECT DP/VIE/80/038
REPORT ON MACHINERY RECONDITIONING
AT VIET THANG FACTORY
AS AT 30 JUNE 1984

INTRODUCTION

The work was carried out under supervision of TOYOBO's staffs. On this month the following staffs from textile manufacturers have left for Japan after completing installation, performance test and training for personnel of newly installed machines.

June 7 Mr. E. Iwai Erection supervisor of drawframe
June 7 Mr. H. Kawamata Erection supervisor of beaming head

The following supervisors have arrived on this month.

June 14 Mr. M. Shinagawa Bleaching and raising
June 14 Mr. K. Nishikawa Printing
June 14 Mr. N. Fujimoto Printing

The arrival of above 3 supervisors was advanced from Factory's request and the installation parts supplied to the Dyeing and Finishing has been taken up.

BLOW ROOM SECTION

Reconditioning work of No.3 scutcher (BL-62, BL-20 and Fan condenser) has been completed. Main works carried out were replacement, alignment and necessary adjustment of ALD, cage roller, lap scale and grid bar and cone drum of BL-62 and bottom lattice, spiked lattice, feed roller stand and doffer leather sheet of BL-20. Deteriorated 2 blade beater was re-assembled after being repaird at workshop. Furthermore, every feeling motion and piano motion mechanism, hopper doffer, air cylinder, etc. were overhauled, checked and adjusted for remounting. Electric wiring being done and lap weight being adjusted, the scutcher was proceeded for test run on 21st June. Dismantling of 2 blending feeders started from 25th June and new spiked lattice was fit.

Progress ratio of reconditioning work in this section as of end of this month is to be assessed as 25%. 6 Technicians already assigned plus two have worked under the supervision of the Japanese blowing/carding supervisor.

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During the work information was given by the said supervisor as part of the training course (This will be reported separately)

CARDING SECTIN

This month the following cards were undertaken for the recond itioning and completed.

Card No.	Date started	Date completed
43	(May 14)	June 2
51	(May 21)	June 2
53	(May 29)	June 7
54	June 4	June 13
55	(May 29)	June 19
56	(May 23)	June 7
60	June 10	June 21
61	June 13	June 23
62	June 20	June 29
63	June 22	
71	June 28	
72	June 26	

Up to the end of this month 22 cards were kicked off among which 18 were completed and 2 nearly completed. The progress ratio assessed by us is 61%.

14 Technicians under the supervision of Japanese blowing/card supervisor carried out the reconditioning work in which information was given concerning subjects in this section as part of the training course.

TOYODA NEW DRAWFRAMES

Upon completion of installation of 4 new drawframes on last month, performance test plan was designed and carried out several times by CTA and Japanese team leader to ascertain satisfactory running condition of new equipments. Peaks appearing at regular intervals on Uster spectrograph concerning sliver evenness turned out to simply mean sliver's being oppressed by cans spring pressure and not due to sliver's own problem.

Training to familiarize maintenance and operational techniques of new machine was carried out by the erection supervisor. Important procedure was demonstrated by him and was filmed for recording purpose.

ROVING SECTION

During this month the remaining two frames to be partially reconditioned were set about, as the following:

Frame No.	Date started	Date completed
13	(May 17)	June 2
14	(May 30)	June 13
15	June 12	June 21
11	June 22	

Frames to be restored were equally equipped with spindle collars markedly worn out and the top rails vibration due to wrongly balanced flyers was remarkable. Defective spindle collars were corrected by fitting bushings and correct balance was applied to every flyer. Lots of spindles non-operating owing to broken aprons and lack of top rollers, etc. were improved. Crooked roller covers were mended.

The reconditioning owrk has bee· taken care of by 14 technicians assigned under supervisory control of drawing/roving supervisor. Whilst the rehabilitation was taking place on-the -job training as part of the training course.

Assessed rate of progress for this section was figured out as 94% as of the end of this month.

FINE SPINNING SECTION

The remaining 5 frames for major reconditioning got under way this month whilst 5 frames were finished as stated below.

Frame No.	Date started	Date completed
29	(May 23)	June 4
31	(May 29)	June 7
33	June 5	June 13
35	June 8	June 21
37	June 14	June 27
39	June 22	
41	June 28	

Frames to be restored were in general pretty well done for in relation to gauge of antinode rings and spindles, horizontal alignment of lappets, alignment of snail wires and eccentricity of tin rollers near gear end side, etc. In addition to due

mending and adjustment made in these respects, lappets were replaced by new ones in frame No. 37 and 39 and snail wires No.35, 37 and 39 were totally renewed this month as well. Twist carrier metals were repaired. V belting method for motor and driving pulley has been unified for four belts from motor side to be replaced in order. On No.23 and 29 frames in which motor flanges are broken off, the four belts are to be placed on grooves from the second groove.

The reconditioning has been carried out by 13 technicians under the guidance of ring spinning/winder sufpervisor. Partial reconditioning work for 28 frames has not started yet but the progress ratio as of this month can be assessed as 46% for all that, because major reconditioning achieved already 91%. While the work of restoration on-the-job training took place.

WINDING SECTION

Reconditioning work in this section is to cover 1.5 frames by major reconditioning (No.6 and ½ of No.4) which have been at a standstill for long time and 4.5 frames by partial reconditioning. The work virtually started on 11th June from requesting to forward necessary tools and equipments and parts to be assembled. It was revealed by investigation that 25 items of required parts were not available at outset, becoming thus drag for accelerating the work pitch.

Frame No.6 was undertaken this month. Eccentricity of drum shaft were corrected and it was instructed by the supervisor to make shortfalling brackets for tension device reconstructing from spare peg brackets by means of electric welding. Stop motion mechanism was disassembled and cleaned.

4 Technicians were assigned for the work under supervision of spinning/winding supervisor. Contents of training carried out on the spot are set forth separately.

WARPER SECTION

As to this section the final KANAMARU warper frame No.4 was completed on 11th June, 100% of progress having been attained. The mechanism of drop wire was checked and duly corrected and clutch part was overhauled and adjusted.

PIRN WINDING SECTION

The reconditioning of SCHARER pirn winder was commenced on 1st June and the completion of 4 frames among 8 was recorded up to the end of this month. Progress ratio is assessed as 56%.

8 machines, objective of rehabilitation, were found to be fairly done for, for instance:

- The bobbin feeder mechanism was not working and chain driving the carriage was done away with.
- Driving shafts and threader heads of winding unit were in deficient condition and working unsatisfactorily.
- Stop motion was not functioning well, etc.

The work has been carried out by the group of 10 technicians assigned under supervisory control of Japanese yarn preparatory supervisor. The carriage and bobbin hopper mechanismo were thoroughly overhauled for necessary repair and adjustment and hopper chain was replaced by new one. The winding unit was taken care of as well and defective driving shafts and threader heads were replaced.

LOOM SECTION

Major reconditioning of 20 looms was initiated this month (cumulative 35 looms) and 13 looms were finished (cumulative 20). Progress achieved is assessed as 47%, allowing for not undertaken 160 looms to be partially reconditioned.

Frame No.	Date started	Date comleted
21-10	(May 21)	June 1
20-10	(May 21)	June 4
20-09	(May 22)	June 4
19-09	(May 25)	June 4
18-09	(May 28)	June 9

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19-10	(May 26)	June 13
18-10	(May 29)	June 14
17-10	(May 30)	June 26
17-09	June 1	June 26
17-07	June 7	June 28
17-08	June 8	June 28
18-08	June 9	June 28
18-07	June 13	June 28
20-07	June 5	
20-08	June 5	
19-07	June 14	
19-08	June 15	
21-07	June 20	
21-08	June 20	
22-08	June 20	
22-07	June 21	
23-07	June 21	
23-08	June 21	
24-07	June 22	
24-08	June 22	
24-06	June 23	
23-06	June 25	
22-06	June 26	

Major items of work contents are:

- Adjustment of taking up motion abd its alignment
- Adjustment and alignment of letting off motion and fitting of wheel box
- Setting and alignment of shuttle box and stop motion
- Adjustment of height of temple slide
- Alignment of lathe sword, tappet shaft stay and swing rail shaft, etc.

PRINTING MACHINE

The reconditioning work was commenced by collecting parts to be installed on 15th June by a group of 8 technicians assigned under supervision of Japanese 2 printing supervisors. What to do first of all was to replace presser bowl and squeezing roller damaged on recent accident by factory's stocked spares.

The pressure applying device for printing rollers were dismantled and necessary repair and adjustment was made to fit new parts for pneumatic lording mode.

8 Cylinders of second tower (drying) were dismantled and replaced by teflon coated cylinder and stailess steel cylinders.

RAISING MACHINE

8 Technicians were assigned to carry out the work under control of a Japanese finishing and dyeing supervisor. The work was started on 18th June from dismantiling wire fillet rollers in order to rewind new wire fillets. Defective bearings and V-belts were renewed as well. Up to the end of this month replacement of 17 wire fillets and fillet grinding were completed and one metal stripper and 4 rubber strippers were rewound.

- END -

PROJECT DP/VIE/80/038

REPORT ON MACHINERY RECONDITIONING

AT VIET THANG FACTORY

AS AT 31 JULY 1984

INTRODUCTION

The reconditioning work was carried on under supervision of TOYOBO's staffs. This month following supervisors left the Factory after completing their assigned duties.

July 5 Mr. K. Nishikawa Printing supervisor

July 19 Mr. N. Fujimoto Printing supervisor

Following japanese-vietnamese interpreters left the Factory.

July 31 Ms. Le Thuy Mai

July 31 Ms. Ngo Thi Dau

To this report are annexed "Record of on-the-job training" on July and "Table of delivery speed, revolution and 100% production of reconditioned machinery".

BLOW ROOM MACHINERY

Reconditioning work of 4 sets of blending feeder, Frame A,B,C,D (BL-11,12) was completed this month. New spiked lattice supplied were fixed and bottom lattices were dismantled and fitted again after relevant repair and adjustment and its belt was replaced by new one. Leather beater and cylinder grid bars were over hauled and re-fitted. No.4 Scutcher was stopped on 26th July for the reconditioning and the kirschner beater was taken care of, being renewed its pin blade and 2 ~~blender~~ blade feeders casing by imported parts. By-pass duct and broken bottom calender roller shaft in No.3 scutcher were duly repaired and re-fitted. As for No.12 opener (BL-31), leather beater was mended and air filter was overhauled. New belt shifter imported was built in the mechanism.

In the meantime, some wooden spiked inclined lattices in hopper of blending feeder were broken due to excessive compression by fed cotton stuffed into the hopper, so observation of operation procedure to keep fed quantity inside the hopper being one third of the hopper space was cautioned to production department. This accident is also owing to non-functioning of warning lamp equipped, then to restore such lamps was recommended to the factory management by CTA and supervisors team leader.

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Such are main activities taking place in this section and progress ratio of reconditioning work as at end of this month is assessed to be 48%, since another line of scutcher-hopper feeder-condenser is remaining for completion as well as superior cleaner and openers. 8 Technicians assigned for the job have been working, but for some time many of members left the job to aid other works, thus making delay the recondi tioning. Therefore Factory management was requested to secure man power and two shifts working was proposed as well by CTA to accelerate dismantling work. On-the-job training was done by the supervisor with reference to subjects and technical skills stated in attached record.

CARDING SECTION

This month the following cards got under way and finished off.

Card No.	Date started	Date finished
63	(June 22)	July 2
72	(June 26)	July 3
44	(May 4)	July 7
71	(June 28)	July 7
70	July 2	July 11
69	July 2	July 13
73	July 6	July 14
67	July 6	July 17
77	July 11	July 20
74	July 7	July 21
78	July 16	July 25
79	July 17	July 27
80	July 20	July 28
64	July 21	

It can be stated from the above that up to the end of July all 32 cards were started and 31 were completed. Thus, progress ratio attained up to now is 97%.

The recondition work during this month makes little difference from what were carried out so far, namely being composed of metallic wire mounting to doffer and cylinder, overhaul and grinding of doffer, overhaul of flat wire, wire clothing to taker in, etc.

A device to put compression on sliver passing through the calender roller with a view to make finer the sliver in order to increase sliver's unit quantity in a cans was considered to be desirable and a reducing type aluminium trumpet was tested and proved to be effective.

14 technicians assigned for the work have been maintained this month and blow room/card supervisor gave information mentioned in attached record as part of the training course.

DRAWING SECTION

Reconditioning work for 2 sets of Toyoda drawframes was started on 2nd July. 2 heads of No.8 frame were dismantled and each part was checked, adjusted, repaired, replaced and assembled again to the frame. Important components such as calender roller, D.H roller, gear and gear bracket, top and bottom clearer, bottom armens clearer, sliver breakage stop motion were replaced by newly imported parts. No.8 frame was finished off on 21st July and handed to the Factory after successful completion of test run. Second No.7 frame got under way on 25th this month. Progress ratio is assessed as 50%.

Regarding newly erected drawframes, oil leakage from 8 gear boxes was reported and detailed investigation clarified that this ensued from breakage of coil spring clipping the oil seal. Broken springs were repaired for the time being until these are duly replaced. After executed this remedy, oil leak was observed to have stopped. The ditch between cans rotating base and the floor was filled up by wooden plate. Remaining part of ditch surrounding the frame was advised to fill up also, because even if done so, exhaust air from main driving part is not hindered.

14 technicians assigned for drawing/roving frames carried out the reconditioning work under the control of drawing/roving supervisor. During the work information was given on the subjects stated separately as part of training course.

ROVING SECTION

On 5th July the last frame No.11 FAB had the recondition completed and was returned to the Factory, thus progress ratio reaching 100%.

FINE SPINNING SECTION

Remaining two frames for thorough reconditioning were finished off on early July and reconditioning for 28 frames got under way on 9th July. Progress ratio achieved up to July can be assessed as 80%. Man power assigned for this work was reinforced by the Factory taking advice of CTA and team leader to enable the schedule on punctuality and 21 technicians devided into 3 groups under supervisory control of ring/winding supervisor put forward the partial recondition of 28 frames and completed 16 frames.

No.39 and 41 frames were thoroughly taken care of and thread lappets, snail wires and nylon bearings for fluted rollers were totally renewed. Tin rollers were dismantled, aligned, adjusted and supplied oil. Alignment of lappet, spindle rail and antinode ring and correct gauge setting of roller, ring rail, trumpet and spindle was carried out. Eccentric rollers were mended.

Items carried out as partial recondition are:

Overhaul of drafting roller part/Cleaning and check of bottom roller metal/Check and correction of eccentric bottom roller/Correction of alignment and gauge setting of lappet, spindle, antinode ring and snail wire/Grease supply to tin roller and spindle/ Replacement of nylon bearings and defective rollers, etc.

Meanwhile, snail wires and thread lappets were fitted this month to frames No.23,25,29,31,35,37,39 and 41. Whilst the rehabilitation on-the-job training took place as described separately.

WINDING SECTION

During this month the work pitch was accelerated and right hand side of No.4 frame and left hand side of No.5 frame were concluded. As for stopped frame No.6 to be reconditioned on a large scale, also took place various activities. New stop motion and tension apparatus were put together and aligned. Brackets were devised and welded to tension apparatus. New cradles partially reconstructed were fixed to the holder and alignment is being carried out. All drums on right side were replaced by new one and drum shafts at LH and RH were fitted and aligned and its bearings were renewed. Alignment of pegs was carried out by use of newly devised alignment gauge and bobbin holders are now being fitted. Existing reduction gear was repaired and installed. Spring contact pins are being manufactured. As regards recondition of operating frames, drum shafts and its ball bearings were dismantled and cleaned and drums were aligned. Stop motion and tension device were overhauled and re-fitted. Cradles were ditached from the holder for repair and cradle holder's ball bearings were replaced by brand-new.

Technicians were reinforced to 7 this month. Assessed ratio of progress for this month is 27%.

SIZING SECTION

On 16th of this month partial recondition of No.2 sizing machine began with dismantling size box, repair of squeezing rollers and overhaul of PIV. Drying cylinders were taken care of and teflon made sheet was sticked to the surface of 4 cylinders. Beaming head was also adjusted. This machine was carried through on 31st July, achieving 100% of progress.

Teflon sheet applied on cylinders has come to have inner blisters or small rise scattered on the surface after the machine comes into operation and cylinders are repeatedly heated and cooled, in spite of plastering work carried out carefully and in strict accordance with the written instruction of sheet supplier under the supervisory control of weaving preparatory supervisor. This phenomenon could have been foreseen when it is taken into account that said cylinders have been working

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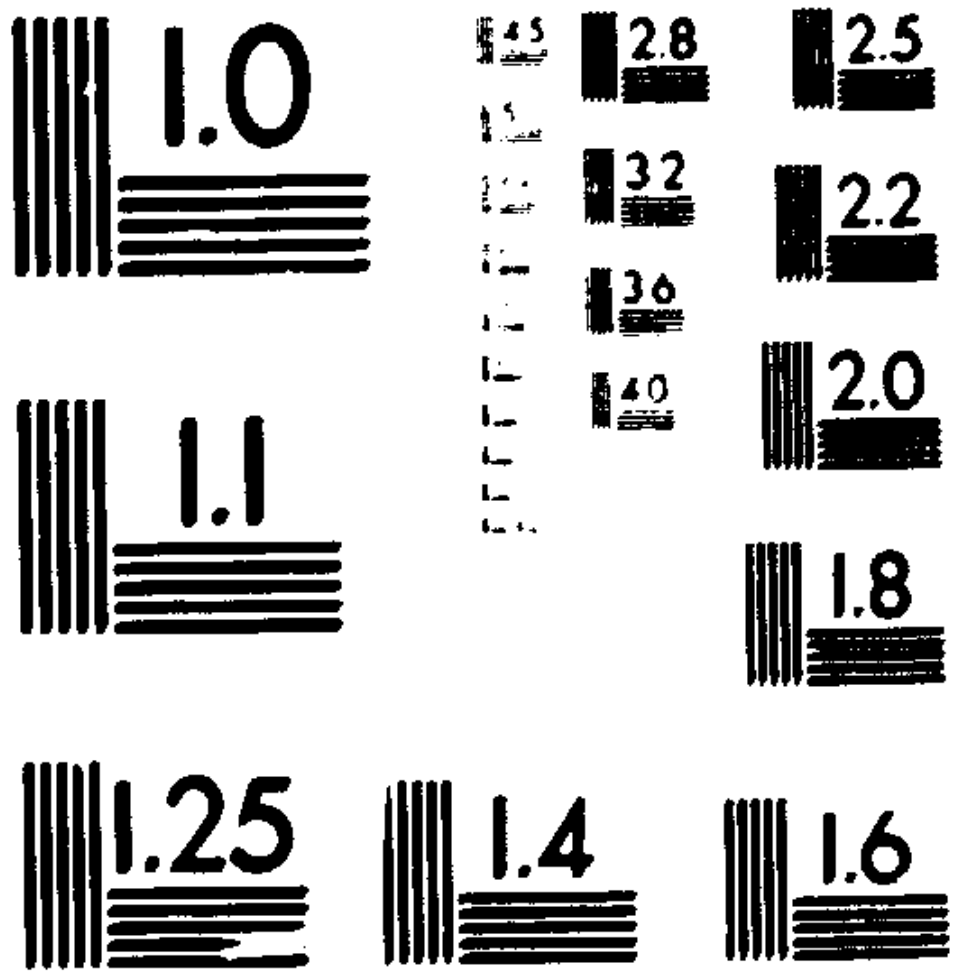

for more than 20 years and its life came to an end definitely (because innumerable hollows, holes and flaws almost invisible on the cylinder surface produced for very long time on service of cylinder cannot be removed simply, causing thus blisters inside sheet applied afterwards) and teflon sheet plastering is a substitute for replacement by new cylinder teflon coated. Such bubbles can easily be remedies by applying pinhole or notch to remove air inside, though flaws remain on surface and adhesive power of sheet weakens if this is repeated. All the same this side effect of teflon sheet can affect very little the performance of sizing machine.

It was cleared that breakage of toothed timing belt for measuring roller is not only due to use of unsuitable material but to unrelevant running condition created at lubrication and cleaning. Countermeasure in this respect was shown by CTA and Team Leader to Factory side and incorrect handling of filter for main motor was also pointed out.

The work has been carried out by 11 technicians assigned under supervision of yarn preparatory supervisor.

PIRN WINDING SECTION

During this month remaining 4 frames out of 8 were accomplished and the progress recorded 100%.

Frame No.	Date started	Date completed
8	(June 26)	July 3
7	(June 30)	July 7
4	July 3	July 7
1	July 6	July 11

Overhaul, replacement and adjustment of assemblies of unit and hopper chain was carried out by 13 technicians (3 exclusive for pirn winder) under guidance of weaving preparatory supervisor who gave information set forth in attached sheet to technicians in relation to part of training.

10 pcs each of driving shaft and wind wheel for each frame and 100 threader heads of unit mechanism were replaced by newly supplied items. Hopper chain lifter and chain guide complete of hopper were also renewed. In addition, chain and tension pulley

etc. for hopper were manufactured locally to fit to pirn winder.

SPOOLER SECTION

Reconditioning work for automatic spooler was commenced on 12th July. No.2 automatic spooler of Spinning 2 was found to be pretty done for and paralized. Almost all cheese cores were in shaky condition due to wear of parts. 216 cheese cores were renewed by imported one. Drums were checked and defective 8 drums were replaced. 40 spindle brackets built in the machine proved to be broken and imported 10 items superseded defective items and remaings were replaced by diverted items of Weaving 1. Many thread clamps were in wrong condition with springs and fingers worn out and broken. These were replaced by brought in and stocked parts as well as repaired by welding and adjusted. Six new elevator chains and ten new snick plates were fitted. The balance of 206 snick plates were dismantled and regulated. Various components of travelling unit were replaced by newly supplied items. What were renewed were knotter, down take arm, down take segment, roll brake lifting plow, cheese restoring plow, trolley truck and small end finder roll, etc.

The work was put forward by 10 technicians (including 2 leaders of Spinning 2) under guidance of weaving preparatory supervisor and progress ratio attained for this month can be assessed as 40%.

LOOM SECTION

Major reconditioning of final 3 looms was initiated this month (cumulative 40 looms) and 15 looms were completed this month (cumulative 35 looms).

Loom No.	Date started	Date completed
19-07	(June 14)	July 3
19-08	(June 15)	July 3
20-07	(June 5)	July 4
20-08	(June 5)	July 4
21-08	(June 20)	July 6
21-07	(June 20)	July 6

22-07	(June 21)	July 6
23-07	(June 21)	July 6
22-08	(June 20)	July 7
23-08	(June 21)	July 7
24-08	(June 22)	July 16
24-07	(June 22)	July 18
24-06	(June 23)	July 31
22-06	(June 25)	July 31
23-06	(June 26)	July 31
20-06	(June 27)	
19-06	(June 28)	
21-06	July 2	
17-06	July 18	
18-06	July 18	

In the meantime partial reconditioning of 160 looms was started on 4th July and 46 looms were completed winthin this month. Progress ratio of July of major reconditioning is assessed as 88% whilst that of partial reconditioning is 29%. Main items to be carried out as partial reconditioning are:

- Overhaul of shuttle box HS and MS
- Inspection and correction of reed and wood fly back angle
- Fitting of bend slider
- Adjustment of duck bill and stop finger
- Inspection and adjustment of taking up motion
- Fitting of check bottom bracket, check guide and spring
- Replacement of defective ring temple
- Inspection of weft fork

Reconditioning work was carried out by 26 technicians under guidance of loom supervisor. Contents of information given as part of training are set forth in attached record.

PRINTING MACHINE

In continuation of last month, pneumatic loading mode to pressure applying mechanism was taken care of and colour box set was remodeled being fitted doctor blade and spring locally prepared. Rubber strippers for draw roll of plaiter and plain belt for cone pulley were replaced by imported ones. After being checked and adjusted various items such as joining condition of printing rollers and mandrel, speed balance of

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printing part with cylinders, engagement of cone pulley belt with gearing, condition of colour box, etc., etc., trial run was started from 13th July without printing at first, then 3 colours and 4 colours printing was tried, adjusting colour matching and doctor. With successful result the machine was handed to Factory on 18th July. The work was carried out by 10 technicians assigned for the printing machine under supervision of printing engineers.

RAISING MACHINE

This month adjustment, check and repair was further done to the machine which was handed to Factory after test running on early July.

BLEACHING RANGE

10 technicians attended to the range under the instruction of raising/bleaching supervisor and the reconditioning work got under way on 9th July from checking of the range and preparatory works. Defective condition of the range was featured by insufficient cleaning care. Deterioration of rubber roll, deficient expander, corrosion of inner roll bearings and J-box frame and breakdown of cylinder dryer proved to have become worse than 2 years back. Prior to stop of running on 16th July, new parts were brought into the spot and assembly and adjustment of such parts was made.

Three 5 ton rubber mangles newly imported were fitted to desize saturator, NaOH saturator and H2O2 saturator respectively. 17 expander rollers were set up and its installed angle was adjusted. 4 sets of cloth guider with bridge and compressed air piping set were installed as well. Replacement of 2 bottom rollers in washing bath of desize saturator, 4 in NaOH saturator and 4 in H2O2 saturator was respectively carried out and bearings for such rollers were checked and defective ones were replaced by new steel and stainless steel bearings. Upper guide rollers of H2O2 saturator were also replaced by locally available one. As for the steamer, new 15 guide roller bearings were fitted in addition to 4 new window glasses. New thermometers were

fitted to steamer, NaOH saturator,NaOH J-box and H2O2 J-box respectively. Pillow blocks of brushing roller and rubber stripper of plaiting device were replaced. Existing window glasses were replaced by newly supplied ones for NaOH and H2O2 J-box.

As abovementioned, the reconditioning work for the bleaching range was carried out in accordance with the contract and proposal and was completed this month. Trial running was commenced on 31st July.

- END -

Prepared by K. Tsumori, A.T.L.

PROJECT DP/VIE/80/038

REPORT ON MACHINERY RECONDITIONING

AT VIET THANG FACTORY

AS AT 31 AUGUST 1984

INTRODUCTION

The reconditioning work was entirely finished off up to this month.

Process	Reconditioning level	Nber. of frames	Latest handover date to Factory
Blowing	standard	1 line (2 scutchers)	August 31
Carding	standard	32 sets	August 10
Drawing	standard	1 set (2 heads)	(July 21)
	partial	1 set (2 heads)	August 11
Roving	standard	4 sets	(July 5)
	partial	2 sets	(June 22)
Ring spinning	Standard	10 sets	(July 9)
	partial	29 sets	August 11
Winding	standard	1.5 sets	August 31
	partial	4.5 sets	August 31
Warping	partial	4 sets	(June 12)
Sizing	standard	1 set	(May 31)
	partial	1 set	(July 31)
P. Winding	partial	8 sets	(July 11)
Spooler	standard	1 set	August 18
Loom	standard	40 sets	August 15
	partial	160 sets	August 25
Printing	standard	1 set	(July 17)
Raising	standard	1 set	(July 9)
Bleaching	standard	1 line	August 1

Following TOYOBO's supervisor left the Factory after completing his assigned duties.

August 2 Mr. M. Shinagawa Finishing supervisor

Remaining supervisors keep on staying in the Factory for implementation of preventive maintenance scheme, etc. after accomplishing supervision work of reconditioning work.

BLOWING SECTION

Reconditioning work for outstanding machinery, i.e. BL-62 No.4 double beater scutcher, BL-20 hopper feeder, BL-41 fan condenser, BL-31 No.12 opener, superior cleaner and roving waste opener has been carried out and completed this month. 2 sets of new cage rollers imported were installed on No.4 scutcher and cone drum and various shafts were dismantled, repaired and re-assembled. Calender rollers were ground and beater leather was replaced and alignment of the framework was corrected. Fan assembly of No.12 opener was thoroughly renewed and filter, wiring connection, etc. were taken care of. At dismantling BL-20 hopper feeder, doffers, spiked lattice and evener lattice in poor condition were repaired. The function of superior cleaner was restored by repairing grid bar, etc. and adjusting every gauge setting. As regards roving waste openertwelve new pin cylinders were replaced by imported ones. After adjusting and conditioning 4 blending feeders (repair of spiked lattice, adjustment of comb blade and relevant fan balancing), whole line was run on trial and machinery was minutely checked in every block, getting no extraordinary findings.

The work was carried out by 8 workers assigned under control of blowing/carding Japanese supervisor who gave information mentioned in attached OJT record as part of training.

CARDING SECTION

Last card No.64 was completed and handed over on 10th August. To this frame new mote knife and taker-in undercasing was installed. 32 reconditioned cards were again checked generally this month and in accordance with findings like web hanging down and defective web, cleaning of sliver guide and trumpet plate, grinding of wire and adjustment of gauge setting, etc. was carried out.

On the job training to 14 technicians was continued by blowing/carding supervisor with reference to subjects and technical skills stated in attached sheet.

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DRAWING SECTION

Reconditioning work for remaining 2 heads of No.7 drawframes has been continued this month. Main mechanism was looked after and renewed by newly imported items like bottom roller, calender roller, coiler tube, shaft and wheel, top clearer, roller weight spring, coiler tube stop motion, etc. This frame was ended on 11th August and progress ratio for this section achieved 100%.

The work was put forward by 14 technicians under guidance of drawing/roving supervisor.

RING SPINNING SECTION

Reconditioning work at partial level for remaining 13 frames No.1,3,5,7,9,13,15,19,8,10,14,16,18 was carried out as per pre-arranged items set forth in the previous report and finished off by the end of this month (Total 29 frames). Whilst the work information was given by ring spinning/winding supervisor on items stated separately as part of training course.

WINDING SECTION

During this month the reconditioning work for 1.5 frames at major level (No.6, L.H of No.4) and 4.5 frames of partial level (No.5, 7,8,9,R.H of 4) was accomplished.

	Frame No.	Date started	Date finished
Major	4 L.H	(July 19)	August 31
	6	(June 18)	August 13
Partial	4 R.H	(July 19)	(July 26)
	5	(July 27)	August 1
	7	August 15	August 20
	8	August 21	August 23
	9	August 23	August 31

Partial reconditioning of operating frames contains work of dismantling, check, repair, adjustment, assembling and alignment of cradle, tension device, drum shaft, reduction gear. All bearings of drum shaft were ditached from the frame and rinsed out, greased up and partially replaced by imported new bearings.

Workers of ring section came to reinforce winding group to finalize all work by the end of August.

Since substituting parts, i.e. veils, yarn guides, ball bearings for driving shaft and cradles have not arrived, existing ones were adjusted, repaired or replaced by fabricated parts for the time being. (Replacement work of such parts is simple and can be carried out without difficulty by maintenance personnel.)

SPOOLER SECTION

Reconditioning was going on for this machine. Elevators were overhauled being adjusted elevator belt and replaced elevator chains by new ones. Detectors were inspected and replaced by 50 imported new assemblies and other defective ones were adjusted and repaired. New trolley truck was installed. Bobbin pockets and snick plates were checked and deficient ones were dismantled and repaired. Pull wire chack, throw out hook, drive shaft and collector fan motor were checked, adjusted and re-fitted. Starter was instructed to fabricate and cage roller motor in stock was installed. All activities were completed on 18th August. 10 workers were in charge of rehabilitative work under control of preparatory supervisor.

LOOM SECTION

Outstanding 5 looms for major reconditioning were completed in August.

Loom No.	Date started	Date completed
20-06	(June 27)	August 3
21-06	(July 2)	August 3
19-06	(June 28)	August 6
18-06	(July 18)	August 11
17-06	(July 18)	August 15

Meanwhile, reconditioning work at partial level for 160 looms was carried on and remaining 114 looms was finished off this month. Reconditioning was carried out by 24 staffs under guidance of loom supervisor who also did training on the spot.

-END-

REPORT ON PERFORMANCE TEST RUN OF NEW DRAWFRAMES

1. Number of Frames 4 frames
2. Manufacturing Number (TOYODA)
   1st passage MFG No.1097/1983, 1098/1983
   2nd passage MFG No.1099/1983, 1100/1983
3. Main Specifications
   1) Number of delivery per frame 2
   2) Delivery can
      1st passage 406mm (16") dia. x 1,067 (42") H. 2 frames
      2nd passage 406mm (16") dia. x 1,067 (42") H. 2 frames
   3) Delivery jspeed 250m/min
      300m/min
   4) Drafting system
      - 4 over 3 drafting system with pressure bar
      - Spring loaded over weighting arm
   5) Clearer
      - for top roller .. positive intermittent revolving clearer with comb
      - for bottom roller .. Pneumatic clearer with rubber tube
      - for calender roller .. Stationery clearer
      (Exhausted air .. on the floor)
   6) Sliver feeding creel
      - 1st passage 406mm (16") x 914mm (36") H feed can
      - 2nd passage 406mm (16") x 1,067mm (42") H feed can
      - Extended positive driven fluted roller without contact roller
   7) Electric stop motion with signal lamp
      - Feeding part (green) .. Sliver breakage on sliver creel
      - Draft part (red) .. Sliver lap-up at draft roller
      - Coiler part (orange) .. Sliver lap-up at coiler calender roller
        .. Sliver choking in coiler tube
        .. Sliver choking in trumpet
      - Pre-determined sliver length control (white)
   8) Indicators (Magnetic counter)
      Indication of shift .. 1st passage 1 shift
      .. 2nd passage 3 shifts
   9) Spare parts Included 81 item parts

4. No Load Test Run

1) Testing date — 28th May, 1984

2) Number of tested frames — 4 frames

3) Test witness

Viet Thang Factory staff, Chief technical advisor, Contractor team leader

4) Test executer

Erection supervisor of TOYODA

5) Results of test

- All checking items of attached Inspection Record Sheet were inspected for 4 frames under confirmation of test witness.
- It was confirmed that 4 frames was correctly installed and its mechanical run was normal and complete. (See Test sheet No.1-1 to 1-4)

5. Performance Test

1) Testing date — 1st June, 1984 from AM9.05 till AM11.05

2) Spinning condition and situation

- 1st passage 2 frames
  Feeding sliver .. Card sliver weight 350grains/6 yds
  Delivery sliver .. Sliver weight 350 grains/6 yds
  Nominal delivery speed .. 250m/min
  Actual delivery speed .. 254.6m/min
  Delivery can capacity .. 2,800 yds (23.3 lbs)
- 2nd passage 2 frames
  Feeding sliver .. Sliver weight 350 grains/6 yds
  Delivery sliver .. Sliver weight 120 grains/6 yds
  Nominal delivery speed .. 250 m/min
  Actual delivery speed .. 254.6 m/min
  Delivery can capacity .. 2,500 yds (25 lbs)
- Temperature and humidity at testing time
  At the beginning of test AM905 95°F, 56%
  At the completion of test AM1105 98°F, 54%
- During the running, sliver choking in coiler tube of 1 frame of 1st passage occurred two times. This was settled by cleaning oil stain sticked inside the tube.
- Immediately after commencing test run, delivery sliver overran. This was settled by adjusting the height of can top plate.

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6. Sliver Quality Test

1) Spectrograph of sliver's periodic wavelength

- Sheet No.2 shows the result of test relating to sliver coiled in sliver can without top plate.
  F.No.9 2nd passage R.H (Sheet No.2-1) measured on Jun 15
  F.No.9 2nd passage L.H (Sheet No.2-1) measured on Jun 15
  F.No.10 2nd passage R.H (Sheet No.2-2) measured on Jun 15
  F.No.10 2nd passage L.H (Sheet No.2-2) measured on Jun 15
- Sheet No.3 shows the result of test relating to sliver coiled in sliver can with top plate.
  F.No.10 2nd passage L.H (Sheet No.3-1,2) measured on May 30
- From the result of above 2 tests carried out on separate dates, it is clear that spectrographic peak of 80cm and 40cm in Sheet No.3 is not intrinsic but this peak is nothing more than product of sliver compression of piled sliver when it is coiled in the can. This sliver compression is set free when the sliver coil is fed to the roving frame and at this time the sliver returns to the state without spectrographic peak as shown in Sheet No.2.

2) Delivery sliver weight fluctuation

It can be assessed that CV% of sliver weight of 2nd passage is good, resulting in 1.16% on the average as shown in the attached Sheet No.5.

3) Sliver U%

It can be assessed that sliver U% of 2nd passage is good, resulting in 3.03% on the average as shown in the Sheet No.4 (According to the information of Uster Statistics 1982, sliver U% is less than 3.4% in 25% of investigated mills in all over the world).

7. As stated above, satisfactory results were confirmed, with reference to the specification, performance and product quality.

T.M.Haworth
Chief Technical Adviser

M.Watanabe
Contractor's Representative

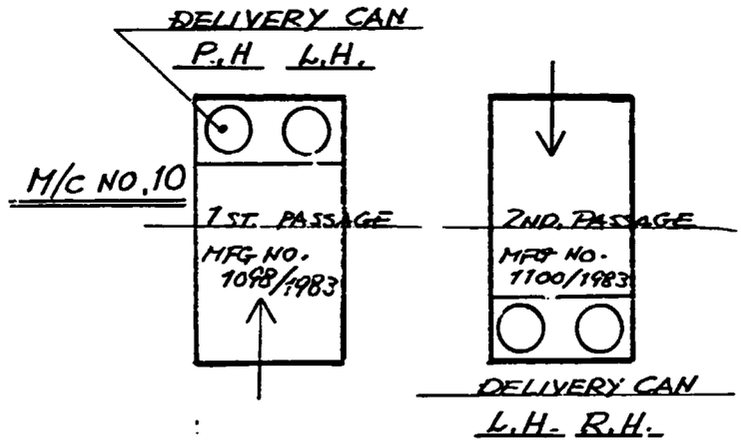
30th June, 1984

NUMBER OF FRAMES AND DELIVERY ARRANGEMENT OF

TESTED DRAWFRAMES DY-2

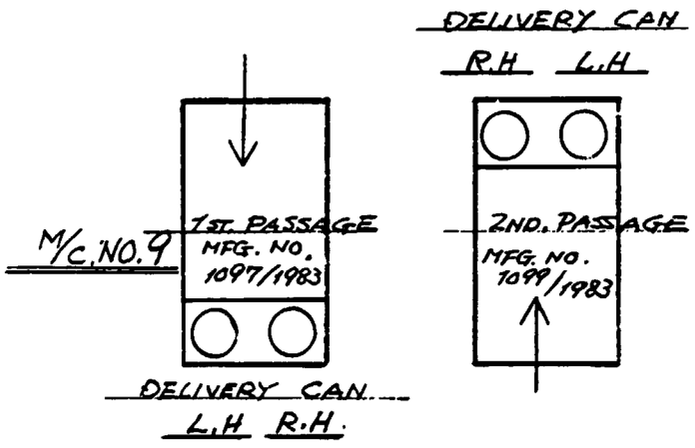
NEW DRAWING FRAME

TOYODA DY-2



CARD

ROVING FRAME



EXISTING DRAWING FRAM

SHEET NO. 1-1

MECHANICAL INSPECTION RECORD FOR DRAWING FRAME TOYODA DY-2

Date MAY. 28 1984
Frame No. 9 (MFG NO 1097/1983)
Passage 1st

Position	Checking Points	Good	Bad	Remarks
Framework	Installed position Front and both sides	✓		
	Height Coiler plate and turn table	✓		1197
	Level Roller parts (4 points)	✓		
	Abnormal sound Abnormal heating Vibration	✓		
Gear End	Oil quantity in oil bath Oil leakage	✓		
	Tension of V-belt	✓		
Roller Part	Front and rear position Weighting arm Plunger	✓		
	Weighting arm gap Front	✓		0.4mm
	" 2nd, 3rd	✓		0.6mm
	" Back	✓		0.8 mm
	Weighting arm switch	✓		
	Eccentricity of bottom roller	✓		5/100
	Roller gauge	✓		40 × 37.5 mm (Min.)
	Contact of top clearer	✓		
	Contact of bottom clearer	✓		
	Tightening of coupling and each screw	✓		
Out End	Oil quantity in oil bath Oil leakage	✓		
Calender Part	Oil quantity of autocounter wormbox	✓		
	Coiler stop switch	✓		
Tubewheel	Oil quantity of bebel box	✓		
	Tension of timing belt	✓		
	Gap between coiler plate	✓		
Creel	Adjustment of guide	✓		
	Slack of sliver	✓		
Coiling	Oil quantity in worm box	—		
	Size of coiling	✓		
Electricity	Motion of door switch (3 points)	✓		
	Setting of full can timer	✓		14min
	Motion of coiler, draft and lifter stop	✓		
	Motion of photocell of gatherer, coiler and creel	✓		
	Delivery speed (250M/Min)			

SHEET NO. 1-2

MECHANICAL INSPECTION RECORD FOR DRAWING FRAME TOYODA DY-2

Date MAY. 28 1984
Frame No. 10 (MFG NO 1048/1983)
Passage 1st:

Position	Checking Points	Good	Bad	Remarks
Framework	Installed position Front and both sides	✓		1197 m/m
	Height Coiler plate and turn table	✓		
	Level Roller parts (4 points)	✓		
	Abnormal sound Abnormal heating Vibration	✓		
Gear End	Oil quantity in oil bath Oil leakage	✓		
	Tension of V-belt	✓		* Adjust T.D.C gear gap
Roller Part	Front and rear position Weighting arm Plunger	✓		
	Weighting arm gap Front	✓		0.4 mm
	" 2nd, 3rd	✓		0.6 mm
	" Back	✓		0.8 mm
	Weighting arm switch	✓		
	Eccentricity of bottom roller	✓		3/100 mm
	Roller gauge	✓		40×37.5 mm (Min.)
	Contact of top clearer	✓		
	Contact of bottom clearer	✓		
	Tightening of coupling and each screw	✓		
Out End	Oil quantity in oil bath Oil leakage	✓		
Calender Part	Oil quantity of autocounter wormbox	✓		
	Coiler stop switch	✓		
Tubewheel	Oil quantity of bebel box	✓		
	Tension of timing belt	✓		
	Gap between coiler plate	✓ ← ✓		* Adjust the gap
Creel	Adjustment of guide	✓		
	Slack of sliver	✓		
Coiling	Oil quantity in worm box	✓		
	Size of coiling	✓		
Electricity	Motion of door switch (3 points)	✓		
	Setting of full can timer	✓		14 min.
	Motion of coiler, draft and lifter stop	✓		
	Motion of photocell of gatherer, coiler and creel	✓		
	Delivery speed (250M/Min)			

SHEET NO. 1-3

MECHANICAL INSPECTION RECORD FOR DRAWING FRAME TOYODA DY-2

Date MAY. 28 1984
Frame No. 9 (MFG. NO. 1099/1983)
Passage 2nd.

Position	Checking Points	Good	Bad	Remarks
Framework	Installed position Front and both sides	✓		
	Height Coiler plate and turn table	✓		1179 m/m
	Level Roller parts (4 points)	✓		
	Abnormal sound Abnormal heating Vibration	✓		
Gear End	Oil quantity in oil bath Oil leakage	✓		
	Tension of V-belt	✓		
Roller Part	Front and rear position Weighting arm Plunger	✓		
	Weighting arm gap Front	✓		0.4mm
	" 2nd, 3rd	✓		0.6 mm
	" Back	✓		0.8 mm
	Weighting arm switch	✓		
	Eccentricity of bottom roller	✓		5/100
	Roller gauge	✓		40 × 37.5 mm (Min)
	Contact of top clearer	✓		
	Contact of bottom clearer	✓		
	Tightening of coupling and each screw	✓		
Out End	Oil quantity in oil bath Oil leakage	✓		
Calender Part	Oil quantity of autocounter wormbox	✓		
	Coiler stop switch	✓		
Tubewheel	Oil quantity of bebel box	✓		
	Tension of timing belt	✓		
	Gap between coiler plate	✓		
Creel	Adjustment of guide	✓		
	Slack of sliver	✓		
Coiling	Oil quantity in worm box	✓		
	Size of coiling	✓		
Electricity	Motion of door switch (3 points)	✓		
	Setting of full can timer	✓		14 min
	Motion of coiler, draft and lifter stop	✓		
	Motion of photocell of gatherer, coiler and creel	✓		
	Delivery speed (250M/Min)			

SHEET NO. 1-4

MECHANICAL INSPECTION RECORD FOR DRAWING FRAME TOYODA DY-2

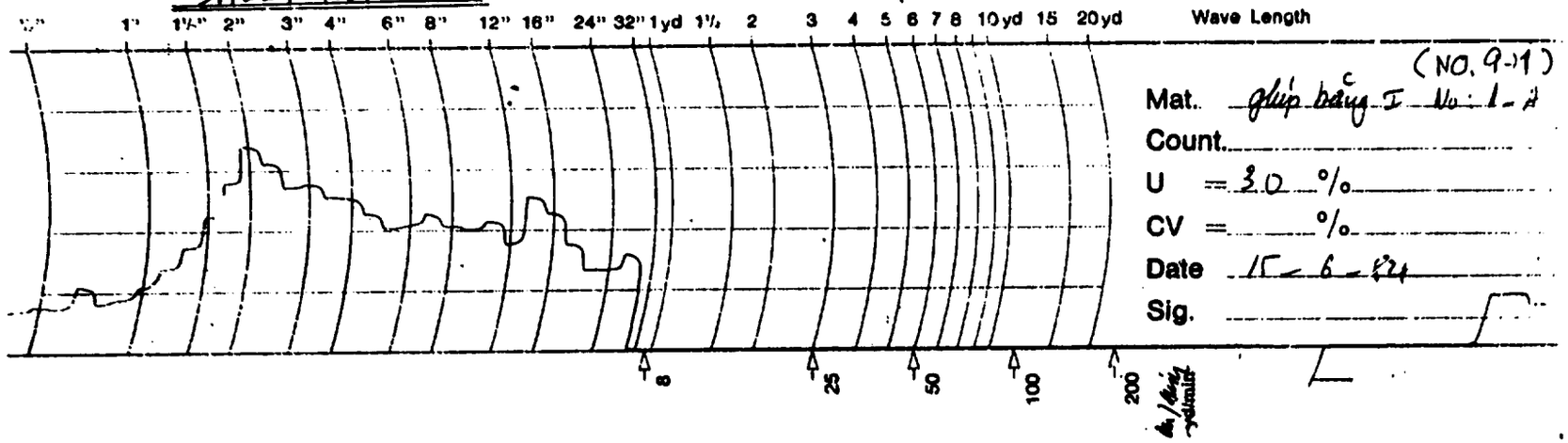
Date MAY 28 1984
Frame No. 10 (MFG NO 1109/1983)
Passage 2nd.

Position	Checking Points	Good	Bad	Remarks
Framework	Installed position Front and both sides	✓		
	Height Coiler plate and turn table	✓		1197 m/m
	Level Roller parts (4 points)	✓		
	Abnormal sound Abnormal heating Vibration	✓		
Gear End	Oil quantity in oil bath Oil leakage	✓		
	Tension of V-belt	✓		
Roller Part	Front and rear position Weighting arm Plunger	✓		
	Weighting arm gap Front	✓		0.4 mm
	" 2nd, 3rd	✓		0.6 mm
	" Back	✓		0.8 mm
	Weighting arm switch	✓		
	Eccentricity of bottom roller	✓		2/100 m/m ~ 2/100 mm
	Roller gauge	✓		40 x 37.5 mm (Min)
	Contact of top clearer	✓		
	Contact of bottom clearer	✓		
	Tightening of coupling and each screw	✓		
Out End	Oil quantity in oil bath Oil leakage	✓		
Calender Part	Oil quantity of autocounter wormbox	✓		
	Coiler stop switch	✓		
Tubewheel	Oil quantity of bebel box	✓		
	Tension of timing belt	✓		
	Gap between coiler plate	✓		
Creel	Adjustment of guide	✓		
	Slack of sliver	✓		
Coiling	Oil quantity in worm box	✓		
	Size of coiling	✓		
Electricity	Motion of door switch (3 points)	✓		
	Setting of full can timer	✓		14 min
	Motion of coiler, draft and lifter stop	✓		
	Motion of photocell of gatherer, coiler and creel	✓		
	Delivery speed (250M/Min)			

(No 9 - 2nd - R.)

SHEET NO. 2-1

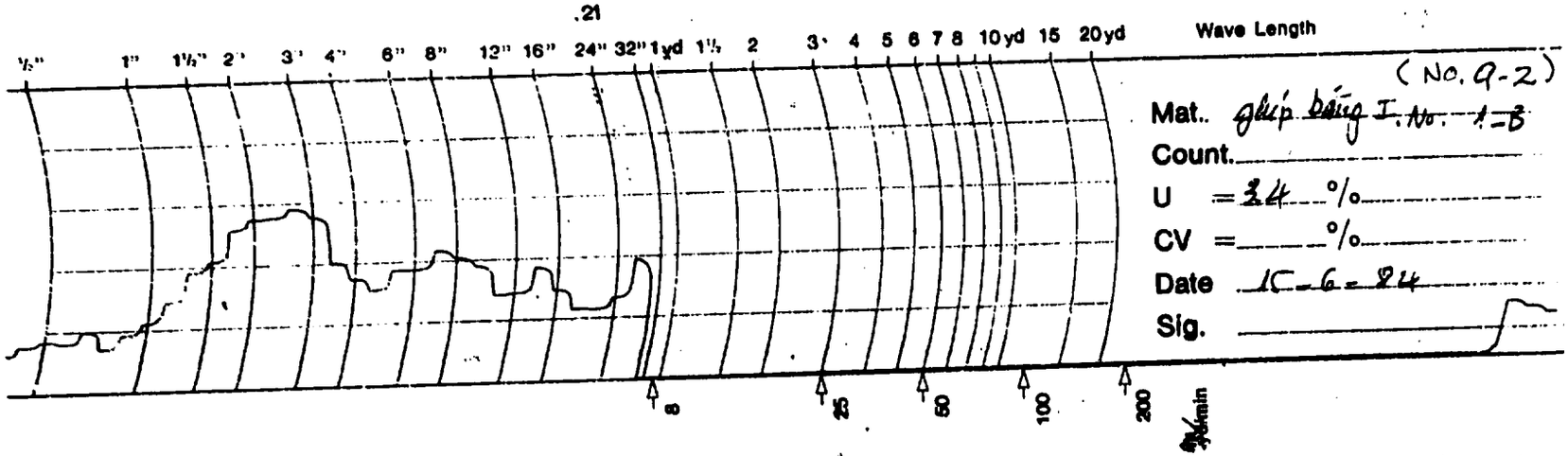
38



Zellweger Ltd. Uster

(No. 9-2nd-L)

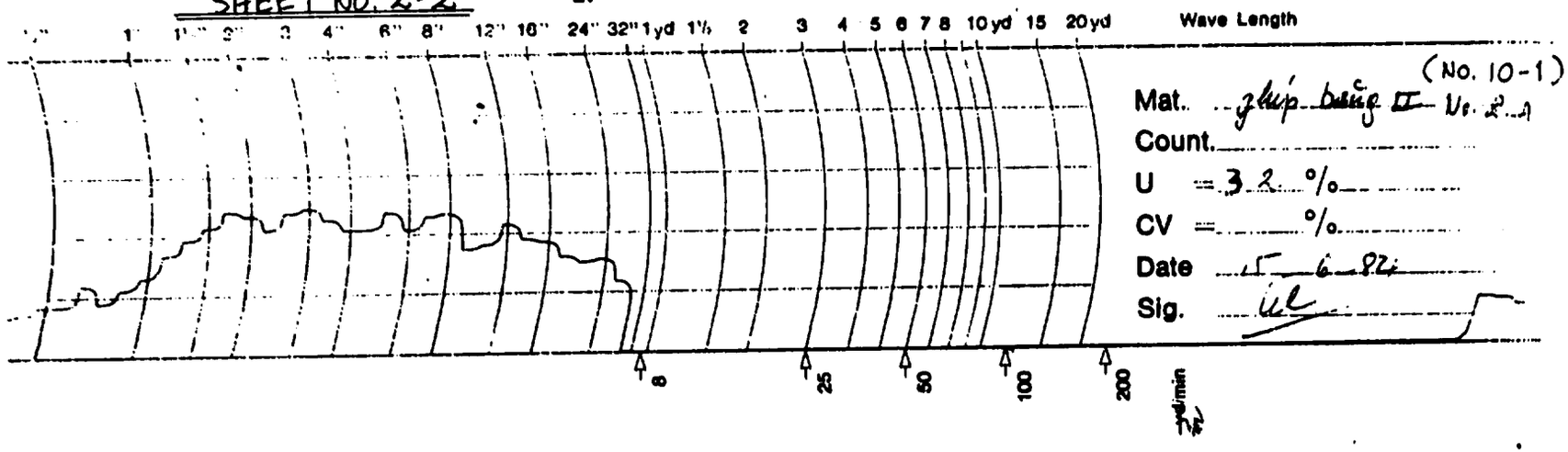
21



(No. 10 - 2nd - R)

SHEET NO. 2-2

27



(No. 10-1)

Mat. ghép bằng II Vị. 2.1

Count.

U = 32 %

CV = %

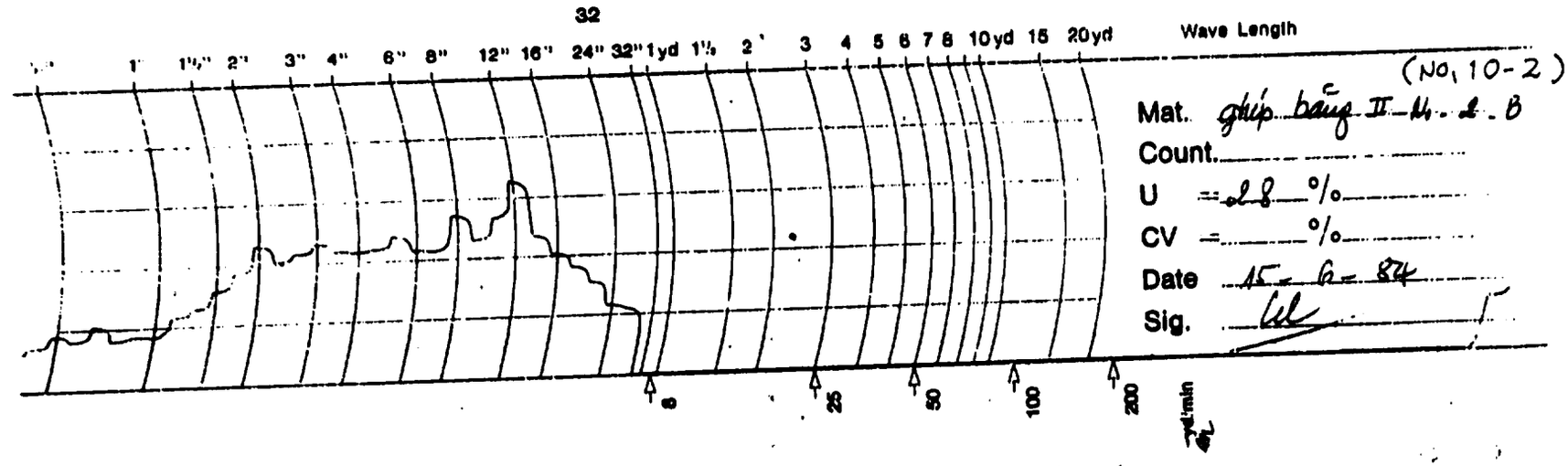
Date 15-6-82

Sig. [signature]

Zellweger Uster

(No. 10 - 2nd - L)

32



(No. 10-2)

Mat. ghép bằng II Mẫu 2 B

Count.

U = 28 %

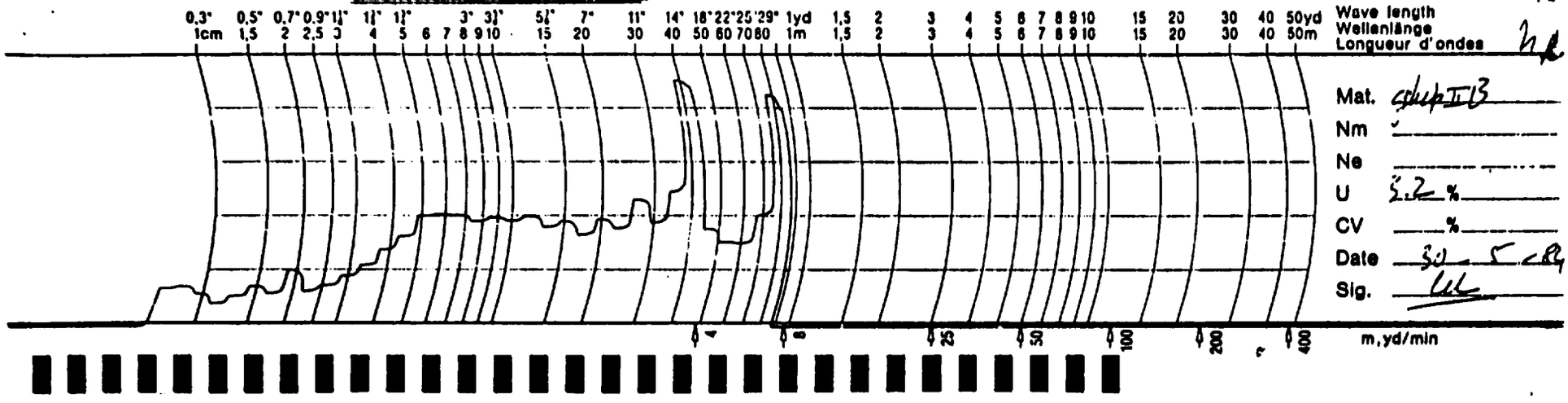
CV = %

Date 15-6-84

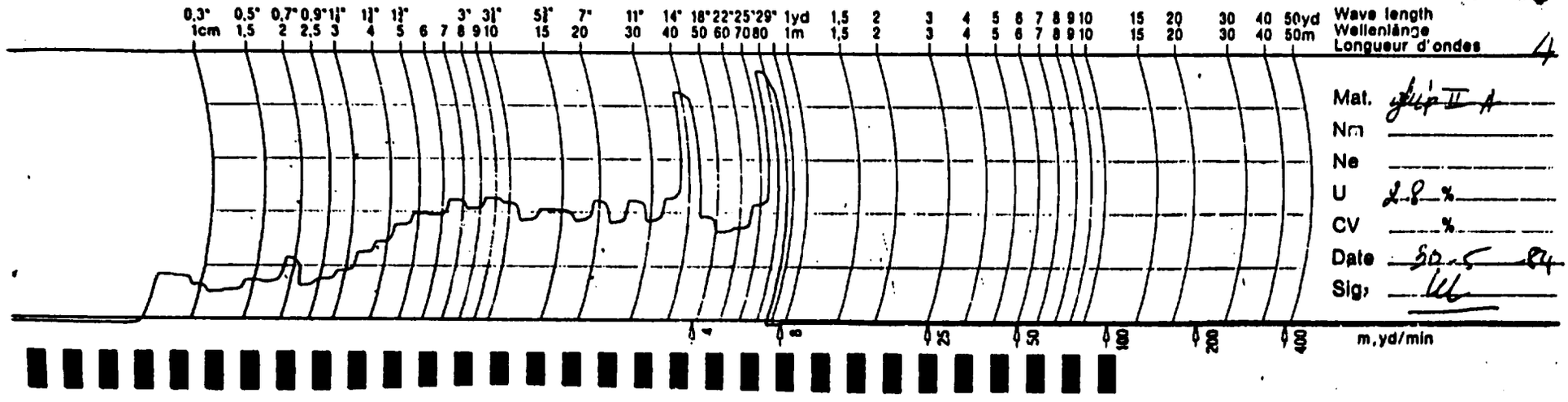
Sig. [signature]

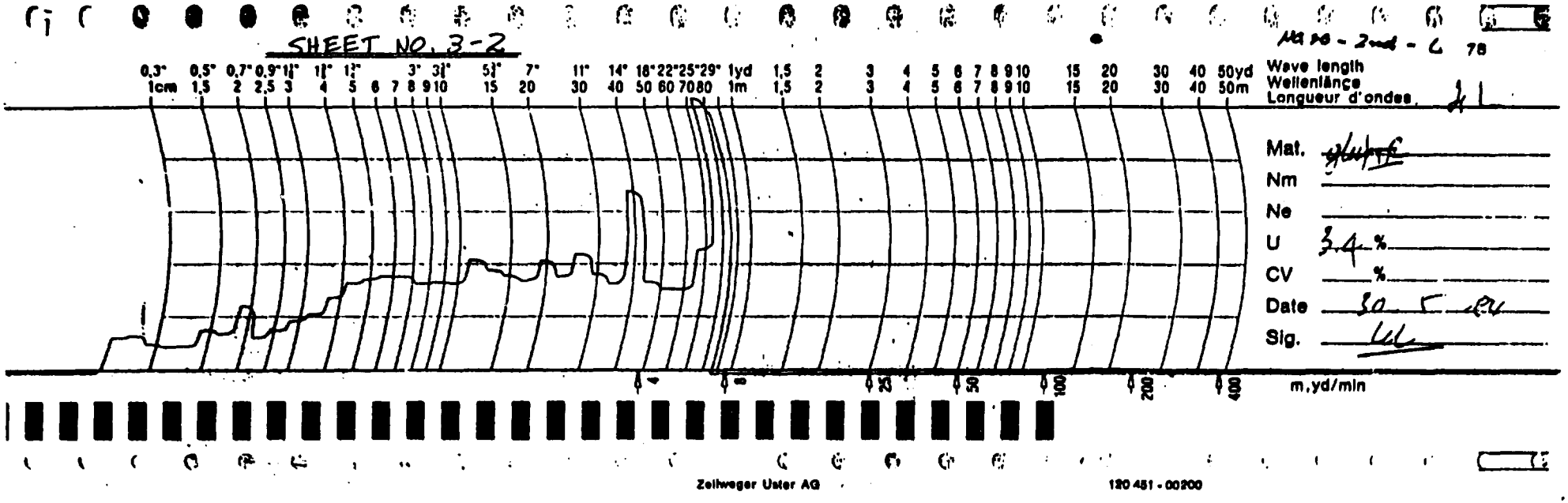
SHEET NO. 3 - 1.

No. 10. 2nd ~~run~~



No. 10 2nd ~~run~~




SHEET NO. 3-2
0,3" 0,5" 0,7" 0,9" 1" 1" 1" 3" 3" 5" 7" 11" 14" 18" 22" 25" 29" 1yd 1,5 2 3 4 5 6 7 8 9 10 15 20 30 40 50yd
1cm 1,5 2 2,5 3 4 5 6 7 8 9 10 15 20 30 40 50 60 70 80 1m 1,5 2 3 4 5 6 7 8 9 10 15 20 30 40 50m
Wave length
Wellenlänge
Longueur d'ondes
Mat.
Nm
Ne
U 3.4 %
CV %
Date
Sig.
m,yd/min
Zellweger Uster AG
120 451 - 00200

(sheet no. 4) Test sheets of Sliver Uster U %.

(for TOYODA New Drawing Frame)

Sampling Date	30. May. 1984					
M/C No.	M/C NO. 9	M/C NO. 10		M/C NO. 9	M/C NO. 10	
Passage	1st. Passage			2nd. passage		
Delivery Can R.H	U% 3.4 3.7 3.6	U% 3.5 3.6 3.6		U% 2.6 2.6 2.8	U% 3.1 3.4 3.5	
Delivery Can L.H	3.3 3.5 3.5	4.2 4.4 3.9	Average	2.8 3.0 3.2	2.8 3.2 3.4	Average
Average $\bar{X}$	3.50	3.87	$\bar{\bar{X}}$ 3.69	2.83	3.23	$\bar{\bar{X}}$ 3.03

(Sheet No. 5) Test sheets of Sliver weight

(for TOYODA New Drawing Frame)

M/C No.	Sampling Date	11. June, 1984					
	M/C No.	No. 9					
	Passage	1st. passage			2nd. Passage		
	Delivery	R.H.	L.H	Average	R.H.	L.H.	Average
No.9	Sliver weight (Grain)/6 yard (n = 10)	343.7	336.2		420.8	423.9	
		349.6	357.2		423.9	424.3	
		335.2	341.0		424.3	424.4	
		352.5	350.8		425.6	425.4	
		340.1	352.0		428.8	424.2	
	Standard weight 1st. passage 350 Grain/6 yards	337.0	347.5		432.6	422.8	
		343.9	352.6		434.9	421.9	
		335.6	351.8		430.0	425.5	
	2nd. passage 420 Grain/6 yards	336.6	350.6		432.5	422.9	
		346.1	349.0		433.3	424	
	Σ	3429.3	3488.7		4286.5	4249.3	
	R	16.9	16.4	X 16.65	13.9	3.6	8.75
	X	342.93	348.87	X 345.45	428.65	424.93	426.78
	CV %	1.79	1.74	X 1.77	1.11	0.81	X 0.96
	M/C No.	No. 10					
	passage	1st. passage			2nd. Passage		
	Delivery	R.H.	L.H.	Average	R.H.	L.H.	Average
No.10	Sliver weight (Grain)/6 yard (n = 10)	340.0	345.3		433.9	421.9	
		342.1	345.5		433.4	423.8	
		343.2	350.4		439.8	424.5	
		340.3	349.2		439.1	424.2	
		339.0	346.0		433.0	424.7	
		352.2	339.5		428.6	438.6	
		349.2	342.2		428.2	438.2	
		351.3	340.1		428.0	436.0	
		350.9	349.5		430.9	437.6	
		355.0	350.2		429.1	436.9	
	Σ	3463.2	3455.9		4323.8	4306.4	
	R	16.0	10.9	X 13.45	11.1	16.7	X 13.9
	X	346.32	345.59	X 345.96	432.38	430.64	X 431.51
	CV %	1.73	1.14	X 1.44	1.00	1.69	X 1.35
Average	X CV %			X 1.61			X 1.16

2-6

REPORT ON PERFORMANCE TEST RUN OF NEW SIZING HEAD

1. Number of Beaming Head 1
2. Manufacturing Number

   BABA MFG. No.4706, Manufacturing date 1984
3. Main Specifications

   1) Beaming head Model: BS-II
      - Loom beam carriage R.S 44 to 65"
      - Max. dia. of beam flange 31½"
      - Head stock & tail stock arbor .. Pneumatically operated
      - Loom beam doffing .. Pneumatically operated by press roller device

   2) Main drive
      - Running speed .. 4 to 90 yds/min by VS motor

   3) Beam drive
      - Automatic winding tension control system with PIV
      - Tension range .. Drive speed 4 to 90 yds/min
        Winding tension range 50 to 360 kgs
      - Tension control .. Pneumatic remote control
      - Beam arbor cluch .. Pneumatic clutch

   4) Measuring & cut-marking unit
      - Measuring unit .. Electronic counter
      - Cut number counter .. Electromagnetic dial counter
      - Marking unit .. Spray system

   5) Pneumatic press roller
      - 2 roller type

   6) Front comb
      - Zigzag type

   7) Roller
      - Driving roller .. Steel pipe roller
      - Measuring roller .. Chrome plated steel pipe roller
      - Twitch roller .. Chrome plated steel pipe roller
      - Guide roller .. Steel pipe roller

   8) Dividing rod
      - Stainless steel rod

   9) Draft controller

4. No Load Test Run

1) Testing date 29th May, 1984

2) Testing witness

Viet Thang Factory staff

Chief Technical Adviser

Contractor's Team Leader

3) Test executer

Erection supervisor of BABA

4) Results of test

- All checking items of attached Inspection Record Sheet were inspected under confirmation of test witness.
- It was confirmed that the beaming head was correctly installed and its mechanical run was norma and complete.

5. Performance Test

1) Testing date 29th May, 1984

1 hour operation from AM1000 till AM1100

2) Winding speed 40 m/min

3) Warpers beam 389 x 4 beams = 1,556

388 x 1 beam = 388

Total 5 beams 1,944

Total length 26,000 m

4) Running situation

No anomaly was detected and weavers beams were well formed.

6. Satisfactory results were confirmed, with reference to total performance, production and quality.

30th June, 1984

T.M.Haworth
Chief Technical Adviser

M.Watanabe
Contractor's Representative

MECHANICAL INSPECTION RECORD FOR HEADSTOCK OF SIZING MACHINE

Date 29. May 1984

M/C MFG No. 4706 MFG Date - 1984

Position	Checking Points	Good	Bad	Remarks
Framework	Level Parallel of sheet	✓		
Dividing Unit	Action of power circuit Action of clutch	✓		
Taking Up Unit	Abnormal sound Abnormal heating Vibration	✓		
Spindle Opening	Action of air cylinder	✓		
Press Roller	Going up and down Adhesion at right and left Adhesion of beam	✓		
Measuring Device	Power circuit Programme function	✓		
Front Comb	Action up and down Action right and left	✓		
Air Unit	Action of each air vulve	✓		
Drafting Unit	Sheet tension between cylinder and draw roller	✓		
	Action of PIV	✓		
	Tension at ititial and final winding	✓		
	Operating condition of taking up	✓		

INVESTIGATION OF NEP & FOREIGN MATTERS IN CARD WEB (36sq.in)

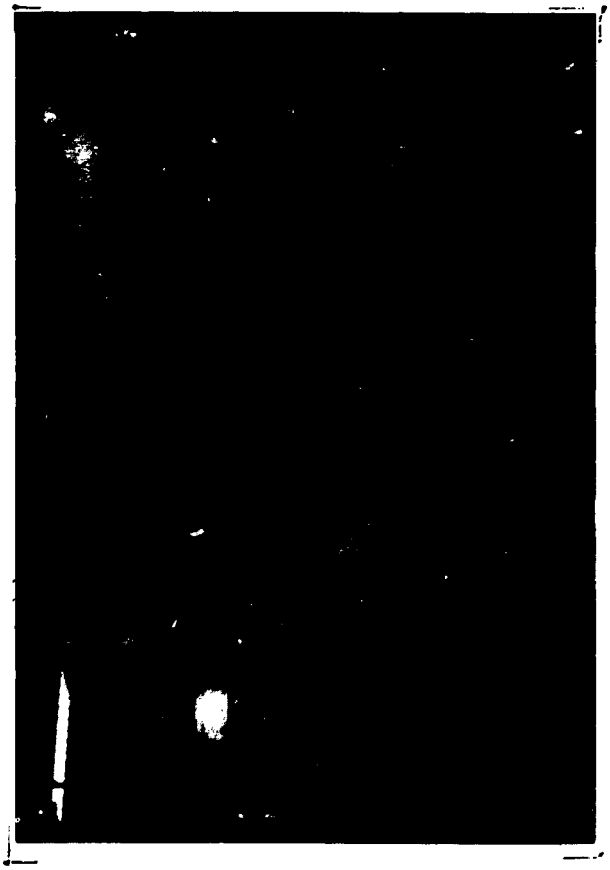
R. right
L. left
M. middle

F. NO.	Before Reconditioning March, 1984				After Reconditioning August, 1984			
	R	M	L	AVR.	R	M	L	AVR.
43	59	60	55	58	16	13	16	15
44	46	52	38	45	10	14	13	12
45	39	47	43	43	16	14	15	15
46	41	50	51	47	15	11	29	18
47	—	—	—	—	7	16	9	11
48	58	55	50	54	17	29	16	20
51	50	59	49	53	18	17	16	17
52	—	—	—	—	29	16	16	20
53	55	62	44	54	18	17	19	18
54	40	49	50	46	8	9	6	8
55	35	42	45	41	20	18	16	18
56	44	50	50	48	16	11	6	11
59	—	—	—	—	12	8	21	14
60	43	55	46	48	12	9	5	9
61	31	46	37	38	15	15	19	16
62	37	45	38	40	9	10	13	11
63	34	36	35	35	12	9	21	14
64	—	—	—	—	15	15	18	16
67	45	61	39	48	9	13	18	13
68	—	—	—	—	17	16	14	16
69	37	46	39	41	17	13	12	14
70	38	54	43	45	17	15	8	13
71	36	47	44	42	16	9	13	13
72	40	41	37	39	18	18	18	18
73	49	56	36	47	13	15	23	17
74	49	50	39	46	13	15	18	15
75	—	—	—	—	20	15	19	18
76	—	—	—	—	8	11	7	9
77	55	59	56	57	7	8	20	12
78	43	68	44	52	14	12	21	16
79	38	83	46	56	8	9	7	8
80	40	51	42	44	10	12	16	13
AVR.				47				14

2-8 PHOTOGRAPHS OF SEVERAL MACHINES BEFORE AND AFTER RECONDITIONING WORK

Web condition before reconditioning work

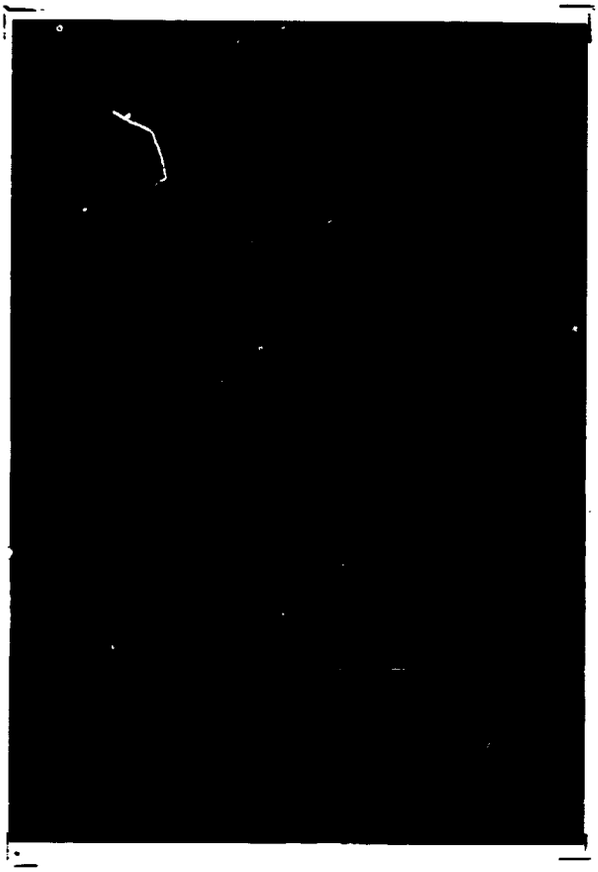
Web condition after reconditioning



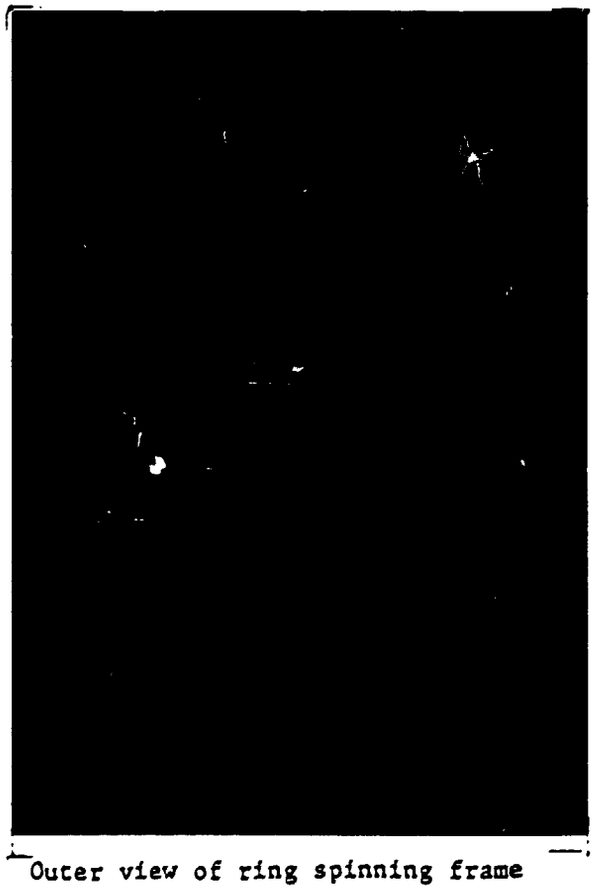
Outer view of card before reconditioning

Outer view of card after reconditioning

Outer view of loom before reconditioning



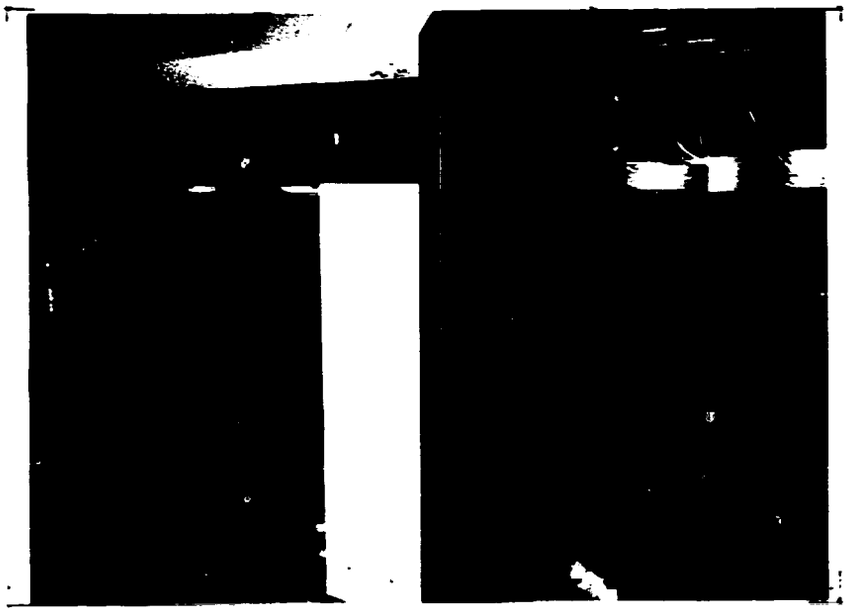
Outer view of loom after reconditioning



Outer view of ring spinning frame before reconditioning work

Outer view of ring spinning frame after reconditioning work

TOYODA new drawframe DY-2



BABA New sizing winding head

TOYOBO FUNCTION EXAMINATION TABLE FOR CARDING ENGINE (TABLE A)

TOYODA CARD

Factory : VIET THANG

Date : 31 day MAR month, 1984 year

item No.	function to be examined	points per 100 cards	(A) point to be deducted per defect	(B) machine identification No. 44	No. 45	No. 46	No. 48	No.	No.	No.	No.	No.	No.	No.	No.	(C) No. of cards examined	(D) total number of defects	(E) No. of defects per 100 cards	(F) deducts per 100 cards	(G) points per 100 cards	(H) improvement since previous
1	gauge between cylinder and top flat	A : 200	1	23	18	26	12									4	79	1975	1975	− 1775	
		~~B : 100~~	0.1	–	–	–	–									–	–	–	–	–	
2	gauge between cylinder and doffer	100	2	~~8~~ 6	~~5~~ 4	~~9~~ 6	~~5~~ 4									4	27	675	1.350	− 1250	
3	gauge between taker-in and dish plate	50	1	0	0	0	1									4	1	25	25	+ 25	
4	condition of needle points on cylinder	100	2	2	2	2	1									4	7	175	350	− 250	
5	condition of needle points on top flat	100	2	2	2	2	2									4	8	200	400	− 300	
6	condition of web	100	10	1	1	1	1									4	4	100	1.000	− 900	
7	condition of flat strip waste	50	2	1	1	1	1									4	4	100	200	− 150	
8	condition of waste fibers undertaker-in roller	50	2	1	1	1	1									4	4	100	200	− 150	
9	centering of cylinder	50	1	0	0	0	0									4	0	0	0	+ 50	
10	centering of doffer	50	1	0	0	0	0									4	0	0	0	+ 50	
11	condition of needle points on garnet wire	50	1	2	2	2	2									4	8	200	200	− 150	
	total	~~900~~ 1000																		− 4300	

TOYOBO FUNCTION EXAMINATION TABLE FOR CARDING ENGINE (TABLE A)

Factory : _____

Date : 31 day 10 month, 1984 year

item No.	function to be examined	points per 100 cards	(A) point to be deducted per defect	(B) machine identification												(C) No. of cards examined	(D) total number of defects	(E) No. of defects per 100 cards	(F) deducts per 100 cards	(G) points per 100 cards	(H) improvement since previous
				No. 44	No. 45	No. 46	No. 48	No.	No.	No.	No.	No.	No.	No.	No.						
1	gauge between cylinder and top flat	A : 200	1	6	1	8	13									44	270	675	675	-475	1300
		~~B : 100~~	~~0.1~~																		
2	gauge between cylinder and doffer	100	2	0	0	0	0									4	0	0	0	100	1.350
3	gauge between taker-in and dish plate	50	1	0	0	0	0									〃	0	0	0	50	25
4	condition of needle points on cylinder	100	2	0	0	0	0									〃	0	0	0	100	350
5	condition of needle points on top flat	100	2	0	0	0	0									〃	0	0	0	100	400
6	condition of web	100	10	1	0	1	1									〃	3	75	750	-650	250
7	condition of flat strip waste	50	2	0	0	0	0									〃	0	0	0	50	200
8	condition of waste fibers under taker-in roller	50	2	0	0	0	0									〃	0	0	0	50	200
9	centering of cylinder	50	1	0	0	0	0									〃	0	0	0	50	0
10	centering of doffer	50	1	0	0	0	0									〃	0	0	0	50	0
11	condition of needle points on garnet wire	50	1	0	0	0	0									〃	0	0	0	50	200
	total	1000																		-525	4275

TOYOBO FUNCTION EXAMINATION TABLE FOR ROVING FRAME

TOYODA FAS 124 SPT/SET

Factory : VIET THANG

Date : 31 day MAR month, 1988 year

item No.	function to be examined	points per 1000 spindles	(A) points to be deducted per defect	(B) machine identification No 3	No 5	No	No	No	No	No	No	No	No	No	(C) No. of roving frames examined	(D) total No. of defects	(E) No. of defects per 1000 spindles	(F) deducts per 1000 spindles	(G) points per 1000 spindles	(H) improvement since previous
1	number of roving breakage	200	20	12	6										249	18	73	1460	-1260	
2	clearer part	100	3	21	52										(248)	73	294	882	-782	
3	centering of Front bottom roller	200	10	3	5										248	8	32	320	-120	
4	roller gauge setting	50	10	1	3										(248)	4	16	160	-110	
5	cap bar gauge setting	50	5	7	33										(248)	40	161	805	-755	
6	centering of spindle	100	5	124	124										248	248 / ~~1000~~	1000 / ~~5000~~	5000	-4900	
7	vibration of flyer	100	1	124	124										248	248	1000	1.000	-900	
8	setting of presser of flyer	50	1	80	68										248	148	597	597	-547	
9	waste fibers on flyer	50	1	13	12										248	25	101	101	-51	
10	centering of top and bottom cone drum	100	5	2	2										(243)	4	16	80	+20	
	total	1,000																	-9405	

TOYOBO FUNCTION EXAMINATION TABLE FOR ROVING FRAME

Factory : VIET THANG

Date : 5 day NOV. month, 1984 year

item No.	function to be examined	points per 1000 spindles	(A) points to be deducted per defect	(B) machine identification No 4	No 17	No	No	No	No	No	No	No	No	No	No	(C) No. of roving frames examined	(D) total No. of defects	(E) No. of defects per 1000 spindles	(F) deducts per 1000 spindles	(G) points per 1000 spindles	(H) improvement since previous
1	number of roving breakage	200	20	2	3											348	5	7.0	44.0	−700	96
2	clearer part	100	3	2	5											"	7	7.8	7.1	+16	175
3	centering of bottom roller	200	10	0	1											348	1	1.0	4.0	+160	280
4	roller gauge setting	50	10	0	0											348	0	0	0	+50	50
5	cap bar gauge setting	50	5	1	2											"	3	1.7	6.0	−10	115
6	centering of spindle	100	5	1	3											"	4	1.6	8.0	+70	422
7	vibration of flyer	100	1	0	10											"	10	4.0	4.0	+60	960
8	setting of presser of flyer	50	1	2	3											"	5	2.0	1.0	+30	577
9	waste fibers on flyer	50	1	8	1											"	9	3.6	3.6	+14	65
10	centering of top and bottom cone drum	100	5	1	1											"	2	0.8	4.0	+60	40
	total	1,000																		+200 ~~+10~~	960

TOYOBO FUNCTION EXAMINATION TABLE FOR RING SPINNING FRAME

TOYODA 440 SPL / SET

Factory : VIET THANG

Date : 31 day MAR month, 1984 year

item No.	function to be examined	points per 10,000 spindles	(A) points to be deducted per defect	unit for which defect is to be counted	(B) machine identification No 23	No 27	No 29	No 31	No	No	No	No	No	(C) total No. of spindles examined	(D) total No. of defects	(E) No. of defects per 10,000 spindles	(F) deducts per 10,000 spindles	(G) points per 10,000 spindles	(H) improvement since previous
1	straightness of bottom roller	100	4	staff	9	10	5	6						(1600)	30	187.5	750	− 640	
2	parallel. of top apron	80	0.5	set	3	3	3	0						1600	9	56.3	28	+ 52	
3	movement of apron	80	3	apron	1	0	0	2						1600	3	18.8	56	+ 24	
4	weighting for front roller	50	5	~~long weight~~	1	2	5	2						1600	10	62.5	313	− 263	
5	setting of pneuma-flute	60	0.1	staff	5	8	4	9						(1600)	26	162.5	16	+ 44	
6	suction at pneuma-flute	40	0.5	staff	—	—	—	—						—	—	—	—	—	
7	height of lappet	40	0.2	lappet	59	30	17	20						1600	126	787.5	158	− 118	
8	gauge of traveller clearer	20	0.05	clearer	43	40	67	29						1600	179	1118.8	56	− 36	
9	level of spindle rail	50	5	span	24	19	18	23						(1600)	84	525.0	2625	− 2575	
10	spindle gauge setting	60	1	spindle	247	209	208	182						1600	846	5287.5	5288	− ~~5138~~ 5288	
11	function of latch hook	30	1	spindle	309	319	280	347						1600	1.255	7843.8	7844	− 7814	
12	tape tension	40	0.5	4 spindles	9	17	12	15						(1600)	53	331.3	166	− 126	
13	upright of lifting pillar	~~60~~	2	pillar	—	—	—	—						—	—	—	—	—	
14	height of winding bottom	40	5	frame	1	1	1	1						(1600)	4	25.0	125	− 85	
15	shape of full cop	30	5	frame	0	1	0	0						(1600)	1	6.3	32	− 2	
16	wear of capper neck	40	5	frame	1	0	0	0						(1600)	1	6.3	32	+ 8	
17	bottom roller gauge	~~40~~	10	side	—	—	—	—						—	—	—	—	—	
18	setting of gearing	50	10	side	0	0	0	0						(1600)	0	0	0	+ 50	
19	vibration of frame	40	10	frame	0	0	1	0						(1600)	1	6.3	32	+ 8	
20	condition of bearing	50	2	bearing	0	0	0	0						(1600)	0	0	0	+ 50	
	total	~~1,000~~ 700																− 14,661	

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TOYOBO FUNCTION EXAMINATION TABLE FOR RING SPINNING FRAME

Factory : VIET THANG

Date : ____ day NOV month, 1986 year

item No.	function to be examined	points per 10,000 spindles	(A) points to be deducted per defect	unit for which defect is to be counted	(B) machine identification No 23	No 27	No 29	No 31	No	No	No	No	No	(C) total No. of spindles examined	(D) total No. of defects	(E) No. of defects per 10,000 spindles	(F) deducts per 10,000 spindles	(G) points per 10,000 spindles	(H) improvement since previous
1	straightness of bottom roller	100	4	staff	3	0	2	1						1600	6	38	152	▲ 50	600
2	parallel. of top apron	80	0.5	set	21	15	7	10						〃	53	331	166	▲ 86	▲ 128
3	movement of apron	80	3	apron	0	0	0	0						〃	0	0	0	80	56
4	weighting for front roller	50	5	long weight	0	0	0	0						〃	0	0	0	50	213
5	setting of pneuma-flute	60	0.1	staff	17	22	25	11						〃	75	469	97	113	▲ 31
6	suction at pneuma-flute	40	0.5	staff	—	—	—	—						—	—	—	—	—	—
7	height of lappet	40	0.2	lappet	18	11	13	9						〃	61	319	64	▲ 24	94
8	gauge of traveller clearer	20	0.05	clearer	21	32	30	16						〃	99	619	31	▲ 11	35
9	level of spindle rail	50	5	span	5	3	3	2						〃	13	81	405	▲ 365	2220
10	spindle gauge setting	60	1	spindle	32	53	54	35						〃	174	1088	1088	▲1028	4500
11	function of latch hook	30	1	spindle	29	23	183	215						〃	450	2813	2813	▲2783	5031
12	tape tension	40	0.5	4 spindles	1	8	6	3						〃	18	113	57	▲ 17	109
13	upright of lifting pillar	60	2	pillar	—	—	—	—						—	—	—	—	—	—
14	height of winding bottom	40	5	frame	0	0	0	0						〃	0	0	0	40	125
15	shape of full cop	30	5	frame	0	0	0	0						〃	0	0	0	90	32
16	wear of capper neck	40	5	frame	6	10	7	5						〃	28	175	875	▲835	▲827
17	bottom roller gauge	40	10	side	—	—	—	—						—	—	—	—	—	—
18	setting of gearing	50	10	side	0	0	0	0						0	0	0	0	50	0
19	vibration of frame	40	10	frame	0	0	0	0						0	0	0	0	40	32
20	condition of bearing	50	2	bearing	0	0	0	0						0	0	0	0	50	0
	total	1,000																4836	12031

TOYOBO FUNCTION EXAMINATION TABLE FOR SHUTTLE CHANGE LOOM

(TABLE A)

Factory : Viet Thang Mill

Date : ____day 4 month, 1984 year

item No.	section to be examined	points per section	part to be examined	(A) points to be deducted per defect	(B) machine identification										(C) No. of looms examined	(D) total No. of defects	(E) No. of defects per 100 looms	(F) deducts per 100 looms	(G) points per section per 100 loom	(H) improvement since previous
					No 18 - 12	No 19 - 11	No 20 - 11	No 21 - 11	No	No	No	No	No	No						
1	shuttle stopping position	120	shuttle stopping position	1											4	2	50	-50		
			check strap, spring	3												16	400	-1200		
			shuttle condition	0.5												8	200	-100	-1230	
2	picking mechanism section	80	picking time	3												5	125	-375		
			breakage or wear of picker	2												3	75	-150		
			tightness of screw and key	1												8	200	-200	-645	
3	shedding section	120	hanging position of heald	3												7	175	-525		
			shedding time	3												1	25	-75	-480	
4	beating section	128-93	fly back pressing variation	2												6	150	-300		
			reed crip	1												2	50	-50		
			reed, box backs setting angle	2																
			shuttle race setting	3												2	50	-150		
			tightness of screws	1												9	225	-225	-632	
5	weft stop section	60	setting of weft fork	2																
			weft fork, grid breakage	2																
			clearance of weft fork & hammer catch	2												4	100	-200	-140	

TOYOBO FUNCTION EXAMINATION TABLE FOR SHUTTLE CHANGE LOOM (TABLE B)

Date : ____day 4 month, 1984 year

item No.	section	points	part to be examined	(A)	(B) machine identification	C (B)	D (G)	E (D)	F (E)	G (F)	H (C)
6	weft feeler section	~~80~~ 0	position of weft feeler finger	1							
			action of limitinglever	1							
			setting of cross spindle & hooker	1							
			remaining bunch length	2							
7	temple cutter section	~~60~~ 30	sharpness of temple cutter	2							
			position of temple	2		4	7	175	-350	-320	
8	pushing slider section	~~80~~ 0	action of pushing slider	2							
			safety spring when pushing slider acts	2							
			setting of knocking bill & V bolt	2							
9	magazine box section	~~100~~ 0	position, breakage of magazine box	2							
			position of magazine leg	1							
			tightness & breakage of bottom wire & wood controller	2							
			action of shuttle change knocking lever	2							
			action of non-shuttle stop motion	2							
10	slip catch section	60	action of slip catch when folk acts	8			4	100	-800		
			movement of slip catch when operating	2			1	25	-50	-790	
11	warp protect section	120	warp breakage stop motion	6			1	25	-150		
			position of duck bill & stop finger	2			8	200	-400		
			loosening of reed	4			3	75	-300		
			action of knocking-off	4			4	100	-400		
			function of brake	2			4	100	-200	-1330	
	total	~~685~~ ~~1,000~~								-5567	

TOYOBO **FUNCTION EXAMINATION TABLE FOR SHUTTLE CHANGE LOOM**

(TABLE A)

Factory : Viet Thang Factory

Date : ____day 9 month, 1984 year

item No.	section to be examined	points per section	part to be examined	(A) points to be deducted per defect	(B) machine identification										(C) No. of looms examined	(D) total No. of defects	(E) No. of defects per 100 looms	(F) deducts per 100 looms	(G) points per section per 100 loom	(H) improvement since previous
					No 19-08	No 20-08	No 21-09	No 22-09	No 24-09	No	No	No	No	No						
1	shuttle stopping position	120	shuttle stopping position	1											5	3	60	-60		
			check strap, spring	3												6	120	-360	-300	
			shuttle condition	0.5																
2	picking mechanism section	80	picking time	3												2	40	-120		
			breakage or wear of picker	2												2	40	-80		
			tightness of screw and key	1												2	40	-40	-160	
3	shedding section	120	hanging position of heald	3												4	80	-240		
			shedding time	3												2	40	-120	-240	
4	beating section	120	fly back pressing variation	2												2	40	-80		
			reed crip	1												2	40	-40		
			reed, box backs setting angle	2												2	40	-80		
			shuttle race setting	3																
			tightness of screws	1												2	40	-40	-120	
5	weft stop section	60	setting of weft fork	2												3	60	-120		
			weft fork, grid breakage	2												2	40	-80		
			clearance of weft fork & hammer, catch	2												3	60	-120	-260	

TOYOBO FUNCTION EXAMINATION TABLE FOR SHUTTLE CHANGE LOOM (TABLE B)

Date : ____day 9 month, 1984 year

item No.	section	points	part to be examined	(A)	(B) machine identification 1908	2008	2109	2209	2409						C (~~B~~)	D (~~C~~)	E (~~D~~)	F (~~E~~)	G (~~F~~)	H (~~G~~)
6	weft feeler section	80	position of weft feeler finger	1																
			action of limitinglever	1																
			setting of cross spindle & hooker	1																
			remaining bunch length	2																
7	temple cutter section	30	sharpness of temple cutter	2																
			position of temple	2												6	120	-240	-210	
8	pushing slider section	80	action of pushing slider	2																
			safety spring when pushing slider acts	2																
			setting of knocking bill & V bolt	2																
9	magazine box section	100	position, brcakage of magazine box	2																
			position of magazine leg	1																
			tightness & breakage of bottom wire & wood controller	2																
			action of shuttle change knocking lever	2																
			action of non-shuttle stop motion	2																
10	slip catch section	60	action of slip catch when folk act	8												2	40	-320	-260	
			movement of slip catch when operating	2																
11	warp protect section	120	warp breakage stop motion	6												1	20	-120		
			position of duck bill & stop finger	2												2	40	-80		
			loosening of reed	4												1	20	-80		
			action of knocking-off	4												2	40	-160		
			function of brake	2												2	40	-80	-400	
	total	1,000																	-1,950	

2-10

CONDITION FOR SPEED UP AND ESTIMATED INCREASE OF PRODUCTION EFFICIENCY No._____

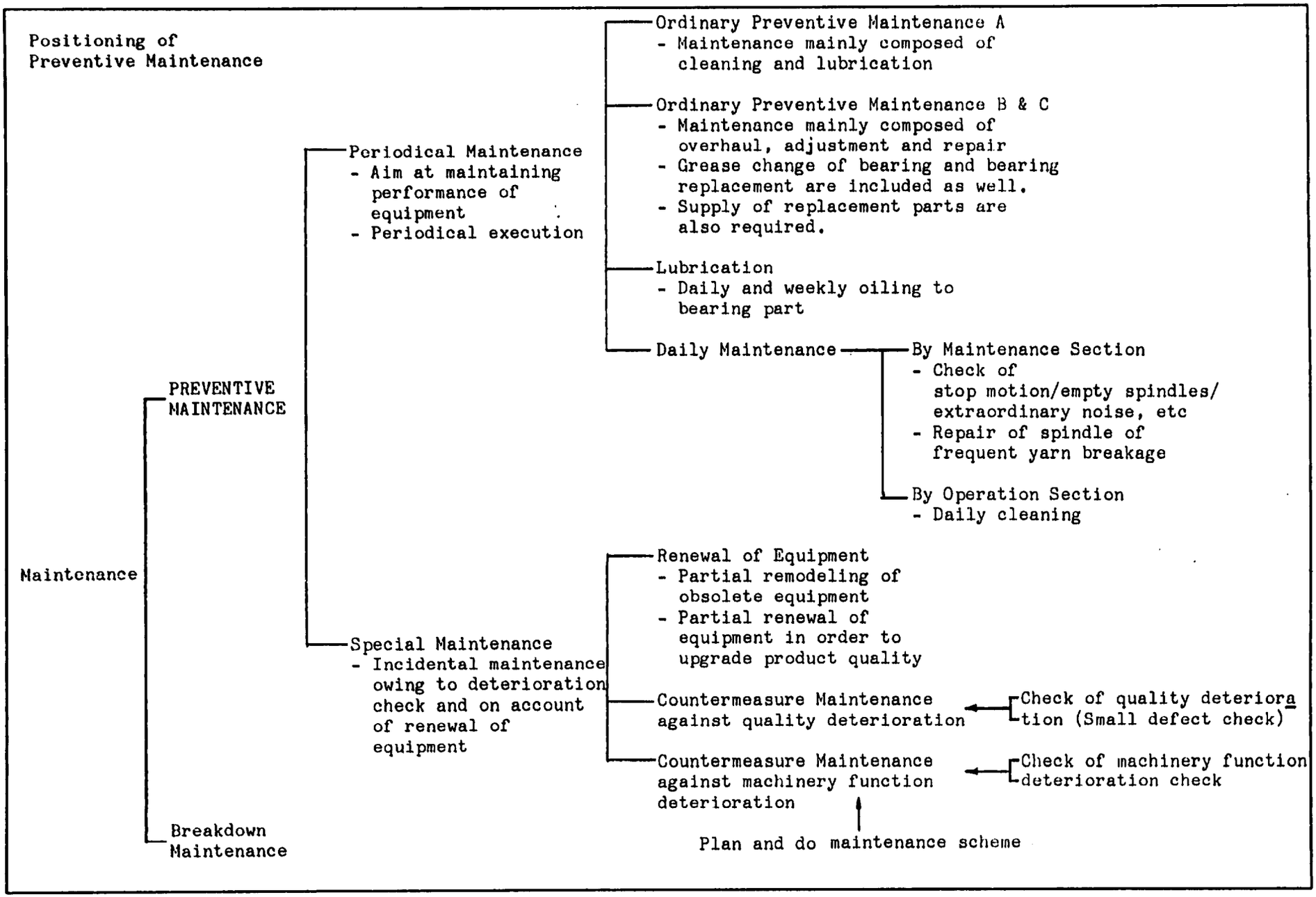
		Condition before Reconditioning Work					
Process	Production thickness	Measured RPM	Calculated delivery speed	100% Prod. /hr/frame	Estimated prod. effic.	Remark	Measured RPM
Blowing	14.6oz/yd	9"fluted roller- 11RPM	8.64yds/min	1 scutcher 473.04Lbs	68%		RPM up is nc lap roller.
Card	350grn/6yds	Doffer- 9RPM	4"calender rol 22.63yds/min	11.32Lbs	70%	7sets/32 stoppage	Doffer-10.8RF
Existing Drawframe	420grn/6yds	2"calender roller-559RPM	97.64yds/min	234.24Lbs	70%		Speed up is product qual
New Drawframe	420grn/6yds	50.5mm calender roll-1,605RPM	254.7m/min	334.37Lbs	78%		
Roving F. (FAS)	290grn/30yd	Spindle -663RPM	1-1/8"front r. 15.45yds/min	168.94Lbs	65%	1set/3sets stoppage	Spindle -700RPM
Roving F. (FAB)	290grn/30yd	Spindle -678RPM	1-1/8"front r. 16.82yds/min	133.76Lbs	68%		Spindle -750RPM
Ring S. 400sp	Ne20's	Spindle -8,550RPM	1"front roller 11.87yds/min	16.96Lbs	82%	1set/38set stoppage	Spindle -9,026RPM
RTW 720D.	Ne20's	82mm drum -1,373RPM	387.1yds/min	165.9 Lbs		1.5sets/6 stoppage	82mm drum -1,846RPM
Spooler		8-3/4"drum -934RPM	713.47yds/min				
B.C. Warper		21½"drum -323RPM	606.27yds/min				
Kanamaru Warper		24" drum -172RPM	360.38yds/min				
Scnarer PWD		Spindle -9,900RPM	At 18mm cop dia 612.49yds/min				
Sizing No.1		45m/min					
Sizing No.2		25m/min					
Loom		Crank shaft -174RPM				40sets/200 stoppage	

ATED INCREASE

No. _____ No. _____

nditioning Work			Condition after Reconditioning Work				
od. ame	Estimated prod. effic.	Remark	Measured RPM	Calculated delivery speed	100% Product. /hr/frame	Estimated prod. effic.	Remark
ner Lbs	68%		RPM up is not expected due to strength of lap roller.			85%	
Lbs	70%	7sets/32 stoppage	Doffer-10.8RPM	4"calender roller 27.15yds/min	13,58Lbs	85%	30^{t}Dandy change/33^{t}Compound change fixed for 32 cards upto Sep 20th.
Lbs	70%		Speed up is not relevant for maintaining product quality.			75%	
Lbs	78%					78%	
Lbs	65%	1set/3sets stoppage	Spindle -700RPM	1-1/8"front roll. 17.36yds/min	178.37Lbs	72%	170mm/dia. motor pulley is required.
Lbs	68%		Spindle -750RPM	1-1/8"front roll. 18.61yds/min	147.96Lbs	75%	140mm/dia. motor pulley is required.
Lbs	82%	1set/38set stoppage	Spindle -9,026RPM	1" front roller 12,40yds/min	17.80Lbs	87%	168mm/dia. motor pulley is required.
Lbs		1.5sets/6 stoppage	82mm drum -1,846RPM	520yds/min	222.86Lbs		163mm/dia. motor pulley and 128mm/dia. dandy pulley are required.
		40sets/200 stoppage					

SECTION 2


Positioning of Preventive Maintenance
Maintenance
PREVENTIVE MAINTENANCE
Breakdown Maintenance
Periodical Maintenance
- Aim at maintaining performance of equipment
- Periodical execution
Special Maintenance
- Incidental maintenance owing to deterioration check and on account of renewal of equipment
Ordinary Preventive Maintenance A
- Maintenance mainly composed of cleaning and lubrication
Ordinary Preventive Maintenance B & C
- Maintenance mainly composed of overhaul, adjustment and repair
- Grease change of bearing and bearing replacement are included as well.
- Supply of replacement parts are also required.
Lubrication
- Daily and weekly oiling to bearing part
Daily Maintenance
By Maintenance Section
- Check of stop motion/empty spindles/ extraordinary noise, etc
- Repair of spindle of frequent yarn breakage
By Operation Section
- Daily cleaning
Renewal of Equipment
- Partial remodeling of obsolete equipment
- Partial renewal of equipment in order to upgrade product quality
Countermeasure Maintenance against quality deterioration
Check of quality deterioration (Small defect check)
Countermeasure Maintenance against machinery function deterioration
Check of machinery function deterioration check
Plan and do maintenance scheme

No.

ORGANIZATION FOR IMPLEMENTATION OF PREVENTIVE MAINTENANCE SCHEME

The preventive maintenance scheme in Viet Thang Factory is operated by vertical organization involving technical staffs from Technical Deputy Director till each maintenance technician. It can be summerized in attached organization chart.

The flow of order giving, report and feedback, and monitoring throughout the organization can be epitomized as follows.

Technical Deputy Director ←(5)→(6) Technical Deputy Head ←(4)→(1) Group Leader ←(3)→(2) Group Workers

1) Technical Deputy Heads of Spinning 1 and Weaving 1 who are virtually responsible for the implementation of Preventive Maintenance System (PMS) shall draw up a Monthly Programme indicating each maintenance item planned during one month in terms of each group or section, in accordance with the established maintenance procedure, and after getting approval of the Technical Deputy Director shall hand it to group leaders as instruction sheet at latest ten days before the beginning of the month.

2) The group leader (or sub-leader in case of absence of the leader) of 5 groups of Spinning 1, 2 groups of Weaving 1 and 1 group of Spinning 2 shall allocate every day ordered works to each group workers in compliance with activities specified in aforesaid programme. This instruction is made by means of Job Instruction Card specifying the job for technicians to do. The leader must prepare beforehand necessary number of job card to be handed to workers. This work order is desirable to be given at latest on the previous day of implementation day.

3) Worker technicians assigned for an activity of maintenance must do their job as specified in the card and every time

an ordered work is completed, he shall return it to the group leader within the day of designated work in token of confirmation of fulfilment of assigned job after filling out necessary issues in the card.

4) The leader collects such job cards after completion of allocated job and he shall fill out Check Sheet of various maintenance activities on the basis of both returned job cards and his own check on the scene. In the meantime he shall make a Daily Report for reporting purpose to Technical Deputy Director and shall hand it to him immedeately after completing of planned daily activities.

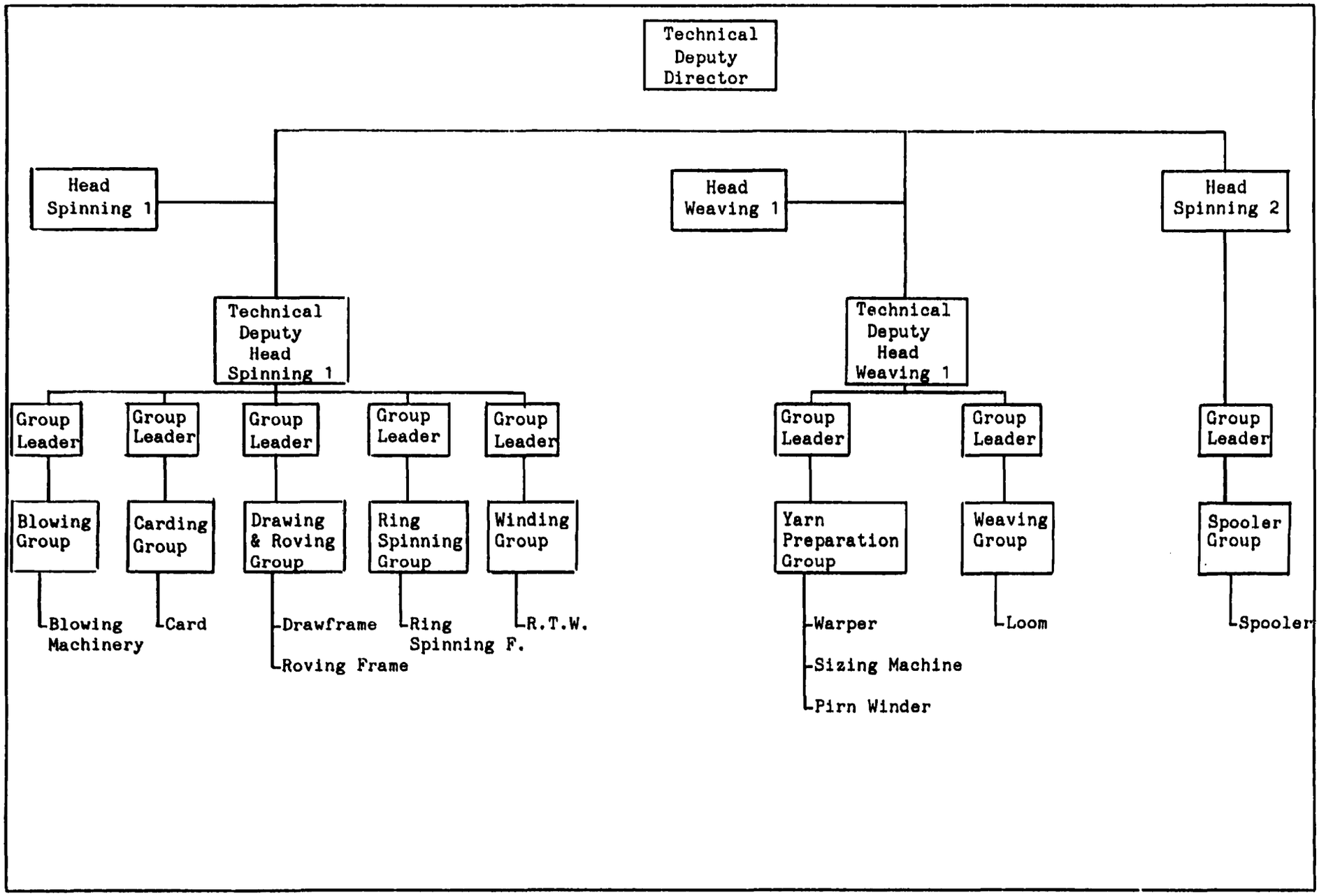
5) Technical Deputy Head shall prepare in his turn Weekly Report for the reporting purpose to the Technical Deputy Director, summerizing progress of preventive maintenance scheme, important incidents which took place and necessary modification of the scheme, etc. and attaching as the case may be, daily reports received from Group Leaders. He shall transmit weekly report to his superior at every monday following the week.

6) Technical Deputy Director checks and monitors the implementation results of preventive maintenance scheme in accordance with the report by Technical Deputy Heads and with meetings with them to be held from time to time.

Note.-

Underlined forms are attached herewith and compiled in the Manual for Implementation of PMS.

ORGANIZATION CHART FOR PREVENTIVE MAINTENANCE SCHEME



JOB DESCRIPTION OF KEY PERSONNEL

1. Worker technician
   1) To carry out assigned maintenance work on the basis of given job card
   2) To be obliged to report the completion of assigned work and return the job card duly filled up and signed by him to his leader immediately after the completion of the work
   3) To report to his leader his findings relating to necessity of replacement and/or repair of parts in the course of fulfilment of his assigned work.

2. Group Leader & Sub-leader
   * Definition of sub-leader
     He shall substitute leader at absence of the latter.
     He shall work under command of his leader as other workers but be expected to give relevant assistance and advice to the leader.
   1) To assign each maintenance work ordered by the deputy head to each of his worker technicians, taking account of time and personnel required for the implementation of assigned work. The order is shown by the presentation of each job card to each member worker. For such purpose, he shall prepare beforehand necessary number of job cards.
   2) To collect each job card from his personnel and record outcomes of each activity carried out in the check sheet in terms of each maintenance items.
   3) To make daily report to the Deputy head regarding the progress of preventive maintenance.
   4) To be obliged to make necessary contact with the Production department to as to ensure beforehand no hitch impeding the implementation of maintenance activities.
   5) To be obliged to hand tools required for each activity to workers and to withdraw them at the beginning and end of every day.
   6) To be responsible for store of maintenance tools

7) To be obliged to make daily report to his deputy head as regards the result of ordered work by means of prescribed report form.

8) After being reported by workers of necessity of replacement and/or repair of parts, he shall make necessary decision about what to do and be in charge of making claim note for supply of new parts and/or for repair at the workshop and shall pass that note to the Deputy head.

9) To give relevant advice and assistance from time to time to the job of his workers, working together with them, except when he is engaged in his own assigned work.

3. Technical Deputy Head of Spinning 1 & Weaving 1

1) To draw up monthly programme for PMS in terms of each section and transfer it to each group leader for the implementation of all activities involved there at latest 10 days before starting first day of the month.

2) He shall hand one copy of monthly programme to Head of production department so as to get prior consent of the production department to stoppage of machinery required for planned activities. Such coordination should be finalized before fist day of the programme.

3) To check daily outcome of each activity , in accordance with daily report submitted by leader of each section.

4) To control and take necessary action for satisfactory implementation of PMS. He shall grasp ongoing situation and get rid of any obstacle to smooth implementation of PMS, trying as much as possible to inspect the spot of activities.

5) He shall deal without delay with claim note for new parts and repair requested by each leader and be responsible for arrangement for readiness of these in time.

6) Prior to drawing up a monthly programme, he shall listen to Technical Deputy Director for special policy or notes to take, if any, and he has to get approval of Technical Deputy Director about drawn up monthly programme.

7) He shall submit weekly report to Technical Deputy Director on every monday, attaching progress report utilizing copy of monthly programme painted by respective marking colour in column of each machine. He must inform immediately modification of plan and implementation of PMS in an unavoidable case to Technical Deputy Director.

4. Technical Deputy Director

1) He shall check monthly programme submitted by Technical Deputy Head by 20th every month and approve it adding necessary opinion and instructing to the latter an assured implementation of the programme.

2) He shall check weekly report submitted by Technical Deputy Head on every monday and return it without delay to the Deputy Head, after confirming the situation of planning and implementation of PMS.

3) He shall from time to time contact his staffs involved in the scheme so as to monitor the smooth implementation of preventive maintenance.

C A R D

Classification of Maintenance	Frequency	Items to be carried out
Ordinary Preventive Maintenance A (by 2 persons/day/set)	Once every 3 months	1. Taker-in part a) Disassembling and cleaning of taker-in roller b) Checking of bearing and grease change c) Adjustment of gauge relating to casing d) Checking of garnet wire, mending or replacement 2. Cylinder part a) Adjustment of gauge between cylinder and flat b) Cleaning of waste cotton inside the flat 3. Doffer and coiler part a) Disassembling and cleaning of doffer gear part b) Disassembling and cleaning of coiler part c) Inspection of fly comb box d) Adjustment of gauge between cylinder and doffer e) Adjustment of gauge of fly comb
Ordinary Preventive Maintenance B (by 3 persons/day/set)	Once every year	1. Inspection record of cylinder, doffer MCC, flat wire and taker-in garnet wire. Drawing up of a plan of rewinding, if necessary. 2. Grease change for cylinder bearing 3. Check and record of eccentric movement of cylinder and doffer 4. Disassembling and repair of fly comb box 5. Disassembling and repair of horse roller. Eccentric movement check 6. Disassembling and cleaning of flat part a) Disassembling of flat, washing of chain and check of extension b) Examination of height of needles and its adjustment c) Disassembling and repair of grinding bracket 7. Inspection and adjustment of gauge a) Gauge with each bend and sheet b) Gauge between cylinder and flat c) Gauge between cylinder and doffer
Daily Control (Inspection and record)	Once a day	1. Inspection of web, record of nep and leaf 2. Checking if oil is run out. 3. Inspection of damage and defects of cylinder doffer MCC and flat wire 4. Checking if fly comb is resisting and its mending 5. Removal of waste cotton adhered to doffer ends

Classification of Maintenance	Frequency	Items to be carried out
Stripping of Cylinder & Doffer	1 time a day	1. To carry out the stripping of cylinder and doffer to one third of cards equipped per day. 2. To carry out the cleaning of casing cylinder and taker-in to card stopped for the stripping.
Lubrication for Machine A	once a day	1. Driving pulley 2. Dandy pulley, draw box, end bracket 3. 4" calender, 2" calender, coiler cannon bracket 5. Grooved pulley
Lubrication for Machine B	once 2 weeks	1. Lap roller and carrier wheel 2. Feed roller 3. Cam stud 4. Around the plain block 5. Doffer shaft 6. Inside the coiler pillar
Grinding of MCC & Flat Wire		
1. Cylinder	once 2 months	About 2 hours when MCC is new (within one year use)
2. Doffer	once 4 months	Ditto
3. Flat	once 2 months	For 48 hours (light grinding)

Cleaning by Operator

Hour	A	B	C	D	E
)	x	x			
1.00					
)			x		
2.00					
)		x			x
3.00					
)				x	
4.00					
)	x	x			
5.00					
)			x		
6.00					
)		x			x
7.00					
)		x			x
8.00					

Note.-(A. Removal of waste cotton under cylinder and doffer.)
Frequency - once per 3 days
A. Removal of waste cotton under taker-in roller.
B. Brushing and cleaning of card front part.
C. Removal of flat strips
D. Cleaning of circular brush & brass comb
E. Cleaning of machinery and floor

Checking on Deterioration of Machinery Function — Once 6 months

Checking on Deterioration of Output Quality (Small defects check) — Once 6 monyhs

CARD (32SETS OF TOYODA CE TYPE)

1. Ordinary Maintenance for Control Parts

1.1 Frequency 3 months

To be carried out at the same time as "Ordinary maintenance A"

1.2 Number of technicians required

2 (skilled and semi-skilled)

1.3 Maintenance items

1) Check, correction and cleaning inside fuse box and switch box
2) Check, correction and cleaning of each push button switch
3) Check and correction of insulation of each cable
4) Check and correction of earth of each frame
5) Cleaning and lubrication for each motor and check and correction of bearings
6) Check and correction of slack terminal screw
7) Check and correction of defective safety cover of each electric apparatus

2. Ordinary Maintenace of Flat Grinding Machine

2.1 Frequency 1 year

2,2 Number of technicians required

2 (skilled and semi-skilled)

2.3 Maintenance items

1) Dismantling of each belt and loose pulley
2) Cleaning of slider part, roller shaft and frame
3) Cleaning of each oiling hole
4) Cleaning and lubrication of gear part
5) Lubrication for each oiling hole and rotating part
6) Cleaning, lubrication and mounting of loose pulley
7) Horizontal alignment of roller
8) Correction of shaky slider
9) Check and correction of slackness of each screw
10) Check of vibration

3. Ordinary Maintenance of Flat Clipping Machine

3.1 Frequency

1 year

3.2 Number of technicians required

2 (skilled and semi-skilled)

3.3 Maintenance items

1) Cleaning of each part
2) Visual check of vice edge and shape of nail tip
3) Check whether relation of vices at both sides with groove coincides in case of most advanced and backed position.
4) Check by gauge plate in left, middle and right side of both sides whether there is no gap between bar and vice in the event that a bar is fitted to a stretcher and is tightend by the vice.
5) Check of tightness of each screw and lubrication

4. Ordinary Maintenance of Wire Mounting Machine

4.1 Frequency

Every time of wire mounting

4.2 Number of technicians required

2 (skilled and semi-skilled)

4.3 Maintenance items

1) Detaching top and bottom roller by withdrawing top and bottom roller shaft
2) Cleaning and lubrication of each part of top and bottom roller
3) Fitting and oiling of top and bottom roller
4) Cleaning and lubrication of jack

5. Ordinary Maintenance of Bare Surface Grinder

5.1 Frequency

6 months

5.2 Number of technicians required

2 (skilled and semi-skilled)

5.3 Maintenance procedure

1) Overhaul, cleaning, lubrication and assembling of safety covers, screw, roller shaft metal, traverse guide, guide fork, holder, etc.
2) Tightening each screw. To tighten to full extent nut screwing up grinding stone of holder among others.

6. Ordinary Maintenance of horse wheel grinding roller

6.1 Frequency

2 months

6.2 Number of Personnel required

3. (1 skilled and 2 semi-skilled)

6.3 Maintenance Procedure

1) To peel off emery
2) Cleaning of tube disc
3) Winding of emery
4) To lubricate to shaft and differential gear.

7. Ordinary Maintenance of Long Roller

7.1 Frequency

6 months

7.2 Number of personnel required

3 (1 skilled and 2 semi-skilled)

7.3 Maintenance procedure

1) To detach emery
2) Dismantling, cleaning and greasing up of gear box part
3) Cleaning of overall surface
4) Check of eccentricity of roller
5) Winding up of emery

EQUIPMENTS AND TOOLS REQUIRED FOR PREVENTIVE MAINTENANCE Section: Card

Names	Specification	For Ordinary Preventive Maintenance A	For Ordinary Preventive Maintenance B	For Daily Maintenance	For Lubrication	For Operative's Cleaning
1. Spanner	3/16" x 5/16, ½ x 7/16, 5/8 x 9/16 11/16 x 9/16 3/4 x 9/16	1 set	1 set			
2. -do-	7/8 x 3/4 1-1/8 x 7/8	ea.1				
3. -do-	2 x 1½	1				
4. -do- chrysanthemum type	7/8 x chrysanthemum		1			
5. Driver	½ x 8" (-)	1	1			
6. -do-	6" (+)	1				
7. Thickness gauge	4/1000", 5",6",7",8" 9",10",12"	1 set	1 set			
8. L-type thickness gauge (for flat)	6/1000",7",8",9",10" 12"		1 set			
9. Thickness gauge for gap	1.5/1000" to 15/1000	1 set	1 set			
10. Special gauge for grinding bracket	For lifter & slide box		ea.1			
11. Hexagonal box spanner L type	7/8"	1				
12. Box spanner long-L type	9/16" x 11/16		1			
13. Box spanner T type	7/8" (hexagonal)	1				
14. Ordinary box spanner	3/4 x 7/8 (hexagonal	1				
15. -do-	1 x 3/4, ½ x 5/8 (square)	ea.1				
16. Monkey wrench			1			
17. Flat screw handle			1			
18. Flat revolving handle			1			
19. Tool for raising and lowering taker in roller		1				
20. Gauge for taker in under-casing		1				
21. Height gauge for cylinder casing	2¼"	1				
22. Scribing block		1				
23. Gauge remover of fly in MC				1		
24. Tool for dismantling and assembling fly comb	Ball bearing type	1 set				

EQUIPMENTS AND TOOLS REQUIRED FOR PREVENTIVE MAINTENANCE Section: Card

Names	Specification	For Ordinary Preventive Maintenance A	For Ordinary Preventive Maintenance B	For Daily Maintenance	For Lubrication	For Operative's Cleaning
25. T type handle	For grinding clothing	1	1	1		
26. Plate gauge	1/32",1/16",1/8",¼"	ea.1				
27. Handle for doffer wheel tightening	Radial handle	1				
28. Iron hammer	1½ lb	1	1			
29. Oiler		1	1	1	1	
30. Hand brush	For machine cleaning	2	1	1		1
31. Long grip brush	For cleaning of cylinder casing	1	1	1		1
32. Iron belt for bend cleaning	large & small	ea.1	ea.1	ea.1		ea.1
33. Rag	Some quantity					
34. Deck brush	For floor cleaning			2		2

CARD — 32 sets of TOYODA card

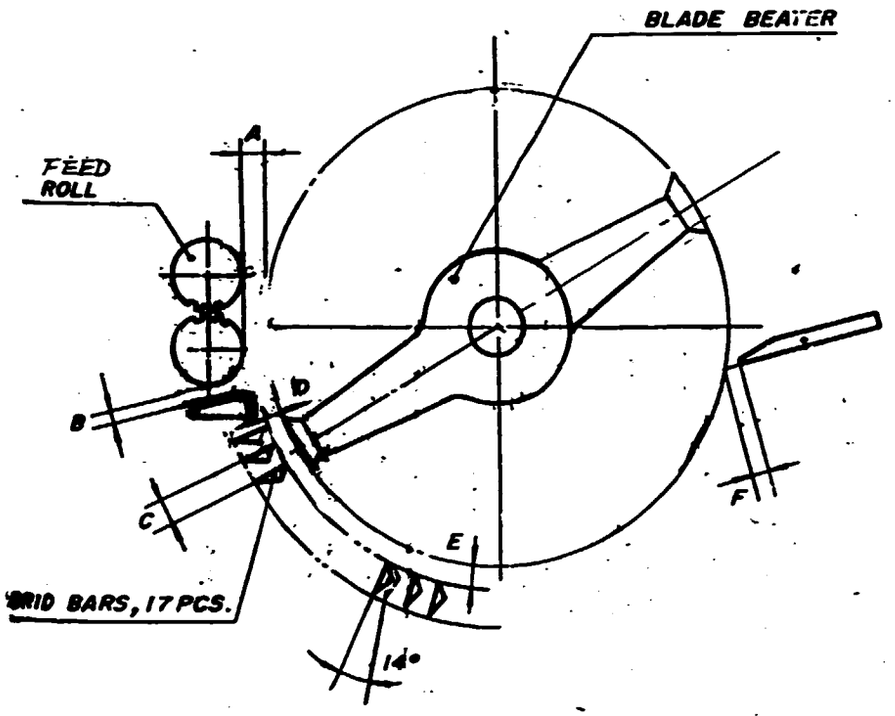
NOTE :- 1. WORKING TIME — 1 DAY = 8 HOUR, 1 WEEK = 6 DAYS, 1 MONTH = 25 DAYS
2. ACTUAL WORKING TIME FOR GRINDING 30 MIN. / 1 CARD.

Standard Frequency and Necessary Staffs

	D(DAY)	t(MIN)			m(PERSONS)		M CALCULATING NECESSARY STAFFS PER DAY
Kind of maintenance	Frequency	Time required	Interval	Group	Technicians		$M = \frac{m \times t \times \text{sets of M/C}}{D \times 8\,Hr. \times 60\,Min}$
					Skilled	Semi-sk	
Ordinary preventive Maintenance A	3 months	1 day/ 1 card	1 card/ 3 days	1	1	1	$M = \frac{2^P \times 8\,Hr. \times 60^{MIN} \times 32^{SETS}}{3^{MONTH} \times 25^{DAYS} \times 8\,Hr. \times 60^{MIN}} = 0,9$
Ordinary Preventive Maintenance B	1 year	1 day/ 1 card	1 card/ 10 days	1	1	2	$M = \frac{3^P \times 8\,Hr. \times 60^{MIN} \times 32^{SETS}}{12^{MONTH} \times 25^{DAYS} \times 8\,Hr. \times 60^{MIN}} = 0,3$
Daily Maintenance	1 day	10 min/ 1 card	32 cards/ 1 day	1	1	1	$M = \frac{2^P \times 10^{MIN.} \times 32^{SETS}}{1^{DAY} \times 8\,Hr. \times 60^{MIN}} = 1,3$
Stripping of cylinder & doffer	3 day	5 min/ 1 card	11 cards/ 1 day	1	1	2	$M = \frac{3^P \times 5^{MIN} \times 32^{SETS}}{3^{DAYS} \times 8\,Hr. \times 60^{MIN}} = 0,3$
Lubrication A	1 day	10 min/ 1 card	32 cards/ 1 day	2	0	2	$M = \frac{1^P \times 10^{MIN.} \times 32^{SETS}}{1^{DAY} \times 8\,Hr. \times 60^{MIN}} = 0,7$
Lubrication B	2 weeks	20 min/ 1 card	3 cards/ 1 day	1	0	1	$M = \frac{1^P \times 20^{MIN.} \times 32^{SETS}}{2^{WEEKS} \times 6^{DAYS} \times 8\,Hr. \times 60^{MIN}} = 0,1$
Grinding of MCC & flat wire — Cyl.	2 months	2 hours/ 1 card	1 card/ 2 days	1	1	1	$M = \frac{2^P \times 30^{MIN.} \times 32^{SETS}}{2^{MONTH} \times 25^{DAYS} \times 8\,Hr. \times 60^{MIN}} = 0,08$
Dof.	4 months	2 hours/ 1 card	1 card/ 4 days	1	1	1	$M = \frac{2^P \times 30^{MIN.} \times 32^{SETS}}{4^{MONTH} \times 25^{DAYS} \times 8\,Hr. \times 60^{MIN}} = 0,04$
Flat	2 months	48 hours/ 1 card	1 card/ 2 days	1	1	1	$M = \frac{2^P \times 30^{MIN.} \times 32^{SETS}}{2^{MONTH} \times 25^{DAYS} \times 8\,Hr. \times 60^{MIN}} = 0,08$
Daily cleaning	1 day				Each operative		TOTAL 3,8 ↙ 5,0
Checking on deterioration	6 months	1 day 1 card	1 card/ 6 months	1	1	0	

BLOW ROOM M/C

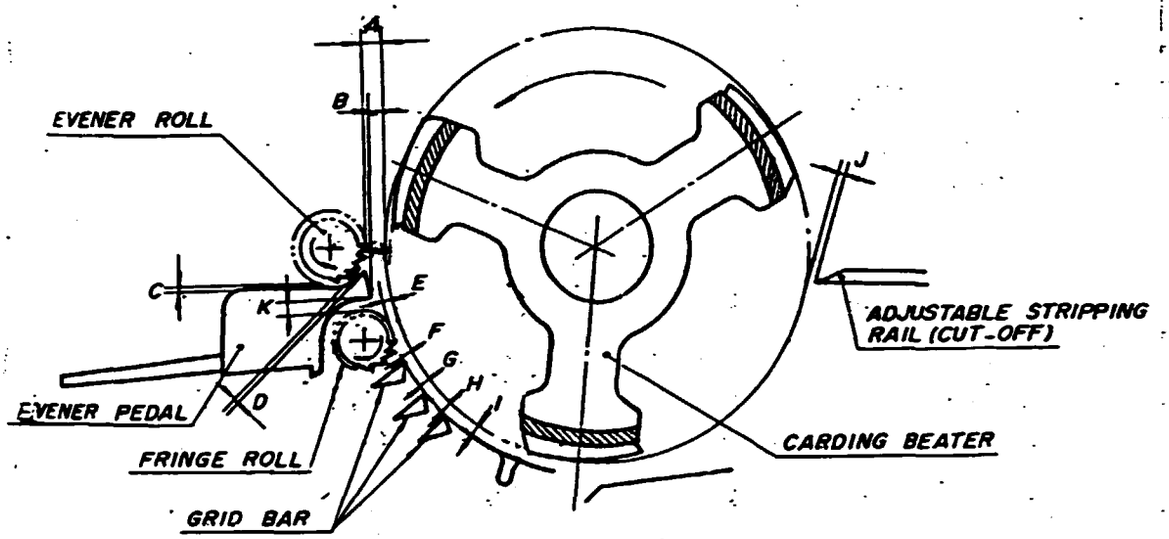
GAUGE OF 2-BLADE BEATER OF SCUTCHER



CODE	INSPECTED PARTS	GAUGE (mm)
A	BEATER TO FEED ROLL	11
B	FEED ROLL TO DEFLECTOR PLATE	8
C	GRID BAR TO GRID BAR	25
D	BEATER TO GRID BAR	11
E	BEATER TO GRID BAR	18
F	BEATER TO ADJUSTABLE STRIPPING RAIL(CUT-OFF)	1.5

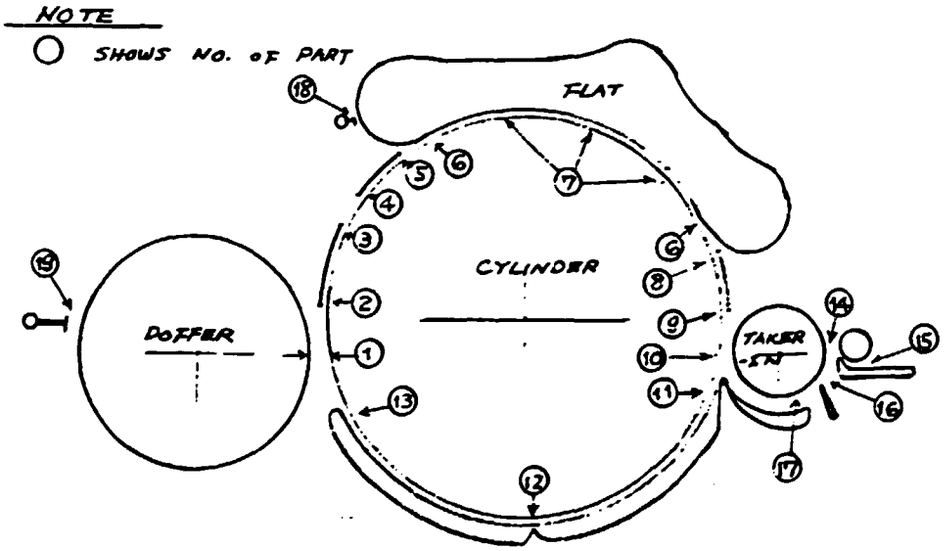
BLOW ROOM M/C

GAUGE OF CARDING BEATER OF SCUTCHER



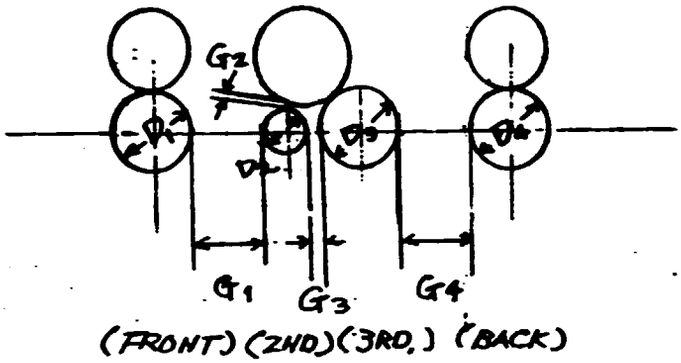
COAD	INSPECTED PARTS	GAUGE STANDARD (mm)
A	CARDING BEATER TO EVENER ROLL	8
B	CARDING BEATER TO EVENER PEDAL	6
C	EVENER ROLL TO EVENER PEDAL	0.3
D	EVENER ROLL TO EVENER PEDAL	0.12
E	FRINGE ROLL TO CARDING BEATER	0.8
F	GRID BAR TO CARDING BEATER	9.5
G	GRID BAR TO CARDING BEATER	8
H	GRID BAR TO CARDING BEATER	6.5
I	STEEL BOTTOM SHEET TO CARDING BEATER	8
J	CARDING BEATER TO ADJUSTABLE STRIPPING RAIL(CUT-OFF)	1.6
K	EVENER PEDAL TO FRINGE ROLL	19

Classification of Maintenance		
Setting of Gauge for Machine (TOYODA)		
No.	Name of Part	Setting Gauge (inch or 1/1000 inch)
1	Cylinder - Doffer	5/1000"
2	Front sheet - Cylinder	34
3	Front sheet - Cylinder	34
4	Front sheet - Cylinder	34
5	Frpnt sheet - Cylinder	24
6	Flat bar - Cylinder	10
7	Flat bar - Cylinder	9
8	Back sheet - Cylinder	12
9	Back sheet - Cylinder	22
10	Taker-in roller - Cylinder	9
11	Under casing - Cylinder	30
12	Under casing - Cylinder	1/16
13	Under casing - Cylinder	1/8
14	Taker-in roller - Dish plate	10
15	Feed roller - Dish plate	5
16	Mote knife - Taker-in roller	12
17	Taker-in under casing	1/4
18	Stripping comb - Flat bar	
19	Fly comb - Doffer	15



DRAWING FRAME — TOYODA DK TYPE

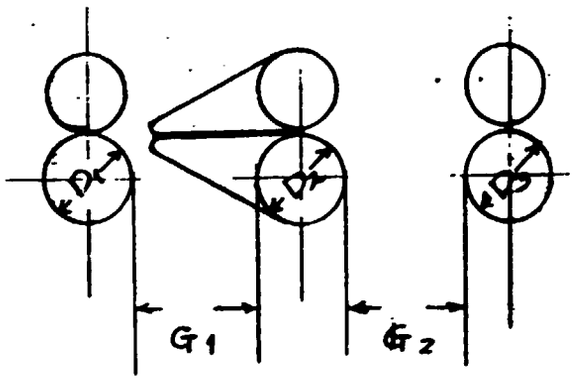
SETTING GAUGE OF BOTTOM ROLLER



D1	28.6 mm φ	
D2	19.2 mm φ	
D3	35.0 mm φ	
D4	35.0 mm φ	
	(1ST.)	(2ND.)
G1	6.0 mm	7.0 mm
G2	1.5 mm	1.5 mm
G3	11.25 mm	11.25 mm
G4	6.0 mm	7.0 mm

ROVING FRAME — TOYODA FAS TYPE

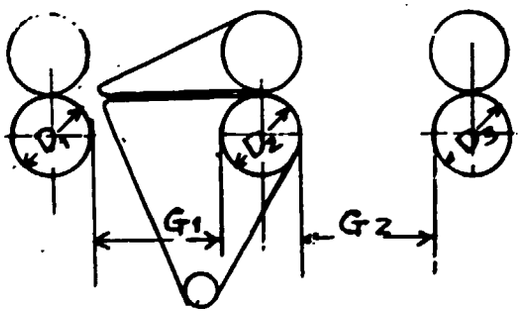
SETTING GAUGE OF BOTTOM ROLLER



D1	28.6 mm φ
D2	25.4 mm φ
D3	28.6 mm φ
G1	21 mm
G2	22 mm

ROVING FRAME — TOYODA FAB TYPE

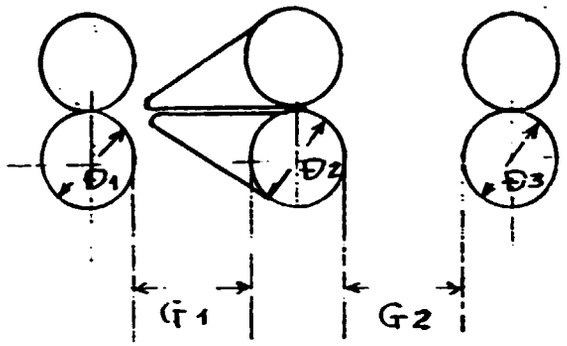
SETTING GAUGE OF BOTTOM ROLLER



D1	28.6 mm φ
D2	25.4 mm φ
D3	28.6 mm φ
G1	19.0 mm
G2	22.0 mm

RING SPINNING FRAME

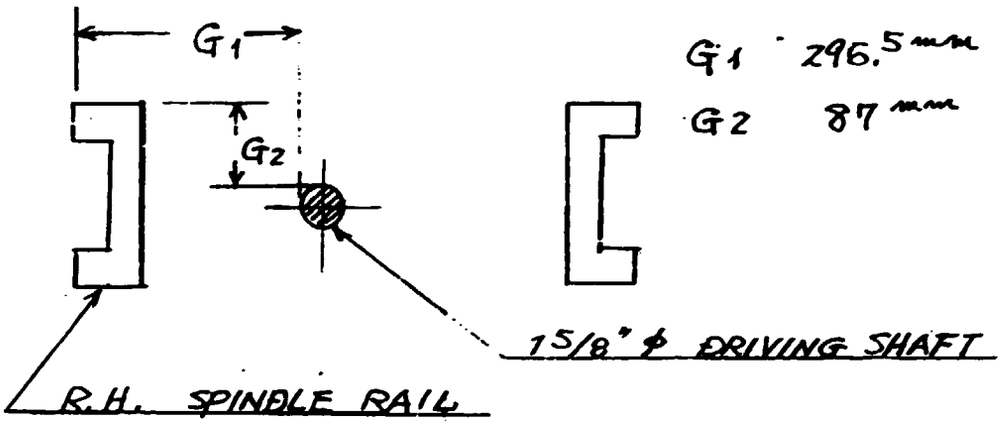
SETTING GAUGE OF BOTTOM ROLLER



D_1	1" ϕ
D_2	1" ϕ
D_3	1" ϕ
G_1	19 mm
G_2	29.4 mm

(FRONT) (2ND.) (BACK)

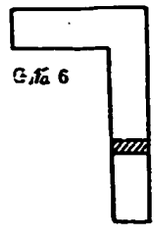
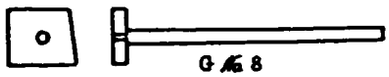
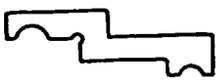
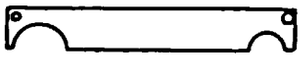
SETTING GAUGE OF DRIVING SHAFT



G_1	296.5 mm
G_2	87 mm

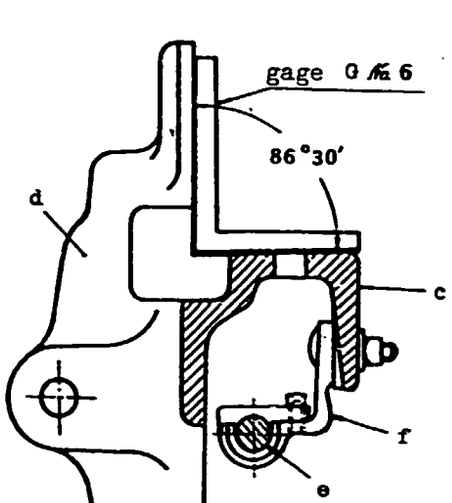
SETTING GAUGE FOR TOYODA LOOM

1. Following gauges imported for the Project are available for the use at the maintenance at loom running and downtime.

Calling of Gauge	Description of Gauge
 G/Ga 6 — Angle gauge (86°30′)	
 G/Ga 8 — Angle gauge (86°30′)	
 G/Ga 9 Angle gauge (90°)	
 G/Ga 20A	Gauge for pinion shaft
 G/Ga 23A	Gauge for swing rail shaft
 G/Ga 24	Gauge for height of lathe sword
 G/Ga 25	Gauge for fixing cloth roller bracket
 G/Ga 26	Gauge for height of temple rod
 G/Ga 28	Gauge for front cloth rail
 G/Ga 29	Gauge for back cloth rail

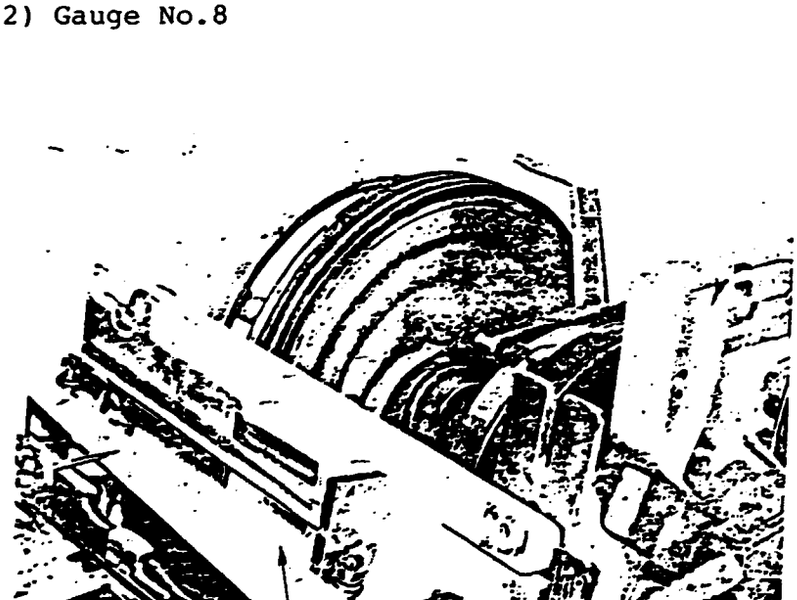
2. How to use these gauges is shown in the following.

1) Gauge No.6

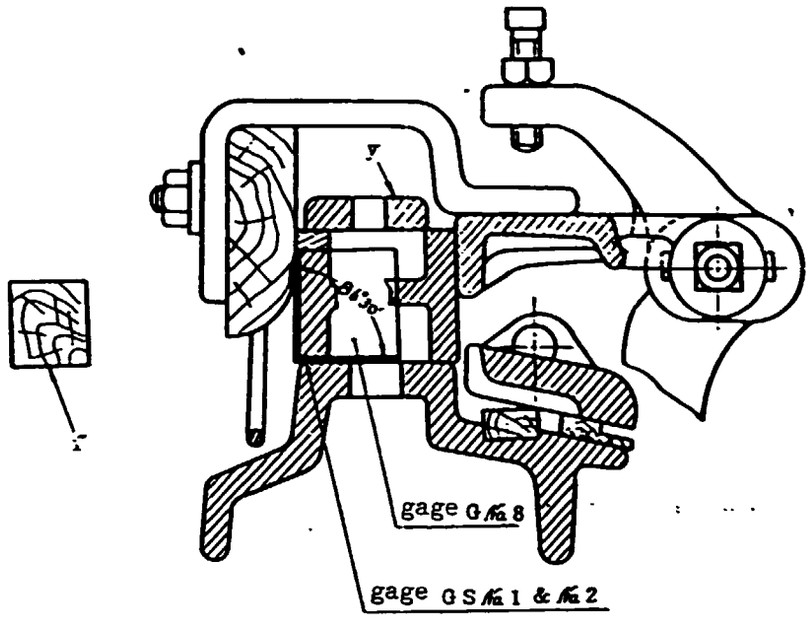


c lathe
d lathe sword
e reed stop rod
f middle bracket

2) Gauge No.8

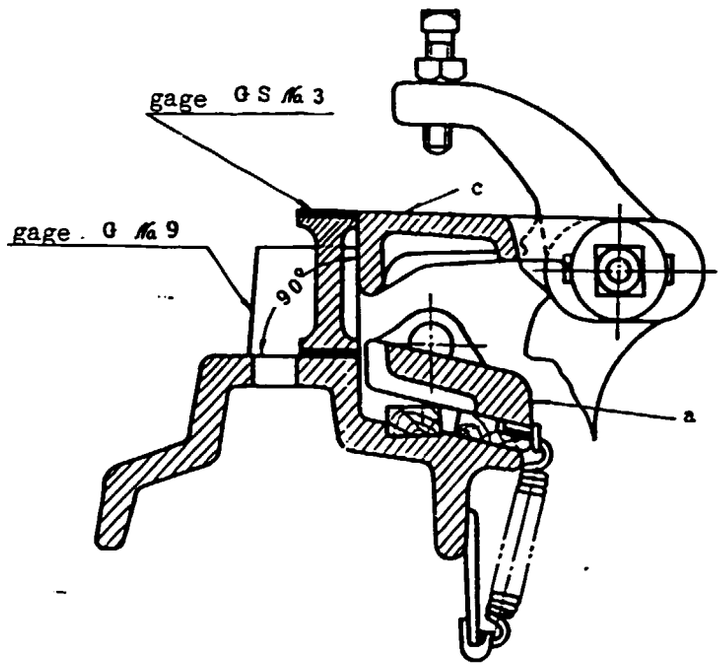


Gauge GS No.8



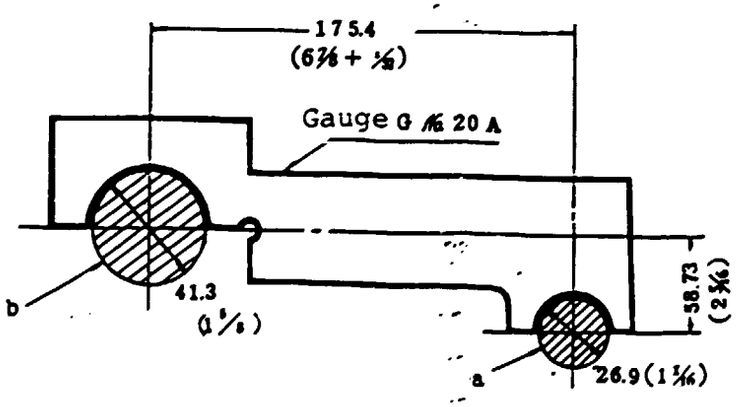
f wood
controller
y shuttle
top guard

3) Gauge No.9



a front tongue
c front snap guard

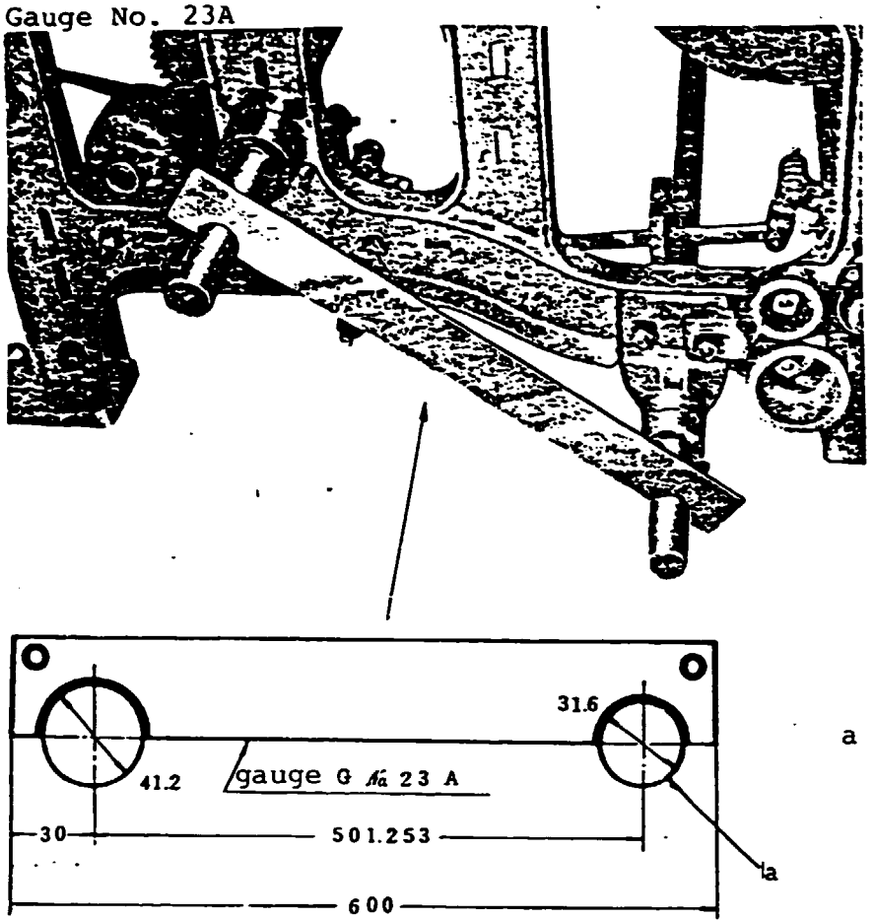
4) Gauge No.20A



a pinion shaft
b tappet shaft

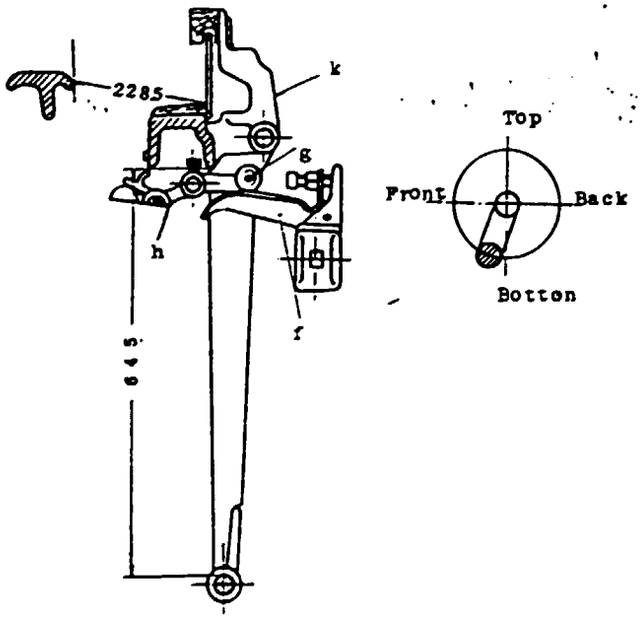
150

5) Gauge No. 23A



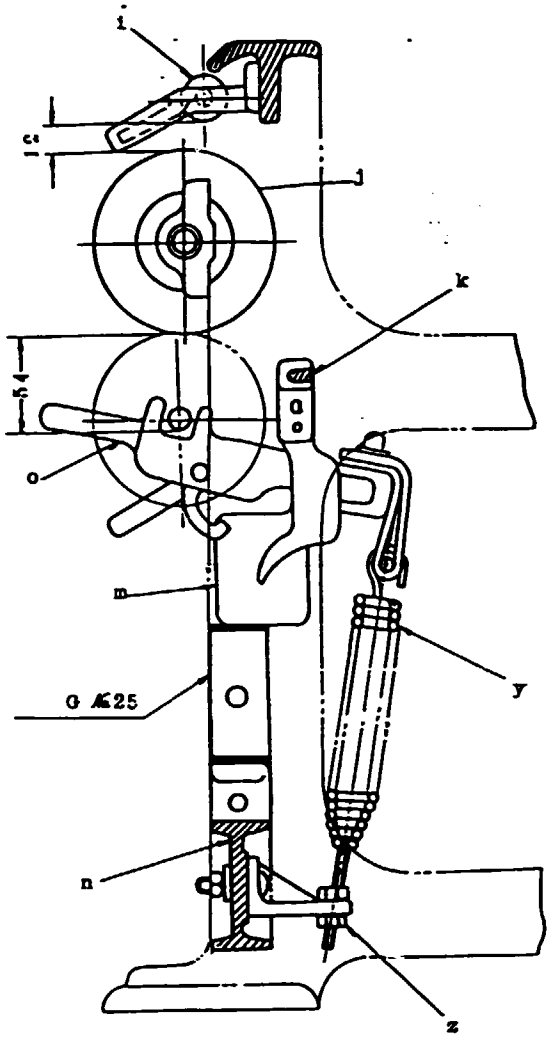
a swing rail shaft

6) Gauge No.24



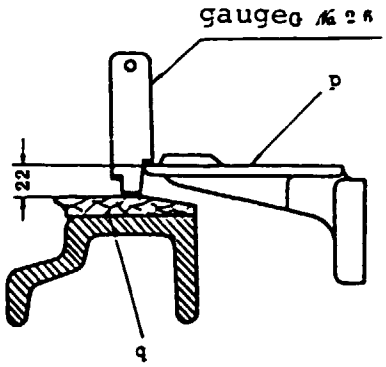
f bend slider
g bowl
h bend slider
bowl lever
k lathe sword

7) Gauge No.25



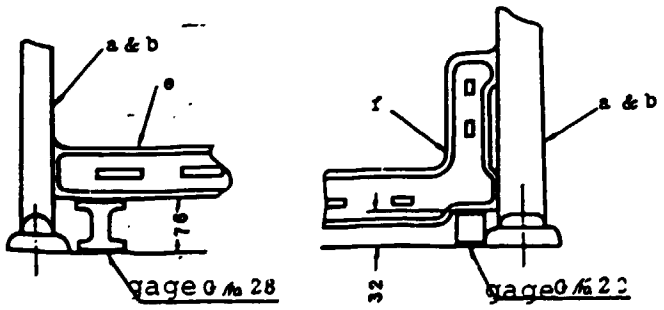
i twitch roller
j surface roller
m cloth roller bracket
n front cloth rail
o cloth roller lever
y cloth roller lever spring
z adjust screw

8) Gauge No. 6



p temple slider bracket
q wood thrash

9) Gauge No.28 & 29



a side frame
b side frame
e front cloth rail
f back cloth rail

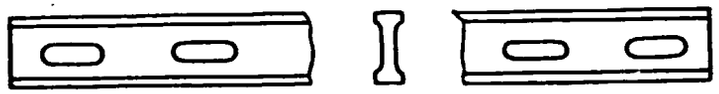
3. In addition to setting gauges aforesaid, following gauges are used for the maintenance activity.

Gauge GS № 1

Used for shuttle box

GS № 2

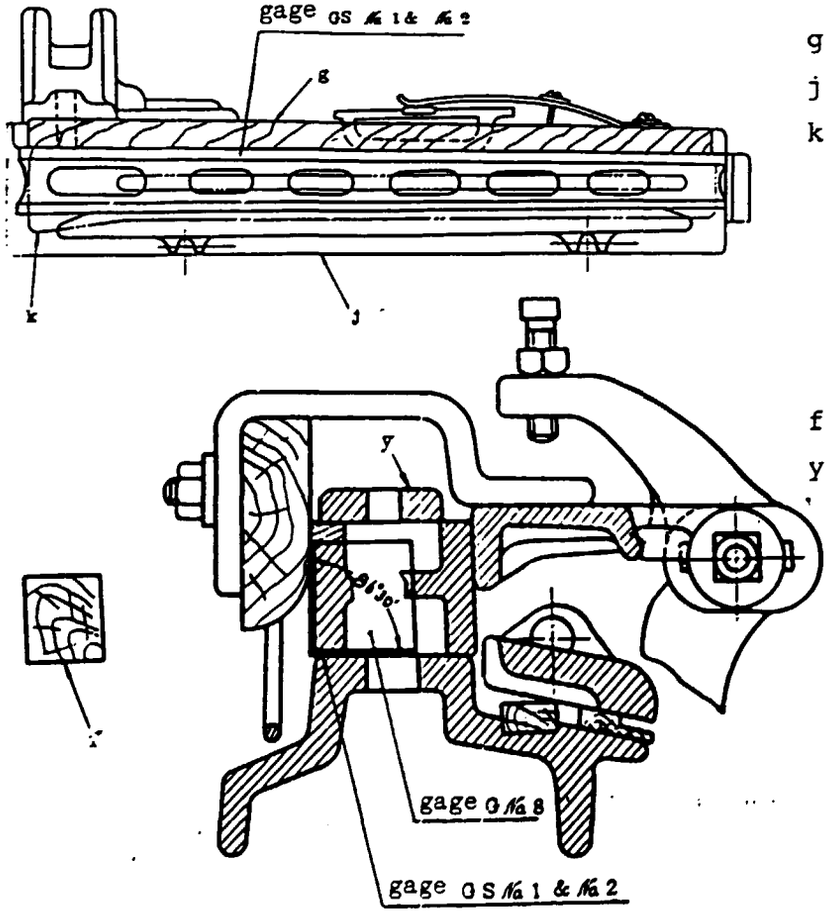
Used for shuttle box



GS № 3

Used for front snap guard

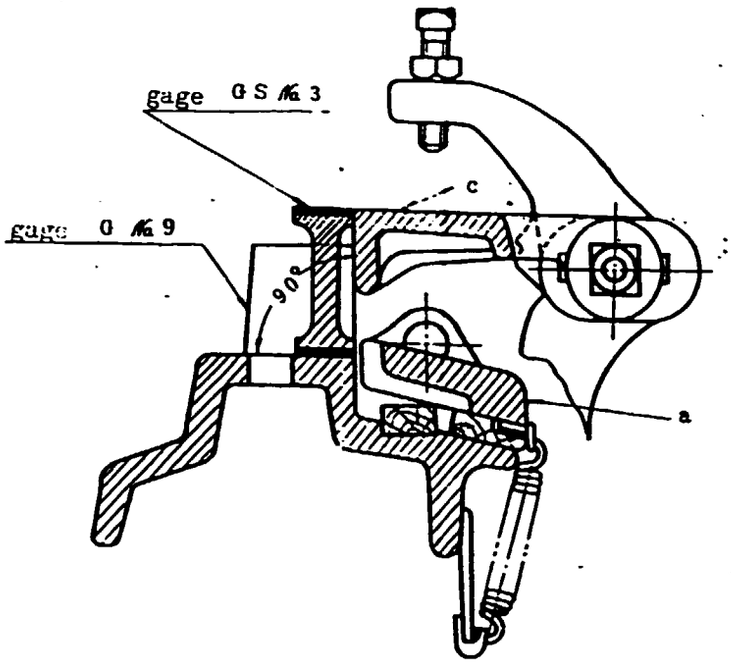
1) Gauge No. 1 & No.2



g box back
j front guard
k top guard

f wood controller
y shuttle top guard

2) Gauge No. 3



a front tongue
c front snap guard

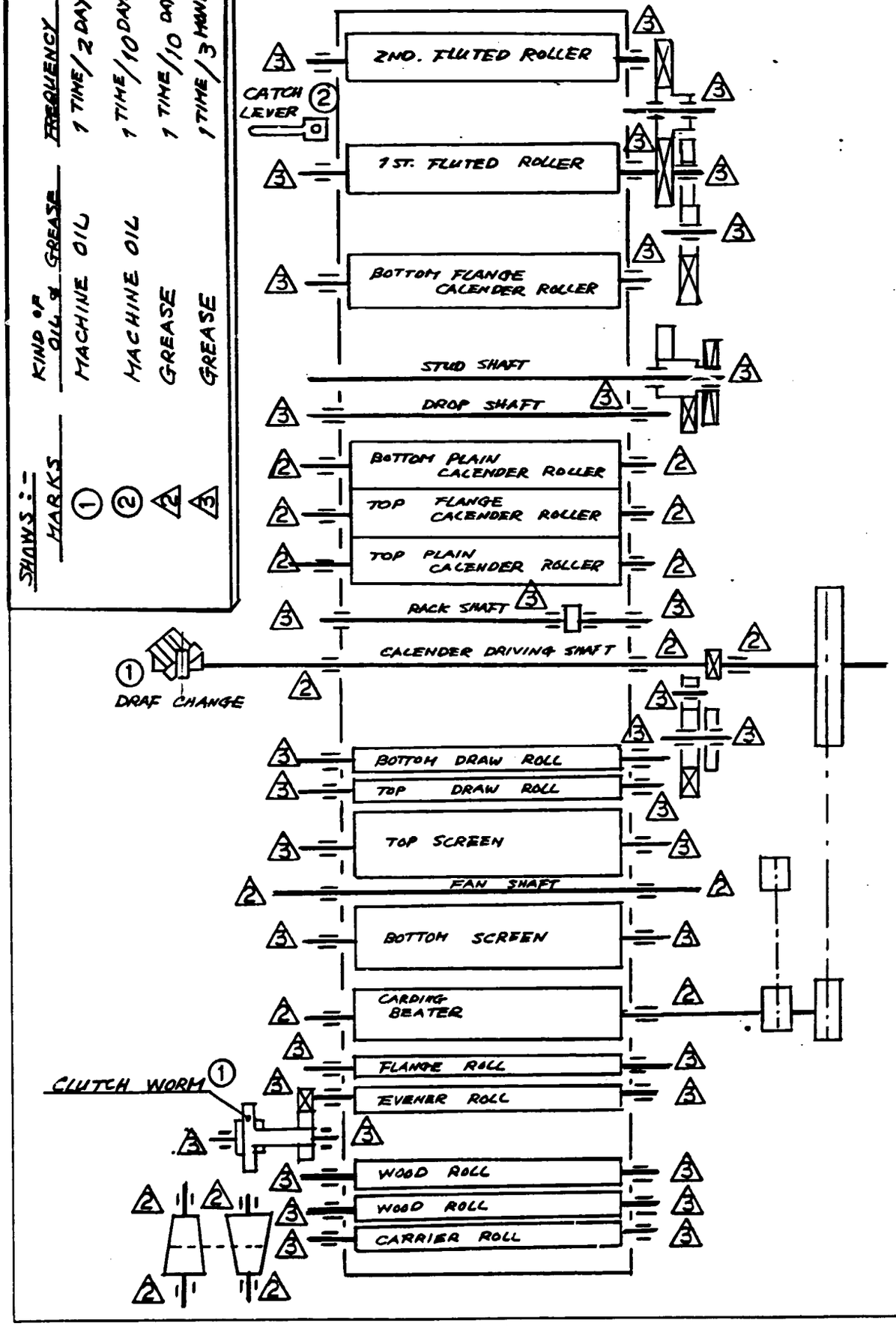
154

BLOW ROOM MACHINERY
TOYODA BL-1 LINE

LUBRICATION DIAGRAM

SCUTCHER BL-62

MARKS	KIND OF OIL & GREASE	FREQUENCY
①	MACHINE OIL	1 TIME/2 DAYS
②	MACHINE OIL	1 TIME/10 DAYS
▲2	GREASE	1 TIME/10 DAYS
▲3	GREASE	1 TIME/3 MONTHS

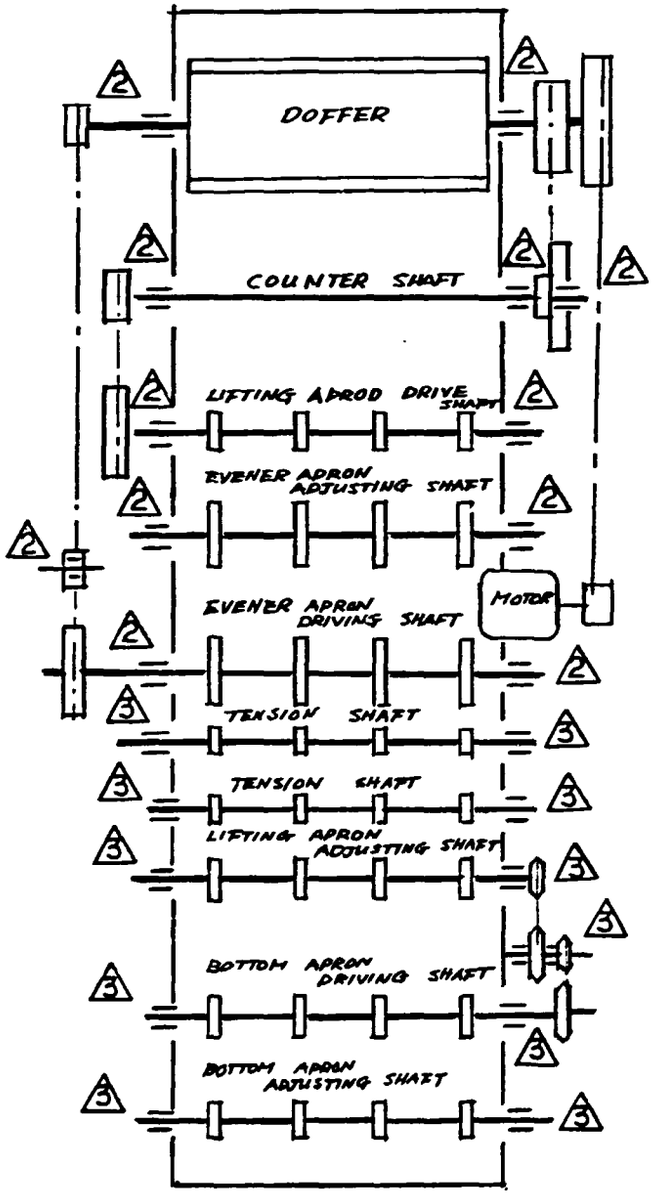


LUBRICATION DIAGRAM

HOPPER FEEDER BL-20

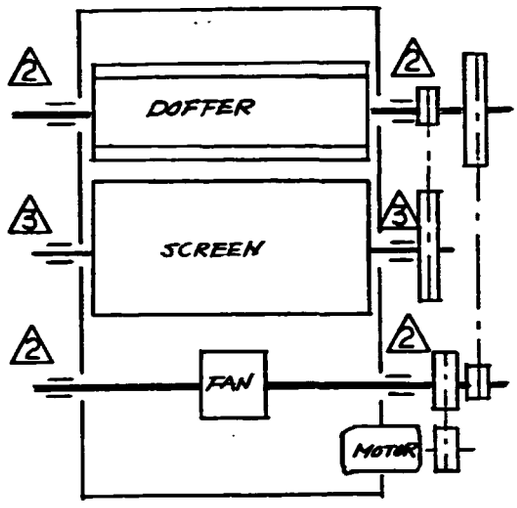
SHOWS :-

MARK	KIND OF OIL & GREACE	FREQUENCY
2	GREACE	1 TIME / 10 DAYS
3	GREACE	1 TIME / 3 MONTHS



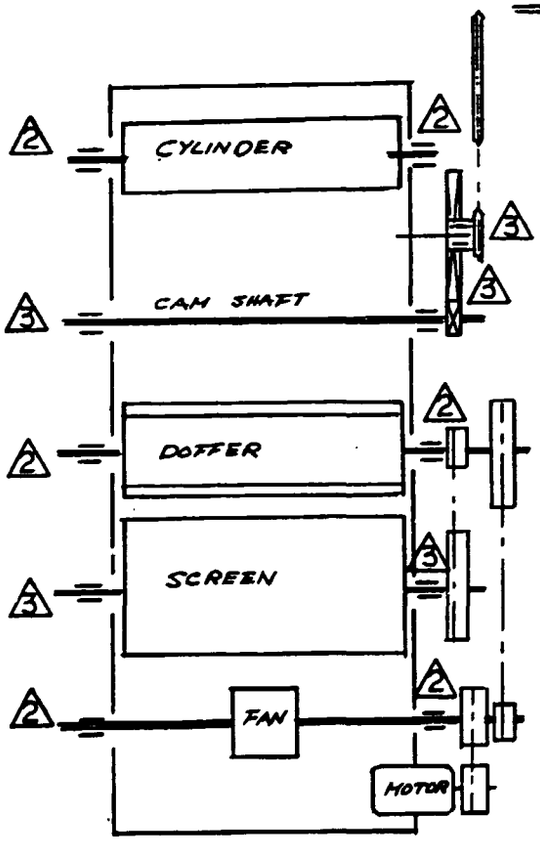
LUBRICATION DIAGRAM FAN CONDENSER FC

SHOWS :- MARK	KIND OF OIL & GREACE	FREQUENCY
▲2	GREACE	1 TIME / 10 DAYS
▲3	GREACE	1 TIME / 3 MONTHS



NO.12 OPENER

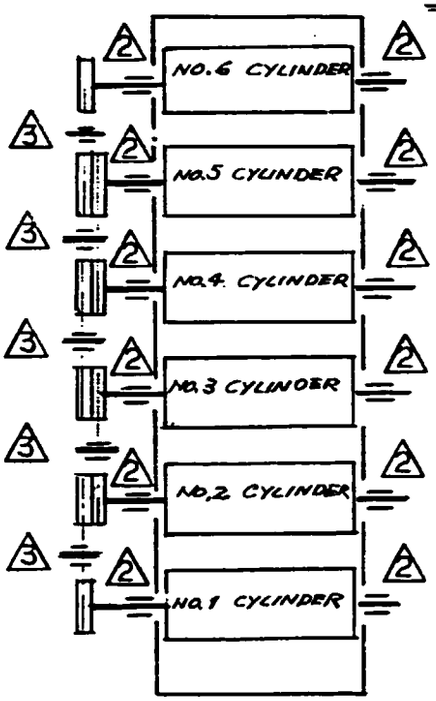
: BL-41, BL-31



LUBRICATION DIAGRAM

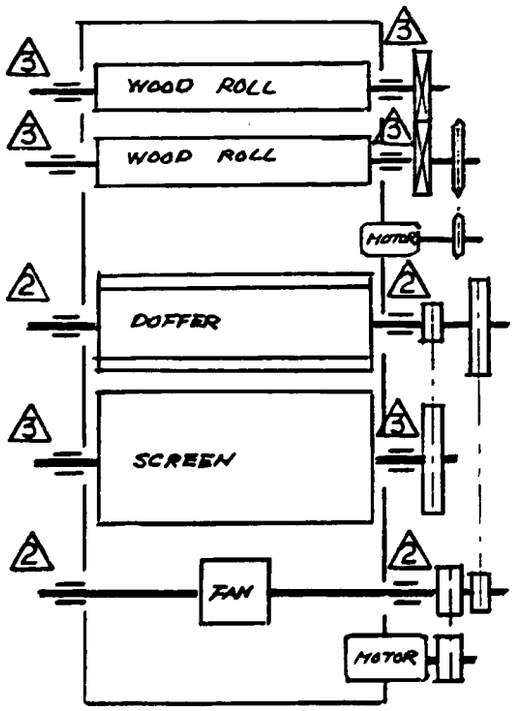
SHOWS :- MARK	KIND OF OIL. GREACE	FREQUENCY
▲2	GREACE	1 TIME / 10 DAYS
▲3	GREACE	1 TIME / 3 MONTHS

SUPPERIOR CLEANER



FAN CONDENSER

BL-41

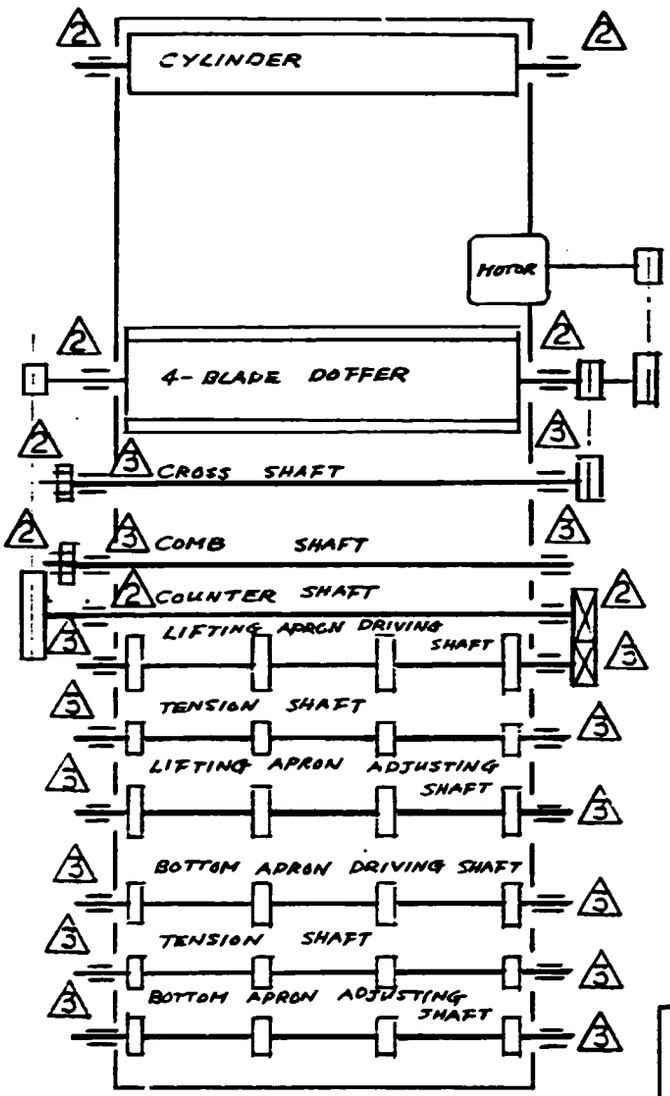


LUBRICATION DIAGRAM

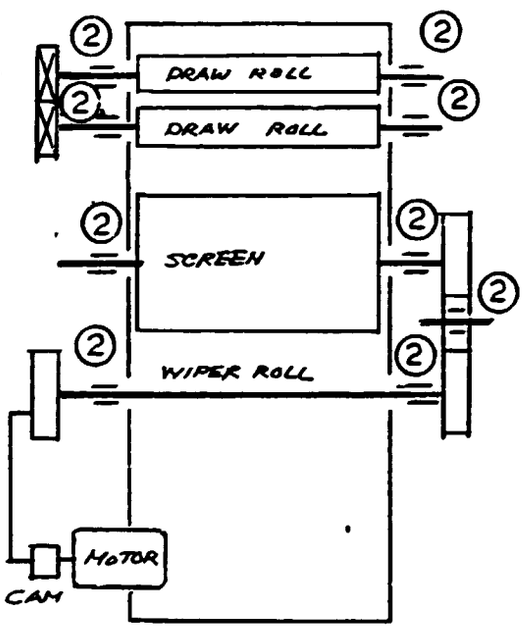
SHOWS :-

MARK	KIND OF OIL. GREACE	FREQUENCY
▲2	GREACE	1 TIME / 10 DAYS
▲3	GREACE	1 TIME / 3 MONTHS
②	MACHINE OIL	1 TIME / 10 DAYS

BLENDING FEEDER
BL-12 , BL-11

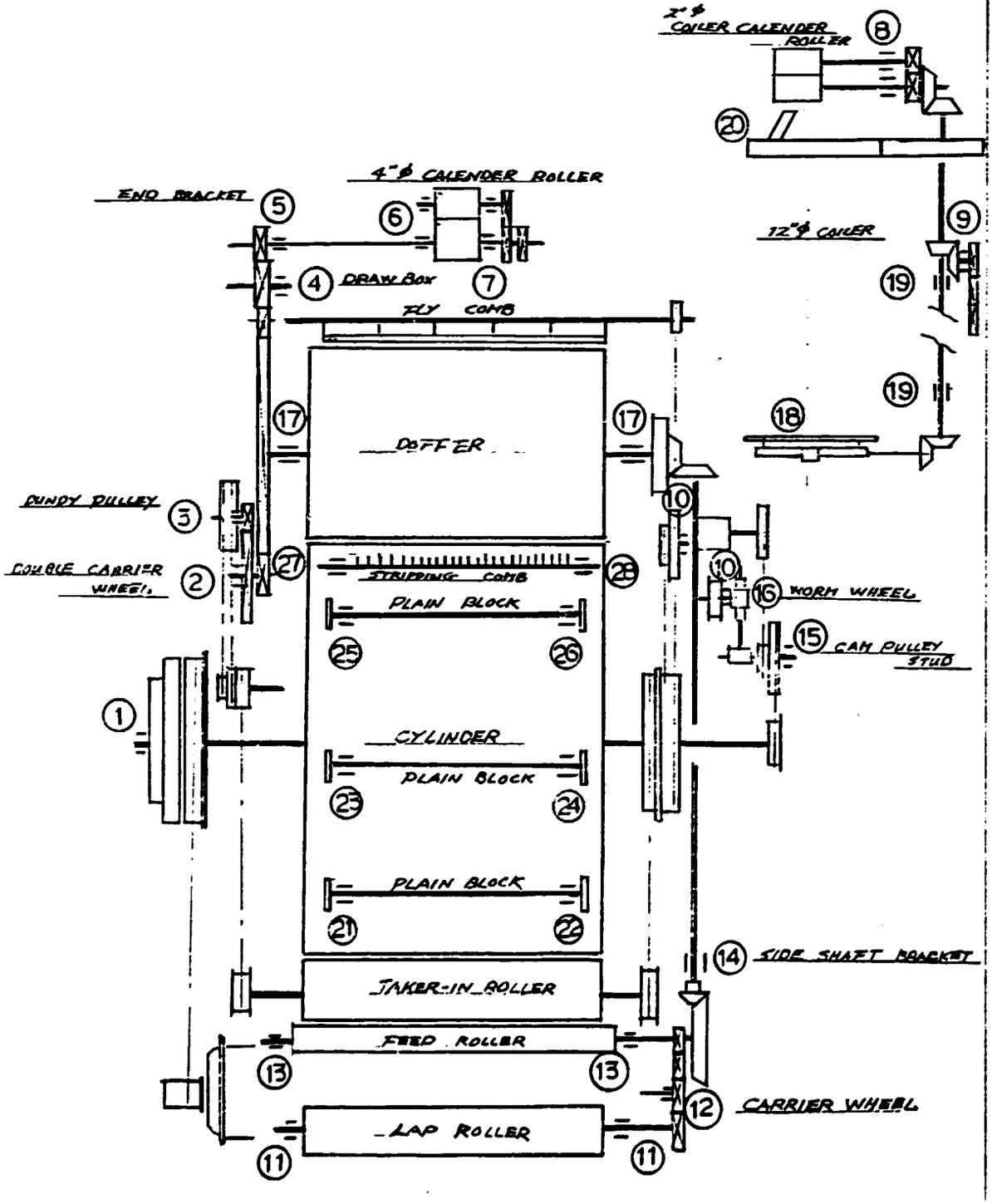


AIR FILTER
BL-52, BL-53



CARD LUBRICATION DIAGRAM

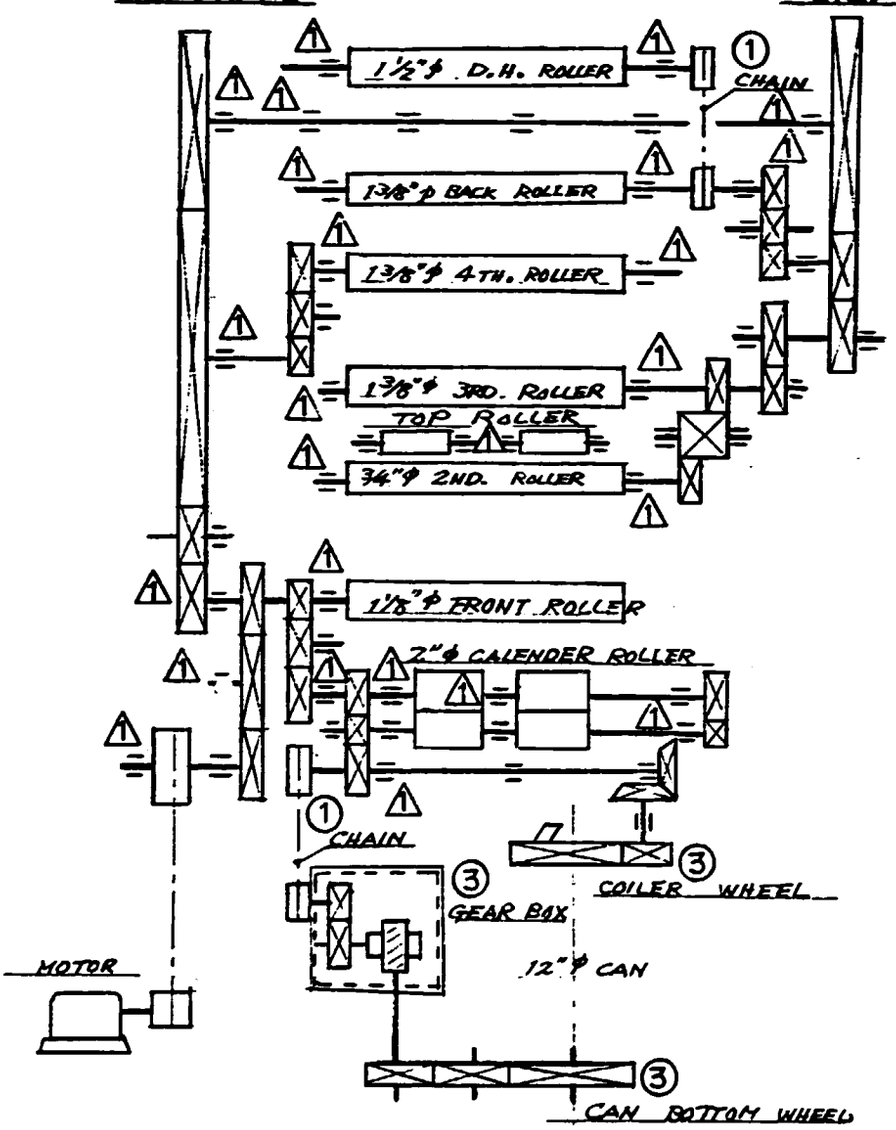
LUBRICATION A	LUBRICATION B
FREQUENCY 1 DAY	FREQUENCY 2 WEEKS
MACHINE OIL	MACHINE OIL
OILING PAPRTS	OILING PARTS
MARK ①~⑪	MARK ⑫~㉘



DRAWING FRAME
TOYODA DK-TYPE
LUBRICATION DIAGRAM

SHOWS :-

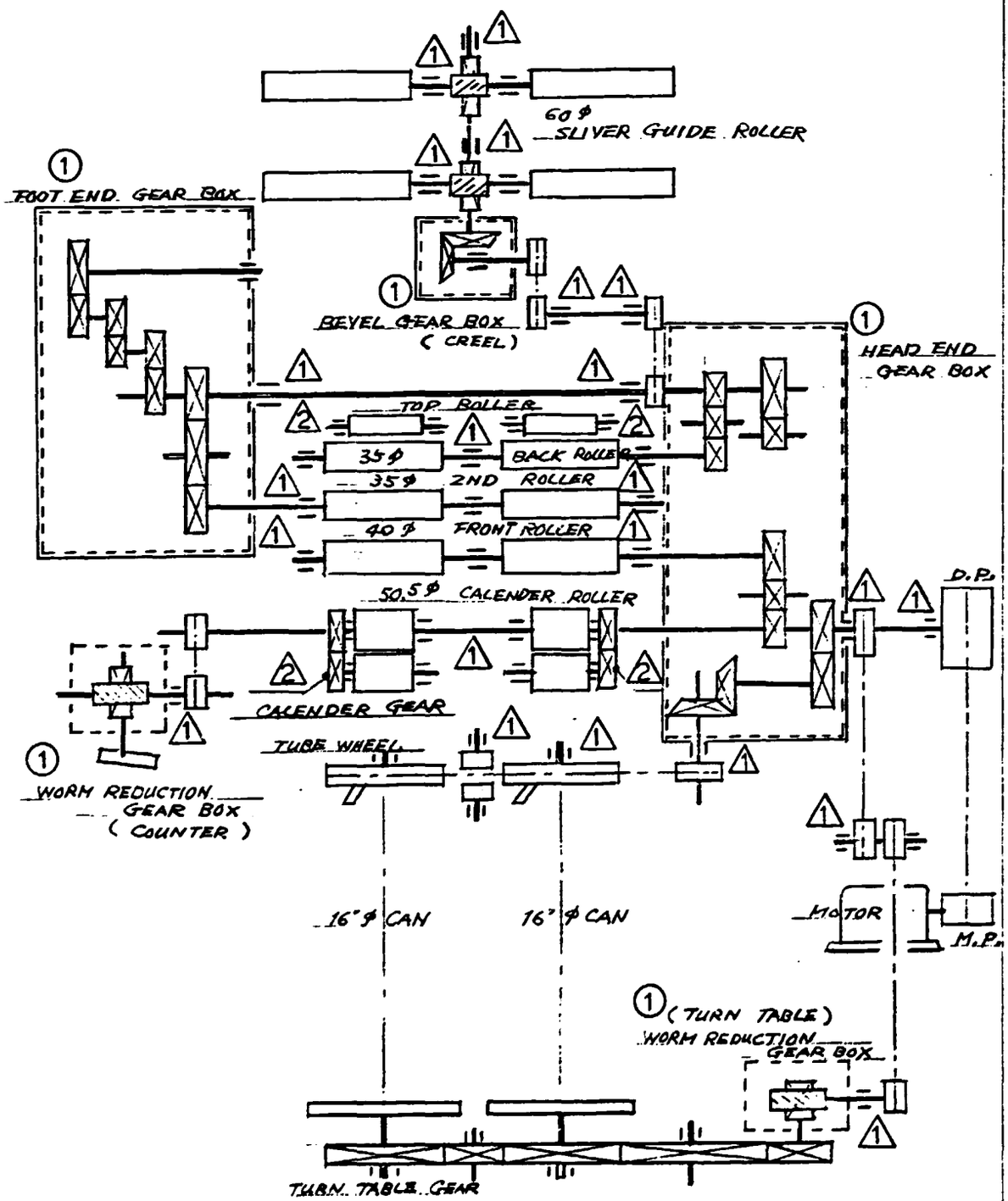
MARK	KIND OF OIL & GREASE	FREQUENCY
△1	GREASE	1 TIME / 20 DAYS
①	MACHINE OIL	1 TIME / 1 DAY
② ③	MACHINE OIL	1 TIME / 20 DAYS



DRAWING FRAME
TOYODA DY-TYPE LUBRICATION DIAGRAM

SHOWS :-

MARK	KIND OF OIL, GREASE	FREQUENCY
△1	GREASE	1 TIME / 20 DAYS
△2	GREASE	1 TIME / 7 DAYS
①	MACHINE OIL	1 TIME / 20 DAYS

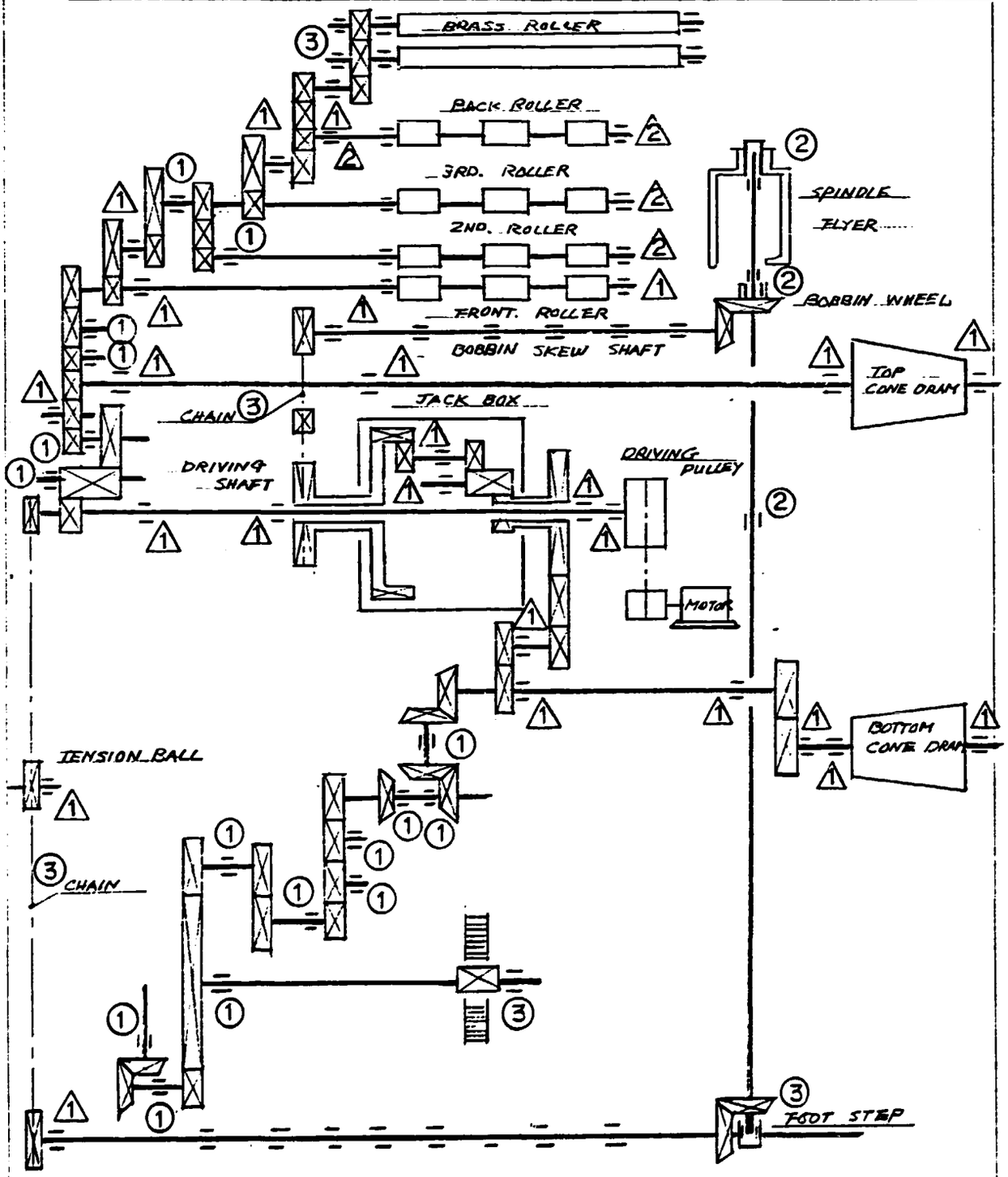


ROVING FRAME LUBRICATION DIAGRAM

FAB. FAJ.

SHOWS :-

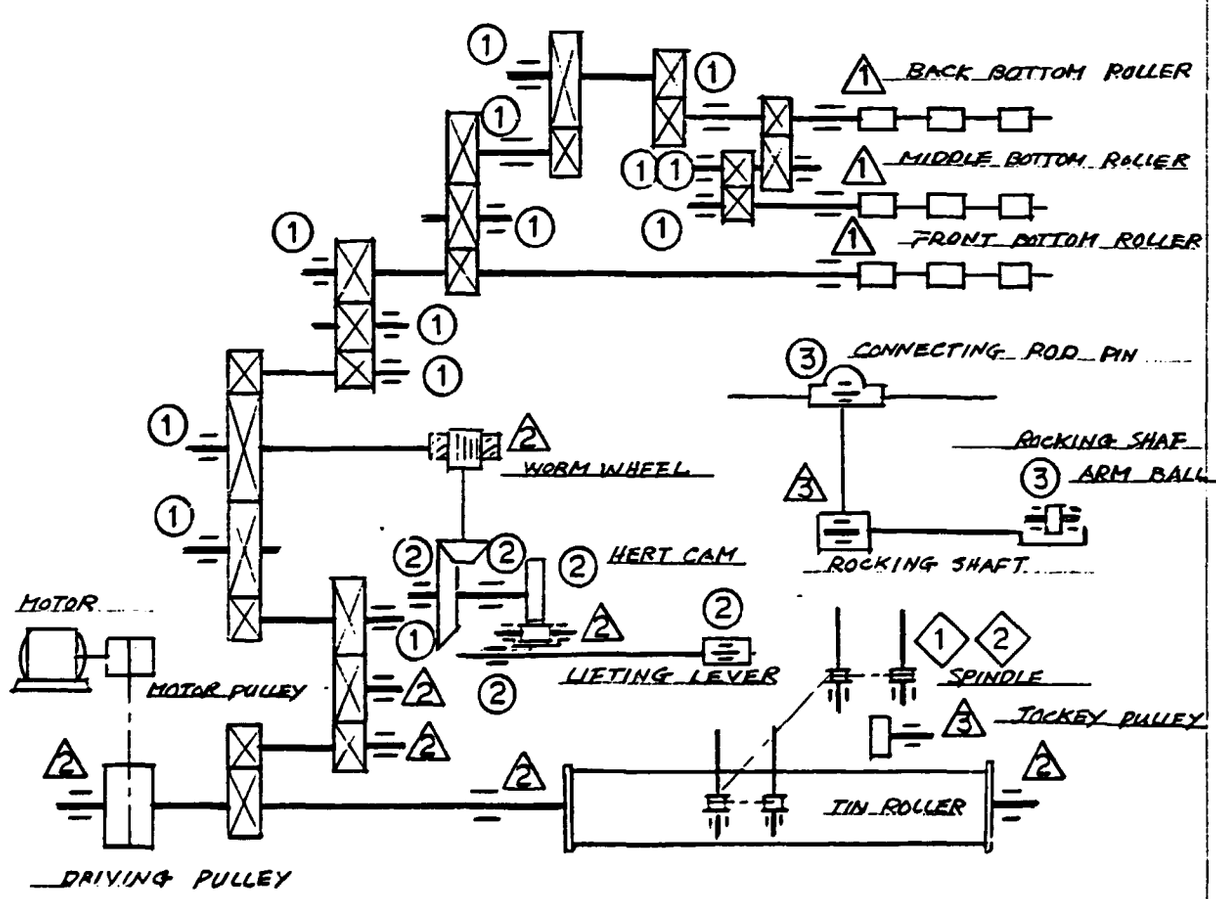
MARK	KIND OF OIL, GREASE	FREQUENCY
①	MACHINE OIL	3 TIME / DAY (CENTRALIZED LUBRICATTON)
②	MACHINE OIL	1 TIME / 3 DAYS
③	MACHINE OIL	1 TIME / 1 MONTH
△1	GREASE (BALL BEARING)	1 TIME / 1 MONTH
△2	GREASE (PLAIN METAL)	1 TIME / 1 MONTH



RING SPINNING FRAME

LUBRICATION DIAGRAM

SHOWS :- MARKS	KING OF OIL & GREACE	FREQUENCY
①	MACHINE OIL	1 TIME / DAY
②	MACHINE OIL	1 TIME / WEEK
③	MACHINE OIL	1 TIME / 6 MONTHS
△1	GREACE	1 TIME / 1 MONTH
△2	GREACE	1 TIME / 6 MONTHS
△3	GREACE	1 TIME / 1 YEAR
◇1	ADDITION SPINDLE OIL	1 TIME / 6 MONTHS
◇2	OIL CHANGE SPINDLE OIL	1 TIME / 1 YEAR

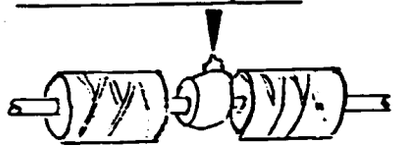


R. T. WINDER

MURATA NO. 12 TYPE

LUBRICATION DIAGRAM

DRAM SHAFT



△ GREACE
1 TIME / 6 MONTH

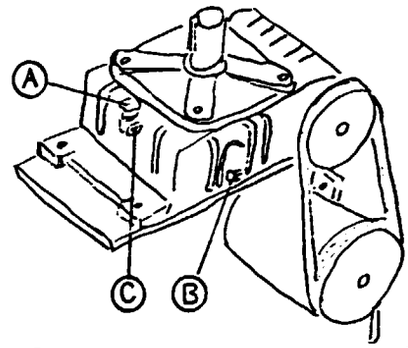
STOPPING SHAFT

○ MACHINE OIL
1 TIME / 1 MONTH

CRADLE PART SWING ARM

○ MACHINE OIL
1 TIME / 1 MONTH

REDUCTION GEAR BOX

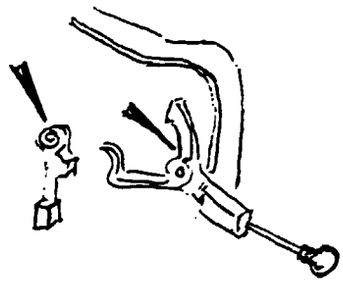


Ⓑ EXTRACTS WASTE OIL FROM Ⓑ

Ⓐ SUPPLY NEW OIL TO Ⓐ

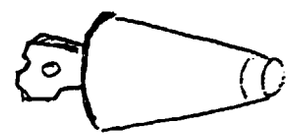
* OIL CHANGE EVERY 3 MONTHS
* OIL QUANTITY 0.4 ℓ

STOP MOTION BOX



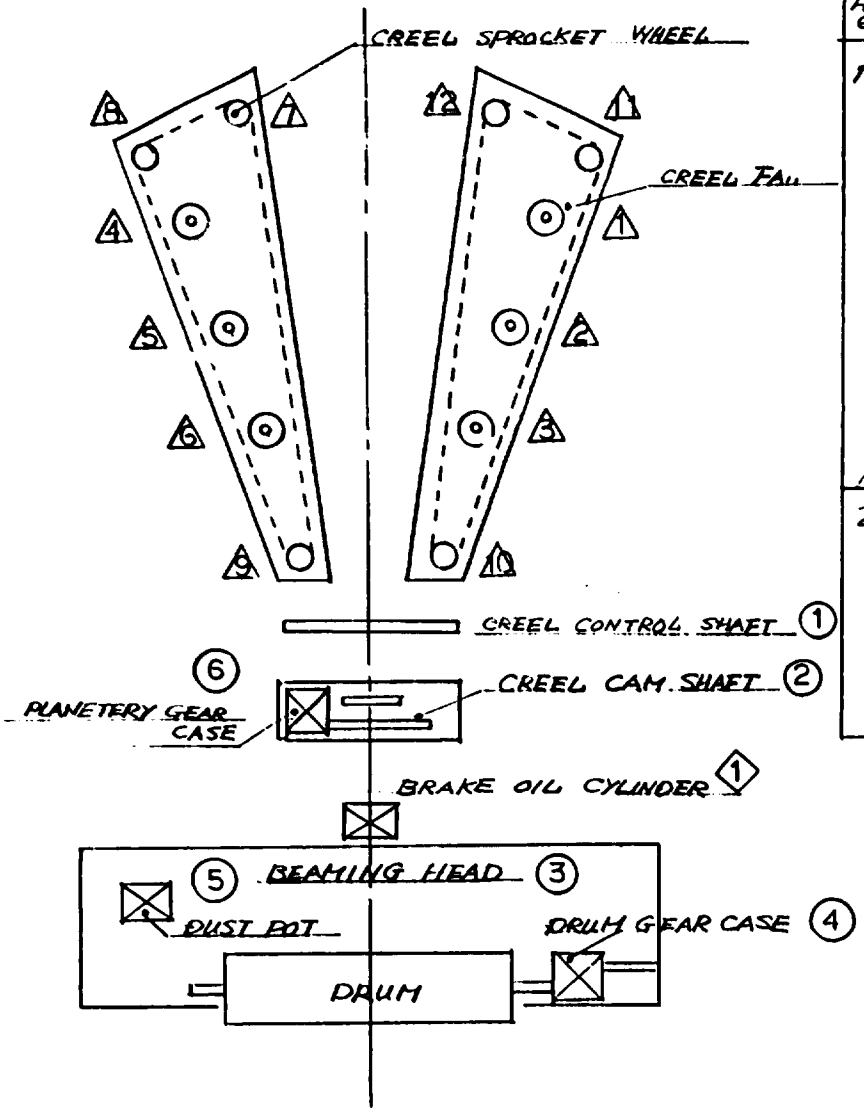
○ MACHINE OIL
1 TIME / 1 MONTH

BOBBIN HOLDER



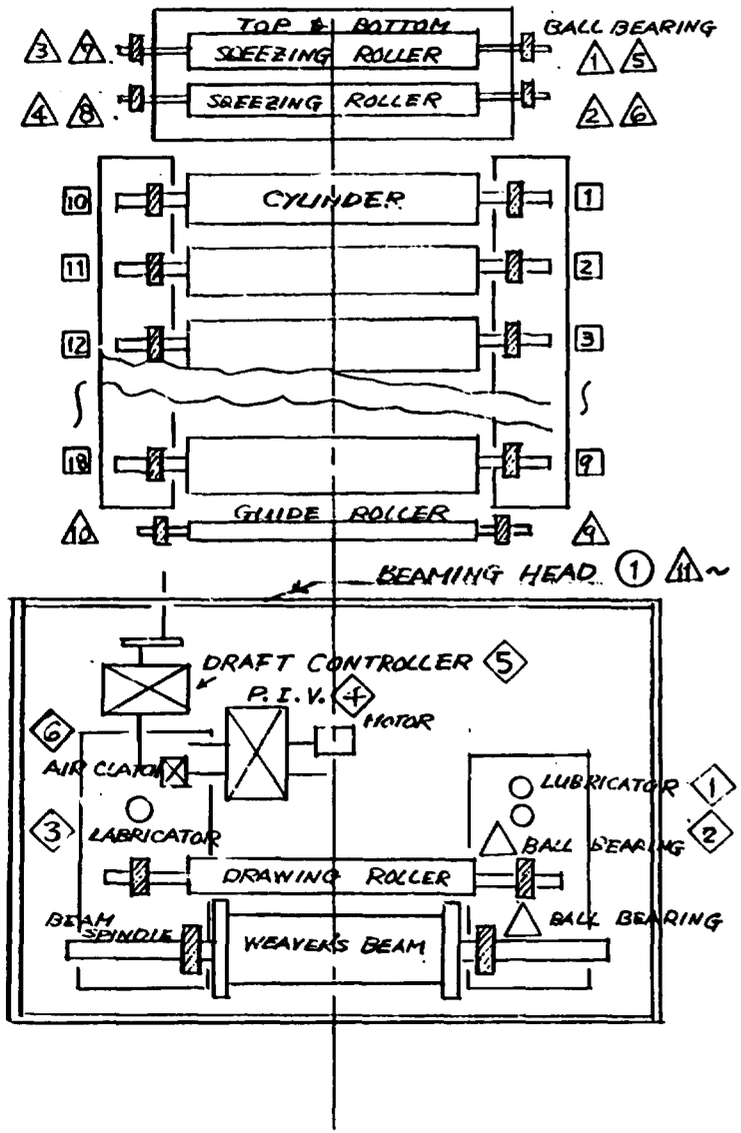
△ GREACE
1 TIME / 6 MONTH

WARPER LUBRICATION DIAGRAM



OIL, GREASE / FREQUENCY	KIND OF OIL & GREASE (MARK)		
	MACHINE OIL ○	BRAKE OIL ◇	GREASE △
1. DAILY	①②③ ALL OIL HOLE – CREEL CONTROL SHAFT – CREEL CONTROL BELL CRANK – CREEL CAM SHAFT – BRAKE LEVER SHAFT – BEAM BEARING ARM – LET OFF SCREW – COUNTER DRIVE GEAR – FOOT PEDAL SHAFT – BEAM GUARD PIN ETC.		
2. 6 MONTHS	④ DRAM GEAR CASE ⑤ DUSH POT ⑥ PLANETARY GEAR CASE	◇1 BRAKE OIL CYLINDER	△1~△6 CREEL FAN △7~△18 SPROCKET GEAR

SIZING M/C LUBRICATION DIAGRAM



OIL & GREASE / FREQUENCY	KIND OF OIL & GREASE (MARK)		
	MACHINE OIL ○	SPINDLE OIL ◇	GREASE △
			HEAT PROOF GREASE □
1. 3 DAYS	① BEAMING HEAD ALL OIL HOLE – FRONT COMB PARTS – BEAM SPINDLE PARTS – COUNTER GEAR PARTS – OTHERS PLAIN METAL		
2. 2 MONTHS	◇1 ◇2 ◇3 – LUBRICATOR ◇6 – AIR CLUTCH	◇1 ◇2 ◇3 – LUBRICATOR ◇6 – AIR CLUTCH	△1~△4 TOP SQEESING ROLLER △5~△8 F[illegible] SQEESING ROLLER [illegible]IDE ROLLER △11~ ALL GREAS NIPPLES OF BEAMING HEAD – BEAM SPINDLE – DRAWING ROLLER – SIDE SHAFT – GUIDE ROLLER ETC. 1~18 ALL CYLINDER
3. 6 MONTHS		◇4 P.I.V. ◇5 DRAFT CONTROLLER	

Lubrication Chart GB

for fully automatic pirn winders.

Lubricants

For the lubrication of all ball-bearings we recommend a grease with the following characteristics:

Soap base:	Lithium	
Drop point	180°C	(356°F)
Penetration	265/295	

Brand:

Aral	Aralub HL 2
Aseol	Litea EP 6-077
BP	Energrease LS 2
Esso	Beacon 2
Gulf	Gulfcrown 2
Mobil	Mobilux 2
Shell	Alvania R2
Sunoco	Sun Prestige 2
Total	Multis EP 2

For the gear-boxes we recommend a mineral oil with the following characteristics: only additives against ageing, rust and foam formation are permitted.

Specific gravity	0.884	
Flash point	254°C	(489°F)
Solidifying point	-12°C	(10°F)

Viscosity (ISO VG)
at 40°C (104°F) = cSt (mm²/sec) 68

Brand:

Aral	Vitam UF 68
Aseol	Plus 16-120
BP	Energol CS 68
Esso	Teresso 68 or Nuto H 68
Gulf	Harmony 68
Mobil	Vactra or DTE heavy medium
Shell	Vitrea 68
Sunoco	Sunvis 831
Total	Cortis 68

For all parts other than the gear-boxes, use a very thin, non-resinous oil, such as sewing-machine oil.

With the exception of the gear-boxes, all lubricating points are given their first oiling by us.

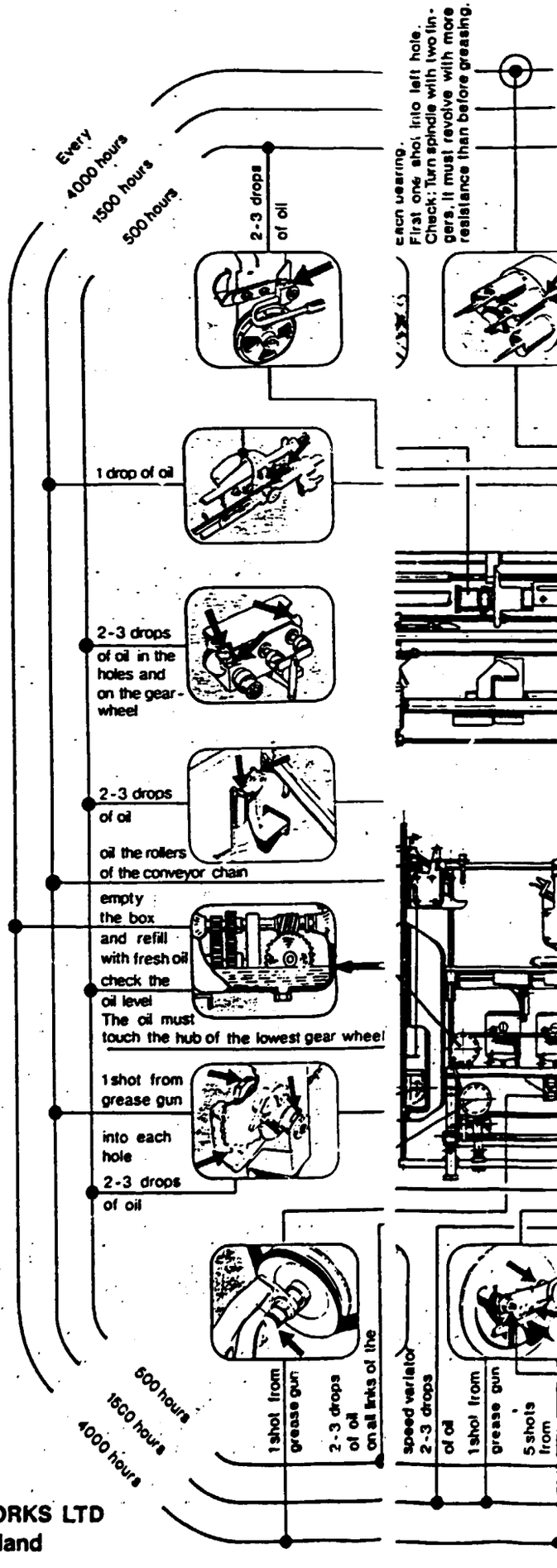
After the first 1500 hours running, empty the oil from all the gear-boxes, wash them out with kerosene and refill with fresh oil.

For those grease points indicated by a ring on the lubrication chart we recommend the use of:

Klüber Lubrication
Isoflex LDS 18 special

Product of:

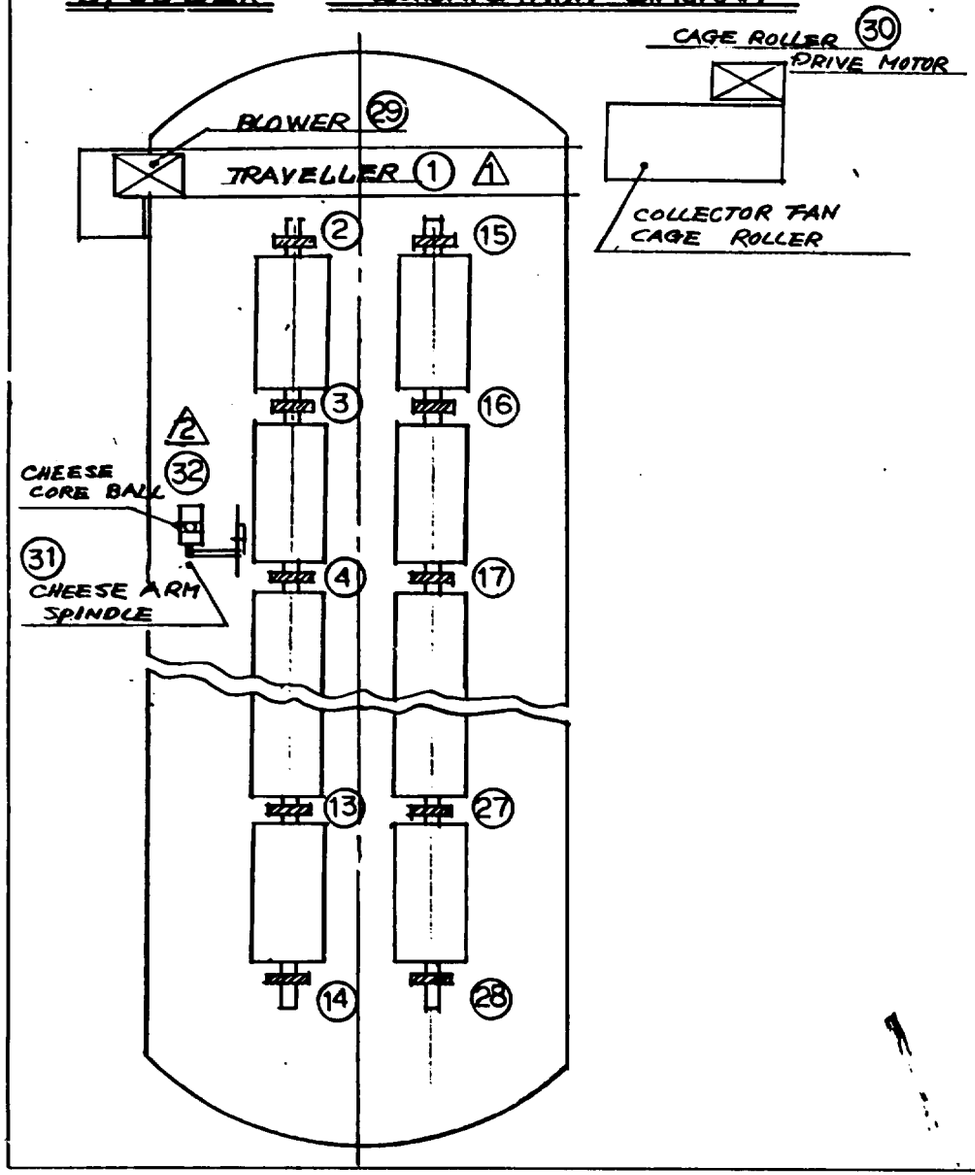
Klüber Lubrication München KG
D-8000 München 70 (West Germany)



SCHÄRER TEXTILE MACHINE WORKS LTD
CH-8703 Erlenbach/ZH, Switzerland

1 shot from grease gun
2 - 3 drops of oil on all links of the
e lowest gear wheel
2 - 3 drops of oil
Each bearing.
First one shot into left hole.
Check: Turn spindle with two fingers, it must revolve with more resistance than before greasing.
Second one shot into right hole.
Repeat check.
speed variator
2 - 3 drops of oil
1 shot from grease gun
5 shots from grease gun
1 shot from grease gun
2 - 3 drops of oil
when with speed variator
2 - 3 drops of oil
1 shot from grease gun
when without speed variator
2 - 3 drops of oil
when with speed variator
5 shots from grease gun
2 shots with oil gun
2 - 3 drops of oil
1 drop of oil
2 - 3 drops of oil
1 shot from grease gun
2 - 3 drops of oil
when with stacking device
2 - 3 drops of oil
when with stacking device
1 shot from grease gun
5 shots from grease gun
oil must touch hub of lowest gear wheel
check the oil level every
empty the box and refill with fresh oil
2 months
check the oil level every 2 months
oil change 1.4 liters 2.5 Imp. Pints 3.0 U.S.A. Pints
check the oil level every
500 hours
1500 hours
4000 hours
500 hours
1500 hours
4000 hours
Every

SPOOLER LUBRICATION DIAGRAM



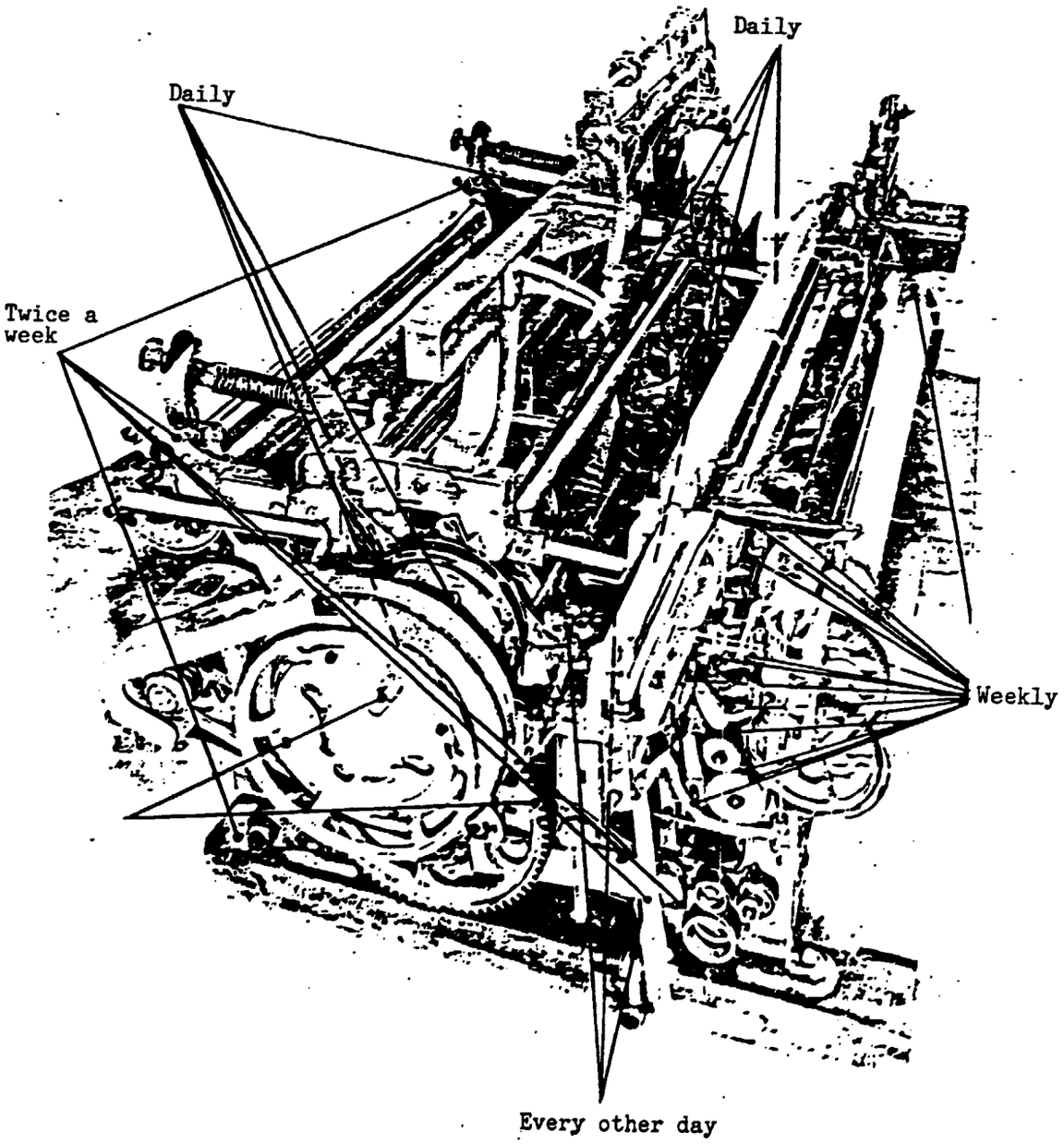
OIL, GREASE / TIRE-QUENCY	KIND OF OIL & GREASE (MARK)	
	MACHINE OIL ○	GREASE △
1. DAILY	① TRAVELLER ALL OIL HOLE - GUIDE ROLLER - BACK PLATE PART - PRESSER ROLL PART - VERTICAL SHAFT PART - HORIZONTAL SHAFT PART - CAM, CAM ROLL PART - KNOTTER PART Etc.	
2. 2 WEEKS	②~㉘ DRAM SHFT ㉙ BLOWER ㉚ CAGE ROLLER DRIVING SYSTEM ㉛ CHEESE ARM SPINDLE ㉜ CHEESE CORE BALL	
3. 6 MONTHS		⚠1 TRAVELLER - ALL GREASE NIPPLE - TRUCK WHEEL (- CHEESE CARRIER)
4. 1 YEAR	㉙ BLOWER (NEW OIL)	⚠1 TRAVELLER BACK PLATE BEARING ⚠2 CHEESE CORE BEARING

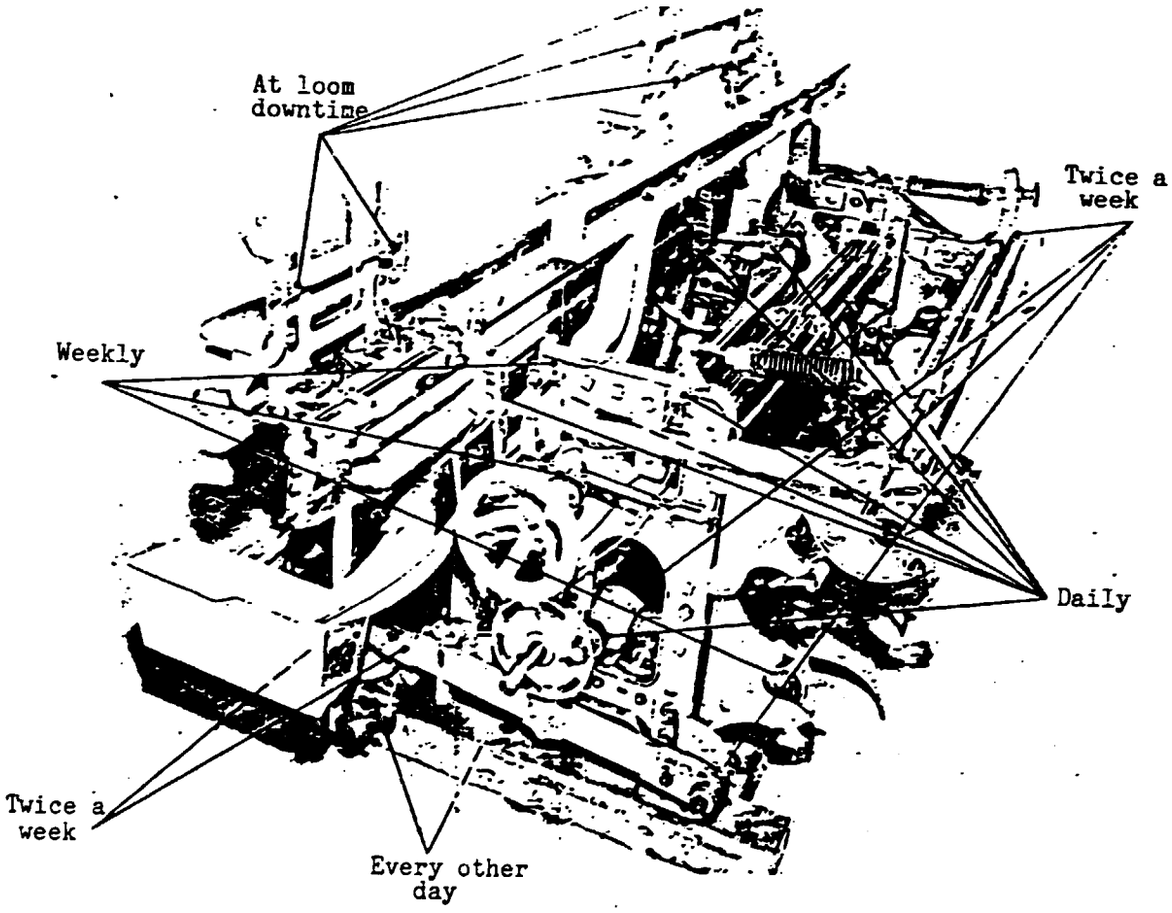
No

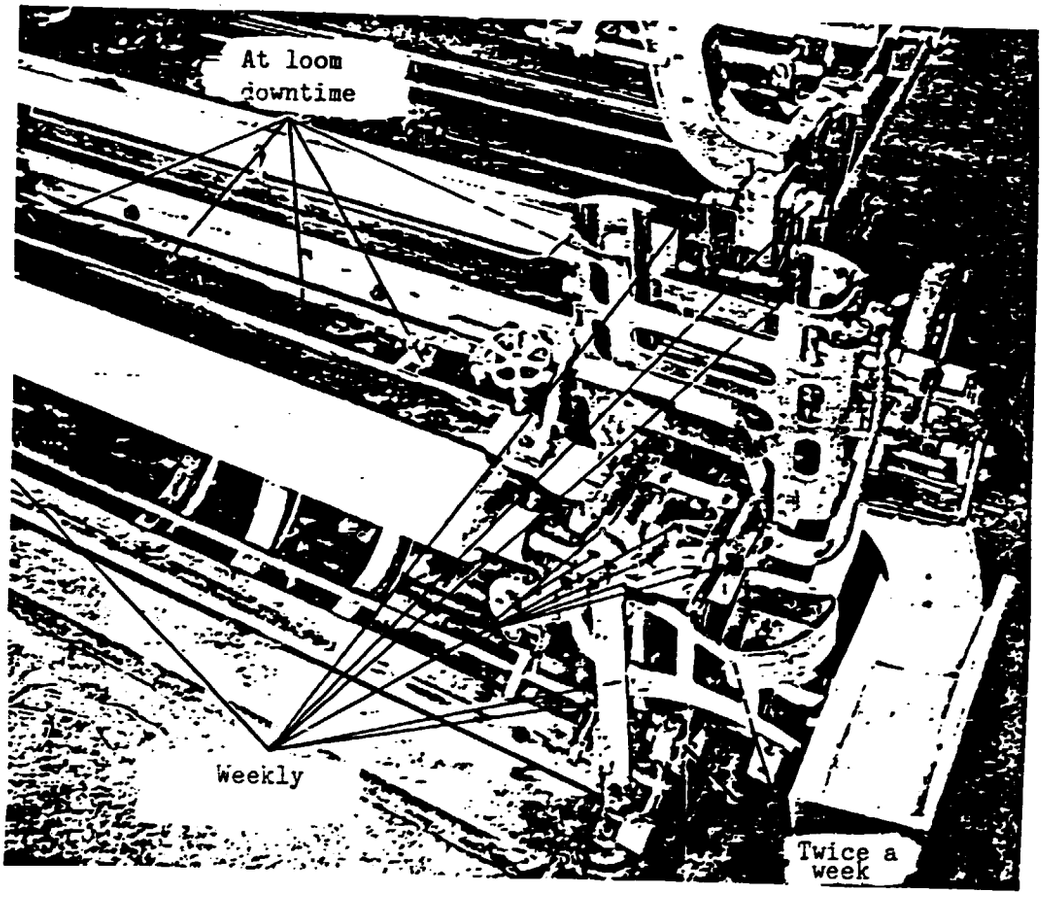
—LOOM—

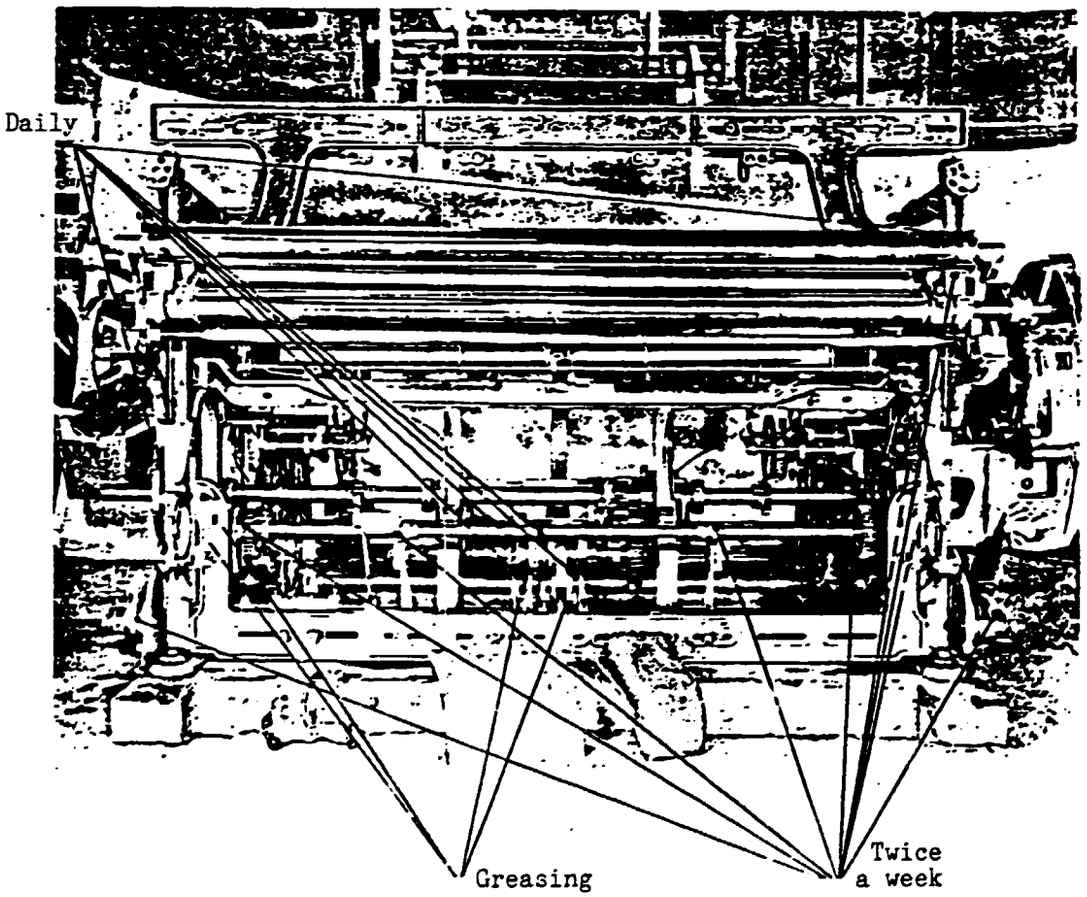
LUBRICATION TABLE

Handle side	Oiling part	Change side	Oiling part
1. Daily lubrication when a loom is running			
Crank shaft metal	1	Crank shaft metal	1
Tappet shaft bush	1	Tappet shaft bush	1
Tappet shaft stay	1		
Eccentric cam	1		
Tappet and treadle bowl arbour	4		
Swing rail shaft bracket	1	Swing rail shaft bracket	1
Fender stay bracket	1		
2. Daily lubrication when a loom is stopping			
Crank arm metal	1	Crank arm metal	1
Crank arm pin	1	Crank arm pin	1
Picking bowl	1	Picking bowl	1
3. Lubrication at every other day when a loom is running			
Stick stud	1	Stick stud	1
Bend slider	1		
Bend slider bowl	1		
4. Lubrication twice a week when a loom is running			
Back roller bracket	1	Back roller bracket	1
Pinion shaft bracket	1	Pinion shaft bracket	1
Pinion shaft middle bracket	1	Pinion shaft middle bracket	1
Side lever cap	1	Side lever cap	1
Weft motion cam	1	Friction ratchet catch	3
Warp stop motion cam	1		
Cone clutch thrust collar	1		
Stick cap	2	Stick cap	2
5. Weekly lubrication when a loom is running			
Taking up finger	1		
Ratchet wheel	1		
Slip catch	1		
Lifting catch	1	Crank cam	1
		Sector brake lever bowl	1
Ratchet wheel stud	2	Side shaft bracket	3
Pinion wheel stud	2	Friction ratchet catch lever	1
Intermediate wheel stud	1	Regulation rod supporter	1
Surface roller bracket	1	Surface roller bracket	1
Twitch roller bracket	1	Twitch roller bracket	1
Weft hammer stud	1	Fast regulation rod	2
Weft fork slide bracket	2	Second regulation rod	2
Starting handle	1	Third regulation rod	1
Rolling bush	1	Foot lever	5
Stud for take off stop lever	1		
Brake lever	1		
Clutch shifting lever	6		
Yarn beam bracket	1	Yarn beam bracket	1
Safety device	4		
6. Weekly lubrication when a loom is stopping			
Taking up lever	1		
Taking catch lever	1		
Weft hammer grid	1	Stop rod bracket	1
Stop rod	1	Stop rod	1


Daily
Daily
Twice a week
Weekly
Every other day


At loom downtime
Twice a week
Weekly
Daily
Twice a week
Every other day


At loom
downtime
Weekly
Twice a
week


Daily
Greasing
Twice
a week

No._____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Card Frame No.
3. Implementing Date of Assigned Job:
4. Assigned Job (Maintenance Activity): Ordinary Maintenance A
5. Workers Allocated for the Job:

_____ _____

6. Contents of Assigned Job:
   1) Taker-in part
      a) Disassembling and cleaning of taker-in roller
      b) Check of bearings and grease change
      c) Adjustment of gauge setting relating to casing
      d) Check, mending and replacement of garnet wire
   2) Cylinder part
      a) Adjustment of gauge between cylinder and doffer
      b) Cleaning inside the flat and removal of waste cotton
   3) Doffer and coiler part
      a) Disassembling and cleaning of doffer gear part
      b) Disassembling and cleaning of coiler part
      c) Check of fly comb box
      d) Adjustment of gauge between cylinder and doffer
      e) Adjustment of gauge of fly comb
   4) Control part
      a) Check, correction and cleaning inside fuse box and switch box
      b) Check, correction and cleaning of each push button
      c) Check and correction of insulation of each cable
      d) Check and correction of earth of each frame
      e) Cleaning and lubrication for each motor and check and correction of bearings
      f) Check and correction of slack terminal screw
      g) Check and correction of defective safety cover of each electric apparatus

7. Detail of Job Carried Out:

   1) Detail of replaced and/or repaired parts

   2) Resulted downtime of machine for maintenance activity

8. Confirmation of Fulfilment of Assigned Job:

_____ _____

No. _____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Card Frame No.
3. Implementing Date of Assigned Job: Ordinary Maintenance B
4. Assigned Job (Maintenance Activity):
5. Workers Allocated for the Job:

_____ _____ _____

6. Contents of Assigned Job:
   A) Maintenance of Card
      1) Check record of cylinder, doffer MCC, flat wire and taker-in garnet wire. Draw up a plan of renewing, if necessary.
      2) Grease change for cylinder bearings
      3) Check and record of eccentricity of cylinder and doffer
      4) Disassembling and repair of fly comb box
      5) Disassembling and repair of horse roller. Check of eccentricity.
      6) Disassembling and cleaning of flat part
         - Disassembling of flat, wash of chain and check of extension
         - Examination of height of needles and its adjustment
         - Disassembling and repair of grinding brackets
      7) Check and adjustment of gauge
         - Gauge of each bend and sheet
         - Gauge between cylinder and flat
         - Gauge between cylinder and doffer

7. Detail of Job Carried Out:

   1) Detail of replaced and/or repaired parts

   2) Resulted downtime of machine due to maintenance activity

8. Confirmation of Fulfilment of Assigned Job:

_____ _____ _____

No. _____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Card
   Frame No.
3. Implementing Date of Assigned Job:
4. Assigned Job (Maintenance Activity): Daily Maintenance
5. Workers Assigned for the Job:

_____ _____

6. Contents of Assigned Job:
   1) Inspection of web (Daily check)
      Counting of number of nep and leaf (Monthly check)
   2) Check if oil is run out.
   3) Check of damage and defects of metallic wire of cylinder and doffer and flat wire
   4) Check if fly comb is not touching and necessary correction.
   5) Removal of waste cotton adhered to doffer ends

7. Detail of Job Carried Out:

8. Confirmation of Fulfilment of Assigned Job:

_____ _____

No. _____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Card
   Frame No.

3. Implementing Date of Assigned Job:
4. Assigned Job (Maintenance Activity): Stripping of Cylinder & Doffer
5. Workers Allocated for the Job:

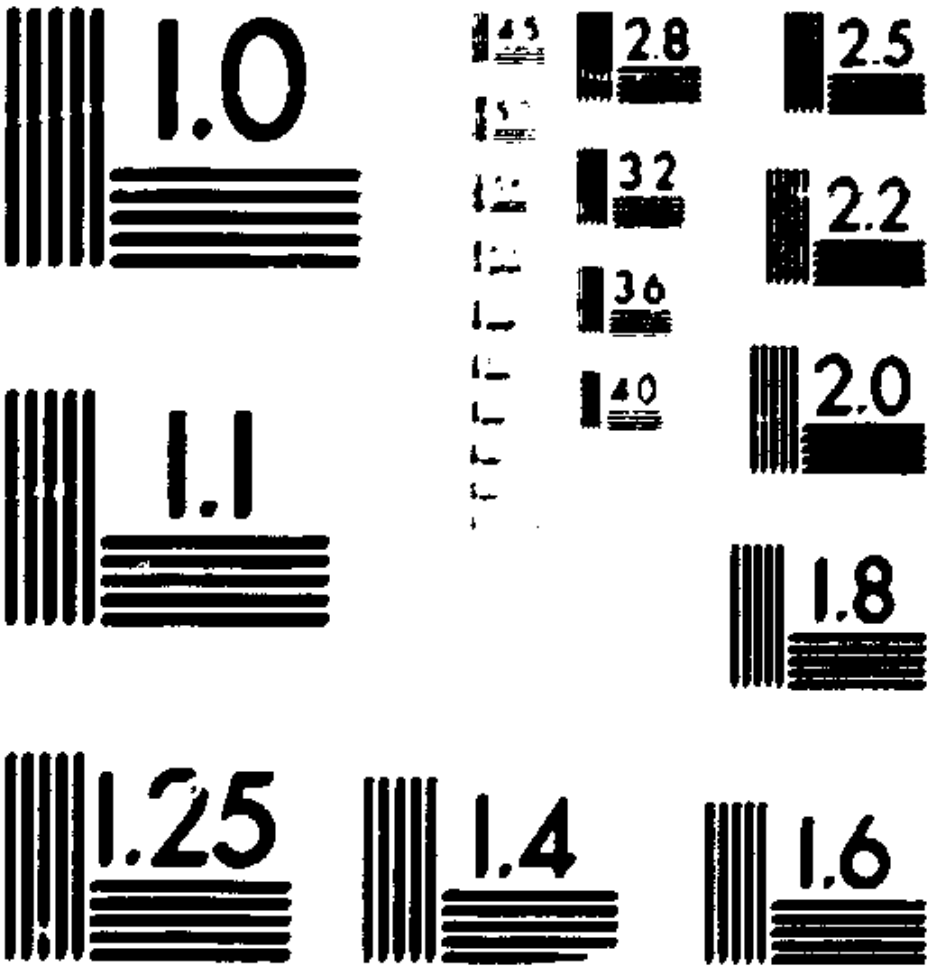
_____ _____ _____

6. Contents of Assigned Job:
   1) Carry out the stripping of cylinder and doffer.
   2) Carry out the cleaning of casing cylinder and taker-in to card stopped for the stripping.
   3) Procedure for stripping for cylinder and doffer
      a) To stop the web feeding. To confirm full stop of card.
      b) To clean the undercasing of cylinder and doffer.
      c) Removal of fly between cylinder and bend.
      d) To remove fly in front of doffer and on dirt sheet. To open the stripping door.
      e) To clean cylinder and doffer by stripping roller.
      f) To confirm removal of leaf and foreign matter.
      g) To remove cotton wound to stripping roller and to clean it.
      h) To lubricate driving loose pulley.
      i) To start the card, after confirming safety around the card.
      j) Notes.-
         - When wire of stripping roller is replaced, the contact and engaging depth of the wire must be adjusted to be about 2 mm with cylinder doffer. Likewise, when the stripping roller has been used over a long period time, its gauge must be adjusted halfway.

7. Detail of Job Carried Out:

8. Confirmation of Fulfilment of Assigned Job:

_____ _____ _____



No._____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Card
   Frame No.

3. Implementing Date of Assigned Job:
4. Assigned Job (Maintenance Activity): Lubrication A, B
5. Workers Allocated for the Job:

_____ _____

6. Contents of Assigned Job:
   A) Lubrication A
      1) Oiling part
         - Driving pulley
         - Dandy pulley, draw box, end bracket
         - 4" calender, 2" calender, coiler cannon bracket
         - Grooved pulley
   B) Lubrication B
      1) Oiling part
         - Lap roller and carrier wheel
         - Feed roller
         - Cam stud
         - Around the plain block
         - Doffer shaft
         - Inside the coiler pillar

7. Detail of Job Carried Out :

8. Confirmation of Fulfilment of Assigned Job:

_____ _____

No._____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery Card Frame No.
3. Implementing Date of Assigned Job:
4. Assigned Job (Maintenance Activity): Grinding of MCC & flat wire
5. Workers Allocated for the Job:

_____ _____

6. Contents of Assigned Job:

Grinding of MCC (Cylinder, Doffer), Flat wire

1) Purpose of grinding
   a) To sharpen wire point for smooth carding action
   b) To make rotator round without eccentricity and to make uniform length of flat wire
2) Procedure of grinding
   1. To grasp condition of grinding roller
   2. To check condition of sharpness of wire prior to grinding
   3. To increase grinding pressure in the event of the wire point not being unsharpen and large.
   4. To grind the more firmly, the speedier is the ground rotator.
   5. To adjust the spark length to be about 4 inches for the cylinder grinding. To adjust grinding extent to be just about to spark in the event of doffer grinding. To grind flat wire not so as to spark.
   6. To check and confirm sharpness condition of wire ground.
   7. Enery for flat wire grinding should be replaced every two or three months.

7. Detail of Job Carried Out:

8. Confirmation of Fulfilment of Assigned Job:

_____ _____

No. _____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Flat Grinding Machine (Carding Section)
3. Implementing Date of Assigned Job:
4. Assigned Job (Maintenance Activity); Ordinary Maintenance
5. Workers Allocated for the Job:

_____ _____

6. Contents of Assigned Job:
   1) Dismantling of each belt and loose pulley
   2) Cleaning of slider part, roller shaft and frame
   3) Cleaning of each oiling hole
   4) Cleaning and lubrication of gear part
   5) Lubrication for each oiling hole and rotating part
   6) Cleaning, lubrication and mounting of loose pulley
   7) Horizontal alignment of roller
   8) Correction of shaky slider
   9) Check and correction of slackness of each screw
   10) Check of vibration

7. Detail of Job Carried Out:

8. Confirmation of Fulfilment of Assigned Job:

_____ _____

No._____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Flat Clipping Machine (Carding Section)
3. Implementing Date of Assigned Job:
4. Assigned Job (Maintenance Activity): Ordinary Maintenance
5. Workers Allocated for the Work:

_____ _____

6. Contents of Assigned Job:
   1) Cleaning of each part
   2) Visual check of vice edge and shape of nail tip
   3) Check whether relation of vices at both sides with groove coincides in case of most advanced and backed position.
   4) Check by gauge plate in left, middle and right side of both sides whether there is no gap between bar and vice in the event that a bar is fitted to a stretcher and tightend by the vice.
   5) Check of tightness of each screw and lubrication

7. Detail of Job Carried Out:

8. Confirmation of Fulfilment of Assigned Job:

_____ _____

No._____

JOB INSTRUCTION CARD

(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Metallic Wire Mounting Machine (Carding Section)
3. Assigned Job (Maintenance Activity): Ordinary Maintenance
4. Implementing Date of Assigned Job:
5. Workers Allocated for the Job:

_____ _____

6. Contents of Assigned Job:
   1) To detach top and bottom roller by withdrawing top and bottom roller shaft
   2) Cleaning and lubrication of each part of top and bottom roller
   3) Fitting and oiling of top and bottom roller
   4) Cleaning and lubrication of jack

7. Detail of Job Carried Out:

8. Confirmation of Fulfilment of Assigned Job:

_____ _____

No. _____

JOB INSTRUCTION CARD
(Preventive Maintenance Scheme)

1. Department: Spinning 1 Issued by:
2. Machinery: Auxiliary Equipment for Card
   (Bare surface grinder, Horse wheel grinding roller, Long roller)
3. Implementing Date of Assigned Job:
4. Assigned Job (Maintenance Activity): Ordinary Maintenance
5. Workers Allocated for the Job:

_____ _____ _____

6. Contents of Assigned Job:
   A) Maintenance of Bare Surface Grinder
      1) Overhaul, cleaning, lubrication and assembling of safety covers, screw, roller shaft metal, traverse guide, guide fork, holder, etc.
      2) Tightening each screw. To tighten to full extent a nut screwing up grinding stone of holder among others.
   B) Maintenance of Horse Wheel Grinding Roller
      1) To peel off emery.
      2) Cleaning of tube disc.
      3) Winding of emery
      4) To lubricate to shaft and differential gear.
   C) Maintenance of Long Roller
      1) To detach emery
      2) Dismantling, cleaning and greasing up of gear box part
      3) Cleaning of overall surface
      4) Check of eccentricity of roller
      5) Winding up of emery

7. Detail of Job Carried Out:

8. Confirmation of Fulfilment of Assigned Job:

_____ _____ _____

Ordinary Preventive Maintenance A

Maintenance Plan and Check Sheet of TOYODA Card No. 43

Name of machine

year : 1984

Name of Work	Remarks of Works	Frequency	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Taker-in part Disassembling and cleaning of taker-in roller														
Taker-in part Checking of bearing and grease change														
Taker-in part Adjustment of gauge relating to casing														
Taker-in part Checking of garnet wire, mending or replacement														
Cylinder part Adjustment of gauge between cylinder and flat														
Cylinder part Cleaning of waste cotton inside the flat														
Doffer/coiler part Disassembling and cleaning of doffer gear part														
Doffer/coiler part Disassembling and cleaning of coiler part														
Doffer/coiler part Inspection of fly comb box														

Ordinary Preventive Maintenance A

Maintenance Plan and Check Sheet of TOYODA Card No.
Name of machine

year : 1984

Name of Work	Remarks of Works	Frequency	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Doffer/coiler part Adjustment of gauge between cylinder and doffer														
Doffer/coiler part Adjustment of gauge of fly comb														

Ordinary
Preventive Maintenance B

Maintenance Plan and Check Sheet of TOYODA Card No. 43
Name of machine

year : 1984

Name of Work	Remarks of Works	Frequency	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Inspection record of cylinder/doffer MCC flat wire and taker in garnet wire	Drawing up of a plan of rewinding, if necessary													
Grease change for cylinder bearing														
Check and record of eccentric movement of cylinder and doffer														
Disassembling and repair of fly comb box														
Disassembling and repair of horse roller Eccentric movement check														
Flat part Disassembling of flat Wash of chain and check of extension														
Flat part Examination of height of needles and its adjustment														
Flat part Disassembling and repair of grinding bracket														
/continued														

Ordinary Preventive Maintenance B

Maintenance Plan and Check Sheet of TOYODA CARD No.
Name of machine

year : 1984

Name of Work	Remarks of Work	Frequency	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Inspection and adjustment of gauge														
a) Gauge of each bend and sheet														
b) Gauge between cylinder and fla'														
c) Gauge between cylindor and doffer														

DAILY MAINTENANCE

1. Inspection of web, record of nep and leaf
2. Checking if ... is run out.
3. Inspection of damage and defects of cylinder doffer MCC and flat wire
4. Checking if fly comb is resisting and its mending
5. Removal of waste cotton adhered to doffer ends

CHECK LIST OF doffer MCC and flat wire
Name of Work

Month : August 1984

date / machinery identification	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TOYODA Card No.43																															
44																															
45																															
46																															
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64																															

LUPRICATION A

1. Driving pulley
2. Dandy pulley, draw box, end BKT
3. 4"calender, 2"calender, coiler cannon.BKT
4. Grooved pulley

CHECK LIST OF

Name of Work

Month : August 1984

date / machinery identification	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TOYODA Card No.43																															
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64																															

LUBRICATION B

1. Lap roller and carrier wheel
2. Feed roller
3. Cam stud
4. Around the plain block
5. Doffer shaft
6. Inside the coiler pillar

CHECK LIST OF _____
Name of Work

Month : September 1984

date / machinery identification	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TOYODA Card No.43																															
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STRIPPING OF CYLINDER DOFFER

1. Carry out str ing of cylinder and doffer to every card.
2. Carry out cleaning of casing and cylinder

CHECK LIST OF _____

Name of Work

Month : August 1984

date / machinery identification	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TOYODA Card No,67																															
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80																															

CHECK LIST OF Grinding of MCC of cylinder

Name of Work

Month : August 1984

date / machinery identification	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TOYODA Card No.43																															
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CHECK LIST OF Grinding of flat wire
Name of Work

Month : August 1984

date / machinery identification	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
TOYODA Card No.43																															
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TOYOBO **FUNCTION EXAMINATION TABLE FOR CARDING ENGINE (TABLE A)**

Checking on Deterioration of Machinery Function

Factory : _____

Date : _____day_____month,_____year

item No.	function to be examined	points per 100 cards	(A) point to be deducted per defect	(B) machine identification												(C) No. of cards examined	(D) total number of defects	(E) No. of defects per 100 cards	(F) deducts per 100 cards	(G) points per 100 cards	(H) improvement since previous
				No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.						
1	gauge between cylinder and top flat	A : 200	1																		
		B : 100	0.1																		
2	gauge between cylinder and doffer	100	2																		
3	gauge between taker-in and dish plate	50	1																		
4	condition of needle points on cylinder	100	2																		
5	condition of needle poihts on top flat	100	2																		
6	condition of web	100	10																		
7	condition of flat strip waste	50	2																		
8	condition of waste fibers under taker-in roller	50	2																		
9	centering of cylinder	50	1																		
10	centering of doffer	50	1																		
11	condition of needle points on garnet wire	50	1																		
	total	1000																			

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TOYOBO SMALL DEFECT EXAMINATION TABLE FOR CARDING ENGINE

Checking on Deterioration of Output Quality

Factory : _____

Date : ____ day ____ month, ____ year

item No.	item to be examined	standard of judgement	points to be deducted per defect	number of defect per machine												number of machines examined	total No. of defects	defects per machine	deducts per machine
				No	No	No	No	No	No	No	No	No	No	No	No				
1	fiber hanging at fly comb	fiber hanging at blade arm	1																
2	cleaning of flat carding cloth	accumulation of fibers & leaf pieces	1																
3	movement of flat bar	smoothness	1																
4	stripping door	shutter setting, fiber coming-out	1																
5	coiler pillar	vibration, noise, sliver stacking	1																
6	web tension	proper tension	1																
7	fly comb box	oil leakage, noise level	1																
8	back sheet	fiber coming-out	1																
9	cylinder bend	fiber coming-out, noise level	1																
10	doffer wheel	noise level	1																
11	belt shifter	revolution of loose pulley	1																
12	cylinder gear part	noise level at motor part	1																
13	position of fly comb blade	inside of doffer end	1																
14	feed roller step	clearance : 1/16"	1																
15	floating of flat bar	flat floating from flexible bend	1																
16	setting of panel door	setting, fiber coming-out	1																
17	rotation of plain block	rotation	1																
18	selvage of web	fiber flocks	1																
19	ACS, ever-cleaner	proper function	1																
	total																		

WEEKLY REPORT (PREVENTIVE MAINTENANCE SCHEME)

Reference No.

To: Technical Deputy Director

From: Technical Deputy Head of Spinning 1

1. General Situation of Preventive Maintenance

Section (Group)	Main activities carried out	Number of Absentee	Deputy Head's assessment on the work	Detected defects and breakdown of high frequency	Supply condition of new parts	Shortfalling spare parts	Problems for implementation of PMS
Blowing Machinery							
Card							
Drawframe							
Roving Frame							
Ring S. Frame							
Winder							

2. Other Special Notes

3. Circulation

Head of Spinning 1		Production Deputy Head	

No.

No._____

DAILY REPORT
(Preventive Maintenance Scheme)

To: Technical Deputy Head of Spinning 1
From: Carding Group Leader
Date:

1. Implementing Situation of Maintenance Activities

Description of Maintenance	Frame No. & Name	Date Started	Date Finished	Assigned Workers Name	Absence
Ordinary Maintenance A					
Ordinary Maintenance B					
Daily Maintenance					
Stripping of Cylinder and Doffer					
Lubrication A					
Lubrication B					
Grinding of MCC of Cylinder					
Doffer					
Grinding of Flat Wire					
Maintenance of Flat Grinding Machine					
Maintenance of Flat Clipping Machine					
Maintenance of Wire Mounting Machine					
Maintenance of Auxiliary Equipment (Bare surface Grinder, Horse roller, Long roller					

2. Special Notes
   1) Detail of replaced and/or repaired parts

   2) Detected defects or breakdown

   3) Supply condition of spare parts and shortage

   4) Resulted downtime of machinery due to maintenance activity

   5) Problems hindering implementation of preventive maintenance and any other notes

3. Circulation As Needed

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MACHINERY RECORD

Name of Machine		Record of Major Maintenance/Remodeling Works	
Model Name/Number		Date	Contents of Works
Manufacturing Number			
Manufactured Date			
Name of Manufacturer			
Installed Date			
Machine Identification			
Main Specifications and Remarks			

TOYOBO

GENERAL SCHEME OF PREVENTIVE MAINTE

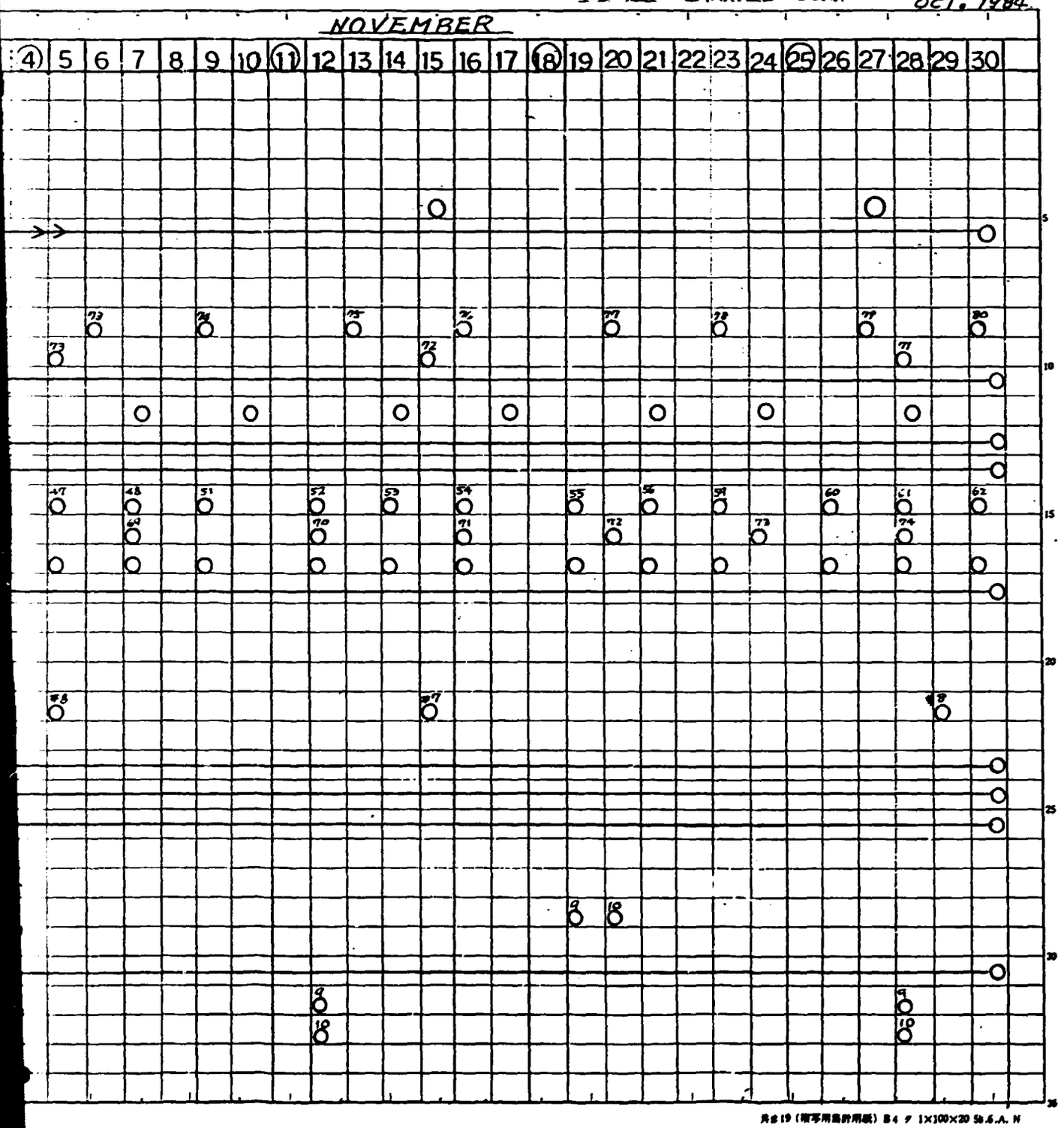
(FREQUENCY) MONTH / KIND OF MAINTENANCE DATE	1	2	3	④	5	6	7	8	9	10	⑪	12	13	14
NOVE														
1. BLOW ROOM M/C 1 LINE														
-1. PERIODICAL PREVENTIVE MAINTENANCE (3 MONTHS) BLENDER ~ OPENER SCUTCHER														
-2. LUBRICATION, CLEANING & CHECKING (10 DAYS)			O											
-3. DAILY CLEANING (1 DAY)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
2. CARD 32 SETS														
-1. ORDINARY PREVENTIVE MAINTENANCE A (3 MONTHS)		72 O				73 O			74 O				75 O	
-2. ORDINARY PREVENTIVE MAINTENANCE B (1 YEAR)					73 O									
-3. DAILY MAINTENANCE (1 DAY)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
-4. STRIPPING CYLINDER & DOFFER (3 DAYS)			O				O			O				O
-5. LUBRICATION A (1 DAY)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
-6. LUBRICATION B (2 WEEKS)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
-7. GRINDING OF MCC - CYLINDER (2 MONTHS)		46 O			47 O		48 O		51 O			52 O		53 O
-8. GRINDING OF M.C.C. - DOFFER (4 MONTHS)			68 O				69 O					70 O		
-9. GRINDING OF FLAT WIRE (2 MONTHS)		O			O		O		O			O		O
-10. DAILY CLEANING (1 DAY)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
3. DRAWING FRAME TOYODA DK 2 SETS (4 HEADS)														
-1. ORDINARY PREVENTIVE MAINTENANCE (20 DAYS)					88 O									
-2. ORDINARY PREVENTIVE MAINTENANCE 1 MONTHS														
-3. DAILY MAINTENANCE (1 DAY)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
-4. LUBRICATION (1 DAY)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
-5. DAILY CLEANING (1 DAY)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
4. DRAWING FRAME TOYODA DY-2 2 SETS (4 HEADS)														
-1. ORDINARY PREVENTIVE MAINTENANCE A (20 DAYS)														
-2. ORDINARY PREVENTIVE MAINTENANCE B (6 MONTHS)														
-3. DAILY MAINTENANCE (1 DAY)	O	→	→	→	→	→	→	→	→	→	→	→	→	→
-4. WEEKLY CHECK & CLEANING (1 WEEK)			9 O 18 O									9 O 18 O		

SECTION 1

EME OF PREVENTIVE MAINTENANCE ○ INDICATES MAINTENANCE WORK TO BE CARRIED OUT. 1/4 OCT. 1984

NOVEMBER

④	5	6	7	8	9	10	⑪	12	13	14	15	16	17	⑱	19	20	21	22	23	24	㉕	26	27	28	29	30



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SECTION 2

TOYOBO

GENERAL SCHEME OF PREVENTIVE MAINTENA

NOVEME

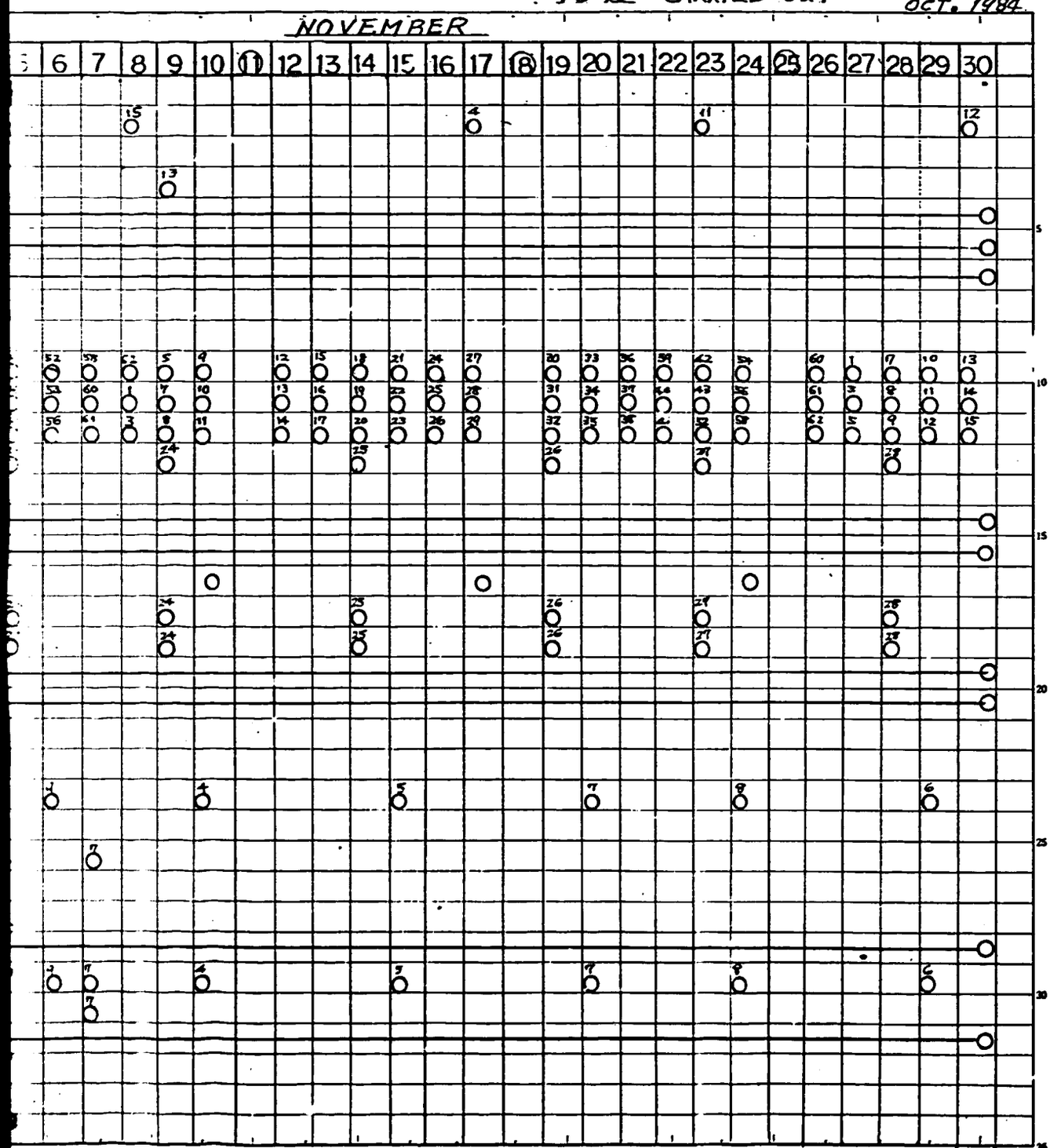
FREQUENCY / KIND OF MAINTENANCE — MONTH / DATE	1	2	3	④	5	6	7	8	9	10	⑪	12	13	14	15
5. ROVING FRAME 6 SETS															
-1. ORDINARY PREVENTIVE MAINTENANCE A (1 MONTHS)								15							
-2. ORDINARY PREVENTIVE MAINTENANCE B (6 MONTHS)									13						
-3. DAILY MAINTENANCE	○		→→												
-4. LUBRICATION (1 DAY)	○		→→												
-5. DAILY CLEANING (1 DAY)	○		→→												
6. RING SPINNING FRAME 38 SETS															
-1. ORDINARY PREVENTIVE MAINTENANCE A (15 DAYS)	32 ○ 23 ○ 34 ○	33 ○ 36 ○ 37 ○	38 ○ 39 ○ 40 ○		41 ○ 42 ○ 43 ○	52 ○ 53 ○ 56 ○	58 ○ 60 ○ 64 ○	63 ○ 1 ○ 3 ○	5 ○ 7 ○ 8 ○	9 ○ 10 ○ 11 ○		12 ○ 13 ○ 14 ○	15 ○ 16 ○ 17 ○	18 ○ 19 ○ 20 ○	21 ○ 22 ○ 23 ○
-2. ORDINARY PREVENTIVE MAINTENANCE B (6 MONTHS)					23 ○				24 ○					25 ○	
-3. DAILY MAINTENANCE	○			→→											
-4. LUBRICATION A (1 DAY)	○			→→											
-5. LUBRICATION B (1 WEEK)			○							○					
-6. LUBRICATION C (6 MONTHS)					23 ○				24 ○					25 ○	
-7. LUBRICATION D (1 YEAR)					23 ○				24 ○					25 ○	
-8. MACHINE CLEANING (3 DAYS)	○			→→											
-9. DAILY CLEANING (1 DAY)	○			→→											
7. R.T. WINDER 6 SETS															
-1. ORDINARY PREVENTIVE MAINTENANCE A (1 MONTH)	6 ○					9 ○				4 ○					5 ○
-2. ORDINARY PREVENTIVE MAINTENANCE B (6 MONTHS)							7 ○								
-3 DAILY MAINTENANCE (1 DAY)	○			→→											
-4. LUBRICATION A (1 MONTH)	6 ○					9 ○	7 ○			4 ○					5 ○
-5. LUBRICATION B (6 MONTHS)							7 ○								
-6. DAILY CLEANING (1 DAY)	○			→→											

SECTION 1

E OF PREVENTIVE MAINTENANCE ○ INDICATES MAINTENANCE WORK TO BE CARRIED OUT 2/4

OCT. 1984

NOVEMBER



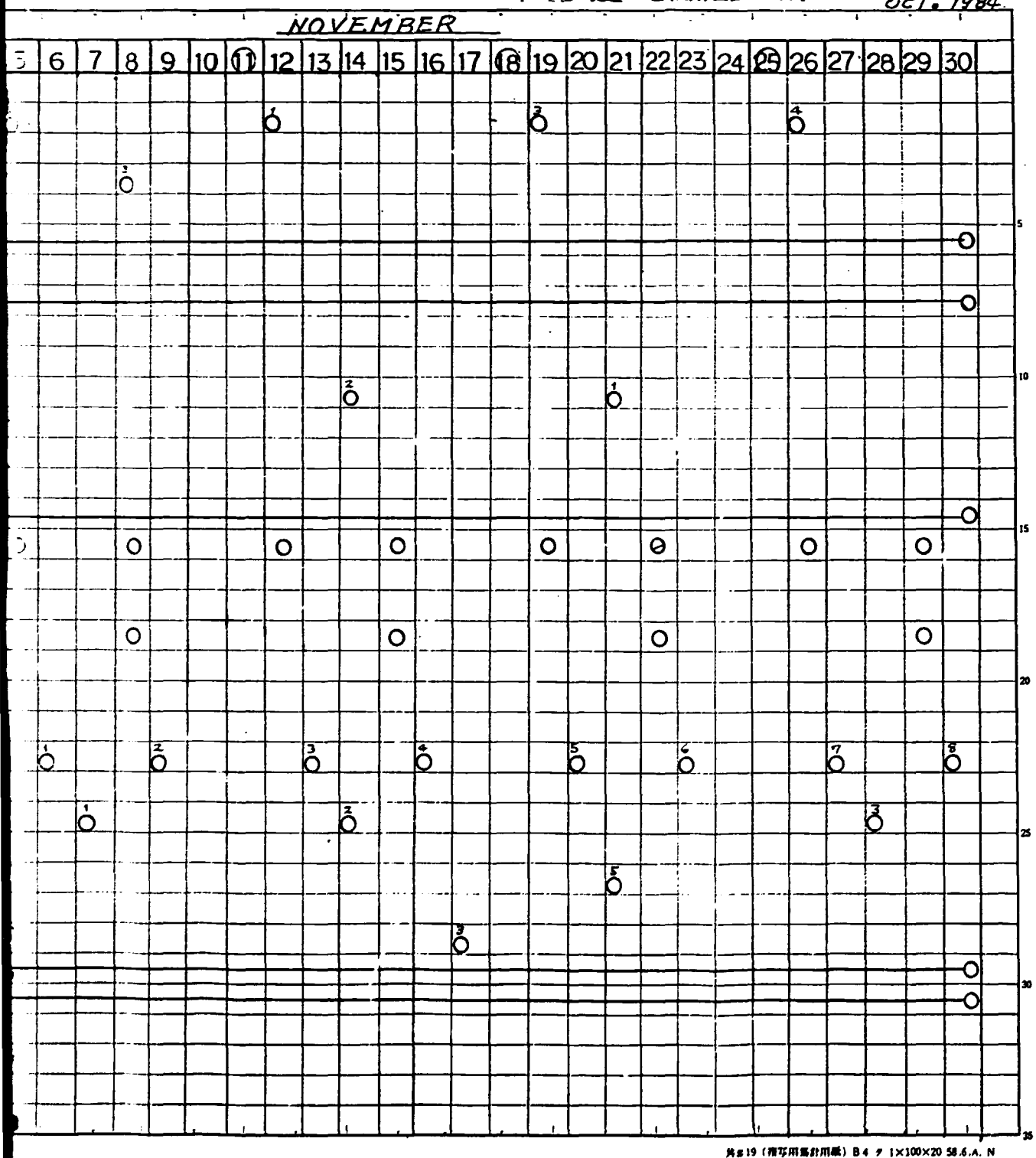
SECTION 2

TOYOSO

GENERAL SCHEME OF PREVENTIVE MAINT

FREQUENCY / KIND OF MAINTENANCE — MONTH / DATE	1	2	3	④	5	6	7	8	9	10	⑪	12	13	14
8. WARPER 4 SETS														
-1. ORDINARY PREVENTIVE MAINTENANCE A (1 MONTH)					2							6		
-2. ORDINARY PREVENTIVE MAINTENANCE B (6 MONTHS)								3						
-3. LUBRICATION A (1 DAY)	○	→	→											
-4. LUBRICATION B (6 MONTHS)														
-5. DAILY CLEANING (1 DAY)	○	→	→											
9. SIZING MACHINE 2 SETS														
-1. ORDINARY PREVENTIVE MAINTENANCE A (3 MONTHS)														2
-2. ORDINARY PREVENTIVE MAINTENANCE B (6 MONTHS)														
-3. DAILY CHECK (1 DAY)	○	→	→											
-4. LUBRICATION A (3 DAYS)	○				○			○				○		
-5. LUBRICATION B. (2 MONTHS)														
-6. LUBRICATION C. (6 MONTHS)														
-7. CLEANING A (1 WEEK)	○							○						
-8. CLEANING B. (6 MONTHS)														
10. PIRN WINDER 8 SETS														
-1. ORDINARY PREVENTIVE MAINTENANCE A (1 MONTH)		8 ○				1 ○			2 ○				3 ○	
-2. ORDINARY PREVENTIVE MAINTENANCE B (3 MONTHS)							1 ○							2 ○
-3. ORDINARY PREVENTIVE MAINTENANCE C (6 MONTHS)			4 ○											
-4. LUBRICATKIN (1 YEAR)														
-5. CLEANING A. (1 DAY)	○			→	→									
-6. CLEANING B. (1 WEEK)	○			→	→									

E OF PREVENTIVE MAINTENANCE ○ INDICATES MAINTENANCE WORK TO BE CARRIED OUT. 3/4 OCT. 1984



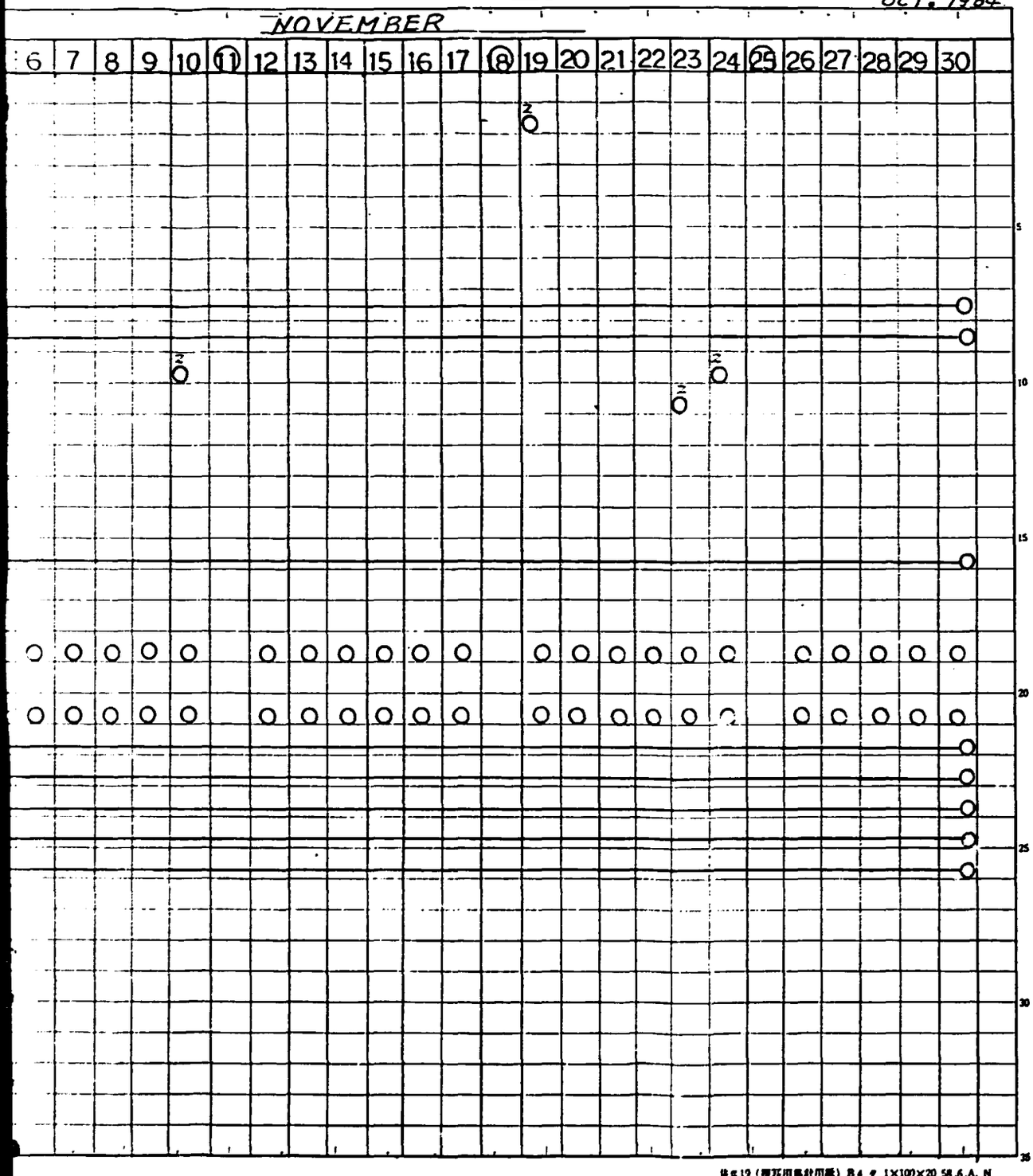
SECTION 2

TOYOSO

GENERAL SCHEME OF PREVENTIVE MAI

KIND OF MAINTENANCE \ MONTH / DATE	1	2	3	④	5	6	7	8	9	10	⑪	12	13
11. AUTOMATIC SPOOLER 1 SET													
-1. ORDINARY PREVENTIVE MAINTENANCE A (1 MONTH)													
-2. ORDINARY PREVENTIVE MAINTENANCE B. (3 MONTHS)													
-3. ORDINARY PREVENTIVE MAINENANCE C. (1 YEAR)					Z O								
-4. DAILY MAINTENANCE (1 DAY)	O	→	→										
-5. LUBRICATION A (1 DAY)	O	→	→										
-6. LUBRICATION B. (2 WEEKS)										Z O			
-7. LUBRICATION C. (1 MONTH)													
-8. LUBRICATION D (6 MONTHS)													
-9. LUBRICATION E. (1 YEAR)													
12. LOOM 200 SETS													
-1. MAINTENANCE AT LOOM RUNNING (2 WEEKS)	O	→	→										
-2. MAINTENANCE AT LOOM STOPPAGE (4 MONTHS)													
	O	O	O		O	O	O	O	O	O		O	O
	O	O	O		O	O	O	O	O	O		O	O
-3. LUBICATION (1 DAYS)	O	→	→										
-4. LUBRICATION (2 DAYS)	O	→	→										
-5 LUBRICATION (1 WEEK)	O	→	→										
-6 LUBRICATION (3 DAYS)	O	→	→										
-7 DAILY CLEANING (1 DAY)	O	→	→										

OF PREVENTIVE MAINTENANCE. ○ INDICATES MAINTENANCE WORK TO BE CARRIED OUT. 4/4 OCT. 1984



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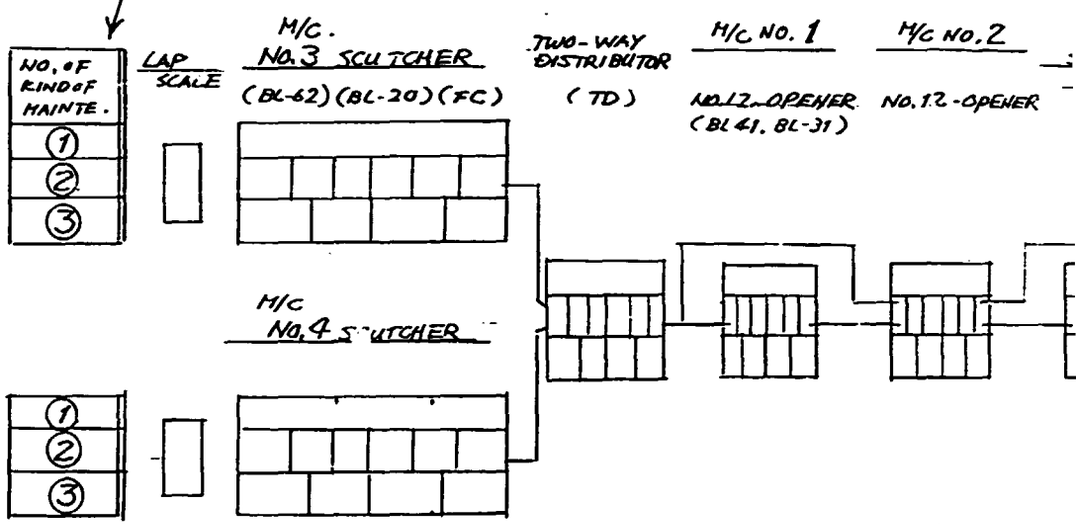
SECTION 2

BLOW ROOM M/C 1 LINE MONTHLY PROGRAM OF

FREQU-ENCY	KIND OF MAINTENANCE \ MONTH / DATE	OCTO 1	2	3	4	5	6	7	8	9	10	11	12
3 MONTHS	① PERIODICAL PREVENTIVE MAINTENANCE -1. BLENDER ~ OPENER -2. SCUTCHER NO.3 NO.4												
1 DAY	② DAILY CLEANING	O	O	O	O	O	O		O	O	O	O	O
10 DAYS	③ LUBRICATION CLEANING											O	

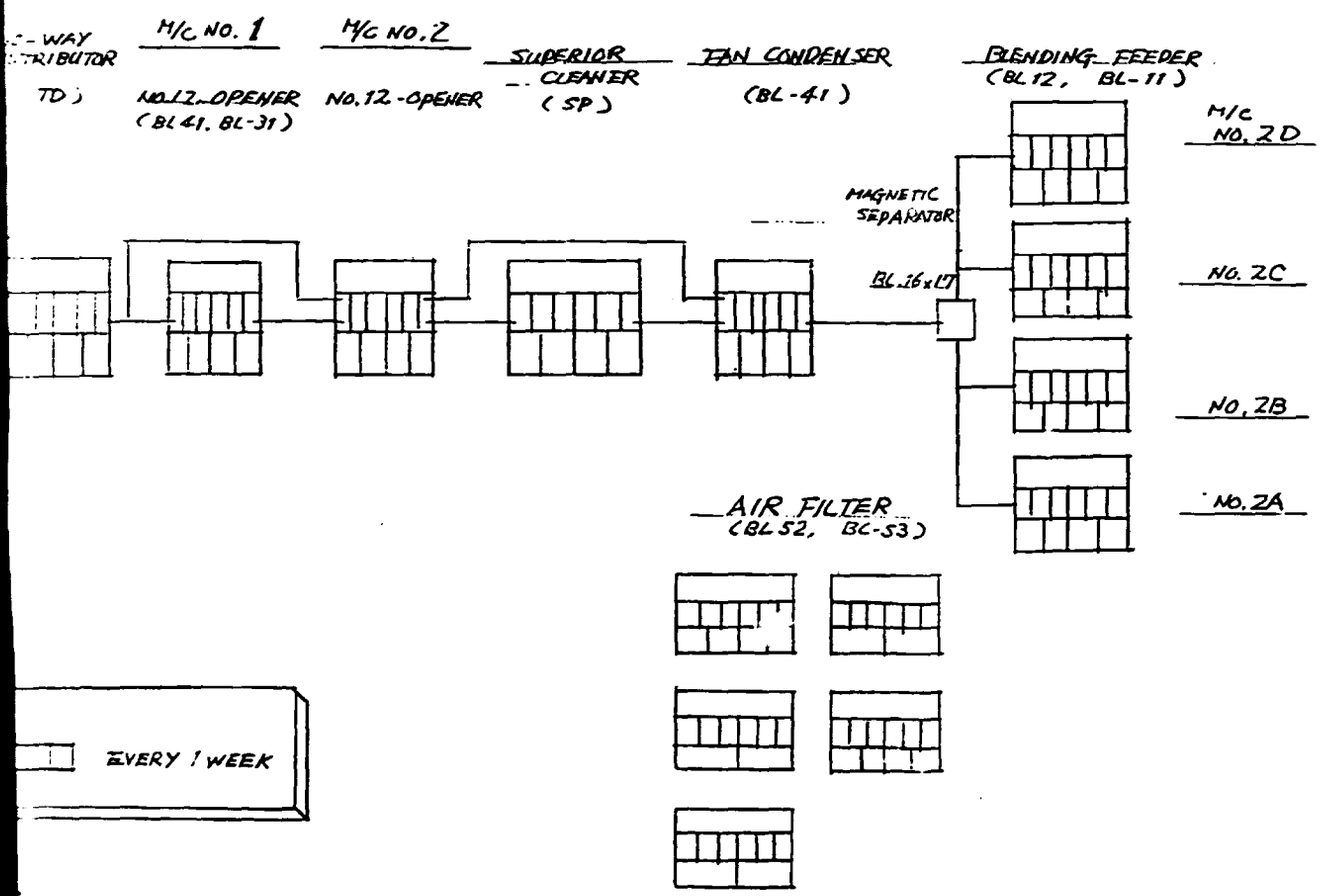


SHOWS :-
MARKING ☐☐☐☐☐ EVERY 1 WEEK

SECTION 1

MONTHLY PROGRAM OF PREVENTIVE MAINTENANCE

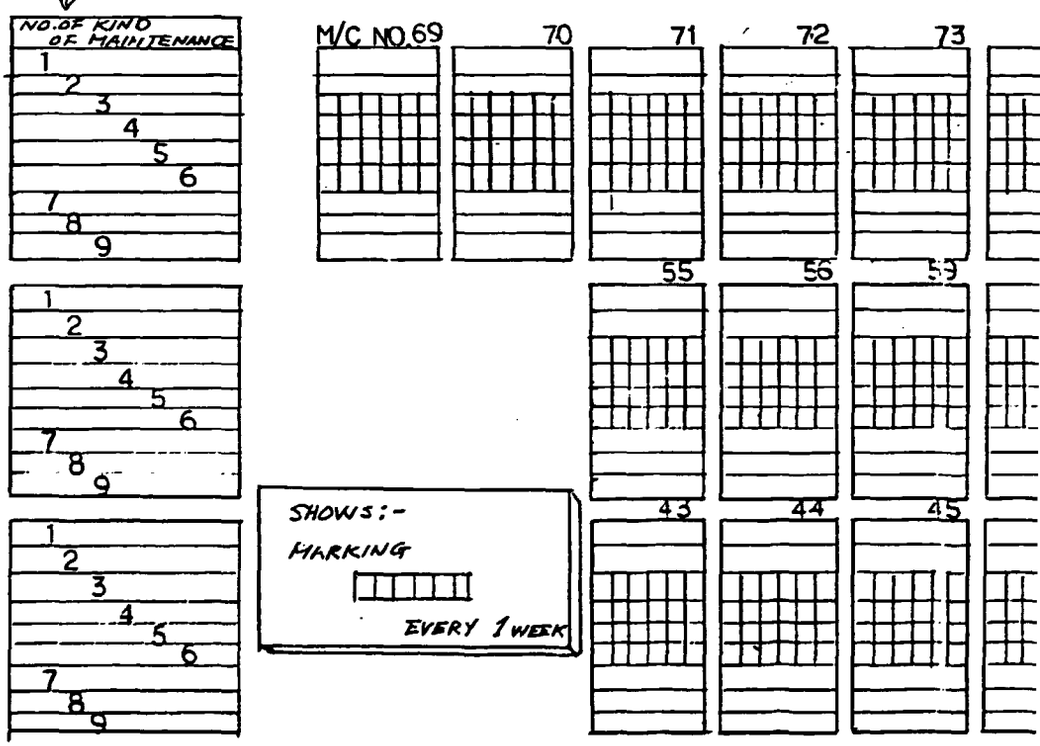
	OCTOBER																													MARKING COLOR
	1	2	3	4	5	6	(7)	8	9	10	11	12	13	(14)	15	16	17	18	19	20	(21)	22	23	24	25	26	27	(28)	29	30	31	
																																O
	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
											O												O									O



SECTION 2

CARD TOYODA 32 SETS MONTHLY PROGRAM OF F

FREQU-ENCY	KIND OF MAINTENANCE (MONTH / DATE)		1	2	3	4	5	6	⑦	8	9	10	11	12	13
3 MONTHS	① ORDINARY PREVENTIVE MAINTENANCE	A		○			○				○			○	
1 YEAR	② ORDINARY PREVENTIVE MAINTENANCE	B	○										○		
1 DAY	③ DAILY MAINTENANCE		○	○	○	○	○	○		○	○	○	○	○	○
3 DAY	④ STRIPPING CYLINER & DOFFER				○			○				○			○
1 DAY	⑤ LUBRICATION	A	○	○	○	○	○	○		○	○	○	○	○	○
2 WEEK	⑥ LUBRICATION	B	○	○	○	○	○	○		○	○	○	○	○	○
2 MONTH	⑦ GRINDING OF MCC CYLINDER		○		○		○			○		○		○	
4 MONTH	⑧ GRINDING OF MCC DOFFER		○				○				○				○
2 MONTH	⑨ GRINDING OF FLAT WIRE		○		○		○			○		○		○	



SECTION 1

MONTHLY PROGRAM OF PREVENTIVE MAINTENANCE

OCTOBER																													MARKING COLOR
1	2	3	4	5	6	(7)	8	9	10	11	12	13	(14)	15	16	17	18	19	20	(21)	22	23	24	25	26	27	(28)	29	30	31	
	O			O				O			O				O			O				O			O				O		0
O										O													O								0
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	0
		O			O				O			O				O			O				O			O				O	0
O	O	O	O	O	O		C	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	0
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	0
O		O		O			O		O		O			O		O		O			O		O		O			O		O	0
O				O				O				O				O					O				O				O		0
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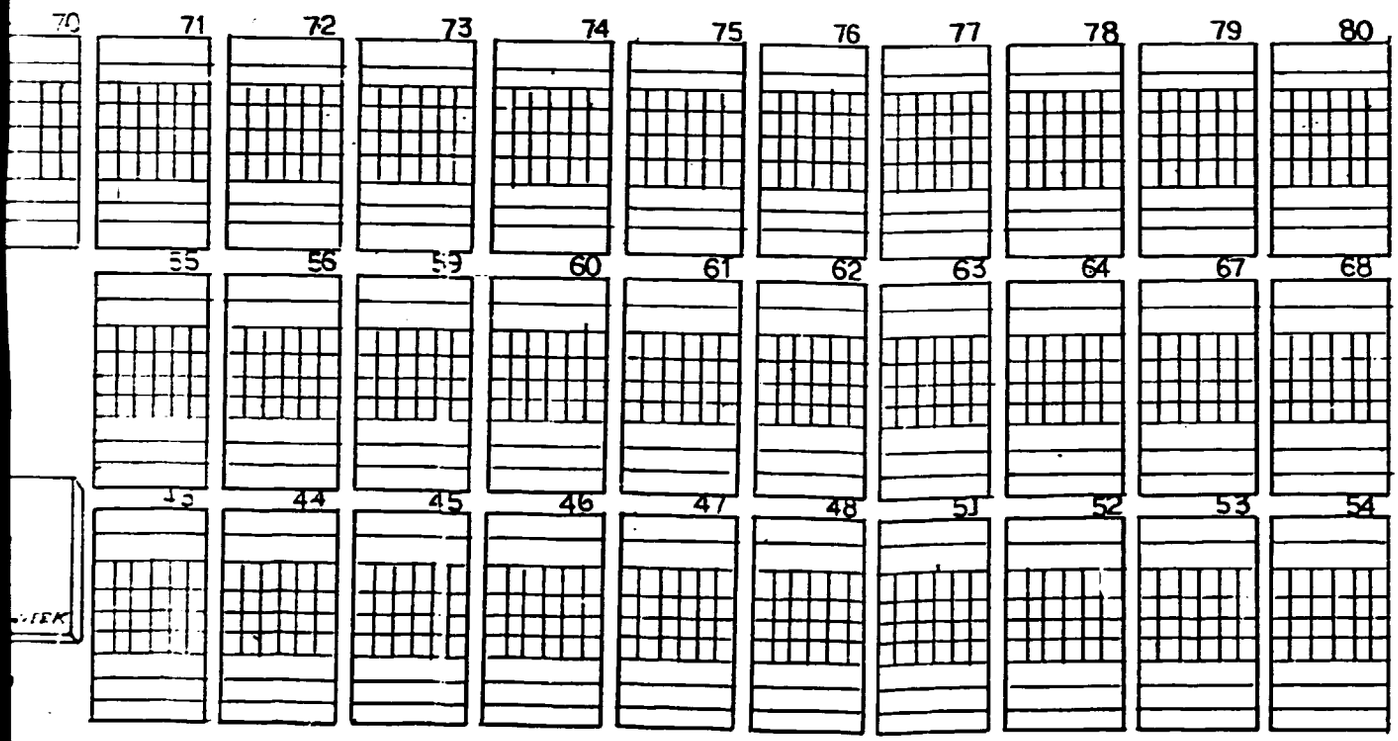
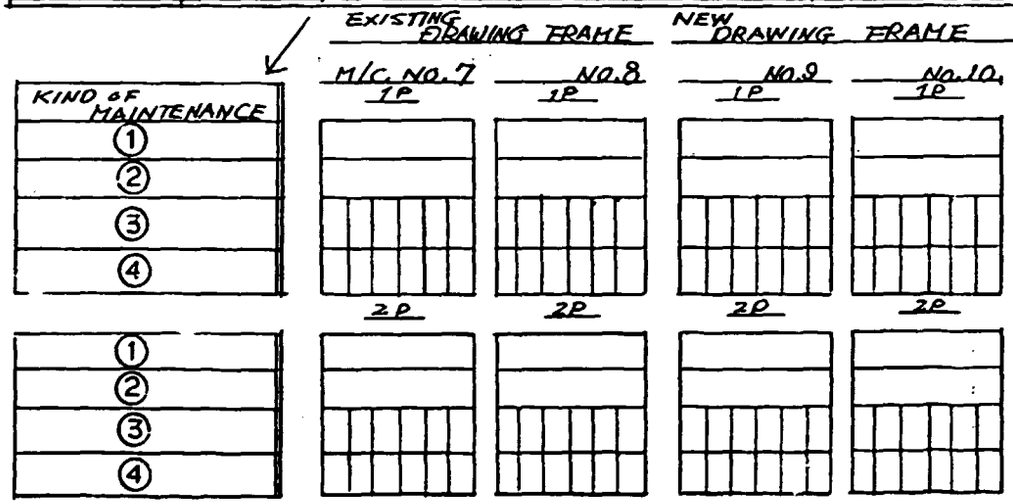


SECTION 2

DRAWING FRAME, ROVING FRAME — MONTHLY PROGRAM

M/C.	FREQUENCY	KIND OF MAINTENANCE / DATE	1	2	3	4	5	6
EXISTING DRAWING FRAME 2 SETS (4 HEADS)	20 DAYS	① ORDINARY PREVENTIVE MAINTENANCE A						
	8 MONTHS	② ORDINARY PREVENTIVE MAINTENACE B						
	1 DAY	③ DAILY MAINTENANCE	○	○	○	○	○	○
	1 DAY	④ LUBRICATION	○	○	○	○	○	○
NEW DRAWING FRAME 2 SETS (4 HEADS)		① ORDINARY PREVENTIVE MAINTENANCE A			(	CHECK & CL		
		② ORDINARY PREVENTIVE MAINTENANC B						
	1 DAY	③ DAILY MAINTENANCE	○	○	○	○	○	○
		④ LUBRICATION	○	○	○	○	○	○
ROVING FRAME 6 SETS	1 MONTH	① ORDINARY PREVENTIVE MAINTENANCE A			○			
	6 MONTH	② ORDINARY PREVENTIVE MAINTENANCE B					○	
	1 DAY	③ DAILY MAINTENANCE	○	○	○	○	○	○
	1 DAY	④ LUBRICATION	○	○	○	○	○	○



SECTION 1

MONTHLY PROGRAM OF PREVENTIVE MAINTENANCE

MONTH / DATE	OCTOBER																													MARKING COLOR
	1	2	3	4	5	6	(7)	8	9	10	11	12	13	(14)	15	16	17	18	19	20	(21)	22	23	24	25	26	27	(28)	29	30	31	
·NTENANCE A										O													O								O
·TENACE B																															O
·ANCE	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O					O	O	O	O
·TENANCE A			(CHECK & CLEANING)				O										O			(MAINTENANCE)				O	O						O
·TENANC B																															O
·ANCE	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
·TENANCE A			O					O				O						O				O							O		O
·TENANCE B					O																										O
·ANCE	O	O	O	O	O	O		O	O	O	O	C	C		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O

·E NEW DRAWING FRAME — ROVING FRAME

FAS ·8	NO.9 1P	NO.10 1P	FAS NO.4	NO.11	NO.12	FAB NO.13	NO.14	NO.15
	2P	2P						

SHOWS:- MARKING EVERY 1 WEEK

SECTION 2

ROLLER SHOP — MONTHLY PROGRM

WORKING — MONTH / DATE	OC 1	2	3	4	5	6	(7)	8	9	10	11	1
1. GRINDING OF RUBBER COT												
2. LUBRICATION OF TOP ROLLER												
3. ROLLER TREATMENT OF TOP ROLLER (EQUIPMENT OF ULTRA-VIOLET RAY)												

WORKING — MONTH / DATE	NO 1	2	3	(4)	5	6	7	8	9	10	(11)	1
1. GRINDING OF RUBBER COT	RF #15		FF #15				RF #17			FF #14		
2. LUBRICATION OF TOP ROLLER			FF #15							FF #14		
3. ROLLER TREATMENT OF TOP ROLLER (EQUIPMENT OF ULTRA-VIOLET RAY)	RF #15		FF #15				RF #17			FF #14		

FREQUENCY OF GRINDING & ULTRA-VIOLET RAY TREATMENT

KIND OF TOP ROLLER		FREQUENCY OF GRINDING	FREQ
DRAWING DK. DY-2	FRONT TOP ROLLER	6 MONTHS	
	2ND. ~ BACK TOP ROLLER	12 MONTHS	
ROVING FAB. FAS.	FRONT TOP ROLLER	12 MONTHS	
	2ND. ~ BACK TOP ROLLER	12 MONTHS	
RING SPINNING	FRONT TOP ROLLER	12 MONTHS	

SECTION 1

MONTHLY PROGRM OF PREVENTIVE MAINTENANCE.

OCTOBER

3	4	5	6	(7)	8	9	10	11	12	13	(14)	15	16	17	18	19	20	(21)	22	23	24	25	26	27	(28)	29	30	31
																			FF no.12	DF No.7		RF no.23 DY-2 no.9	no.10			FF no.13		
																			FF no.12	DF No.7		DY-2 no.9 no.10				FF no.13		
																			FF no.12	DF No.7		RF no.23 DY-2 #9 #10				FF #13		

- NOTE -
SHOWS :- MARKING
(FF) ROVING FRAME
DK EXISTING DRAWFRAME
DY-2 NEW DRAWFRAME
RF RING SPINNING FRAME

NOVEMBER

3	(4)	5	6	7	8	9	10	(11)	12	13	14	15	16	17	(18)	19	20	21	22	23	24	(25)	26	27	28	29	30
FF #15				RF #17			FF #14		DK #8		RF #29			FF #4		DY-2 #9	RF #31 DY-2 #10			FF #11			RF #33				
FF #15							FF #14		DK #8					FF #4		DY-2 #9	DY-2 #10		DK #7	FF #11	FF #12				FF #13		
FF #15				RF #17			FF #14		DK #8		RF #29			FF #4		DY-2 #9	RF #31 DY-2 #10		DK #7	FF #11	FF #12		RF #33		FF #13		

-VIOLET RAY TREATMENT

	FREQUENCY OF GRINDING	FREQUENCY OF ULTRA VIOLET LAY TREAT.
	6 MONTHS	20 DAYS
LER	12 MONTHS	20 DAYS
	12 MONTHS	1 MONTH
ILER	12 MONTHS	1 MONTH
	12 MONTHS	3 MONTHS

SECTION 2

RING SPINNING FRAME TOYODA 38 SETS MONTHLY PROGRAM OF PREVEN

FREQU-ENCY	KIND OF MAINTENANCE / MONTH / DATE		OCTOBER																
			1	2	3	4	5	6	(7)	8	9	10	11	12	13	(14)	15	16	17
1 MONTH	(1) ORDINARY PREVENTIVE MAINTENANCE	A	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O
			O	O	O	O	O	O		O	O	O	O	O	O		O	O	O
6 MONTH	(2) ORDINARY PREVENTIVE MAINTENANCE	B			O					O				O					O
1 DAY	(3) DAILY MAINTENANCE		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O
1 DAY	(4) LUBRICATION	A	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O
1 WEEK	(5) LUBRICATION	B						O							O				
6 MONTH	(6) LUBRICATION	C			O					O				O					O
1 YEAR	(7) LUBRICATION	D			O					O				O					O

KIND OF MAINTE.	M/C NO.41	39	37	35	33	31	29	27	25	23	21	19
(1)												
(2)												
(3)												
(4)												
(5)												
(6)												
(7)												

	M/C NO.42	40	38	36	34	32	30	28	26	24	22	20
(1)												
(2)												
(3)												
(4)												
(5)												
(6)												
(7)												

PROGRAM OF PREVENTIVE MAINTENANCE

OCTOBER

9	10	11	12	13	(14)	15	16	17	18	19	20	(21)	22	23	24	25	26	27	(28)	29	30	31	MARKING COLOR
O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	
O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
			O					O					O				O					O	O
O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
			O								O							O					O
			O					O					O				O					O	O
			O					O					O				O					O	O

25 23 21 19 17 15 13 11 9 7 5 3

26 24 22 20 18 16 14 12 10 8

SHOWS:- MARKING EVERY 1 WEEK

SECTION 2

R.T. WINDER MURATA 6 SETS MONTHLY PROGR

FREQU-ENCY	KIND OF MAINTENANCE \ MONTH / DATE	1	2	3	4	5	6	7	8	9
1 MONTH	① ORDINARY PREVENTIVE MAINTENANCE A				O O					
6 MONTH	② ORDINARY PREVENTIVE MAINTENANCE B					O				
1 DAY	③ DAILY MAINTENANCE	O	O	O	O	O	O		O	O
1 MONTH	④ LUBRICATION A					O				
6 MONTH	⑤ LUBRICATION B					O				

KIND OF MAINTENANCE
①
②
③
④
⑤

M/C NO. 6

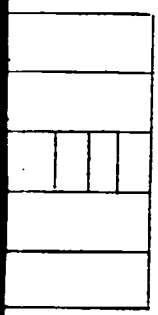
M/C 9

SECTION 1

MONTHLY PROGRAM OF PREVENTIVE MAINTENANCE

OCTOBER																													MARKING COLOR
1	2	3	4	5	6	(7)	8	9	10	11	12	13	(14)	15	16	17	18	19	20	(21)	22	23	24	25	26	27	(28)	29	30	31	
			O											O									O					O			O
			O											O																	
				O																											O
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
				O										O									O					O			O
				O										O									O					O			O

NO. 6



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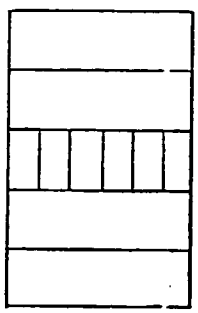

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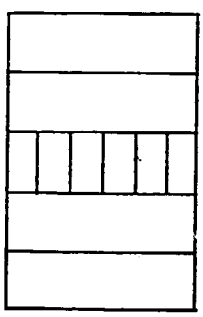
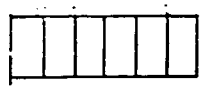


SHOWS:-
MARKING EVERY 1 WEEK



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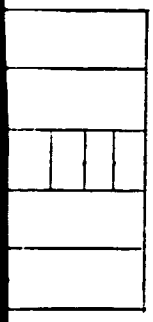

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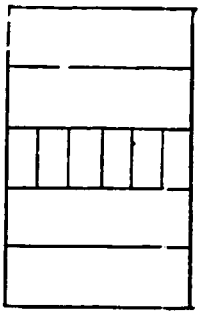

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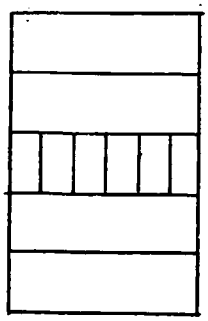
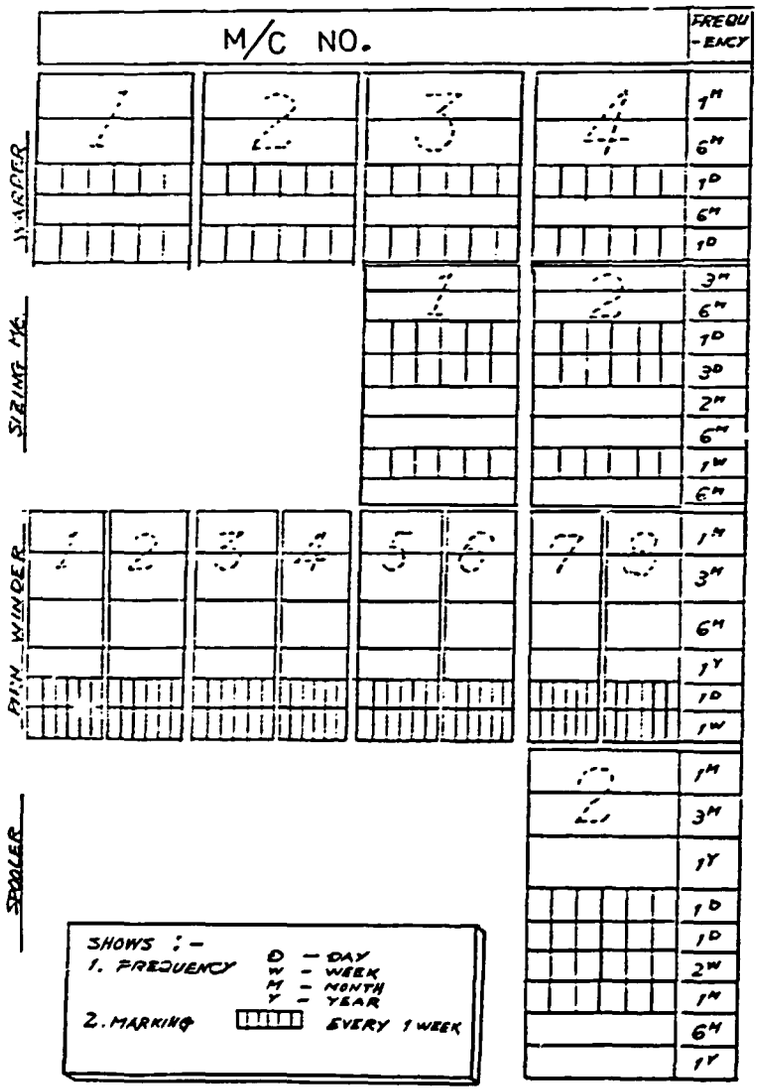


SECTION 2

MONTHLY PROGRAM

M/C	KIND OF MAINTENANCE		MONTH / DATE 1	2	3	4	5
WARPER (4)	-1. O.P. MAINTENANCE	A					
	-2. O.P. MAINTENANCE	B				O	
	-3. LUBRICATION	A	O	O	O	O	O
	-4. LUBRICATION	B					
	-5. DAILY CLEANING		O	O	O	O	O
SIZING M/C (2)	-1. O.P. MAINTENANCE	A					
	-2. O.P MAINENANCE	B					
	-3. DAILY CHECK		O	O	O	O	O
	-4. LUBRICATION	A	O			O	
	-5. LUBRICATION	B					
	-6. LUBRICATION	C					
	-7. CLEANING	A				O	
	-8 CLEANING	B					
PIRN WINDER (8)	-1. O.P. MAINTENANCE	A		O			O
	-2. O.P. MAINTENANCE	B			O		
	-3. O.P. MAINTENANCE	C					
	-4. LUBRICATION						
	-5. CLEANING	A	O	O	O	O	O
	-6. CLEANING	B	O	O	O	O	O
SPOOLER (1)	-1. O.P. MAINTENANCE	A					
	-2. O.P. MAINTENANCE	B					
	-3. O.P. MAINTENANCE	C					
	-4 DAILY MAINTENANCE		O	O	O	O	O
	-5. LUBRICATION	A	O	O	O	O	O
	-6. LUBRICATION	B					
	-7. LUBRICATION	C					
	-8. LUBRICATION	D					
	-9. LUBRICATION	E					

YARN PREPARATION



SECTION 1

MONTHLY PROGRAM OF PREVENTIVE MAINTENANCE

MONTH / DATE / ITEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	MARKING COLOR
MAINTENANCE A								O							O							O							O			O
MAINTENANCE B				O																												O
LUBRICATION A	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O			O	O	O	O
LUBRICATION B																																O
DAILY CLEANING	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O			O	O	O	O
MAINTENANCE A																																O
MAINENANCE B																																O
DAILY CHECK	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O			O	O	O	O
LUBRICATION A	O			O				O			O				O			O				O			O				O			O
LUBRICATION B												O																				O
LUBRICATION C																																O
CLEANING A				O							O							O							O							O
CLEANING B																																O
MAINTENANCE A		O			O				O			O				O			O				O			O				O		O
MAINTENANCE B			O										O											O								O
MAINTENANCE C																O																O
LUBRICATION										O																						O
CLEANING A	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O			O	O	O	O
CLEANING B	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O			O	O	O	O
MAINTENANCE A															O																	O
MAINTENANCE B																																O
MAINTENANCE C								O																								O
MAINTENANCE	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O			O	O	O	O
LUBRICATION A	O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O			O	O	O	O
LUBRICATION B													O														O					O
LUBRICATION C																								O								O
LUBRICATION D																																O
LUBRICATION E																			O													O

SECTION 2

LOOM 200 SETS MONTHLY PROGRAM OF

FREQU-ENCY	KIND OF MAINTENANCE \ MONTH / DATE	1	2	3	4	5	6	⑦	8	9	10	0
2 WEEK	1. MAINTENANCE AT LOOM RUNNING	○	○	○	○	○	○		○	○	○	
4 MONTH	2. MAINTENANCE AT LOOM STOPPAGE	○ ○	○ ○	○ ○	○ ○	○ ○	○ ○		○ ○	○ ○	○ ○	
1 DAY	3. LUBRICATION	○	○	○	○	○	○		○	○	○	
2 DAY	4. LUBRICATION	○	○	○	○	○	○		○	○	○	
1 WEEK	5. LUBRICATION	○	○	○	○	○	○		○	○	○	
3 DAY	6. LUBRICATION	○	○	○	○	○	○		○	○	○	
1 DAY	7. DAILY CLEANING	○	○	○	○	○	○		○	○	○	

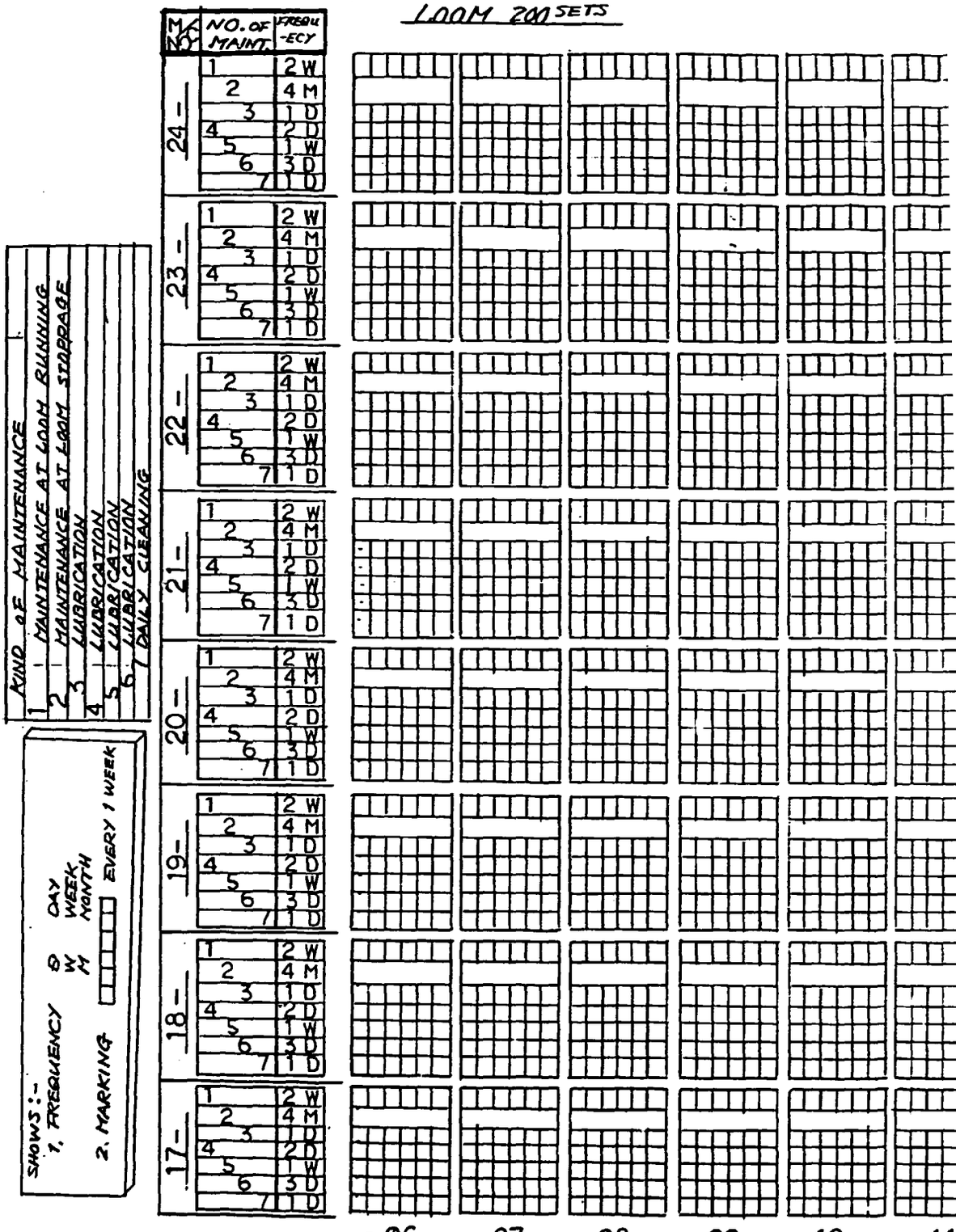
SECTION 1

. . /

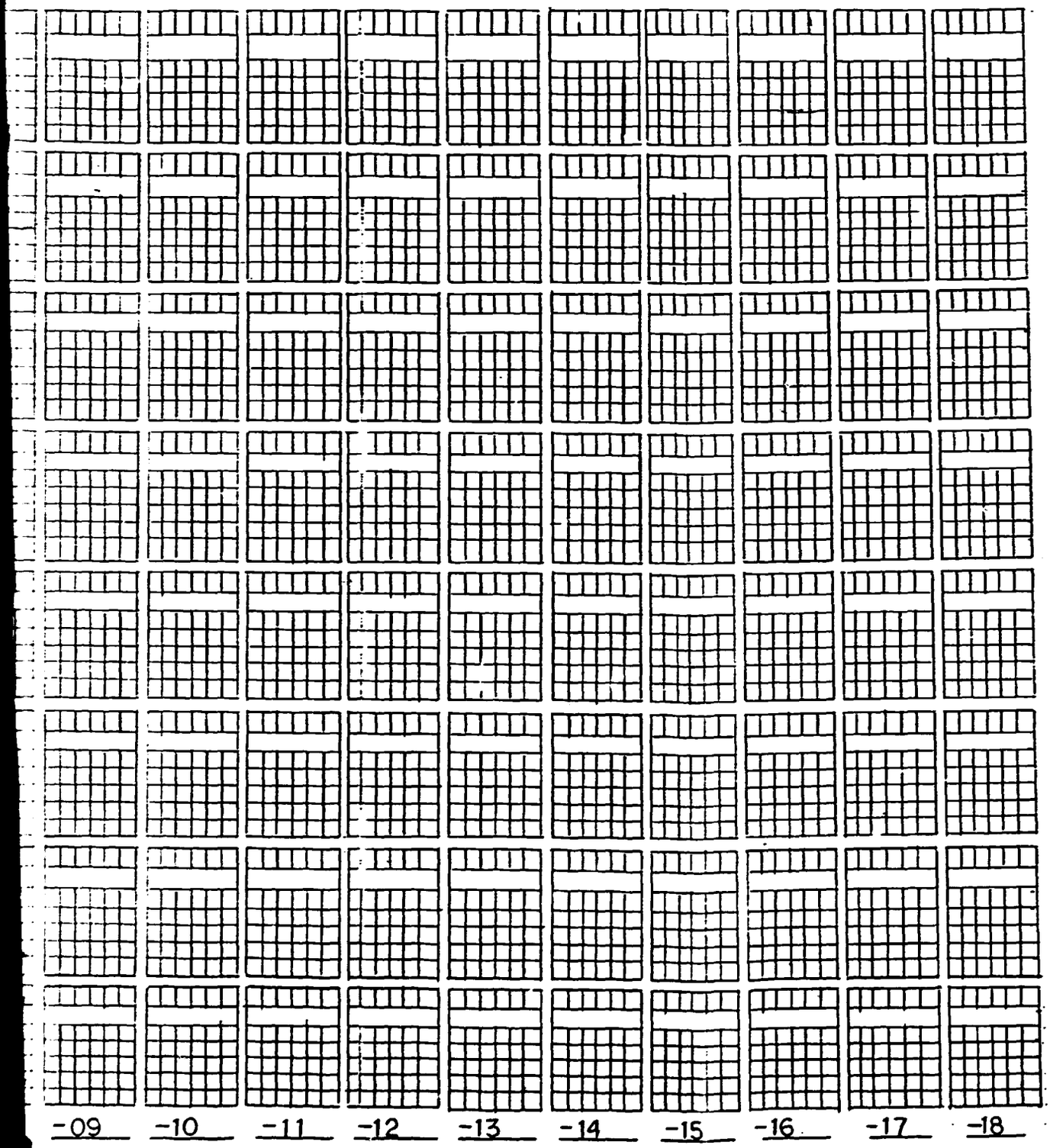
MONTHLY PROGRAM OF PREVENTIVE MAINTENANCE

OCTOBER																													MARKING COLOR
1	2	3	4	5	6	(7)	8	9	10	11	12	13	(14)	15	16	17	18	19	20	(21)	22	23	24	25	26	27	(28)	29	30	31	
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O
O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O	O	O		O	O	O	O

SECTION 2


LOOM 200 SETS
M/C NO.
NO. OF MAINT.
FREQU-ECY
24-
23-
22-
21-
20-
19-
18-
17-
KIND OF MAINTENANCE
1 MAINTENANCE AT LOOM RUNNING
2 MAINTENANCE AT LOOM STOPPAGE
3 LUBRICATION
4 LUBRICATION
5 LUBRICATION
6 LUBRICATION
7 DAILY CLEANING
SHOWS:-
1. FREQUENCY D DAY W WEEK M MONTH
2. MARKING EVERY 1 WEEK
-06
-07
-08
-09
-10
-11

SECTION 1



SECTION 2

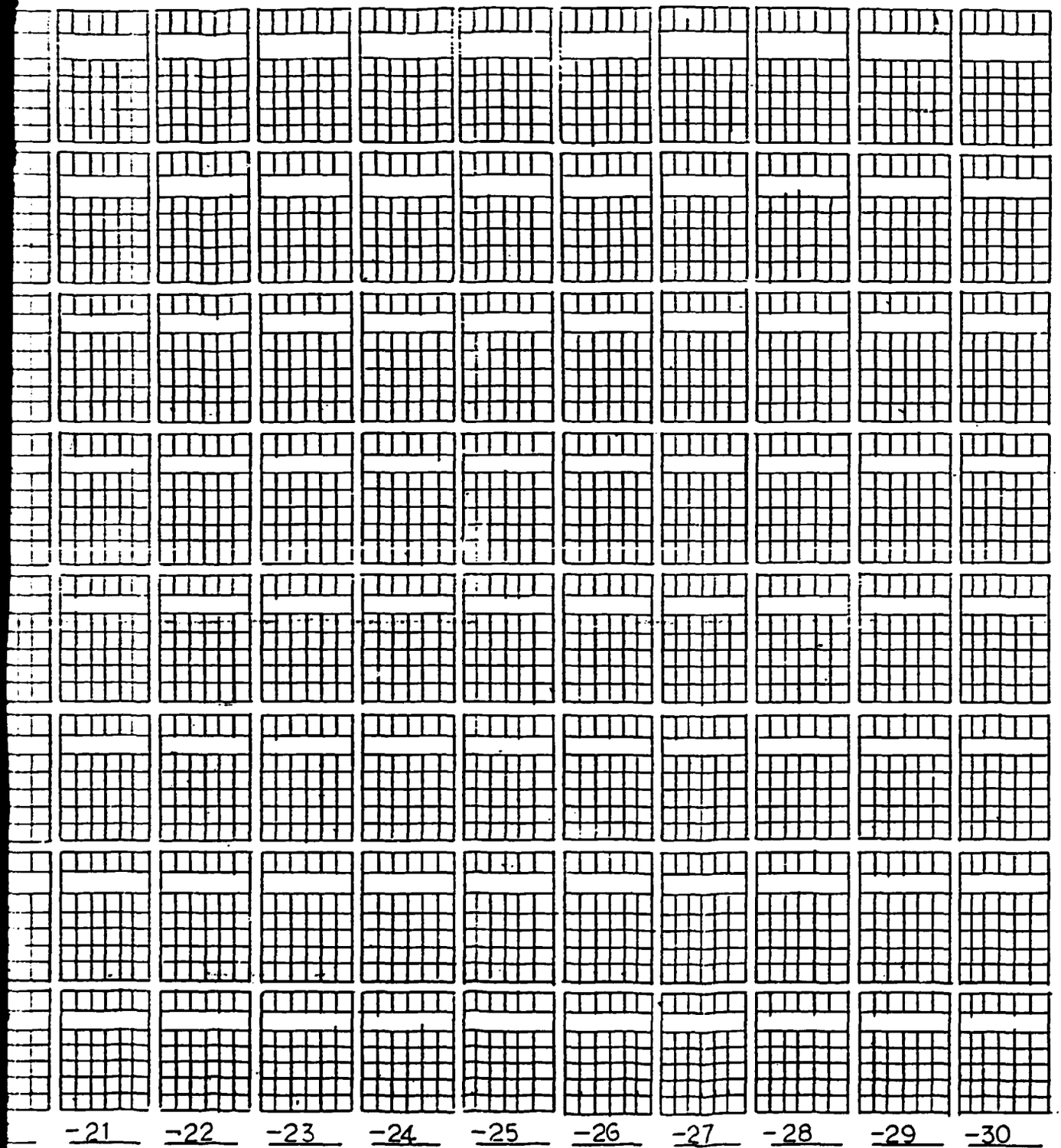
LOOM 200 SETS

M/C NO.	NO. OF MAINT.	FREQU-ECY
-24-	1	2 W
	2	4 M
	3	1 D
	4	2 D
	5	1 W
	6	3 D
	7	1 D
-23-	1	2 W
	2	4 M
	3	1 D
	4	2 D
	5	1 W
	6	3 D
	7	1 D
-22-	1	2 W
	2	4 M
	3	1 D
	4	2 D
	5	1 W
	6	3 D
	7	1 D
-21-	1	2 W
	2	4 M
	3	1 D
	4	2 D
	5	1 W
	6	3 D
	7	1 D
-20-	1	2 W
	2	4 M
	3	1 D
	4	2 D
	5	1 W
	6	3 D
	7	1 D
-19-	1	2 W
	2	4 M
	3	1 D
	4	2 D
	5	1 W
	6	3 D
	7	1 D
-18-	1	2 W
	2	4 M
	3	1 D
	4	2 D
	5	1 W
	6	3 D
	7	1 D
-17-	1	2 W
	2	4 M
	3	1 D
	4	2 D
	5	1 W
	6	3 D
	7	1 D

-19 -20 -21 -22 -23 -24

SECTION 1

SETS



SECTION 2

3-2 MONTHLY REPORT ON SETTING UP OF
PREVENTIVE MAINTENANCE SCHEME
SEPTEMBER, OCTOBER

PROJECT DP/VIE/80/038

REPORT ON SETTING UP PREVENTIVE MAINTENANCE SCHEME AT VIET THANG FACTORY AS AT 30 SEPTEMBER 1984

INTRODUCTION

Preventive maintenance scheme to be set up in Viet Thang Factory was inaugurated substancially on 13th August 1984. The shcme had been elaborated by TOYOBO's maintenance specialists. Needless to say, practical observation and experience of 5 supervisors who had been engaged in training selected technicians technical skills through the recondition ing work were reflected on the scheme.

Machinery for which the scheme is applied is all reconditioned machinery including all mechanical and electircal parts and all related auxiliary and control equipments at Viet Thang factory.

Spinning - blowing, carding, drawing, roving, ring spinning, winding
Weaving - spooler, warper, sizing, pirn winding, loom

Provision had been made to the Factory on 7th August, as for documents and forms required for the implementation , like work specification, check sheets, implementation timetable, etc. and as of 13th August such forms were partially available after being translated into Vietnamese and the scheme was just started to run by both factory management and personnel in charge.

On 15th of August, factory staffs involved in the preventive maintenance scheme of carding section of spinning were gathered to be informed of detail of the scheme which was explainted to them by factory management and consultant team staffs. On 22nd of August, all concerned management staffs composed of heads, technical and production deputy heads of spinning and weaving, staffs of electro-mechanical department met and were made fully

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understood of the operation of new system of maintenance. Thereabout the scheme made a start involving all sections without delay, although in such sections as blowing. winding and weaving in which machinery reconditioning work was not finished off upto the date, the implementation of preventive maintenance was left over.

Documents to guide the scheme and forms to be used in it are:
- Positioning of preventive maintenance
- Description of the scheme for each section
- Description of equipments and tools required for the scheme
- Description of maintenance activities for each section
- Check sheets for each activity of each section
- Reporting and recording form
- Draft timetable for each activity

Following documents were supplemented later on to the above by the end of September.
- Information of minimum number of staffs required per diem for each activity of each section
- Final timetable for each activity of each section
- Overall programme of the scheme (from August to November) for control purpose of the responsible of the scheme
- Auxiliary record sheet and check sheet (for gauge setting, etc.)
- Proposal for improvement of workshop (maintenance room)
- Maintenance procedure for auxiliary and control equipments

BLOWING SECTION

As the reconditioning of this section was accomplished at the end of August 1984, the preventive maintenance scheme for this section was set up from the beginning of September. Same members in charge of reconditioning (8 technicians) were retained to take care of the scheme. During first week, members were organized and trained by the blowing/carding supervisor so as to adapt themselves to and get necessary skills for the scheme as early as possible. The supervisor

instructed members detailed procedure of periodical cleaning and lubrication and repeated check and correction of skills of technicians until he leaves for Dong Nam factory for another assignment.

Daily cleaning in charge of production operatives was originally contemplated in the scheme. But once started the scheme, this maintenance work proved not to be done satisfactorily, therefore cleaning was decided to change from operatives' charge to maintenance workers' with ten days frequency, by consultation of the supervisor with group members. Periodical cleaning and lubrication was carried out on 14, 15 August, 6, 18, and 29 September at a interval of ten days. On the other hand due to lack of detailed information of lubrication parts which is complicacy of lots of bearings to lubricate, a lubrication diagramme was expected to be drawn up by the supervisor.

CARDING SECTION

Prior to shifting to the scheme, technicians had been partially instructed by the blowing/carding supervisor practical skills for maintenance activity such as stripping and grindig methods of cylinder and doffer. Detailed explanation of the scheme was made to 14 technicians assigned for the performance of preventive maintenance activity succeeding rehabilitation of 32 cards on 20th August and recording and checking methods relating to preventive maintenance of card were informed by the supervisor. After that, maintenance items preset for this machine, i.e. ordinary maintenance A, B, daily maintenance, lubricating procedure, stripping of cylinder and doffer, grinding of metallic wire, etc. were instructed in detail and technicians' skills obtained were reiteratively checked and corrected by him. Whole progress of the scheme in this section was also watched and the scheme was arranged to proceed automatically as per preset timetable under the control of group leader during the absence of the supervisor.

The activities attained by the end of this month are as follows.

	Maintenance A (1 frame/3 days)	Maintenance B (1 frame/10 days)	Stripping (frequency 3days)	Grinding Cylinder (1 frame /2 days)	Doffer (1 frame /4 days)	Daily Maintenance Lubrication A Lubrication B
Frame No.43			64 frame per week (twice a week) from Aug 22			Every day 32 frames from Aug 21 (3 frames/ day for Lubrication B)
44						
45	Aug 21				Aug 22	
46	Aug 24				Aug 27	
47	Aug 28			Aug 22	Aug 31	
48	Aug 31			Aug 24	Sep 4	
51	Sep 4			Aug 27	Sep 7	
52	Sep 7			Aug 29	Sep 12	
53	Sep 11			Aug 31	Sep 17	
54	Sep 14			Sep 4	Sep 21	
55	Sep 18			Sep 5	Sep 26	
56	Sep 21			Sep 7		
59	Sep 25			Sep 10		
60	Sep 28			Sep 12		
61				Sep 14		
62				Sep 17		
63				Sep 19		
64				Sep 21		
67				Sep 24		
68				Sep 26		
69				Sep 28		
70						
71						
72						
73						
74						
75						
76						
77		Sep 19				
78		Sep 6				
79						
80						

Due to non-availability of special setting tool for flat grinding, however, the grinding of flat wire scheduled for September was not implemented. This tool was placed order to be manufactured.

DRAWING & ROVING SECTION

This section was also ready for start of the scheme on 13th August. Before and after this time, 11 technicians in charge were explained by the drawing/roving supervisor about the contents and detailed procedure of preventive maintenance in this section. Immediately after paper and forms were

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made ready and available by the factory side, the scheme was inaugurated by undertaking ordinary maintenance A to a roving frame FAS No.12 on 24th August. Successively various activities like maintenance B, lubrication and greasing for both speed frames and drawframes were carried on. Though the check and follow up by the supervisor was interrupted from 10th September due to his visit to Dong Nam and Thang Loi mills, the preset timetable was faithfully observed under control of group leader and sub-leader in accordance with the discussion held between the supervisor and the latter.

Following activ.tes took place as part of the scheme up to the end of September.

	Maintenance A	Maintenance B	Daily maintenance and Lubrication
[Drawframe]	(frequency 20	(frequency	
2 heads per frame	days - 2 heads per day)	8 months)	
F.No.7	Sep 4, Sep 28	Aug 30	Every day from
F.No.8	Aug 25,Sep 17		Aug 24
[Roving F.)	(frequency 1 month - 1 frame/5 days)	(frequency 6 months)	
F.No.4	Sep 13	Aug 27/28	Every day from
11	Sep 18	Sep 5/6	Aug 24
12	Aug 24, Sep 24		
13	Sep 29	Aug 29/30	
14	Sep 3		
15	Sep 8		

Detailed lubrication diagramme proved to be necessary as supplementary information for more organized lubrication work.

RING SPINNING SECTION

13 technicians were allocated for the job of preventive maintenance under the supervision of ring/winding supervisor. They were at first instructed by the latter to know the detail of system. Explanation relating to integrant staffs,

frequency, time required for 1 frame, work procedure and contents concerning each maintenance item was made by the supervisor. And afterwards they were practically trained how to carry it out. The system was carried on in compliance with the preset timetable. The check and follow up by the supervisor went on till 8th September, his departure date to Dong Nam mill, but the work proceeded after that almost satisfactorily as organized, except a bit delay of starting whole system. The summary of activities which took place by the end of September is shown below.

	Maintenance A (2 franes/day)	Maintenance B (1 frame/5 days)	Lubrication A	Lubrication B	Lubrication C/D	Daily Maintenance
F.No. 3,4	Sep 8		Every day 38 frame from Aug 27	Every Satur day 38 frames from Sep 1		Every day 38 frames from Aug 27
5,6	Sep 10					
7	Sep 11					
8	Sep 11					
9	Sep 12					
10	Sep 12					
11	Sep 13					
12	Sep 13					
13	Sep 14					
14	Sep 14	Sep 24			Sep 24	
15	Sep 15	Sep 28			Sep 28	
16	Sep 15					
17	Sep 17					
18	Sep 17					
19	Sep 18					
20	Sep 18					
21	Sep 19					
22	Sep 19					
23	Sep 27					
24	Sep 27					
25	Sep 28					
26	Sep 28					
27	Sep 29					
28	Sep 29					
29						
30						
31						
32						
33	Sep 1					
34	Sep 1					
35	Sep 4					
36	Sep 4					
37	Sep 5					
38	Sep 5					
39	Sep 6					
40	Sep 6					
41	Sep 7					
42	Sep 7					

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WINDING SECTION

Due to the completion of reconditioning of R.T.winder at the end of August the set up of the scheme was delayed.
7 assigned technicians were informed by the supervisor about object and procedure of each maintenance item. Owing to assignement of the supervisor in Dong Nam and Thang Loi mills upto the beginning of October, however, detailed practical guidance on the scene or system check up had to wait for his return to Viet Thang Mill, but the implementation of various maintenance activities got under way from 17th September on the basis of documents.

[Results of activites on September]

	Maintenance A	Daily Maintenance
F. No. 4	Sep 20/21	Every day
5	Sep 22	6 frames
6	Sep 24	from Sep 17
7	Sep 25/26	
8	Sep 27/28	
9		

YARN PREPARATION SECTION

13 technicians were appointed for taking care of 4 warpers, 2 sizers, 8 pirn winders and 5 technicians for 1 spooler of Spinning 2. Subsequent to the reconditioning work completed on middle August, setting up of preventive maintenance system for the yarn preparatory section made a start and theoretical explanation about the system, technical standard required, concrete procedure, etc. was carried out by the yarn preparatory supervisor until late August. Practical outset took place on 27th August from maintenance A of No.3 warper. Following items were implemented by the end of September.

	Maintenance A	Maintenance B	Maintenance C
[Warper]	(frequency 1 month - 1 frame per week)		
F.No.1	Sep 17		
2	Sep 11		

	Maintenance A	Maintenance B	Maintenance C
F.No.3	Aug 27/28		
	Sep 24		
4	Sep 4		
[Sizing Machine]			
F.No.1	Sep 12/13	Sep 14/15	
2		Sep 18/19	

[Pirn WD]	Maintenance A (frequency 1 month - 2 frames per week)	Maintenance B (1 frame per 10 days)	Maintenance C (1 frame per 3 weeks)	Breakdown Maintenance
F.No.1	Sep 11		Sep 4/5	Sep 11,24
2	Sep 14		Sep 19/20	Aug 28,Sep 6
3	Sep 18	Sep 5/6		Sep 17,19,20
4	Sep 21	Sep 12/13		Aug 29, Sep 11 15,17,20,24,26
5	Aug 28 Sep 25	Sep 26/27		
6	Aug 31 Sep 28			
7	Sep 4			
8	Sep 7			Aug 29, Sep 8, 15
[Spooler]	(frequency 1 month)	(frequency 3 months)	(frequency 1 year)	
F.No.2	Sep 10/11	Sep 18/19	Sep 26/27	

As hitch of smooth implementation of preventive maintenance in this section detected after starting the scheme, following should be taken into account.

1) As for sizing machine, existing defective air compressor cannot supply fully compressed air for cleaning. Likewise, non-availability of bearing grease for drying cylinder is hindering grease change at preset interval. DAPHNE high temperature grease supplied for finishing machine should be considered to be partially diverted to this case.

2) With reference to pirn winder, life of parts is so short and breakdown outbreak ratio is so high due to trustless quality of locally manufactured spare parts that breakdown maintenance often takes place as shown in the above table. Lubrication schedule was also affected by difficult procurement of designated oil. Therefore, lubrication frequency was re-adjusted to cope with such situation in talks of supervisor with the responsible of weaving 1.

WEAVING SECTION

The scheme started after the reconditioning of 160 looms at partial level was finished off toward the end of August. The maintenance at loom downtime taking opportunity of cloth beam change was commenced from 5th September and 29 looms underwent this maintenance within this month at a ratio of 1.3 looms per diem, whilst programmed ratio is 2 looms. The maintenance at loom running started on 12 September, concluding 214 sets by the end of September in the rate of 13.4 looms per diem against 18 planned. Lowerly achieved rate is owing to shortage of man power to be engaged in the scheme. This has been improved, however, gradually as the scheme went along the right lines. Like the case of pirn winding, lots of locally made parts of poor quality and easy to wear equipped for looms reduces the effect of preventive maintenance and cycle for thier replacement becomes shorter.

As for the maintenance items of short term interval like lubrication and cleaning, the preset procedure was exactly followed but due to very poor quality of available oil almost waste, the predetermined standard frequency for lubrication was reconsidered and readjusted in consultation of technical deputy head with the weaving supervisor.

END

PROJECT DP/VIE/90/038
FINAL REPORT ON SETTING UP
PREVENTIVE MAINTENANCE SCHEME
AT VIET THANG FACTORY
AS AT 7 NOVEMBER 1984

INTRODUCTION

This report has been drawn up in accordance with the provision of Contract with a view to let the reader know the actual situation and future view of the preventive maintenance scheme. During the month of October the preventive maintenance scheme has been set to rights and found in full swing. This report deals as subjects with the development following the initial report, record of main events and refers to partial changes, if any, relating to earlier recommended system. Also it tries to assess the machine and staff performance levels involved in the scheme and finally mentions our conclusion and recommendation for improvement.

About two months have gone by since the preventive maintenance scheme started in each section of spinning and weaving and it has come to be run well as the system, after being overcome difficulties and inexperience at initial stage. It is required for the efforts of Factory to firm the established system and try to preserve the skill and experience obtained in the Project work and to extend it to more workers.

Description will be proceeded about each maintenance section in compliance with mentioned subjects.

OUTLINE

As documents to guide the scheme and forms to be used in it, the followings were added.

- Standard and diagramme of gauge setting for blowing machinery, drawframe, speed frame, ring frame and loom
- Organization for implementation of preventive maintenance scheme
- Job description of key personnel

- Job instruction card for all sections of spinning & weaving
- Monthly programme for October and November 1984
  (Visual indicator and check sheet for the progress of the scheme by each machine of spinning and weaving)
- Lubrication diagramme for blowing machinery, card, drawframe (DK, DY-2), speed frame, ring frame, winder, warper, sizing machine, pirn winder, spooler and loom
- Preventive maintenance scheme for new drawframe DY-2

Abovementioned documents were prepared by us due to necessity for setting up a functional preventive maintenance system, taking account of opinions of supervisors and technicians and suggestion made by CTA and evaluation mission after checking the ongoing system. Thus, necessary documents have become complete and the translation into Vietnamese is expected to be gone through for earlier establishment of documentary perfection.

The overall discussion was held on 2nd with Spinning 1 and Weaving 1, 23rd with Spinning1 and 27th October with Weaving 1 with the presence of Factory management (Technical Deputy Director, Technical Deputy Heads of Spinning 1 and Weaving 1, Group leaders of Spinning 1 and Weaving 1), Consultant team members and Chief Technical Advisor. The meeting aimed at monitoring the situation and results of the scheme and promoting its efficient and smooth implementation. As product of these meetings, technical demonstration and explanation relating to various maintenance items of each section of Spinning 1 was raised and decided to be repeated by each group leader and Japanese supervisors for the sake of technicians concerned under presence and superintendence of Japanese supervisors. This work was planned to proceed from 24th October till 7th November in compliance with the preset timetable.

Performance state of machinery reconditioned and covered by the preventive maintenance system as at the beginning of November is assessed as good as a whole. It will not be out of place

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to say that care by the preventive maintenance keeps up good condition achieved by the reconditioning work. In relation to follow up system and organization suggested by us can be observed being materialized gradually and steadily thanks to full recognition of the Factory management about the signifi cance of preventive maintenance.

As for the technicial level attained by all technicians involved in the scheme, our evaluation is attached at the end of this report. Theoretical knowledge and practical skills of techni cians trained through both sitting session and on-the-job training in the reconditioning work has been organized and systematized in the course of prventive maintenance practice and we could say output over long period of the Project has fruited.

BLOWING SECTION

Preventive maintenance activities in this section became full scale with the return to the factory of the blowing/carding supervisor on Oct 8th. The periodical maintenance of 3 months frequency took place for the first time on 8th to 10th October. (No.3,4 scutchers and a series of machinery in front process) As additional work referred to in the former chapter, an explanation about how to improve quality of laps and to correct defective shapes of laps was made by the supervisor on 29th October. Likewise on 31st October and 1st November adjustment procedure of each beater and of various gauge setting, detail of procedure of periodical maintenance items and lubrication frequency and place were accounted for by him.

As for the machine performance, winding of initial lap to lap rod is being done by hands due to non-equipment of automatic lap starting system, but restoring parts for the system were incorporated in the supplementary parts list.

CARDING SECTION

Implemented results of the scheme in September during the absence of the supervisor were checked by him, being assessed as general ly good but some oversights at performing daily check items were

pointed out and corrected. During the said month procedure for flat grinding and replacement of cylinder shaft was instructed by the supervisor and as additional training items following subjects were explained by the supervisor.

- Flat grinding on running machine
- Flat grinding on specialized equipment
  (This could be started from this month when a special tool had been made ready)
- Winding procedure of metallic wire
- Hose roller grinding

The activities which took place up to the date are as follows.

F.No.	Maintenance A (1 frame/ 3 days)	Maintenance B (1 frame/ 10 days)	Stripping (frequency 3 day)	Cylinder (1 frame /2 days)	Grinding Doffer (1 frame /4 days)	Flat (1 frame /2 days)	Daily maintenance Lubrication A Lubrication B
43			64 frame per week (twice a week) from Aug 22 Every Wednesday and Saturday)	Oct 26			Every day 32 frames from Aug 21 (3 frames/ day for lubrication B)
44				Oct 29			
45	Aug 21			Oct 31	Aug 22		
46	Aug 24			Nov 2	Aug 27		
47	Aug 28			Aug 22	Aug 31		
				Nov 5			
48	Aug 31			Aug 24	Sep 4		
				Nov 7			
51	Sep 4			Aug 27	Sep 7		
52	Sep 7			Aug 29	Sep 12		
53	Sep 11			Aug 31	Sep 17		
54	Sep 14			Sep 4	Sep 21		
55	Sep 18			Sep 5	Sep 26		
56	Sep 21			Sep 7	Oct 1		
59	Sep 25			Sep 10	Oct 5		
60	Sep 28			Sep 12	Oct 9		
61	Oct 2			Sep 14	Oct 13		
62	Oct 5			Sep 17	Oct 17		
63	Oct 9			Sep 19	Oct 22		
64	Oct 12			Sep 21	Oct 26		
67	Oct 16			Sep 24	Oct 30		
68	Oct 19			Sep 26	Nov 3		
69	Oct 23			Sep 28	Nov 7		
70	Oct 26			Oct 1			
71	Oct 30			Oct 3			
72	Nov 2			Oct 5			
73	Nov 6	Nov 5		Oct 8			
74		Oct 24		Oct 10			
75		Oct 11		Oct 12		Nov 7	
76		Oct 1		Oct 15		Oct 30	
77		Sep 19		Oct 17		Oct 27	
78		Sep 6		Oct 19		Oct 23	
79				Oct 22		Oct 20	
80				Oct 24			

DRAWING & ROVING SECTION

From October, preventive maintenance to newly installed drawframes DY-2 was started. Necessary documents were handed to the Factory on 25th October. At first the supervisor checked quality of the preventive maintenance in September during his absence and made necessary comments and repeated the correct guidance about some items, but as a whole the result was found satisfactory.

Maintenance activities up to the date were as below.

[Drawframe]	Maintenance A (frequency 20 days - 2 head per day)	Maintenance B (frequency 8 months)	Daily maintenance Lubrication	Weekly check & Cleaning
DK No.7	Sep 4,Sep 28 Oct 23	Aug 30	Every day from Aug 24	
8	Aug 25,Sep 17 Oct 10,Nov 2			
DY-2 No. 9	Oct 9,Oct 25		Every day	Nov 3
10	Oct 9	Oct 26	from Oct 9	Nov 3
[Roving F]	(frequency 1 month - 1 frame/5 day)	(frequency 6 months)		
F.No. 4	Sep 13,Oct 13	Aug 27/28	Every day	
11	Sep 18,Oct 18	Sep 5/6	from Aug 24	
12	Aug 24,Sep 24 Oct 22			
13	Sep 29,Oct 29	Aug 29/30		
14	Sep 3,Oct 3			
15	Sep 8,Oct 8			

In the meantime, following additional guidance and explanation was made by the supervisor to group technicians.

Oct 24 Work contents and procedure of ordinary maintenance A,B (drawframe)

Oct 30 Work contents and procedure of ordinary maintenance A,B (Roving frame)

Nov 1 Procedure for alignment and correction of eccentricity of bottom roller

Nov 2 Procedure for installation of speed frame

Nov 5 Procedure for fitting and alignment of driving shaft
Nov 6 How to correct eccentricity of top, bottom cone drum
Nov 7 Efficient proceeding of daily maintenance

It has transfired frequently that daily maintenance specified for the roving frame could not be implemented due to refusal of frame stoppage by operatives. It is urgently required to make all workers of the Mill understand the system and to assure them that less production due to machine stoppage by any maintenance activities is taken into account at assessment of work quota of operatives.

RING SPINNING SECTION

Progress so far and problems newly raised were fully discussed between the returning supervisor and group workers. As outcome of this meeting, more detailed explanation about such as daily check or lubrication activities was made by the supervisor. Furthermore, additional instruction and explanation specified separately relating to ring frame was done as follows.

Oct 29 - Problems related to bottom roller
(Roller pitch not consistent with the frame pitch, resistance of nylon metal, difficult alignment, etc.)
- Procedure for installation of ring frame
Oct 31 - Continuation of frame installation
- Spinning theory
(fibres, spinning principle, moisture regain in each process, etc.)
Nov 2 - Continuation of spinning theory
(Yarn count, spinning calculation)
Nov 5 - Continuation of spinning theory
- Ordinary maintenance A
(TOYOBO's system)

From October, the frequency for ordinary maintenance A was changed from 2 frames to 3 frames per diem (from frequency of 1 month to about 20 days), according to the requirement for more efficient maintenance effects.

All activites which have taken place up to now are summerized as follows.

	Maintenance A (2/3 frames/day)	Maintenance B (1 frame/5 days)	Lubrication A	Lubrication B	Lubrication C/D	Daily Maintenance
F.No.3	Sep 8,Oct 3 Oct 22,Nov 7					
5	Sep 10,Oct 3 Oct 22,Nov 7					
7	Sep 11,Oct 4 Oct 22,Nov 7					
8	Sep 11,Oct 4,23					
9	Sep 12,Oct 4,23					
10	Sep 12,Oct 5,23					
11	Sep 13,Oct 5,24					
12	Sep 13,Oct 5,24					
13	Sep 14,Oct 6,24					
14	Sep 14,Oct 6,25	Sep 24			Sep 24	
15	Sep 15,Oct 6,25	Sep 28			Sep 28	
16	Sep 15,Oct 8,25	Oct 3			Oct 3	
17	Sep 17,Oct 8,26	Oct 8			Oct 8	
18	Sep 17,Oct 8,26	Oct 12			Oct 12	
19	Sep 18,Oct 9,26	Oct 17			Oct 17	
20	Sep 18,Oct 9,27	Oct 22			Oct 22	
21	Sep 19,Oct 9,27	Oct 26			Oct 26	
22	Sep 19,Oct 10,27	Oct 30			Oct 30	
23	Sep 27,Oct 10,29	Nov 6			Nov 6	
24	Sep 27,Oct 10,29					
25	Sep 28,Oct 11,29					
26	Sep 28,Oct 11,30					
27	Sep 29,Oct 11,30					
28	Sep 29,Oct 12,30					
29	Oct 12,31					
30	Oct 12,31					
31	Oct 13,31					
32	Oct 13,Nov 1					
33	Sep 1,Oct 13,Nov 1					
34	Sep 1,Oct 15,Nov 1					
35	Sep 4,Oct 15,Nov 2					
36	Sep 4,Oct 15,Nov 2					
37	Sep 5,Oct 16,Nov 2					
38	Sep 5,Oct 16,Nov 3					
39	Sep 6,Oct 16,Nov 3					
40	Sep 6,Oct 17,Nov 3					
41	Sep 7,Oct 17,Nov 6					
42	Sep 7,Oct 17,Nov 6					

			Every day 38 frames from Aug 27	Every Satur 38 frames from Sep 1 (Once a week)		Every day 38 frames from Aug 27

WINDING SECTION

During this month theory and practical skill necessary for implementation of preventive maintenance system was fully instructed to group workers. Explanation was made by the supervisor in relation to work contents and procedure of preventive maintenance. Regarding additional technical explanation and demonstration, following was carried out.

Oct 30 - Control system of preventive maintenance
- Assessment of deterioration of machinery function
Nov 1 - Working contents of maintenance A, B
- Cause and countermeasure of defective winding
Nov 6 - Cause and countermeasure of vibration
- Assessment of life and function of parts
Nov 7 - Procedure for frame installation

[Result of maintenance activities]

Frame	Maintenance A (frequency 1 month)	Maintenance B (frequency 6 month)	Daily check	Lubrication A/B
F.No.4	Sep 20/21, Oct 15		Every day	
5	Sep 22,Oct 19	Oct 26	6 frame	Oct 26
6	Sep 24,Nov 2	Oct 4	from	Oct 4
7	Sep 25/26 Oct 24	Nov 6/7	Oct 15	Nov 6/7
8	Sep 27/28 Oct 29			
9	Oct 1/2,Nov 6			

YARN PREPARATION SECTION

Japanese yarn preparation supervisor left the factory on 10th October, but the scheme has been kept up as scheduled as follows.

	Maintenance A	Maintenance B
[Warper]	(frequency 1 month)	(frequency 6 months)
F.No.1	Sep 17,Oct 15/16	
2	Sep 11,Oct /9,Nov 5/6	Oct 4/5
3	Aug 27/28,Sep 24 Oct 22/23	
4	Sep 4,Oct 29/30	
[Sizing M/C]	(frequency 3 months)	(frequency 6 months)
F.No.1	Sep 12/13	Sep 14/15
2		Sep 18/19

	Maintenance A (frequency 1 month - 2 frames per week)	Maintenance B (1 frame/ 10 days)	Maintenance C (1 frame/ 3 weeks)
[Pirn WD]			
F.No.1	Sep 11,Oct 9,Nov 6		Sep 4/5
2	Sep 14,Oct 12		Sep 19/20
3	Sep 18,Oct 16	Sep 5/6	Oct 16/17/18
4	Sep 21,Oct 19	Sep 12/13	Nov 3/5/6
5	Aug 28,Sep 25,Oct 23	Sep 26/27	
6	Aug 31,Sep 27,Oct 27	Oct 3	
7	Sep 4,Oct 2,Oct 30	Oct 13/15	
8	Sep 7,Oct 5,Nov 2	Oct 24/25	
[Spooler]			
F.No.2	Sep 10/11	Sep 18/19	Sep 26/27 Oct 8/9

As to hitches of smooth implementation of preventive maintenance in this section raised in previous report, oil necessary for lubrication items was acquired by arrangement of UTE and prospects for incessant supply has been looked up. DAPHNE high temperature grease supplied for the Project has been decided to divert partially to the bearing grease for drying cylinders of sizing machine. Compressed air has become available for the cleaning of yarn preparatory machinery. The preventive maintenance system for yarn preparatory section could be said satisfactorily progressing except that in pirn winder non-persistence of locally made parts makes its effect less.

As machinery in this section is as a rule of sophisticate mechanism, thoroughgoing preventive maintenance protecting machinery from outbreak of breakdown is desirable, and close and prompt communication relating to any bad adjustment of machinery from operating staffs to maintenance personnel is essential. And all staffs should avoid an easygoing compromise and try to maintain best condition of machinery as it is so expected. This thought can be applied to every section of the factory.

LOOM SECTION

The maintenance at loom downtime due to full cloth beam doffing was carried out to 60 looms up to the end of October over 45 working days at a ratio of 1.3 looms per diem whilst planned ratio is 2 looms. Meanwhile, 598 looms underwent maintenance at loom running toward the end of October during 39 working days getting 15.3 looms per diem against 18 planned. The reason why actual figures were lower than the target is attributable to 1) shortage of skilled man power and technical unskillfulness of newly assigned workers. 2) In some cases there are not always looms out of running to perform the maintenance at loom downtime. Regarding the man powerlessness, this will come to be resolved by the training by instructors like technical deputy heads or group leaders following the gone weaving supervisor. In order to solve the second case, the factory management has selected to stop running loom in the event of no loom ready for undergoing maintenance at loom downtime. In this case weaver's beam is put aside on the floor and cloth beam is put on the top of the frame without cutting material during maintenance work. Lubricant's quality problem will be settled same as in yarn preparation section, but shortfalling condition of some indispensible parts for better performance such as weft stop motion components is lasting yet owing to short life and unreliable quality of locally manufactured parts.

With regards to the preventive maintenance system for loom section, Factory management hopes that not only reconditioned looms but all 826 looms become shortly object of the system. And this is feasible by overcoming routine shortage of man power and establishment of supply and readiness at all times of fully trustworthy spare parts.

Allowing for high wear ratio of wooden made parts, one carpenter should be assigned as internal member of maintenance group so as to be engaged in repairing and fabricating wooden parts solely for maintenance purpose, being independent from wooden workshop.

CONCLUSION

At this stage the preventive maintenance scheme is under way in good order and it is being put in total system of the factory. And it has been observed to be effective for maintaining good machinery condition and performance by eliminating faulty or broken parts and by affording an opportunity for staff to ensure consistently accurate machine settings. It is premature, however, to assess another merit of the scheme for the responsible to be able to estimate future requirements of spares and accesso ries with gradually improving accuracy and to highlight the frequent repetition of a similar cause of failure by means of the analysis of all recorded details. Therefore, the responsible of the scheme is expected to try to realize mentioned benefits.

It was pointed out by CTA at initial meeting for establishment of the preventive maintenance scheme that it is essential not to allow short-term requirements in the way of a desired surge in production to interfere in the schedule of preventive maintenance laid down. Since start up of the scheme, we have observed from time to time that operatives are tied up with the present work quota system linked to salary assessment and therefore that such an implementation of maintenance activities as daily check or lubrication were often hindered by refusal of operatives to stop machines, because we suppose they are not well informed of the scheme and are only concerned about bad influence to norm evaluation by deducted production due to machine downtime caused by maintenance activities. To record downtime by the scheme is specified in documents, therefore it is expected for factory management to systematize this relation soon.

There is tendency that operatives don't much care about slightly bad condition of machines in their charge and don't let know the maintenance staff the situation, presumably for fear of the stop page of machines and consequent non-fulfilment of the norm loaded on them. This becomes contrary, however, to the significance of preventive maintenance to prevent the onset of unsatisfactory running conditions and to forestall failure and breakage of parts and machines. It is obvicus that small defect not attended immediately leads to more serious damage and obliges the machine longer downtime.

END.

TECHNICAL APPRAISAL OF MAINTENANCE PERSONNEL

GROUP: BLOWING	Spinning 1	TECHNICAL ASSESSMENT ITEMS			
Full name of technicians	Factory to which belongs	Theoretic knowledge of machine mechanism and maintenance procedure in his speciality field	Technical skills for maintenance practice in his speciality field	Aptitude for instructor	Remark
Truong Duy Trinh	Viet Thang	5	4	Yes	Leader
Nguyen Van Lu	"	4	4	Yes	
Nguyen Van Tot	"	3	4	Promising	
Mai Minh Tam	"	3	3		
Nguyen Van Xu	"	3	3		
Thai Tan Thanh	"	3	3		
Vu Xuan Tuyen	"	3	3		
Pham Van Dung	Dong Nam	2	3		

TECHN AL APPRAISAL OF MAINTENANCE PE ONNEL

GROUP	Card	Spinning 1	TECHNICAL ASSESSMENT ITEMS			
Full name of technicians	Factory to which belongs	Theoretic knowledge of machine mechanism and maintenance procedure in his speciality field	Technical skills for maintenance practice in his speciality field	Aptitute for instructor	Remark
Duong Van Sang	Viet Thang	4	5	Yes *	Leader
Do Thi Chai	"	5	4	Yes **	Sub-L
Nguyen Thi Thanh	"	3	4		
Truong Quang Khoi	"	2	3		
Pham Tan Kiet	"	2	3		
Ninh Van Minh	"	3	3		
Huynh Thi My	"	3	2		
Pham Thi Thanh	"	3	3		
Huynh To Muoi	"	3	3		
Pho Vinh	"	4	3		
Nguyen Ngoc Giao	Thang Loi	4	5	Yes ***	
Uong Van Dai	Khanh Hoi	3	3	Promising	
Hoang Viet	Phong Phu	3	3		
Tran Minh Sang	Viet Thang	3	3	Promising****	

Note. * Excellent technical skill
** Excellent leadership
She has mastered well technical skill for short period.
*** Excellent technical skill
**** Keen to work

TECHNICAL APPRAISAL OF MAINTENANCE PERSONNEL

GROUP	Drawing & Roving	Spinning	TECHNICAL ASSES ENT ITEMS			Remark
Full name of technicians	Factory to which belongs		Theoretic knowledge of machine mechanism and maintenance pro cedure in his spe ciality field	Technical skills for maintenance practice in his speciality field	Aptitude for instructor	
Tran Hoang Van	Viet Thang		5	5	Yes	Leader
Tran Van An	"		4	5	Promising	
Nguyen Thanh Trung	"		4	4		
Ly Thi Diep	"		4	3		
Nguyen Thi Hoa	"		2	2		
Nguyen Van Hai	"		3	3		
Bui Van Quy	"		4	4		
Tran Thanh Son	Khanh Hoi		4	4		
Nguyen Anh Tuan	Dong Nam		4	4		
Nguyen Thi Nguyet	Viet Thang		3	2		
Tran Van Minh	Phong Phu		3	2		
Doan Van Tam	Thang Loi		4	4	Promising	

TECHN _AL APPRAISAL OF MAINTENANCE PF ONNEL

GROUP	Ring Spinning	Spinning	TECHNICAL ASSESSMENT ITEMS			
Full name of technicians		Factory to which belongs	Theoretic knowledge of machine mechanism and maintenance procedure in his speciality field	Technical skills for maintenance practice in his speciality field	Aptitude for instructor	Remark
Pham Van Soi		Viet Thang	5	5	Yes	1
Pham Thi Tho		"	5	5	Yes	2
Tran Xan Tac		"	5	5	Yes	3
Dang Van Ben		"	4	5		4
Tran Van Ui		"	4	4		
Kieu Minh Hong		"	3	4		
Nguyen Thanh Nam		"	3	4		
Tran Thi Dang Giang		"	3	2		
Vu Van Sau		"	5	4	Promising	5
Nguyen Van Bao		Thang Loi	5	5	Promising	6
Pham Van Hien		Phong Phu	3	4		
Tran Hoang Oanh		Khanh Hoi	4	4		
Nguyen Van A		Viet Thang	3	4		

Remark. 1 Steady work
2 Careful work
3 Excellent understanding
4 Work is reliable.
5 Keen to work
6 Steady work

TECH CAL APPRAISAL OF MAINTENANCE P SONNEL

GROUP: Winder	Spinning 1	TECHNICAL ASSESSMENT ITEMS			
Full name of technicians	Factory to which belongs	Theoretic knowledge of machine mechanism and maintenance procedure in his speciality field	Technical skills for maintenance practice in his speciality field	Aptitude for instructor	Remark
Tran Duy Binh	Viet Thang	5	5	Yes	1
Pham Van Cuong	"	5	5	Yes	2
Nguyen Huu Tai	"	4	4	Promising	3
Nguyen Minh Linh	"	4	3		4
Nguyen Thi Thanh Huong	"	3	3		
Tu Lan Phan	"	2	5		5
Ho Thi Le Hang	"	2	3		

Remark. 1 Theoretically knowledgeable
2 Work was well mastered.
3 Good positiveness
4 Steady work
5 Work is reliable.

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TECHN AL APPRAISAL OF MAINTENANCE PE ONNEL

SECTION	Yarn Preparation	Weaving 1	TECHNICAL ASSESSMENT ITEMS			
Full name of technicians	Factory to which belongs	Theoretic knowledge of machine mechanism and maintenance procedure in his speciality field	Technical skills for maintenance practice in his speciality field	Aptitude for instructor	Remark
Phung Suan Dao	Viet Thang	5	5	Yes	Leader
Truong Tich Van	"	5	5	Yes	Sub-leader
Tran Kim Thanh	"	4	4		
Tu Thi Loan	"	4	4		
Nguyen Thi Thanh	"	3	3		
Nguyen Ngoc Tuoi	"	2	3		
Tran Canh Son	"	3	3		
Do Hai Nam	"	4	4		
Le Tan Phung Ea	Thang Loi	3	3		
Do Dinh Sung	Phong Phu	2	2		
Nguyen Ngoc Chau	"	2	2		
Le Trong Hoa	Viet Thang	3	3		
Nguyen Van Tho	"	3	3		

No.

TECHNICAL APPRAISAL OF MAINTENANCE P. SONNEL

SECTION	Yarn Preparation (Spooler)	Spinning 2	TECHNICAL ASSESSMENT ITEMS			
Full name of technicians	Factory to which belongs	Theoretic knowledge of machine mechanism and maintenance procedure in his speciality field	Technical skills for maintenance practice in his specialityfield	Aptitue for instructor	Remark
Do Ngoc Thai	Viet Thang	4	4	Yes	
Nguyen Van Linh	"	4	5	Yes	
Nguyen Van Hai	"	4	5	Yes	
Nguyen Ta Anh	"	2	3		
Huang Don Tuang	"	2	3		

TECHNICAL APPRAISAL OF MAINTENANCE PERSONNEL

SECTION: Weaving	Weaving 1	TECHNICAL ASSESSMENT ITEMS			Remark
Full name of technicians	Factory to which belongs	Theoretic knowledge of machine mechanism and maintenance procedure in his speciality field	Technical skills for maintenance practice in his speciality field	Aptitude for instructor	
Nguyen Manh Thanh (leader)	Viet Thang	4	5	Yes	Excellent leadership
Pam Kim Thanh	"	5	5	Yes	*
Dang Phi Hung	"	3	4		
Ngo Gia Dong	"	3	3		
Vuong Ngoc Thanh	"	3	3		
Ngo Thi Kim Hong	"	2	3		
Quach Thi Nga Anh	"	3	3		
Cat Thi Kim Lien	"	2	3		
Duong Phuoc My	"	3	3		
Vu Duy Phuc	"	3	3		
Vu Phi Van	"	3	3		
Do Huu Phuoc	"	3	3		
Vu Cong Loc	"	3	3		
Le Hoang Dung	"	3	4		
Le Quang Dung	"	3	3		
Nguyen Thi Anh	"	4	4		
Do Van Son	"	4	3		
Tran Thi Thanh	"	3	3		
Nguyen Hung Cuong	"	3	3		
Nguyen Anh Tuan	"	2	3		
Hoang Thanh Ha	"	3	3		
Huynh Thanh Hoang	"	4	3		**
Pham Tan Thanh	"	3	3		
Nguyen Si Hieu	Thang Loi	4	3		
Kieu Quang Thenh	"	3	4		
Nguyen Van Dang	"	2	2		
Bui Minh	Phong Phu	3	3		
Nguyen Thanh Tung	"	3	3		
Nguyen Van Cau	Dong A	3	3		
Nguyen Trung Anh	"	3	3		
Nguyen Van But	"	3	3		

Note.- * Both knowledge and skill are excellent.
** Future instructor on probation

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PROPOSAL FOR BETTER FUNCTION AND PRACTICAL USE OF MAINTENANCE ROOM

1. Introduction

The use of well organized and functional maintenance room along with implementation of maintenance activities is an important factor for the establishment of a preventive maintenance system. Various functions to be fulfilled by a maintenance room are:

1) Overhaul of minute parts, assemblies and parts to avoid cotton waste and dusts should be carried out inside a maintenance room. This also requires maintenance and tool carriages.
2) Likewise in the event that overhaul work of assemblies around a machine becomes obstacle for smooth operational work, such job should be done after carrying dismantled parts to the maintenance room.
3) Check, adjustment and repair of parts requiring tools and equipments installed in maintenance room is to be done in that room.
4) Arrangement and storage of consumables and spare parts is a function of a maintenance room.
5) A maintenance room is used as the case may be as place for instruction, guidance and communication for implementation of various activities.

2. Proposal for betterment of general aspects of maintenance rooms in Spinning 1 and Weaving 1

1) To ensure enough space for working benches and auxiliary equipments enabling effective work in the maintenance room, disposing of non-usable parts and equipments and removing to other place parts and equipments which have been kept without use for several years and will not be used within a year hereafter.
2) It is necessary to arrange systematically and in a effective way in line with an efficient maintenance activities, store racks for tools and parts, working benches and store space of lubricants and grease.

3) Taking account of clothes change habitually done in maintenance rooms in Viet Thang Factory, locker and changing space should be secured.
4) It is sensible in view of work discipline to get rid of actual habits of cook and meal in the maintenance room.
5) It is not agreeable smoking in the maintenance room. In order to do away with this bad habit it is necessary to arrange several smoking areas fixed inside the production building.

3. Proposal for betterment of details in maintenance rooms

3.1 Layout drawings of existing maintenance rooms and improved room plan are shown as attached sheets.

Fig. No.	Layout drawings
Fig.1	Layout of existing maintenance room for blowing
Fig.2	Layout of new maintenance room for blowing
Fig.3	Layout of existing maintenance room for carding
Fig.4	Layout of new maintenance room for carding
Fig.5	Layout of existing maintenance room for drawing and roving
Fig.6	Layout of new maintenance room for drawing and roving
Fig.7	Layout of existing roller shop
Fig.8	Layout of new roller shop
Fig.9	Layout of existing maintenance room for winding
Fig.10	Layout of existing maintenance room for ring spinning
Fig.11	Layout of new maintenance room for ring spinning & winding
Fig.12	Layout of existing maintenance room for yarn preparation
Fig.13	Layout of new maintenance room for yarn preparation
Fig.14	Layout of existing maintenance room for weaving
Fig.15	Layout of new maintenance room for weaving

3.2 Detail of equipments and fixtures items in drawings

Item No.	Name of equipments and fixtures
1	Parts rack of 3 - 5 shelves
2	Parts rack of 2 shelves
3	Small parts rack
4	Tool shed

5	Maintenance carriage
6	Working bench
7	Working bench with vice
8	Drill press
9	Grinder
10	Locker
11	Clothes changing space
12	Parts yard
13	Access
14	Window
15	Maintenance job area
16	Store rack of lubricants and grease
17	Mezzanine
18	Flat wire clipping machine for card
19	Flat chain washing machine for card
20	Taker-in wire mounting machine for card
21	Flat wire grinding machine for card
22	Grinder for top roller
23	Top roller treatment machine
24	Top roller cot assembling machine
25	Top roller diametre tester
26	Washing tank
27	Electric welding area
28	Lathe
29	Shower

3.3 Main improvement points

1) Blowing (Fig.1,2)

- To remove mezzanine (17)
- To provide clothes changing space (10) (11)
- To increase working bench (6)
- To set working area in good order

2) Carding (Fig.3,4)

- To put up 1 set of flat wire grinding machine (21)
- To move a flat wire clipping machine (18)
- To increase working bench with vice (7)
- To set to rights auxiliary equipments area
- To provide clothes changing area (10) (11)

3) Drawing & Roving (Fig.5,6)
   - To remove parts rack of 3 - 5 shelves (1) and secure space for repairing of long size parts such as bottom roller, etc.
   - To increase working bench with vice (7)
   - To move store rack of lubricants and grease (16)
   - To provide clothes changing space (10) (11)

4) Roller shop (Fig.7,8)
   - To reduce space of washing tank (remove a part of it) 26
   - To provide parts rack of 3 - 5 shelves (1)
   - To move top roller diameter tester (25) and modify greasing spot for top roller
   - To provide clothes changing space (10) (11)

5) Ring spinning (Fig. 10,11)
   - To halve the space of existing maintenance room and divert its half to new maintenance room for winding process
   - To modify totally layout of working benches (6) (7) and parts rack (1)
   - To use the maintenance carriage (5) not only for storage of tools but for maintenance job on the spot
   - To move drill press (8) and grinder (9)
   - To provide clothes changing space (10) (11)

6) Winding (Fig.9,11)
   - To withdraw the existing maintenance room of Fig 9 and divert it as store for unnecessary and deficient parts
   - To move it as per Fig.11
   - To modify layout of parts rack (1)
   - To use the maintenance carriage (5) not only for storage of tools but for maintenance job on the spot.
   - To modify layout of working bench (6) (7)
   - To provide clothes changing area (10) (11)

7) Yarn preparation (Fig.12,13)
   - To halve the space of existing maintenance room and modify totally its layout
   - To modify and increase working bench (6) (7)

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- To modify layout of parts rack ①③
- To provide clothes changing space ⑩⑪
- To withdraw shower ㉙

8) Weaving (Fig.14,15)
- To provide a partition for transferring actual parts yard
- To increase and modify layout of working benches ⑦
- To modify layout of parts rack ①②③
- To provide clothes changing space ⑩⑪
- To move drill press ⑧
- To withdraw mezzanine ⑰

Fig.1 — LAYOUT OF EXISTING MAINTENANCE ROOM — BLOWING —

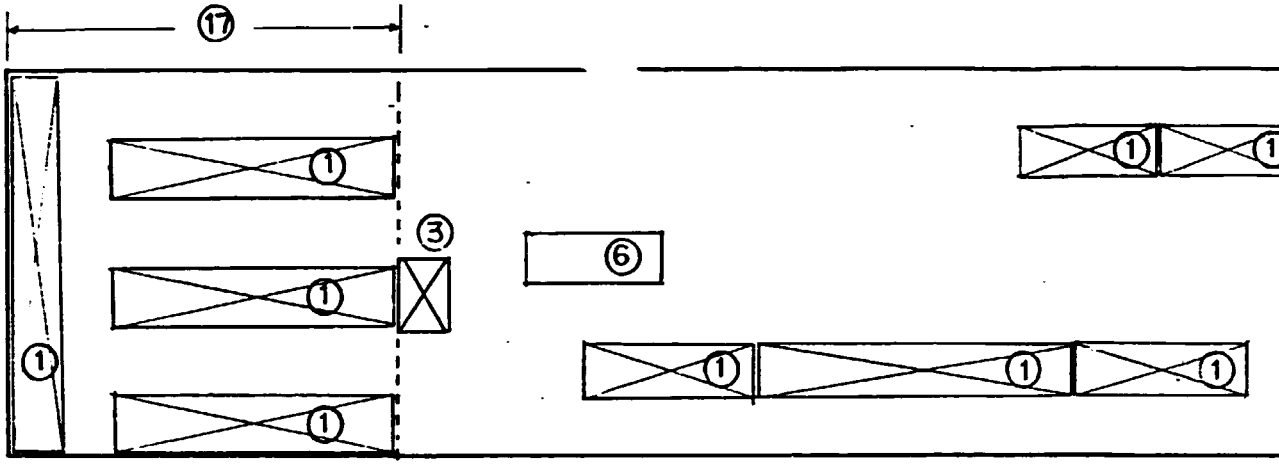
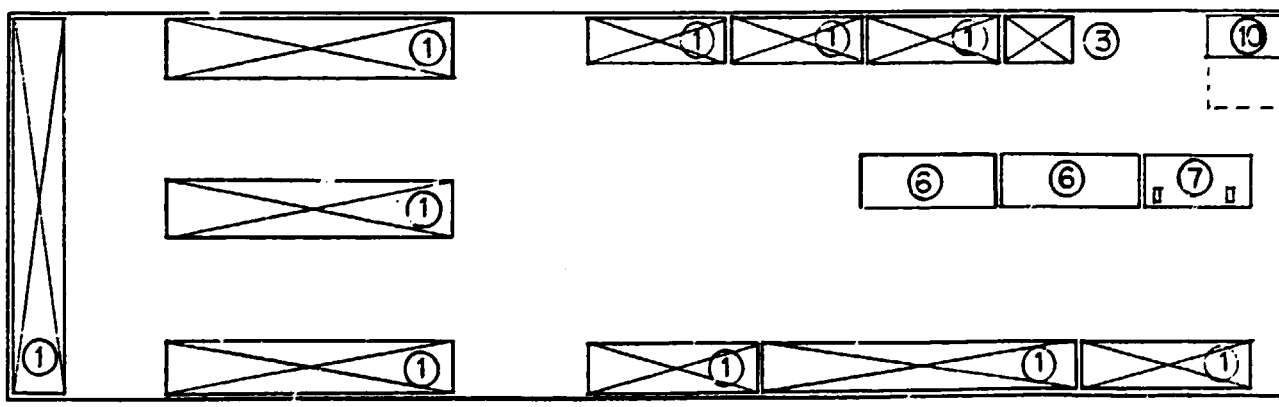


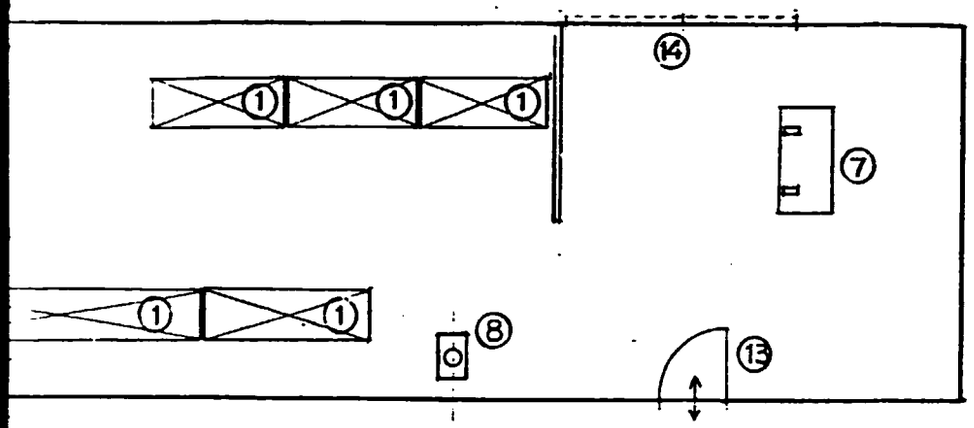
Fig.2 — LAYOUT OF NEW MAINTENANCE ROOM — BLOWING —



SECTION 1

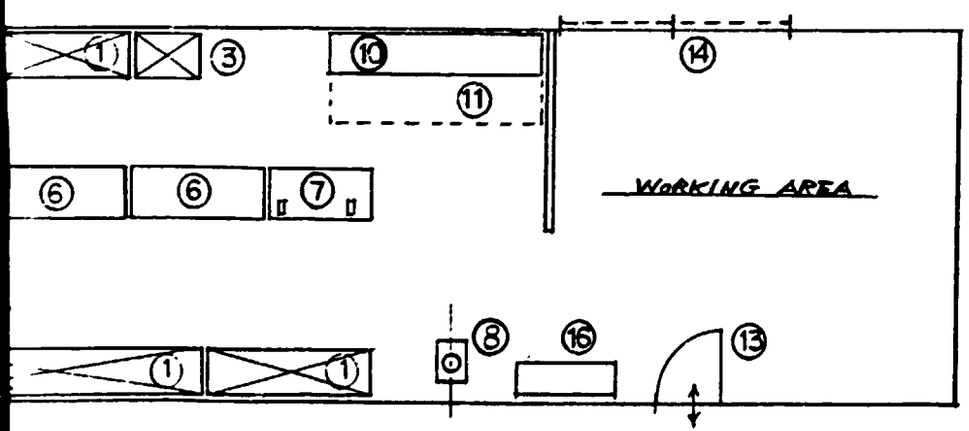
G MAINTENANCE ROOM
BLOWING —

S ≒ 1/100



MAINTENANCE ROOM
BLOWING —

S ≒ 1/100



SECTION 2

Fig 8.3 LAY-OUT OF EXISTING MAINTENANCE ROOM
- CARDING -

S ≒ 1/100

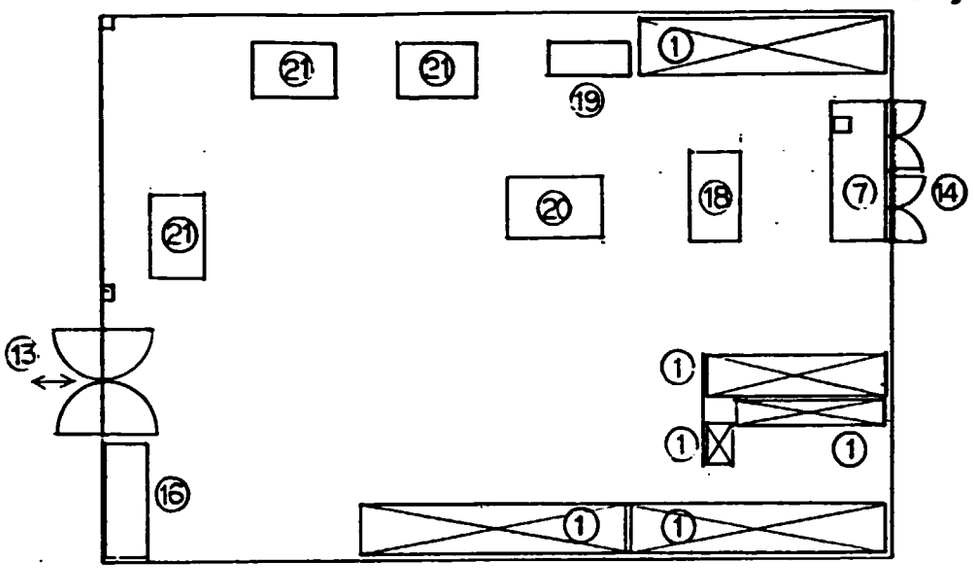


Fig 8.4 LAYOUT OF NEW MAINTENANCE ROOM
- CARDING -

S ≒ 1/100

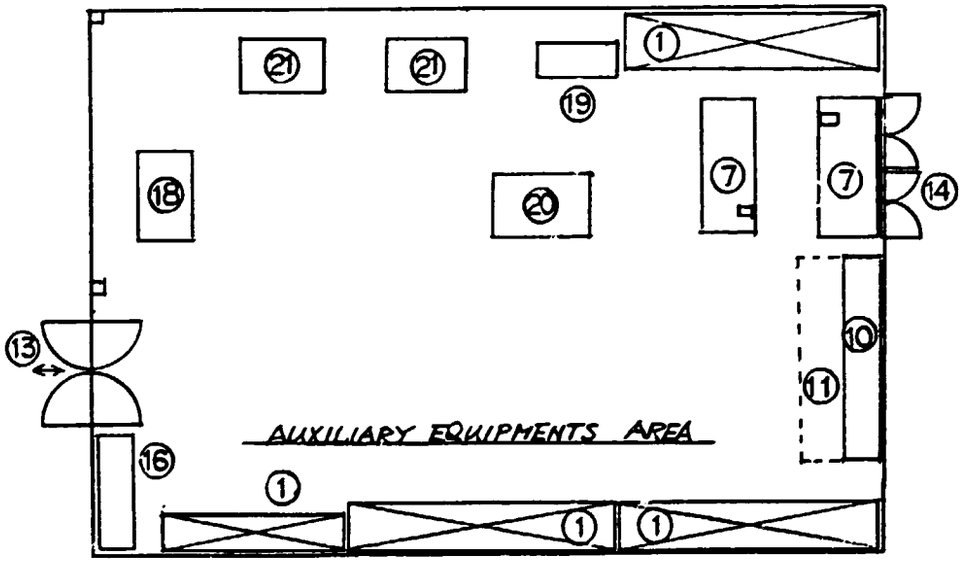


Fig 8.5 LA

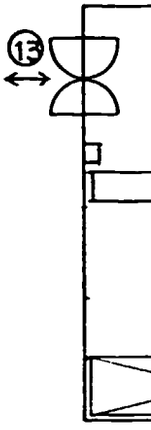
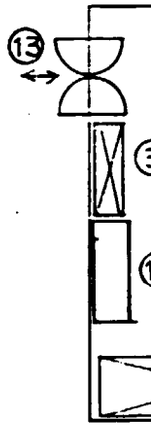


Fig 8.6 A



SECTION 1

Fig 5 LAYOUT OF EXISTING MAINTENANCE ROOM
— DRAWING & ROVING —

S ≒ 1/100

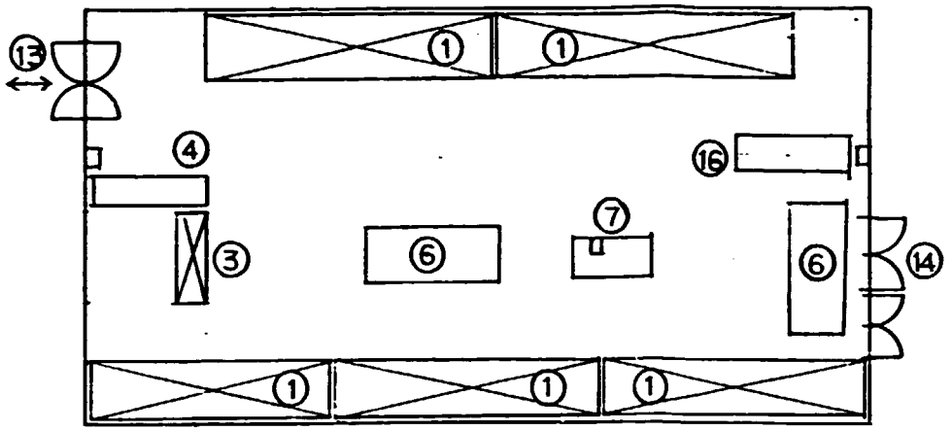
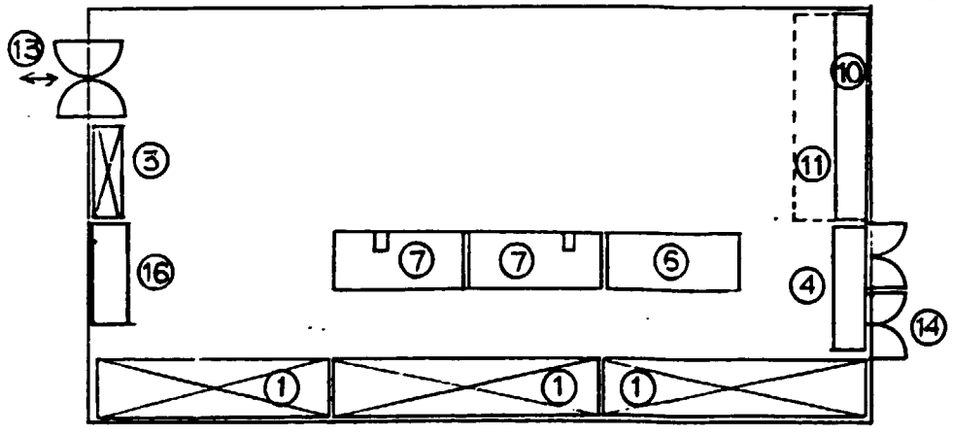


Fig 6 LAYOUT OF NEW MAINTENANCE ROOM
— DRAWING & ROVING —

S ≒ 1/100



SECTION 2

Fig.10 LAYOUT OF EXISTING MAINTENANCE ROOM

— RING SPINNING — S ≒ 1/100

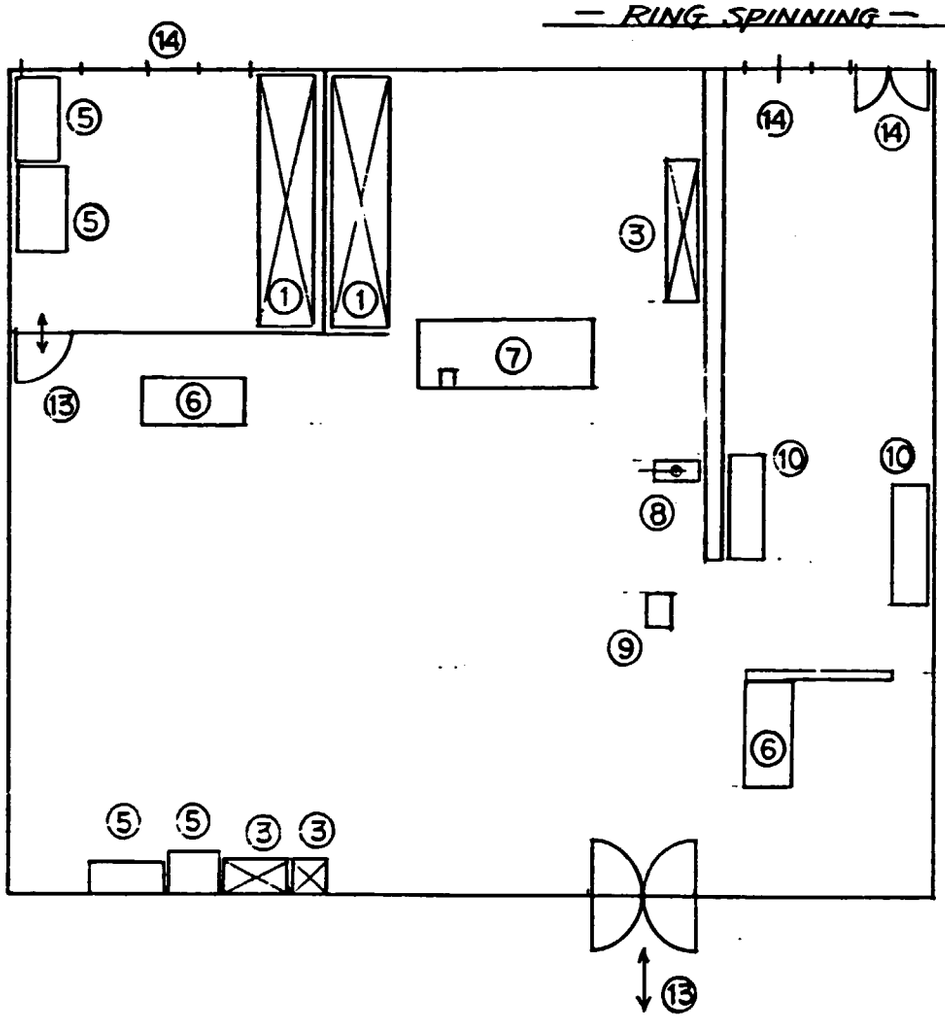
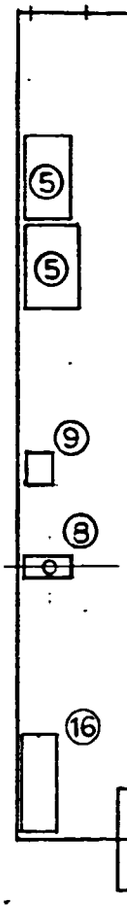


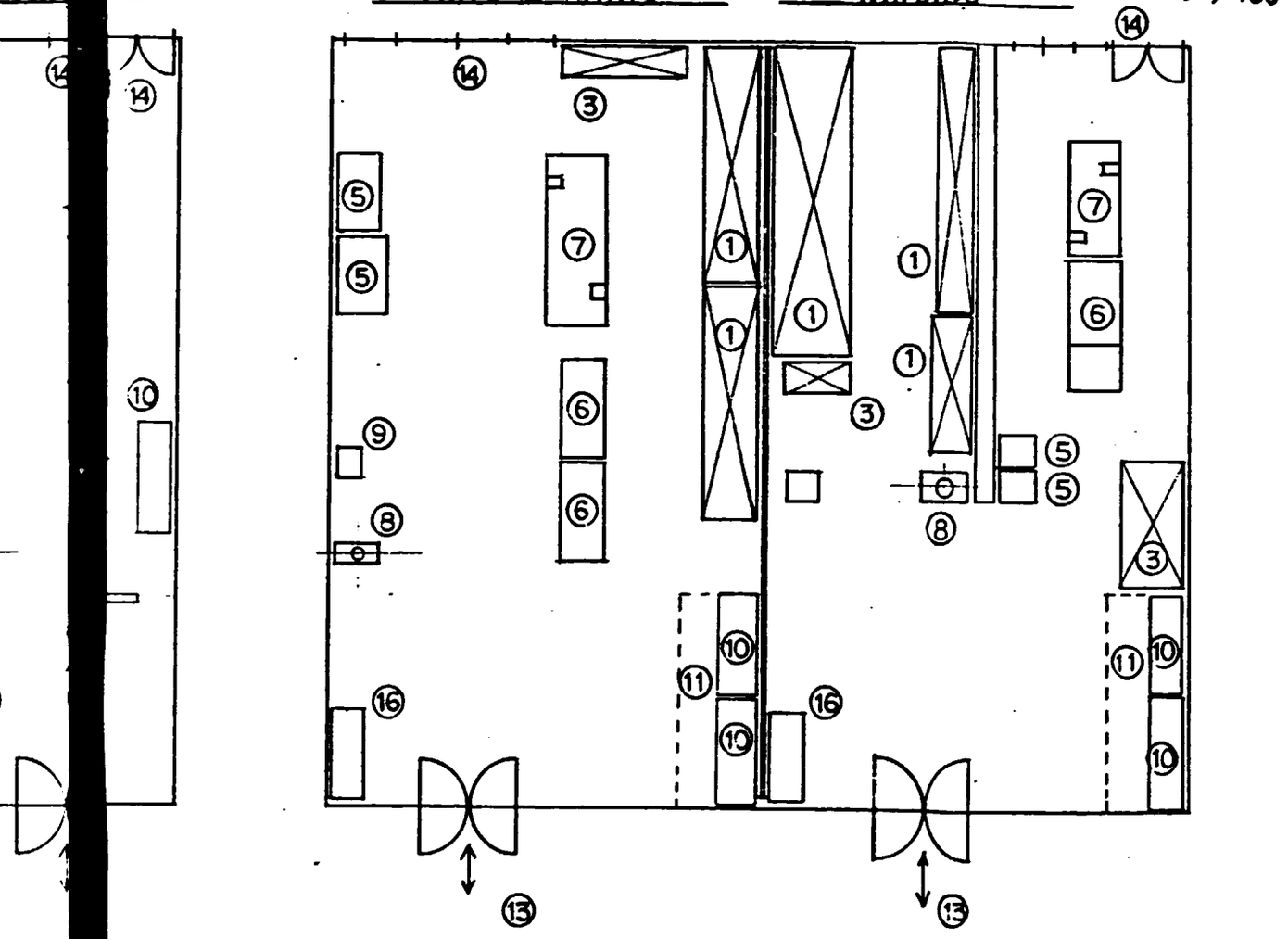
Fig.11



SECTION 1

Fig.11 LAYOUT OF NEW MAINTENANCE ROOM

— RING SPINNING — S ≒ 1/100 — WINDING — S ≒ 1/100



SECTION 2

Fig.7 LAYOUT OF EXISTING ROLLER SHOP

S ≒ 1/100

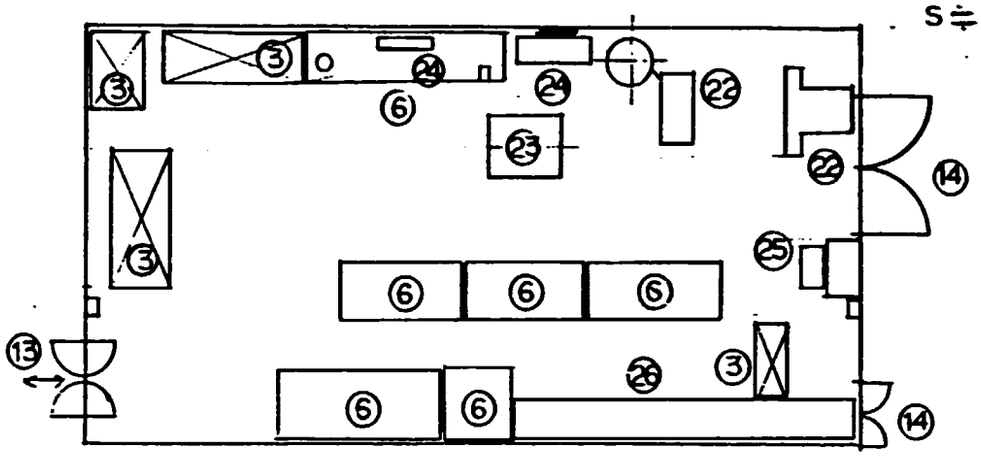
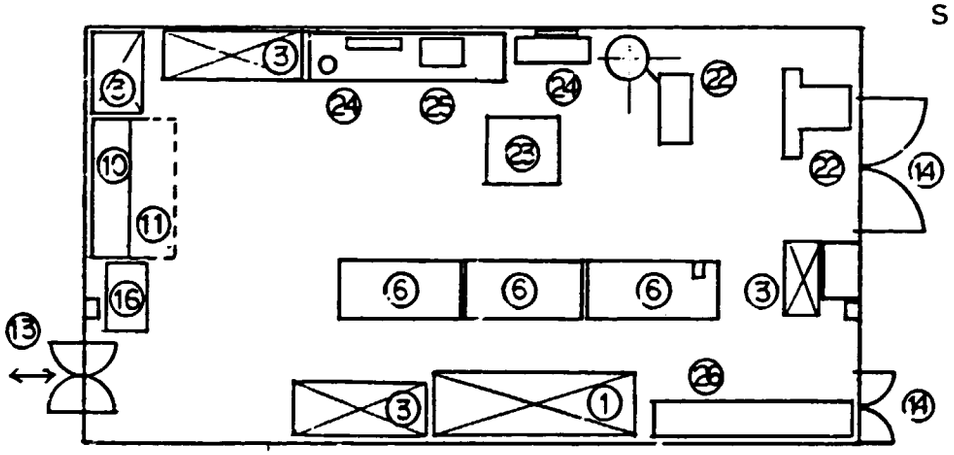


Fig.8 LAYOUT OF NEW ROLLER SHOP

S ≒ 1/100



SECTION 1

8.9

Fig 8.9 LAYOUT OF EXISTING MAINTENANCE ROOM

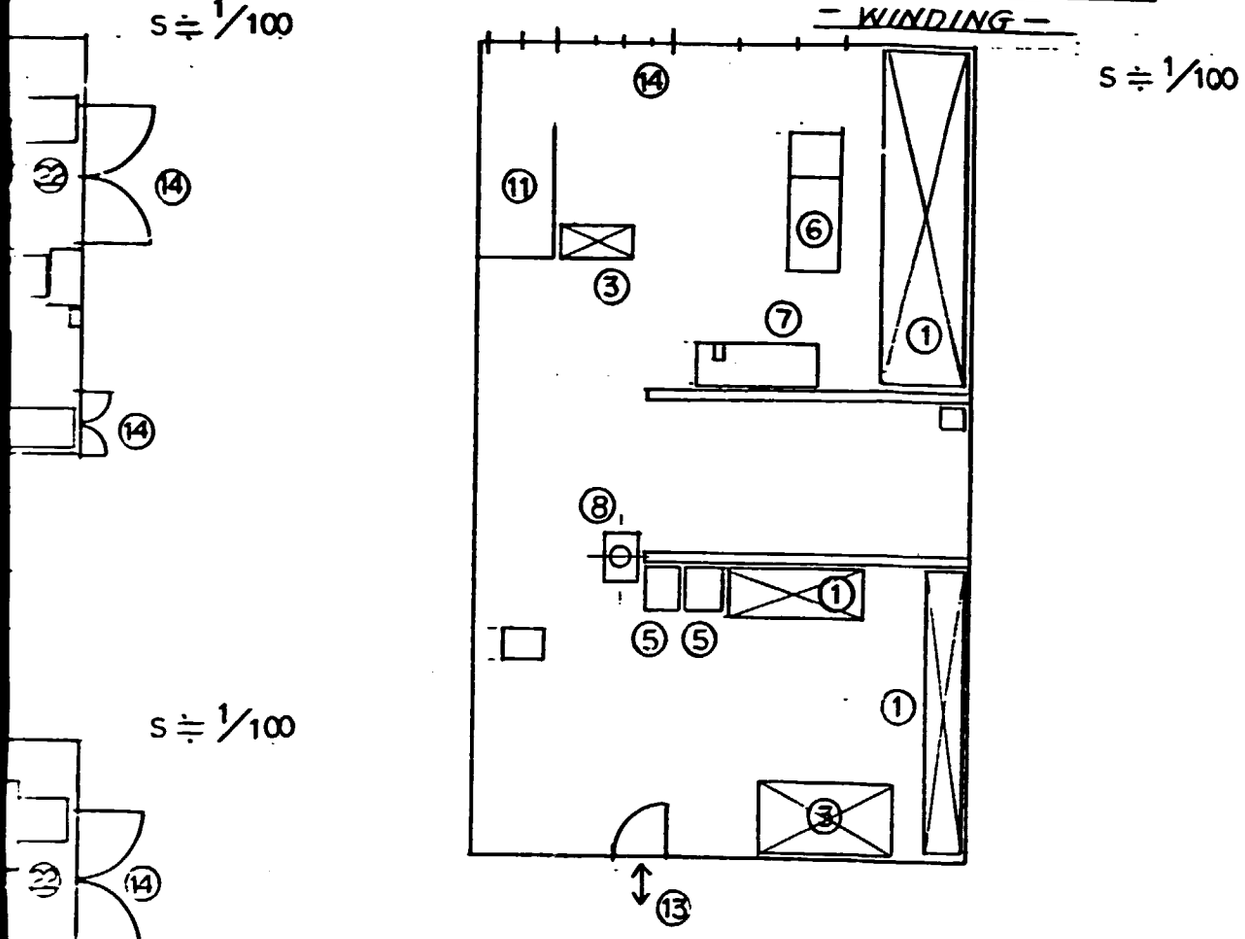


Fig.12 LAYOUT OF EXISTING MAINTENANCE ROOM
— YARN PREPARATION —

S ≒ 1/100

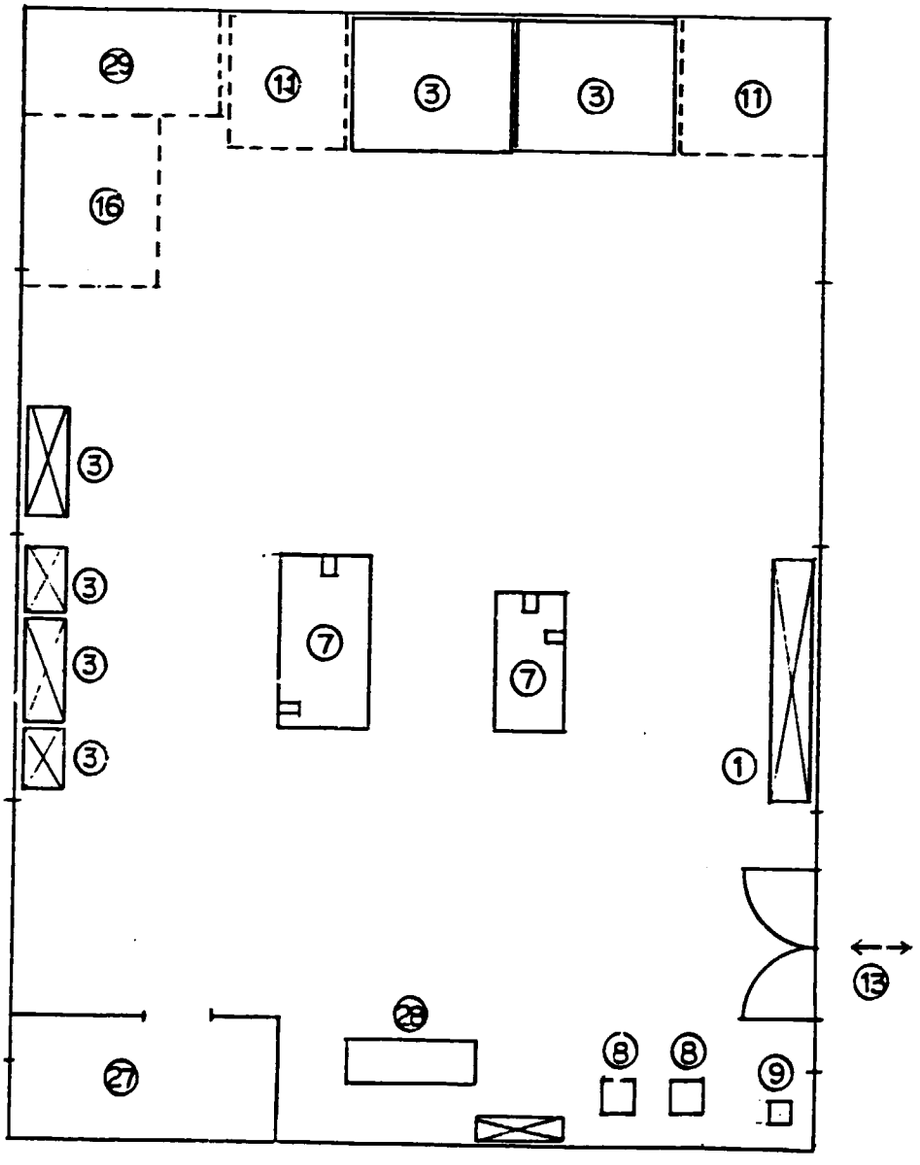


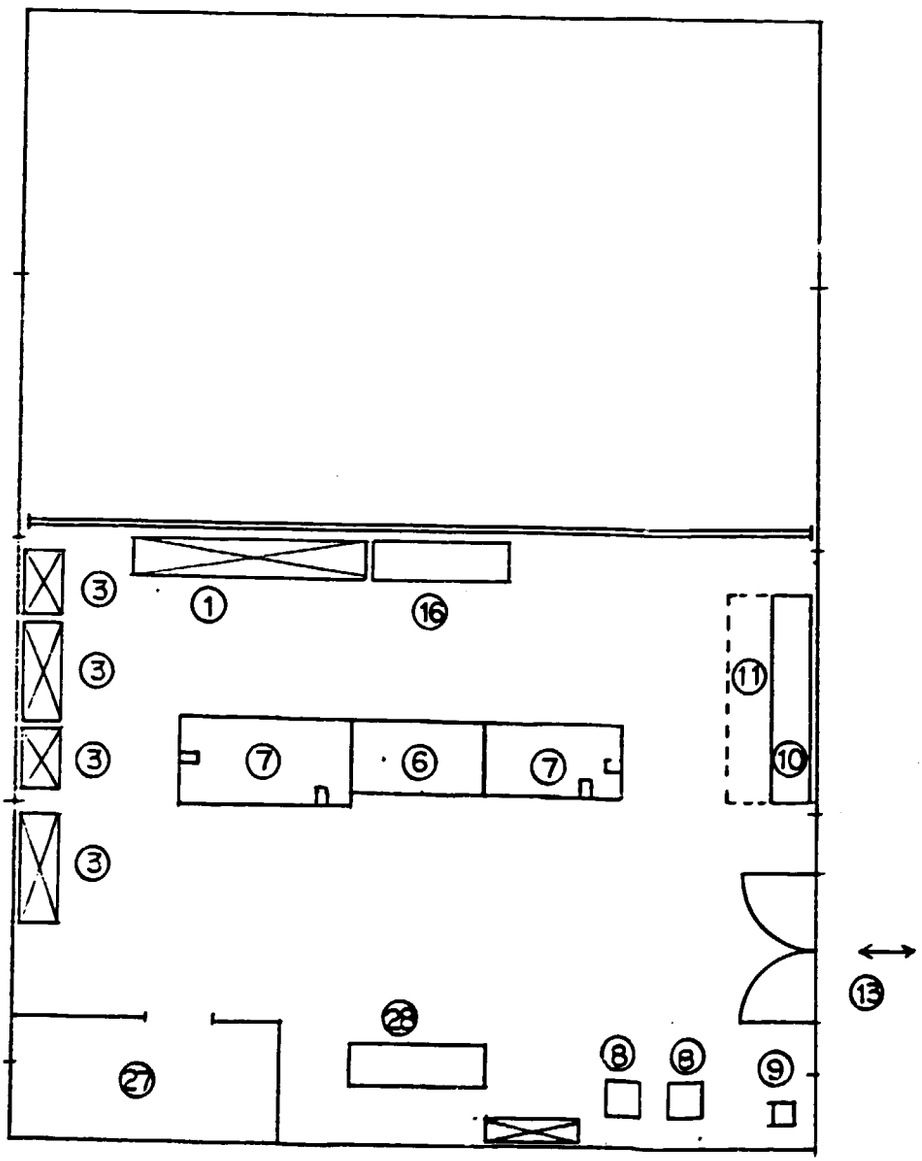
Fig.13

SECTION 1

Fig.13 LAYOUT OF NEW MAINTENANCE ROOM

— YARN PREPARATION —

≒ 1/100 S ≒ 1/100



SECTION 2

Fig.14 LAYOUT OF EXISTING MAINTENANCE ROOM

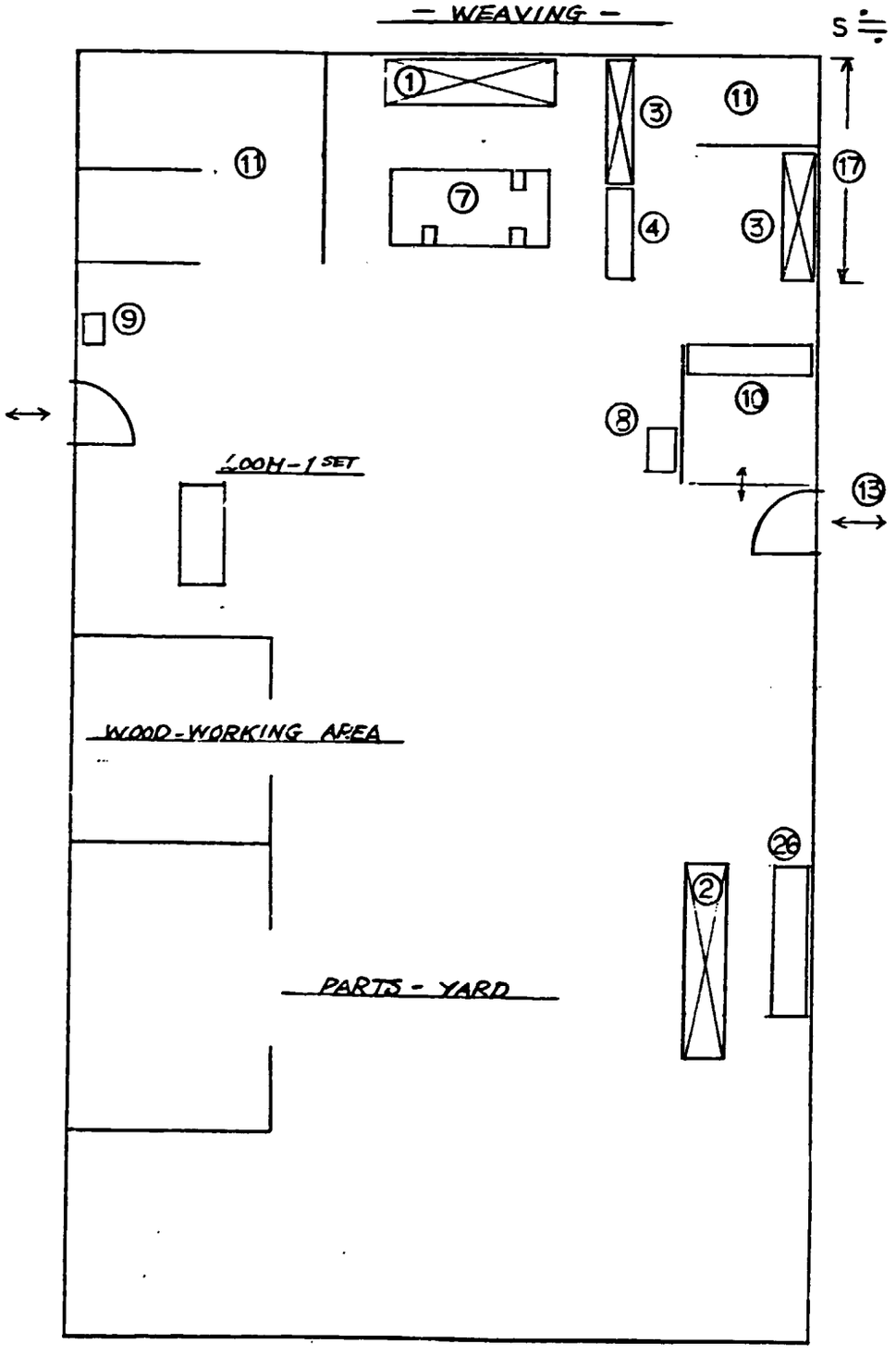


Fig.15

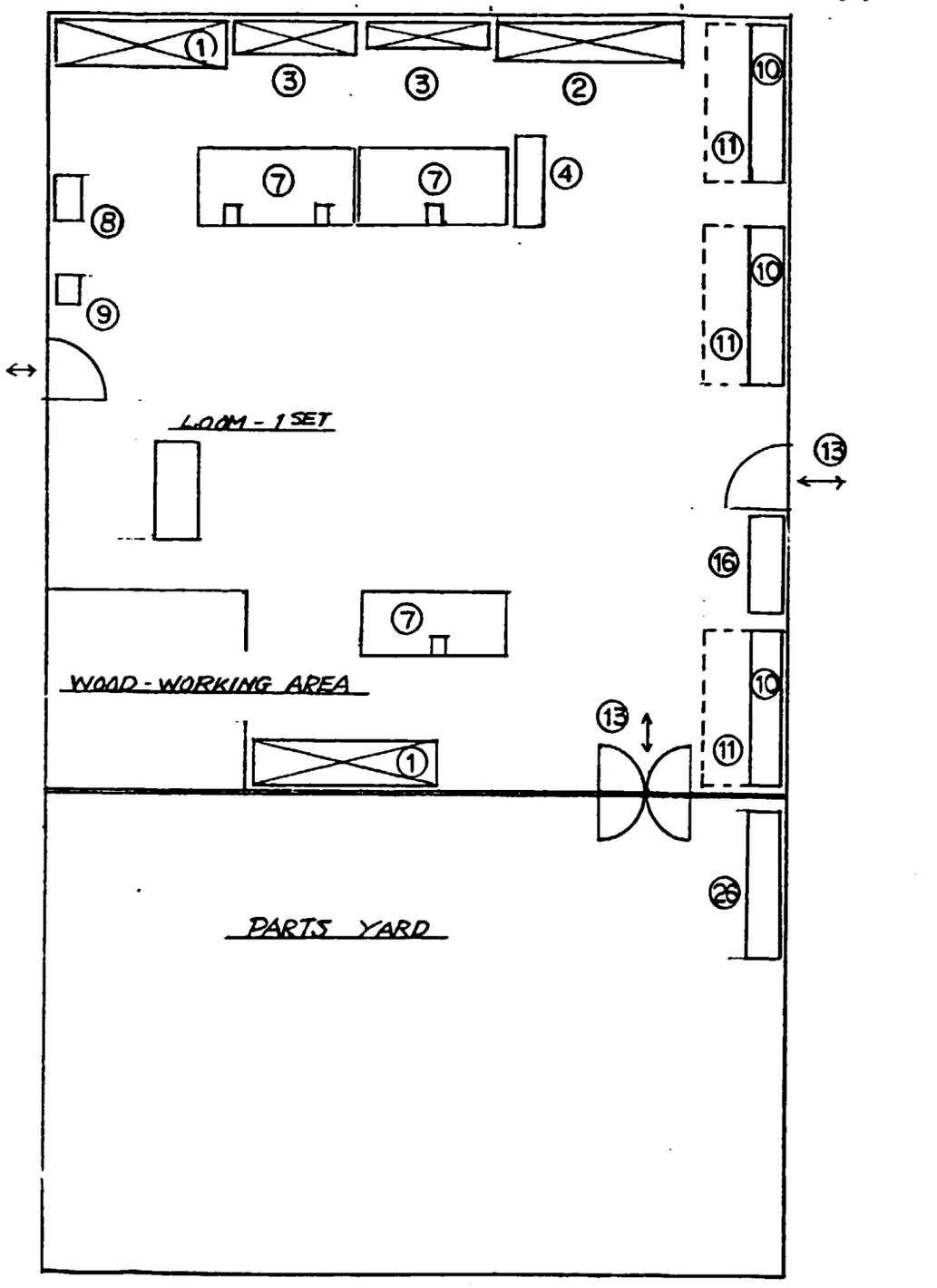
SECTION 1

Fi8.15 LAYOUT of NEW MAINTENANCE ROOM

S ≒ 1/100

— WEAVING —

S ≒ 1/100

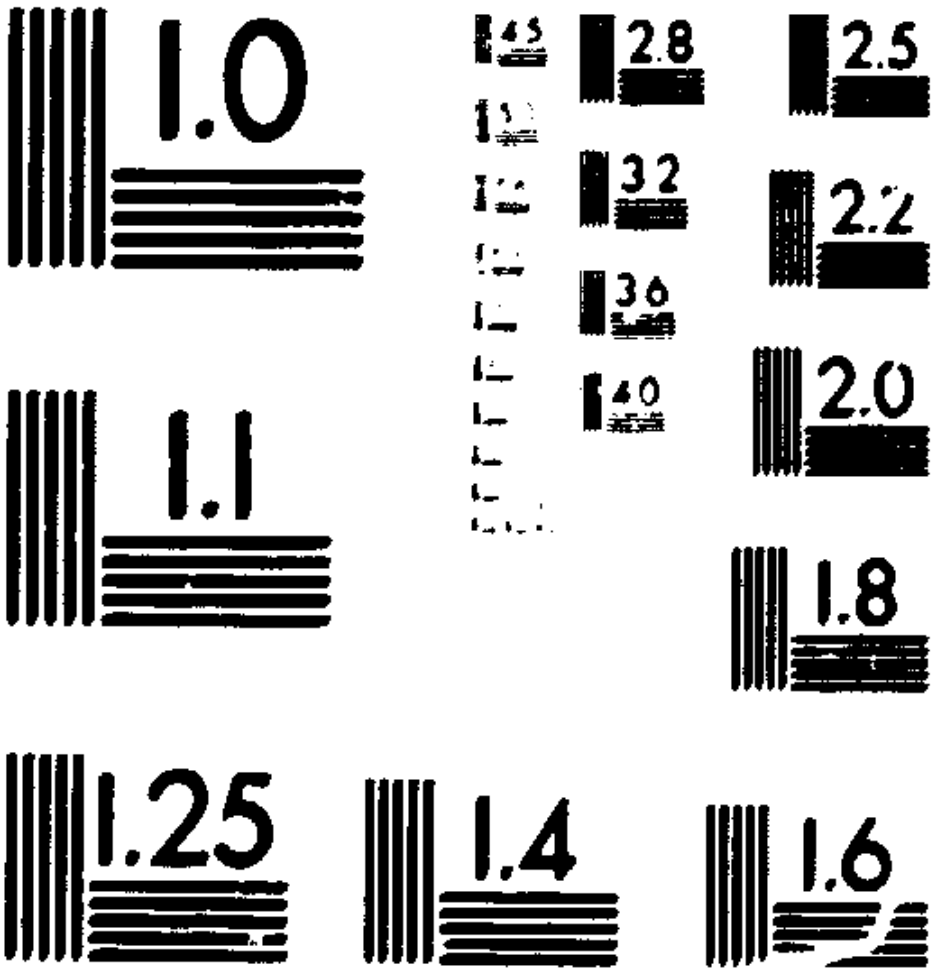


SECTION 2

3-4

PROPOSAL FOR TRAINING TO IMPROVE MAINTENANCE PRACTICE AND MACHINERY CONDITION IN THANG LOI & DONG NAM FACTORIES

TOYOBO ENGINEERING CO., LTD.



INTRODUCTION

On the basis of the understanding reached between UNDP, the Ministry of Light Industries and the Union of Textile Enterprises in relation to a change in the work programme concerning Thang Loi and Dong Nam factories, we, the technical staff of Toyobo investigated SACM and Lieter machinery in the two factories to assess technical condition existing there. The visit to Dong Nam factory and Thang Loi factory took place on 4th and 5th June 1984 respectively. We also tried to get necessary information relating to quality control of two factories. Findings and our assessment will be exposed in the following.

SITUATION OF MAINTENANCE AND OPERATION OF EACH MACHINE

In this paragraph we show actual situation of maintenance and operation reflected on each machine appraised by us concerning each investigated items.

-Abbreviation used here:

Column A Is the machine equipped with necessary parts in satisfactory condition?

B Is the setting of parts and gauge appropriate?

C Is the machine well maintained or taken care of?

D How is the situation of cleaning of the machine?

E Is the action of operatives correct?

- ○ indicates that investigated items are found to be in good or normal condition.

△ indicates that investigated items are found to be slightly bad or poor condition.

✕ indicates that investigated items are found to be in unsatisfactory condition.

I Dong Nam Factory

1. Blow Room Machinery

Investigated Items	A	B	C	D	E
1.1 Overall condition of equipment	○	○	○	○	-
1.2 Material feeding	-	-	-	-	△
1.3 Sensitivity of piano motion mechanism	○	○	○	○	-
1.4 Sensitivity of feeling motion mechanism	○	-	○	○	-
1.5 Material blowing to cage roller	○	○	○	△	-
1.6 Opening of raw material	-	△	○	-	-
1.7 Condition of calender roller part	△	-	○	△	-
1.8 Shape and condition of lap	-	-	△	-	-

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Investigated Items	A	B	C	D	E
1.9 Handling of lap	-	-	-	-	△
1.10 Lap scale	○	-	○	○	-
2. CARD					
2.1 Overall condition of machine	○	○	○	○	△
2.2 Condition of metallic wire of cylinder	△	-	△	○	-
and doffer	×	-	×	○	-
2.3 Condition of flat	-	-	×	○	-
2.4 Gauge between cylinder and flat	-	△	-	-	-
2.5 Gauge between cylinder and doffer	-	×	-	-	-
2.6 Condition of taker-in wire	○	○	○	○	-
2.7 Revolution of flat	-	-	○	-	-
2.8 Coiler part	○	-	○	-	-
2.9 Condition of web	Nep is more than normally.				
2.10 Lap licking	No lap licking but lap crease is a little more.				
2.11 Flat grinding machine	○	-	○	-	-
2.12 Hose roller	-	-	-	-	-
2.13 Stripping roller	○	-	○	-	-
2.14 Flat tester	△	-	△	-	-
2.15 Top clipping machine	○	-	○	-	-
2.16 Chain washing machine	-	-	-	-	-
2.17 Taker-in mounting machine	○	-	○	-	-
2.18 Waste cotton is few under taker-in but too much under flat.					
3. DRAWING FRAME					
3.1 Overall condition of machine	○	○	○	○	○
3.2 Condition of fleece	△	○	-	-	△
3.3 Condition of gearing	○	○	○	○	-
3.4 Condition of roller part					
Top roller	×	○	△	△	-
Stop motion	△	○	△	-	-
Top clearer	×	△	○	○	-
Bottom clearer	△	△	○	○	-
3.5 Condition of creel part					
Position and preparation of cans	-	△	-	-	×
Stop motion	△	○	○	○	-
3.6 Coiling condition of coiler part	×	-	○	○	-
3.7 Condition of cans	×	-	-	-	-
3.8 Top roller Grinding condition		X			
Treatment method and condition		X			
Grinding machine condition		X			

Investigated items	A	B	C	D	E
4. ROVING FRAME					
4.1 Overall condition of machine	○	○	○	○	-
Operative motion of sliver piecing up	-	-	-	-	○
Operative motion of roving piecing up	-	-	-	-	○
Operative motion of doffing	-	-	-	-	○
4.2 Condition of roving, shape and defects	○	○	○	○	-
4.3 Condition of draft gearing	○	-	○	○	-
4.4 Condition of gearing of GE	○	-	○	○	-
4.5 Condition of roller part	○		△	△	-
Bottom roller	○	○	○	○	-
Top roller	△	○	△	○	-
Apron	X	○	△	○	-
Weighting arm	○	○	○	○	-
Clearer	∠	○	△	△	-
4.6 Condition of spindle part	○	○	△	△	-
Spindle	○	○	△	△	-
Flyer	△	-	△	△	-
4.7 Condition of bobbin rail part	○	○	○	○	-
4.8 Condition of building motion	○	○	○	○	-
Cone drum belt	△	○	○	-	-
4.9 Roving tension	-	○	○	-	-
4.10 Condition of creel (Position and preparation of cans)	△	○	○	○	○
5. RING SPINNING FRAME					
5.1 Overall condition of machine	○	○	○	△	-
Operative motion of yarn piecing and doffing		-	-	-	○
5.2 Shape and defects of cops	-	○	○	-	-
5.3 Condition of draft gearing	○	-	○	○	-
5.4 Condition of GE gearing	○	-	○	○	-
5.5 Condition of roller part	○	○	○	○	-
Bottom roller	○	○	-	△	-
Top roller	-	○	△	○	-
Apron	X	○	-	△	-
Weighting arm	○	△	○	△	-
Clearer	○	△	○	○	-
5.6 Condition of spindle part	○	○	○	○	-
5.7 Condition of spindle tape	△	○	-	-	-
5.8 Condition of building motion	○	○	○	-	-

Investigation Items	A	B	C	D	E
5.9 Condition of anti-node ring	○	○	○	-	-
5.10 Condition of ring (Uneveness of tension)	○	○	○	-	-
5.11 Condition of creel and umbrella	○	△	○	○	-
5.12 Condition of blow cleaner	X	○	X	X	-
5.13 Condition of pneuma flute	△	○	○	○	○
6. WINDER					
6.1 Overall condition of machine	○	○	○	○	-
Operative motion of yarn piecing	-	-	-	-	○
cop supply and doffing	-	-	-	-	○
6.2 Condition of drum	△	-	-	-	-
6.3 Condition of slub catcher	△	△	-	X	-
6.4 Condition of stop motion	X	△	△	-	-
6.5 Condition of tension part	○	○	△	△	-
6.6 Condition of yarn guide	X	○	-	-	-
6.7 Condition of peg	X	△	-	-	-
6.8 Condition of bobbin holder	△	○	△	X	-
6.9 Condition of cheese (Shape & defects)	○	-	-	-	-
II Thang Loi Factory					
1 BLOW ROOM MACHINERY					
1.1 Overall condition of machinery	○	○	△	△	△
1.2 Feeding of raw material	-	-	-	-	
1.3 Sensitivity of piano motion	△	○	○	△	-
1.4 Sensitivity of feeling motion	○	-	○	○	-
1.5 Blowing to cage roller surface	○	△	△	△	-
1.6 Opening of raw material	-	○	△	-	-
1.7 Condition of calender roller part	○	-	△	X	-
1.8 Shape and condition of lap	-	-	△	-	-
1.9 Handling of lap	-	-	-	-	△
1.10 Lap scale	△	-	△	△	-
2, CARD					
2.1 Overall condition of machinery	△	△	△	△	-
Operative's lap doffing, sliver piecing	-	-	-	-	○
2.2 Condition of metallic wire Cylinder	○	-	△	△	-
Doffer	X	-	X	△	-
2.3 Condition of flat	○	-	△	○	-
2.4 Gauge between cylinder and flat	-	△	-	-	-
2.5 Gauge between cylinder and doffer	-	△	-	-	-
2.6 Condition of taker-in wire	○	-	-	-	-

	Investigated Items	A	B	C	D	E
2.7	Revolution of flat	○	-	○	-	-
2.8	Condition of coiling at coiler part	○	-	○	-	-
2.9	Condition of web	Cotton cards are generally slightly bad.				
2.10	Lap licking	Lap crease is often observed.				
2.11	Flat grinding machine	○	-	○	-	-
2.12	Hose roller	○	-	○	-	-
2.13	Stripping roller	○	-	○	-	-
2.14	Flat tester	△	-	△	-	-
2.15	Top clipping machine	○	-	○	-	-
2.16	Chain washing machine	-	-	-	-	-
2.17	Taker-in mounting machine	○	-	-	-	-
2.18	Waste cotton					
3.	DRAWING FRAME					
3.1	Overall condition of machine	○	○	○	○	-
	Operative's action of sliver piecing	-	-	-	-	○
3.2	Condition of fleece	-	-	△	-	-
3.3	Condition of gearing	○	○	○	○	-
3.4	Condition of roller part					
	Top and bottom roller	X	-	X	○	-
	Stop motion	○	○	○	○	-
	Top and bottom clearer	△	△	△	△	-
3.5	Condition of creel part					
	Position and preparation of cans	-	△	-	-	△
	Stop motion	○	○	○	○	-
3.6	Coiling condition of coiler part	X	-	○	○	-
3.7	Condition of cans	X	-	-	-	-
3.8	Top roller grinding condition	X				
	Treatment method and condition	X				
4.	SLIVER LAP MACHINE AND RIBBON LAP MACHINE					
4.1	Overall condition of machine	○	○	○	○	-
	Operative's action of sliver piecing and lap change	-	-			○
4.2	Condition of lap shape and hardness	○	-	○	-	-
	licking condition and nap	○	○	○	-	-
	condition of irregularity	○	○	○	-	-
4.3	Condition of fleece on the table	○	○	○	-	-
4.4	Condition of clearers	○	○	○	○	-
4.5	Condition of draft, draw box	○	○	○	○	-
	Top roller	○	○	○	△	-
	Clearer part	○	○	○	△	-
	Selvedge guide	○	○	-	-	-
	Weight	○	○	○	○	-

Investigated Items	A	B	C	D	E
5. COMBER					
5.1 Overall condition of machine	○	○	○	○	-
Operative's action of sliver and lap piecing	-	-	-	-	○
5.2 Condition of feeded lap					
Shape and hardness	○	○	○	-	-
Condition of fluff and licking	○	○	○	-	-
Condition of irregularity	○	○	○	-	-
5.3 Condition of fleece	○	○	○	○	—
5.4 Condition of cylinder	○	○	○	○	-
5.5 Condition of top comb	○	○	○	○	-
5.6 Condition of nipper	○	○	○	○	-
5.7 Condition of top detatching roller	○	○	○	△	-
5.8 Condition of pressure of t. d. roller	○	○	○	○	-
5.9 Condition of detaching clearer	○	○	○	△	-
5.10 Condition of perforated roller and suction box	○	○	○	○	-
5.11 Generated waste ratio	-	○	○	-	-
Difference among delivieries	-	○	○	-	-
5.12 Condition of draw box	○	○	○	△	-
5.13 Condition of coiler part	○	○	○	-	-
5.14 Condition of GE and gear box	○	○	○	-	-
5.15 Condition of each stop motion	○	○	○	○	-
5.16 Condition of cylinder brush	○	○	○	-	-
6. ROVING FRAME					
6.1 Overall condition of machine	○	○	○	○	-
Operative's action of sliver piecing	-	-	-	=	○
Operative's action of roving piecing	-	-	-	-	△
Operative's action of doffing	-	-	-	-	○
6.2 Condition of roving, shape and defects	○	○	△	○	X
6.3 Condition of draft gearing	○	-	○	○	-
6.4 Condition of gearing of GE	○	-	○	○	-
6.5 Condition of roller part	○	○	△	△	-
Bottom roller	○	○	○	○	-
Top roller	△	○	△	○	-
Apron	X	○	△	○	-
Weighting arm	○	○	○	○	-
Clearer	△	X	X	X	-
6.6 Condition of spindle part	○	○	△	△	-
Spindle	○	○	△	△	-
Flyer	△	-	△	△	-
6.7 Condition of bobbin rail part	○	○	○	○	-

Investigated Items	A	B	C	D	E
6.8 Condition of building motion	○	○	△	○	-
Cone drum belt	○	○	○	○	-
6.9 Roving tension	-	○	○	-	-
6.10 Condition of creel (Position and preparation of cans)	○	○	○	○	○
7. RING SPINNING FRAME					
7.1 Overall condition of machine	○	○	○	○	-
Operative's motion of yarn piecing and doffing	-	-	-		○
7.2 Shape and defects of cop	-	△	-	-	-
7.3 Condition of draft gearing	○	-	○	○	-
7.4 Condition of GE gearing	○	-	○	○	-
7.5 Condition of roller part	-	○	○	○	-
Bottom roller	○	○	-	○	-
Top roller	△	○	-	○	-
Apron	X	○	-	△	-
Weighting arm	○	○	-	-	-
Clearer	○	○	○	△	-
7.6 Condition of spindle part	○	○	○	○	-
7.7 Condition of spindle tape	△	○	-	-	-
7.8 Condition of building motion	○	○	○	-	-
7.9 Condition of antinode ring	○	○	○	-	-
7.10 Condition of ring (Uneveness of tension)	○	○	○	-	-
7.11 Condition of creel and umbrella	○	○	○	○	-
7.12 Condition of blow cleaner	△	○	△	△	-
7.13 Condition of pneuma flute	△	△	-	-	-
8. WINDER					
8.1 Overall condition of machine	○	○	○	○	-
Operative's motion of yarn piecing, cop supply and doffing	-	--	-	-	○
8.2 Condition of drum	△	-	-	-	-
8.3 Condition of slub catcher	△	△	-	○	-
8.4 Condition of stop motion	X	△	△	-	-
8.5 Condition of tension part	○	○	△	△	-
8.6 Condition of yarn guide	X	○	-	-	-
8.7 Condition of peg	△	△	△	-	-
8.8 Condition of bobbin holder	△	○	△	△	-
8.9 Condition of cheese (shape and deffects)		○			

PROPOSAL FOR IMPROVING MAINTENANCE PRACTICE RELATING TO EACH MACHINE

On the basis of findings and assessments relating to the machinery condition ensuing from current maintenance and operation practice of two factories referred to in the foregoing chapter, various suggestions to intend to improve it will be stated here, pointing out and explaining what to improve.

- Abbreviation used here:
  - A Proposal is shown as A, when it is restricted to recommendation to be envisaged by the management of factories.
  - B Proposal is shown as B, when it will be instructed practically on the scene by our supervisors.
- Item numbers referred to in this paragraph correspond to those of investigated items in the preceding paragraph.

I Dong Nam Factory

1. BLOW ROOM MACHINERY

Item No.		Description
1.8	B	It is considered to be necessary to adjust the blowing of material to the cage to improve the hardness and defects of shape.
1.2	B	Proportion of re-usable fibres occupied in the raw material amounts to 25% and this situation must be improved doing feedback to foregoing processes. We noticed cord-shaped cotton is mixed in waste of pneumafil of Ring section and such should be removed.
1.1	B	It is necessary to set correctly grid bar of superior cleaner.
1.1	A	It is essential to use lap sheet.
	*	As a whole, any serious situation was not detected, exclusive one scutcher paralyzed owing to shortage of parts.

2. CARD

2.2	A	Doffer metallic wire damaged should be repaired or renewed.
	B	More careful attention should be paid to handling of it.
2.5	B	Gauge between cylinder and doffer is unequal among frames. Correct gauge setting is to be instructed.
2.3	B	Grinding condition of flat wire is extremely poor. Periodical grinding is to be instructed.
2.18	B	Waste cotton under flat is excessive while that under taker-in is fewer. Examination and instruction concerning waste cotton is needed.
2.1	A	It will be necessary to check appropriateness of lap piecing up in the event of high speed operation, since lap piecing

motion of operatives is found to be often unproper.

2.14 A Current flat needle height tester might as well be replaced by a dial gauge type.

* Three cards among 25 sets are paralysed owing to shortage of parts.

3. DRAWING FRAME

3.4 B Control of top and bottom clearers is not satisfactory and their cleaning does not catch up with the requirement of running frames. Up-and-down motion of top clearer gum patch is excessive and needed to be mended.

3.8 B Surface treatment and washing of top roller is not carried out efectively. Furthermore, damage and abration is observed on surfaces. It is necessary to do surface grinding.

3.7 B As the top plate of cans is situated lower than normally, the sliver overruns disturbing the coil appearance immediately after starting or change of can. Such sliver is taken as re-usable fiber thus raising sliver waste generation.

3.5 B Cans position for creel is not suitable, being put far from the sliver guide.

* In general any serious problems were not observed. One frame among ten was stopped due to no availability of necessary parts.

4. ROVING FRAME

4.1 & 2 B Winding number to presser of roving is not unified. Instruction to operatives is needed.

4.5 B Control of clearers is not satisfactory and their cleaning does not catch up with necessity of running frames. In the same situation are washing of top roller and apron and treatment and grinding of top roller surface.

4.6 B Many of flyers are not well balanced thus causing eccentric spindle revolution This situation should be corrected.

A It is necessary to supplement new top roller gum cot and apron.

* Any noteworthy defects were not noted in this process but one frame was in stoppage due to lack of necessary parts.

5.RING SPINNING FRAME

5.5	A	The life of all bottom aprons is over and these are recommended to be renewed as soon as possible. Confusion of pressure marks for top arm is observed and it is needed to be unified.
	B	Cleaning of top arm, apron and bottom roller parts are not carried out timely and it is necessary to establish cycle for periodical coiling cleaning. Washing of top apron is delayed as well.
5.11	A	On some frames the braking wire for umbrella is acting, but on others not. This situation should be corrected to be unified.
5.12	A	Blow cleaners of almost all frames are not working owing to no availability of parts but this situation should be corrected as early as possible toward operable condition.
5.13	A	Damaged pneuma flutes are left as they are. Periodical check and mending is recommended.
5.5	B	Circumferential cutting of both edges of top roller gum cot is needed otherwise current damages occured at both edges cannot be prevented.
	*	What earlier settlement is urgent is as stated above, replacement of defective bottom aprons affecting a great deal the quality of yarn. It is necessary to put into practice cycle inspection to carry out removal and replacement of defective aprons. Paralysis of blow cleaners is also fatal. Its operation is indispensible. SACM ring frames are all in operation.

6. WINDER

6.3	B	When a operative makes yarn piecing, the thread is not caught automatically by the slit of slubcatcher thus making it pass out of the slub catcher. Therefore, it is necessary to correct the setting position of slub catcher and to improve the condition or shape of yarn inlet of it.
6.4	B	Lots of stop motion for yarn breakage are not working, thus causing damage to yarn of cone and disturbing traverse winding. It is necessary to correct the situation.
6.6	A	Deficient or damaged yarn guide makes yarn traverse imperfect. It is essential to inspect and correct all items.
6.3, 5, 8	A	It is widely noted that fly and yarn waste is attached to yarn running portion. It is recommended to intensify cleaning.

6.7 B Lots of pegs for cop bobbin went wrong with alignment owing to breakage of peg spring. It is necessary to amend defective pegs.

* Consideration or concern for the quality of product as the final process seems to be scarece in general. Among others, unfunctioning slub-catcher, insufficient cleaning to yarn path and unfunctioning stop motion for yarn breakage should be corrected with priority.

II. Thang Loi Factory

1. BLOW ROOM MACHINERY

Item No		Description
1.2	B	Operatives for feeding raw material and re-usable cotton are not selecting and removing cord shaped polyester waste of pneumafil. This will cause unsatisfactory opening of fibres.
1.5	B	Blowing fibres to cage roller are not uneven due to insufficient cleaning of cage roller part. This brings about irregularity of lap. The situation can be improved by periodical checking and cleaning.
1.3	B	Cleaning to piano motion part is not sufficient.
1.7	B	Cleaning of calender roller part gets delayed. Cycle for dismantling and cleaning must be reorganized.
1.8	B	Lots of laps are of deficiet shape owing to unsufficient hardness and collapse of both selveges. Inspection and proper adjustment is required to from cage roller part to calender roller part.
1.9	A	Operative's lap handling is rough thus increasing lap waste generation due to collapse of surface and both sides of lap.
1.10	B	Measuring accuracy of lap scale must be checked more often. Periodical check by standard weight is to be carried out. The fact that marking on recording paper is carried out before the indicator stops makes its accuracy a bit doubtful.
	*	As a whole, serious problem could not be pointed out and all ranges are working.

2. CARD

2.2	B	Doffer metallic wire are largely damaged and due replacement or repair is necessary. It is to be instructed correct handling of doffer and necessary to re-establish wholly cleaning and grinding method for metallic wire.
2.3	B	Grinding to flat should be carried out more earlier. Reorganization of grinding frequency is necessary.

2.4	B	Gauge figures between flat and cylinder are set widely in the portion near the taker-in and are becoming narrower as the setting points go away from it anti-clockwise. Necessity of such a taper gauge setting shall be left to furtner analysis.
2.9	A	Quantities of nep in web are more than normally. Measures like item 2.2 and 2.3 must be taken.
2.10	B	Creases are largely noted on feed lap. It is necessary to investigate the reason in blowing section as well.
2.14	A	Current flat needle height tester might as well be replaced by a dial gauge type.
2.16	A	It is better to adopt flat chain washing equipment.
	*	As there is no serious problem to note, what is needed is to reorganize daily control suggested above like repair of doffer metallic, improvement of flat grinding and gauge setting between flat and cylinder, etc. 6 cards among 40 are not working due to shortage of spare parts.

3. DRAWING FRAME

3.2	B	As there is often noted turbulence of fleece at both ends of roller part, it is convenient to check the selvege guide
3.4	B	Effective control for top and bottom clearer is not done and necessary cleaning is apt to be delayed. Breakage and defect of rubber covering of top and bottom roller is notable and periodical inspection and replacement of defective one is required.
3.5	B	Arrangement of sliver cans in creel part is not adequate.
3.6	B	As coiling diameter is large in relation of can's size, inspection and readjustment is suggested.
3.7	B	Just like Dong Nam factory, in this factory too, overrun and resulting disorder of sliver at starting machine due to low position of top plate of sliver cans is noticeable requiring some solution.
3.8	B	Surface treatment and washing of top roller is not carried out effectively. Damage and abrasion is noted on surface. It is necessary to do surface grinding.
	*	In general any serious problems were not observed. One frame among 26 heads was stopped due to shortage of spare parts.

4. SLIVER LAP MACHINE AND RIBBON LAP MACHINE

4.5 A Cleaning of top rollers and clearer parts was relatively delayed as well as washing of top roller.

* Generally speaking, serious situation was not presented.

5. COMBER

5.7 & 9 A Top detaching rollers were found to be bit dirty. Cleaning of detaching clearer is needed.

5.12 A Draw box should be cleaned earlier than currently and cleaning cycle should be analyzed again.

* On the whole serious mechanical situation was not noted.

6. ROVING FRAME

6.1 & 2 B Winding number to presser of roving is not unified. Instruction to operatives is needed.

6.2 & 8 B Coming off of roving of full package is occuring frequently. Building motion should be inspected and readjusted.

6.5 B Apron should be washed earlier and periodically. Many of defective aprons out of standard are mixed. Inspection from time to time is desired. Both grinding and washing of top roller are much delayed. The revolution of top and bottom clearers are fairly deficient and their cleaning is delaying. It is suggested to establish periodical check and adjustment.

6.6 B It is necessary to carry out periodically inspection to detect unbalanced flyer and eccentric spindle. Cleaning of flyers is generally delayed.

* Although there was not found out serious defects, abovementioned countermeasures are necessary to be taken. 1 set among 16 is paralysed due to non availability of spare parts.

7. RING SPINNING FRAME

7.5 A The life of all bottom aprons is over and these are suggested to be replaced as early as possible. Mixture of aprons out of standard specification locally made is seen. Periodical inspection and replacement is needed as well as earlier washing. Roving wastes are often attached to bottom clearers. Operatives must be instructed from time to time to avoid this.

B Circumferential cutting of both edges of top roller rubber cot is needed, otherwise current damages at both ends cannot be avoided.

7.12	A	It is desirable that all blow cleaner equipped run. Periodical maintenance and adjustment is needed.
7.13	A	Pneuma flutes are found to be damaged or wrongly set up. Periodical inspection and correction is needed.
	*	In general bottom apron's defective condition is conspicuous. It is required to carry out inspection and replacement of defective ones. All blow cleaners working condition should be established. 1 Ring frame was not working owing to spare parts shortfalling.

8. WINDER

8.2	A	Trim part of drum groove for winding polyester cotton blended yarn will be easily damaged. Periodical check to detect it for mending is required.
8.3	B	It is taking place as in Dong Nam Factory that pieced yarn is difficult to be caught by slub catcher and this is not doing its cleaning function. Thorough inspection and correction to improve the situation is urgent.
8.4	B	Stop motion for yarn breakage is largely not working. As this gives rise to fusion phenomenon, it is necessary to let all stop motion work.
8.6	A	Damaged yarn guides are making yarn traverse impossible. It is inevitable to inspect and correct all yarn guides.
8.7	B	Lots of pegs for cop bobbin went wrong with alignment. It is necessary to amend defective pegs.
8.8	A	Abnormal vibration was detected in some bobbin holder. It is necessary periodical check of bearings.
8.3, 5 & 8	A	It is widely noted that fly and yarn waste are attached to yarn running portion. It is recommended to intensify cleaning.
	*	Concern for upgrading yarn quality as final product seems to be scarece in Thang Lci mill as well. It is urgently required to ensure the function of slub-catcher as well as yarn breakage stop motion mechanism. Current cleaning to yarn path should be more intensified.

QUALITY CONTROL

1. We looked into current methods for quality control in two factories. Information relating to testing equipment existing in laboratories of two factories and items and cycles for quality check as well as resulting data will be shown hereunder.

1.1 Testing equipments in Thang Loi and Dong Nam Factories

Description	Testing Object
1. Micronaire	Fineness
2. Pressley Tester	Fibre strength test ug/in, lbs/1"
3. Digital Fibrograph	Fibre length
4. Sorter	Staple diagram
5. Shirley Analyser	Non-lint content test
6. Uster Eveness Tester Set	U%, IPI
7. Lap Tester	Lap weight/m
8. Lap Block	Sliver & roving length
9. Lap Reel	Yarn length
10. Seriplen	Yarn check
11. Balance	Weight
12. Single Yarn Strength Tester	Yarn strength
13. Twist Counter	Twist number
14. Moisture Content Measuring Tester	
15. Yarn Counter	Yarn count (Nm)

1.2 Current testing items and cycles and quality data

I Dong Nam	Testing Items	Testing Cycle	Resulting Value
Blowing	1. Lap weight	1 lap/set/day	50ml - 20kg/lap ± 250g
	2. CV% of lap weight		1.6 - 2.0%
Card	3. Sliver count	twice/set/week	Nm0.18 27.78g/5mL
	Sliver count CV%	"	4 - 5%
	4. Sliver U%	"	5%
	5. Nep count in web	"	9 - 19pcs counting by a perforated plate of 20 holes of 28mm dia.
Drawing	6. Sliver count	twice/set/2 shifts	Nm0.18 ± 0.004
	7. CV% of sliver count		1.4 - 1.5%
	8. Sliver U%	once/set/week	4.5%
Roving	9. Roving count	once/set/shift	Nm1.6 ± 0.07
			Nm2.0 ± 0.07
	10. Roving U%	twice/set/week	Nm1.6 5.6%
			Nm2.0 5.8%
Ring	11. CV% of yarn count	once/set/month	Nm54 0.2 - 1.5%
			Nm40 "
			Nm34 "

Process	Testing Items	Testing Cycle	Resulting Value		
Ring S.	12. Yarn U%	Once/set/month	Nm54	16%	
			Nm40	17.3%	
			Nm34	20.0%	
	13. Single yarn strength	Once/day	CN.		
			Nm54	180 - 300	
			Nm40	250 - 400	
			Nm34	300 - 500	
	14. CV% of single yarn strength	Once/day	Nm54	9.8 - 11.5%	
			Nm40	--	
			Nm34	--	
	15. CV% of twist per metre	Twice/set/week	Nm54	870t/m	3.36%
			Nm40	728t/m	3.02%
			Nm34	742t/m	3.03%
	16. I.P.I. Thin	Twice/month	Nm54	588	
			Nm40	604	
			Nm34	627	
	17. " Thick	"	Nm54	59	
			Nm40	521	
			Nm34	408	
	18. " Nep	"	Nm54	74	
			Nm40	115	
			Nm34	126	

II Thang Loi Factory

Information is shown in attached sheet.

2. If we try to decide the position of Dong Nam Factory in connection with the quality level of products on the basis of investigated data, we will pick up the U% abovestated and compare this figure with the statistics of Uster in 1982.

Nm54 belongs to the group of 75%.

Nm40 belongs to the group of 95%.

Nm34 does not belong to any group on statistics.

That is, Dong Nam Factory's products will be classified in lower quality group than the avarage quality groups in the world and Nm34's quality above all is further inferior to any groups on statistics.

Likewise, U% of the product of Thang Loi Factory (P/C Nm67) is 14.1% and this pertains to the group of 75%. This is also inferior to the mean group of the world as far as the product quality is concerned.

3. Finally, our suggestion concerning betterment of quality control method will be brought forward in the following.

3.1 In the first place we regarded testing equipments in two factories referred to in para. 1.1 as being replete and in good condition and control for carrying out daily quality control. Good function and control of the equipments at present should be maintaind.

3.2 It is necessary to devise more minimized sampling number and cycle for testing.

3.3 As far as data recording form is concerned, a simple description method is adopted in both factories but such recording style is somewhat restrained one and does not necessarily accord with co-related action brought about by quality control to confirm measured data, forsee variation by time, carry out feedback and answerback to foregoing processes and to instruct and ensure the function of "record-check-action". Furthermore, some betterment such as to introduce as much as possible graphic description form enabling to record variation by time should be tried.

3.4 Keeping and utilizing method of such data enabling maintenance and operational personnel to have a look at it at any time also should be thought out. And these data must be made the most of in order to check the equipments problem and take due measures.

3.5 Every testing data should state clearly the control limit U.C.L. and L.C.L.

SUMMARY OF PROPOSAL

We have stated hitherto proposals which will contribute towards an improvement in maintenance and processing techniques using findings obtained on investigation visit at two factories. But we have to remark that this on-thi-spot investigation was carried out in restricted time available and our technical assessment was obliged to rely upon the technical power of our staffs accumulated through long carrier owing to non-availability of accurate information about maintenance items and cycles in two factories. For the assessment the functional examination and small defects examination were made reference as well.

The deteriorated situation regarding necessary spare parts is still remaining and considerable number of machines are unable to operate or only able to operate below standard as reported above. And impossibility to obtain machinery manuals in English is hindering to prepare the work specification for the maintenance scheme. Under such restricted circumstances,

after groping for a possible way, what we can bring forward hereupon is to implement our proposal for improvement of maintenance practice and machinery condition and to put into practice through brief and concentrated training by means of suitable instruction and advice and technical demonstration to technicians in these two factories by our supervisors. Information enabling correct procedure for maintenance field will also be given through assistance of said technicians to the lectures given by a full-time trainer in Viet Thang Factory, thus being overcome existing problems which will be summerized again as follows:

1. Blow Room
   - Excessive re-usable fibres
   - Supply method of re-usable fibres
   - Defective shape and hardness of lap
2. Card
   - Grinding cycle and method of MCC of cylinder and doffer
   - Grinding cycle of flat clothing
   - Gauge between flat and cylinder
3. Drawframe
   - Height of top spring plate of sliver can
   - Maintenance control of top and bottom clearer
   - Surface treatment and washing of top roller rubber cot
   - Unrelevant size of sliver coil
4. Roving Frame
   - Cleaning cycle and maintenance of top and bottom clearer
   - Inspection and correction of flyer balance
   - Treatment, grinding and washing of top roller apron
   - Defective shape of flyer
5. Fine Spinning Frame
   - Inspection and replacement of defective bottom apron
   - Daily checking control for every spindle
   - Grinding and cleaning of top roller part
6. Winder
   - Check and control of tension part for complete functioning of slub-catcher
   - Cleaning of yarn path

IMPLEMENTATION OF PROPOSAL

1 Implementation Items

1.1 The supervisors in charge will implement the abovementioned training and items referred to in para. PROPOSAL FOR IMPROVING MAINTENANCE PRACTICE RELATING TO EACH MACHINE will be instructed practically on the scene.

1.2 Advice will be made in order to improve quality control work.

2 Supervisors In Charge

Blow Room Machinery and Card ... Mr. S. Murayama

Drawframe, Roving Frame and Combing Machinery ... Mr. M. Murata

Fine Spinning Frame and Winder ... Mr. K. Hirose

3. Required Man-months

3.1 Necessary terms for training will be two weeks for each Factory.

3.2 Required man-months will be:

0.5 x 3 supervisors x 2 Factories ..... 3 man-months

We bring forward balance of 3 man-months to be made the most of to supplement and fortify ongoing reconditioning work and on-the-job training in the Spinning department of Viet Thang Factory.

-END-

Process	Testing Items	Testing Cycle	Polyester	Cotton	P/C Blended
Blowing	1. Lap weight/M	once/2 days	20Kg ± 200g	20Kg ± 200g	
	2. CV% of lap weight/M	"	less than 2.5%	less than 2.0%	
Card	3. CV% of sliver count	once/week	less than 7%	less than 7%	
	4. Sliver U%	"	3.5%	4%	
	5. Sliver nep count	"	0 piece counting by a perforated plate of 28 holes of 28mm.d	40pcs	
Drawing	6. CV% of sliver count	once/set/shift	3.3%		Mixing 3.0% 1st Passage 1.7% 2nd Passage 1.7%
	7. Sliver U%	once a day	3.8%		Mixing 4.19% 1st Passage 4.0% 2nd Passage 4.1%
Roving	8. CV% of yarn count	once per shift			Nm2.15 2.7%
	9. U% of roving	once/week			Nm2.15 5.7%
Combing	10. Sliver U%	"		5%	
	11. Waste %			15%	
Ring Sp.	12. CV% of yarn count	once/4 days			P/C Nm67 4.5%
	13. U%	once/month			P/C Nm67 14.1%
	14. Single yarn strength	once/day			P/C Nm67 321g
	15. CV% of single yarn strength	"			P/C Nm67 12.6%
	16. CV% of twist per metre	"			P/C Nm67 4.7%
	17. I.P.I. Thin	once/month			p/C Nm67 579
	Thick	"			P/C Nm67 205
	Nep	"			P/C Nm67 16

ATTACHED SHEET

4-1 CONTENTS OF COURSE LECTURED

A. Technical Management Seminar (Senior Course)

1. Management of Factory

1.1 Organization of factory

1) Connection diagram of factory organization

2) Organization chart of factory

1.2 Control index

1) Number of personnel employed per bale

2) Output of one spindle per diem

1.3 Cost control

1) Spinning yield

2) Manufacturing cost

1.4 Safety control

1) Importance of safety

2) Accident statistics

1.5 Sanitary control

1) Cause of disease

2) Control of working environment

3) Protective and first aid material

4) Education of safety and sanitation

2. Education and Training (Case of TOYOBO)

2.1 Central Training Institute of TOYOBO

2.2 Training at each textile mill

1) Job classification system GB-GA-SB-SA-K

2) Technician's card (Training material)

3) Assessment points

4) Training at Maintenance Centres

5) SA training

3. Preventive Maintenance System

3.1 Performance control

1) Lowering of performance

2) Fundamental activities

a) Periodical check of machinery and equipments

b) Adjustment and maintenance (Daily maintenance)

3.2 Effect of preventive maintenance

3.3 Policy of setting up preventive maintenance

3.4 Maintenance scheme

1) Maintenance plan
2) Personnel plan and scheduling
3) Order placing of required parts and accessories

4. Cotton

4.1 Ginning and baling
4.2 Features of cotton at each production area
4.3 Cotton grading

1) Grade
2) Staple length
3) Character

4.4 Cotton mixing

1) Object of cotton mixing
2) Caution at cotton mixing

5. Man-made and Synthetic Fibres

5.1 Selection of fibres (fibre length)
5.2 Number of fibres constituting yarn
5.3 Fibre length at being mixed with cotton
5.4 Fibre properties

1) Staple length over the limited cut length
2) Fineness
3) Tenacity and elongatior
4) Knot strength
5) Crimp
6) Friction coefficient
7) Oiling agent

6. Spinning Process

6.1 Action of spinning process
6.2 Blow room process

1) Object
2) Machinery arrangement
3) Main action of each machine

6.3 Carding process

1) Object
2) Description of carding engines
3) Important control items

6.4 Drawing process

1) Object

2) Important control items

6.5 Roving process

1) Object

2) Important control items

6.6 Ring spinning process

1) Object

2) Important control items

3) Quality control

6.7 Winding process

1) Object

2) Important control items

3) Quality control

B. Technical Management Seminar (Middle Course)

1. Calculation Method of Conversion Ratio of Personnel and Manufacturing Cost

1.1 Decision of standard spinning machinery

1.2 On the basis of ring spinning frame

1.3 On the basis of roving frame

1.4 On the basis of blow room machinejry to drawframe

1.5 On the basis of winder

1.6 Other personnel

1.7 Personnel of other departments

1.8 Calculation of required personnel per bale

1.9 Conversion ratio of manufacturing cost

1.10 Conversion ratio of power

2. Preventive Maintenance Items

Detail of preventive maintenance system per each process (Frequency, personnel and time required, number of machines and contents of maintenance, etc.)

3. Function Examination Items

Detail of function examination per each process

4. Product Control

4.1 Raw Material Control

1) Cotton classing

a) Cotton fibre

b) Mechanical classing

Fibre length/Fineness of fibre/Fibre maturity/Fibre strength/Colour/Impurity/Moisture regain/Honey dew and cavitoma/Others/Assessment of each fibre property

c) Classing in factory

Description of deficient cotton/Grading/Classification and grade of cotton

4.2 Control of semi-finished goods and products per each process

1) Control points per each process

2) Control criteria

3) Production process control

4) Responsible personnel for control

5. Statistical Quality Control

5.1 Distribution

1) Standard deviation

a) Formula

b) Properties of standard deviation

c) Histogram

2) Distribution of mean value

3) Distribution of range (R)

5.2 Control chart

1) Control chart of $\bar{X}$ - R

2) How to draw up a control chart

3) How to understand a control chart

4) Description of control charts

5.3 Various distributions

1) t Distribution

2) F Distribution

5.4 Verification and presumption

1) Verification of mean value μ of population

C. Course for Each Process

1, Blowing Process

1.1 Outline of blowing process

1.2 Caution at cotton mixing

1.2 Construction and Action

1) Construction and action of each machine
Creeper lattice/Bale opener/Hopper bale breaker/Hopper mixer/Superior cleaner/Crighton opener/Porcupine opener/Hopper feeder/Shirley opener/Double beater lapper/Lap machine/Blending bale opener/Single beater opener/Two way distributor/Magnetic separator/Roving waste opener/Fan condenser

2) Arrangement of machinery

3) Automated apparatus of blowing machinery

1.3 Preventive maintenance

1) Periodical maintenance
3 months periodical maintenance/Lubrication/Cleaning

2) Function deterioration check

3) Small defect check

1.4 Cotton feeding adjusting apparatus

1) Piano motion

2) Photocell system

3) Feeling motion (Swing motion)

1.5 Quality control

1) Licking and splitting

2) Badly dust-removed lap (Dirty lap)

3) Lap with much twisted fibre

4) Deformed lap

5) Defective selvage lap

2. Carding Process

2.1 Outline of carding process

1) Object

2) Description of carding engines

3) Carding action

2.2 Construction and action of card

1) Construction of feeding part
Feedle back/Lap roller/Dish plate/Feed roller/Feed roller step/Weighting apparatus/Feed roller clearer

2) Taker-in part
Taker-in roller/Mote knife/Taker-in undercasing

3) Cylinder

Back sheet/Flat bar/Flat chain/Flexible bend/Front top sheet/Front bottom sheet/Steel (Stripping) door/Cylinder under casing/Flat cleaning device

4) Action of flat and cylinder

Gauge between flat and cylinder/Action of flat/Movement of flat,Action of cylinder

5) Doffer

Doffer/Doffer bend/Dandy lever/Doffer comb/Doffer dirt sheet/Trumpet plate/Coiler

6) Card clothing

Wire cloth/Metallic card clothing (MCC)/Comb blade

2.3 Process control

1) Gauge

2) Test and inspection

Examination of neps and foreign matters/Investigation of waste cotton/Sliver grain and grain variation

3) Hooked fibre

4) High speed operation and damage of fibre

5) Life of MCC and clothing grinding cycle

6) Defective quality and its cause

Unevenness of web/Defective selvedge web/Defective flat strip/Defective web/Others

2.4 Preventive maintenance

1) Periodical maintenance

Maintenance A/Maintenance B/Stripping of cylinder and doffer/Lubrication/Wire grinding/Cleaning by operatives

2) Function deterioration check

3) Small defect check

3. Combing Process

3.1 OUtline of combing process

1) Object

2) Main action

3) Arrangement of machinery

4) Description of comber

3.2 Construction and action

1) Sliver lap machine
2) Ribbon lap machine
3) Super lap former
4) Whitin J type comber

3.3 Waste cotton

1) Waste cotton ratio
2) Faults of waste cotton
3) Adjustment of waste cotton ratio
4) Investigation of waste cotton ratio

3.4 Prevention of faults of fleece

4. Drawing Process

4.1 Outline of drawing process

1) Object
2) Main action
   Doubling action/Drafting action/Coiling action

4.2 Construction of drawframe

1) Drafting mechanism
2) Features of high speed drawframe
3) Weighting system
4) Clearer
5) Coiler part
6) Stop motion

4.3 Operation control

1) Various calculations
   Gearing diagram/Revolution of each part/Turnout
2) Test and examination
   U %/Measuring of grain/Staple diagram
3) Diameter of reducer hole
4) Capacity of sliver can

4.4 Preventive maintenance

1) Maintenance A
2) Maintenance B
3) Daily maintenance and lubrication
4) Inspection and cleaning by operatives
5) Function deterioration check
6) Small defect check

5. Roving Process

5.1 Outline of roving process

1) Main action

Drafting action/Twisting action/Cop building and winding action

2) Description of roving frames

5.2 Construction and action of roving frames

1) Draft part

2) Weighting system

3) Clearer

4) Twisting and cop building motion mechanism

Twisting motion/Winding and building motion/Diferential motion/Swing motion

5) Stop motion

5.3 Process control

1) Number of layers

2) Winding change

3) Roving tension

4) Roller gauge, weight, draft distribution

5) Number of twist

5.4 Preventive maintenance

1) Maintenance A, B

2) Daily maintenance and lubrication

3) Check and cleaning by operatives

4) Function deterioration check

5) Small defect check

6. Ring Spinning Process

6.1 Outline of ring spinning process

6.2 Construction and action of ring frame

1) Feeding part (Creel part)

2) Drafting part

Draft and roller gauge/Roller stand/Roller weight/Bottom roller/Cradle/Trumpet/Apron band/Collector/Cleaner

3) Twisting and taking up part

Ring/Traveller/Burning of traveller/Traveller clearer/Spindle/Tin roller, tin pulley/Bobbin/Thread guide/Tape tension device/Spindle tape/Anti-balooning device/Twist coefficient

4) Building motion
Taking up device/Ring rail motion/Cop build mechanism/

5) Appurtenance mechanism
Pneumatic clearer device/Blow cleaner (Suction blow cleaner)/Automatic speed changing device/Tin roller sudden stopping device/Auto doffer

6.3 Process control

1) Yarn faults
Fluffy yarn/Rubbed yarn/Loose twist yarn/Overtwisted yarn/Snarl/Irregular yarn/With fly/Slab/Piecing defect/ Kinky yarn

6.4 Preventive maintenance

1) Maintenance A,B
2) Daily maintenance and lubrication
3) Cleaning of roller part and cleaning by operatives
4) Function deterioration and small defect check

7. Winding Process

7.1 Outline of winding process

1) Object
2) Description
3) Description of traverse pattern

7.2 Construction and action of rotary traverse winder

1) Creel part
2) Tension device
3) Slub catcher
4) Drum
5) Package
6) Knot
7) Quality of package

7.3 Preventive maintenance

1) Maintenance A,B
2) Daily maintenance
3) Function deterioration check and small defect check

8. Preventive Maintenance of Weaving Process

8.1 Preventive maintenance of warper

1) Maintenance A,B

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2) Lubrication A,B

3) Cleaning

8.2 Preventive maintenance of sizing machine

1) Maintenance A,B

2) Daily check

3) Lubrication A,B,C

4) Cleaning A,B

8.3 Preventive maintenance of Scharer pirn winder

1) Maintenance A,B,C

2) Lubrication

3) Cleaning A,B

8.4 Preventive maintenance of loom

1) Maintenance at loom running

2) Maintenance at loom downtime

3) Lubrication and cleaning

9. Quality Test and Control of Spinning Process

9.1 Raw material (Cotton)

1) Fibre length

2) Fibre strength

3) Fibre fineness

4) Moisture regain

5) Sugar content test

9.2 Blowing process

1) Weight control of one lap

2) CV % of grain per yard of lap

3) Trisection test of lap

9.3 Carding process

1) CV % of grain of card sliver

2) Waste cotton ratio

3) Investigation of neps and foreign matters of card web

4) Visual check of card web

9.4 Drawing process

1) Control of grain of sliver

2) U % of sliver

9.5 Roving process

1) CV % of mean grain per 30 yds of roving

2) U % of roving

3) Strength of roving

4) Number of breakage of roving

9.6 Ring spinning process

1) Percentage of deviation of yarn number count

2) Percentage of moisture regain

3) U % of spinning yarn

4) CV % of variation of yarn number count

5) IPI (thin, thick, neps)

6) Assessment of yarn evenness on board

7) Tensil strength of single yarn

8) Number of twist

9) Moisture regain

10) Number of roller twining, number of apron breakage

11) Number of end breakage (Measuring at one doffing)

12) Instantaneous end breakage number

9.7 Winding process

1) End breakage ratio

2) Number of faults of cheese yarn

3) Number of generation of defective cheese

9.8 Others

1) Generation quantity of yarn waste

4-2 RESULTS OF ON-THE-JOB TRAINING

ON-THE-JOB TRAINING CARRIED OUT TO DATE

10 May, 1984

CARD RECONDITIONING GROUP

1. Following information was given to the leader and sub leader between 26th and 30th March, 1984.
   1) Method and purpose of small defects examination
   2) Method and purpose of functional examination
   3) Necessity of intermediate gauge adjustment
   4) Necessity and method of examination of eccentricity in cylinder and doffer
2. Following information was given and discussed in the meeting with all members of workers between 5th April and 5th May, 1984.
   1) Explanation and instruction about duties and attitude of members for this reconditioning
   2) Information about levelling and inspection method of bearings in cylinder
   3) How to prepare, execute and adjust the grinding to MCC of cylinder and doffer
   4) Control of written guarantee of wire and clothing
   5) Information and explanation was given to 5 operative technicians including a leader of every shift regarding operation control and cleaning of the reconditioned machine.
   6) How to decide and calculate tension for mounting metallic wire
   7) Checking method of neps and foreign matters in the web
   8) History of invention of the card
   9) 2 methods of setting wire at start of metalic mounting. Practice of soldering was instructed.
3. Up to 28th of April, following technic was transferred on the spot.
   1) Correcting eccentricity in cylinder and doffer and re-balancing
   2) Frame alignment
   3) Mounting of metallic wire on cylinder and doffer
   4) Re-clothing flats, grinding and check-ng for wire height
   5) Re-covering taker-in
   6) Aligning and re-setting cylinder bends
   7) Grinding and setting of cylinder and doffer
   8) Assembling of coiler
   9) All settings and test running
   10) Inspection of web
4. 2nd May
   1) Grinding of cylinder and doffer was directed to 2 workers in advanced grade.
   2) The lecture was made to all workers about 2 types of MCC setting at start of mounting. a) bend and set MCC to cut part of L-wire b) solder to L-wire
5. 3rd May
   1) Mending of bended sheet, correcting distortion of sheet by means of packing and gauge setting (technicians of advanced grade 1 and 2 intermediate)
6. 4th May
   1) Practice of flat re-clothing (technicians of middle grade)
   2) Grinding of cylinder and doffer and finishng check was lectured to all technicians.
7. 5th May
   1) Practice of recovering taker-in (2 advanced grade)
   2) Practice of checking height of flat clothing and grinding

8. 7th May
   1) Practice of mending detriments of MCC and grinding after mending (2 advanced)
   2) Procedure for gauge setting between cylinder and flat (1 advanced, 1 middle)
   3) Explanation about cause of defective web (2 advanced, 9 middle)
9. 8th May
   1) Practice of mending improper function of fly comb (1 advanced, 2 middle)
   2) Query and reply about relation of spinning count, gauge and waste ratio (1 advanced)
10. 9th May
   1) Practice of mounting of MCC mounting equipment with 2 pillars (2 advanced, 8 middle)
   2) explanation of the above (13 technicians)
11. 10th May
   1) Grinding of MCC in case of jointing new wire to old one (1 advanced, 4 middle)
   2) Practice of new MCC mounting equipment (1 advanced, 3 middle)

ROVING FRAME RECONDITIONING GROUP

1. Up to 28th April, following practice and explanation was made to the group technicians.
   1) Repair of flyer balance
   2) Alignment of lifter shaft
   3) Alignment of bobbin rail
   4) Correctly adjustment of building mechanism
   5) Mending of eccentricity of cans
   6) Alignment of top and bottom cone drum
   7) Alignment of jack box
   8) Alignment of driving shaft
   9) Mending eccentricity of bottom roller
   10) Setting of bottom roller stand
   11) Alignment of spindle
   12) Alignment of lifter slide
   13) set up bottom clearer
   14) set up bobbin shaft and collar
2. From 2nd May to 10th May, following technique was transferred to group technicians.
   1) Dismantiling long collar, top roller and gearing parts
   2) Disassembling building mechanism, bottom roller and draft gearing
   3) Mending flyer and disassembling jack box and bobbin shaft
   4) Alignment of spindle, bobbin shaft, bottom roller,
3. Technical theory was explained to all technicians up to 10th May, regarding
   1) Gearing parts
   2) Alignment of bottom roller and spindle

RING SPINNING FRAME RECONDITIONING GROUP

1. From 4th April to 6th May, following on-the-job training was carried out.
   1) Bottom roller
      a) Fabrication of check stand of roller eccentricity
      b) Mending eccentricity using the check stand
      c) Explanation of procedure for alignment of bottom roller on the frame and its practice was carried out.
         i) to coincide neck ii) Roller stand iii) Method of aligning front, middle and back roller iv) Replacement of nylon metal
      d) Roller gauge setting

2) Aligning cap bar, allowing for:
   a) Difference on right and left
   b) Clearance on right and left
   c) Parallel of TX3 roller
3) Explanation and practice of horizontal aligning method of spindle rail
4) Explanation and practice of vertical aligning method of poker pillar
5) Explanation and practice of unifying height of rocking shaft arm
6) Gauge setting of ring rail
7) Explanation and practice of unifying height of lappet bar
   a) Distance from top of boobin to snail wire was set up as more than 25mm at 7 inch lift for reduction of yarn breakage.
   b) Distance from lappet bar to roller beam was set up as 45mm.
8) Mending method of height of lappet
   a) Fabrication of gauge and mending implement
   b) Practice of mending method
9) Spindle gauge setting
   a) Manufacturing of tools and implements
10) Procedure for gauge setting of snail wire (Manufacturing of implements)
11) Practice of aligning traverse bar
12) How to set trumpet gauge (Practice of setting in case no gauge is available)
13) Gauge setting of traveller clearer and its practice by simple gauge
14) Explanation and practice of setting and aligning tin roller
   a) How to tighten ball bearing b) Appropriate greasing
   c) Use of gauge and implement d) Correct height of tin roller
15) Practice of alignment of jockey pulley
16) How to hook spindle tape
17) Pneuma flute gauge
18) Mending bad seam of gum socket

2. 7th May
   How to align horizontally spindle rail and how to align middle roller was practically instructed.
3. 8th May
   Alignment of spindle tape and driving shaft
4. 9th May
   Practice of roller gauge setting and alignment of spindle tape was carried out and this was made understood throughly by technicians in the meeting.

WEAVING PREPARATORY MACHINERY RECONDITIONING GROUP

1. Barber Colman Warper
   From 25th April to 9th May, following information and technique was conveyed to the group.
   1) Disassembling and mending brake cylinder
   2) Disassembling and mending clutch (Replacement of clutch facing)
   3) Mending yarn path on thread roller and repair of brake band
   4) Inspection and mending of reset cam
   5) Maintenance of creel fan
   6) Checking and setting cheese bar
   7) Checking cheese bar peg spring and replacement of defective parts
   8) Checking and change of gear case oil
   9) Checking and mending drop wire
   10) Following was explained to the leader.
      a) Periodical maintenance standard
      b) Frequency of lubrication
      c) Special points to note
2. Sizing Machine
   Up to 9th of May following was trained.
   a) Dismantling and checking roller and cylinder in size box
   b) Explanation and practice was carried out around applying teflon sheet to cylinder.

LOOM RECONDITIONING GROUP

1. Adjustment and mending of take up motion was repeatedly trained to leader and subleader (including adjustment of taking up catch and slip catch).
2. Practice of aligning crank shaft and lathe sword was made.
3. Pracetice of mounting lathe to loom was made.
4. Aligning method of crank shaft was lectured.

The above training was carried out from the beginning of May till 8th instant.

Date	Technical Guidance On The Spot	Explanation In Group Meeting
CARD		
11 May	Metalic wire mounting by new mounting machine (Senior 1, middle 3) 2. Covering of fly comb blade and its effect (Senior 1, Middle 2)	1. History of spinning tequenic and 4 major function of spinning 2. Purpose and function of carding engine (Senior 2, Middle 8)
12 May	1. Dismantiling work of cylinder shaft (Senior 2, Middle 2, Iron worker 3)	
14 May	1. Installation work of cylinder shaft (Senior 1, Iron worker 3) 2. Trouble shooting of ending part of metallic mounting (Senior 1, Middle 3)	
15 May	1. Adjustment of gauge and height of cylinder casing (Senior 1, Middle 4) 2. Fitting of soldered wire at beginning part of metallic mounting and positioning of side pressure plate (Senior 1, Middle 1)	
16 May	1. Setting of new metallic mounting machine and its tension setting angle (Senior 1, Middle 6) 2. Mounting of taker-in wire (Middle 2)	1. Merit, demerit and difference of 2 types of metallic mounting machine 2. Metallic wire and its surface speed (Senior 2, Middle 8)
18 May	1. Soldering and repair of cylinder under casing (Middle 2) 2. Replacement of long boss of eccentric pulley (Senior 1, Middle 4)	
ROVING FRAME		
11 May	1. Drawing of a cardinal line 2. Procedure of test running 3. Alignment of driving shaft (Middle 5)	1. Caution prior to test running of roving machine. 2. How to carry out test running (Senior 1, Middle 2)
12 May	1. Assembling of gearing parts	
14 May	1. Adjustment of building motion (Senior 1, Middle 1)	

Annex 1

Date	Technical Guidance On The Spot	Explanation In Group Meeting
15 May	1. Spinning of roving (Senior 1, Middle 2) 2. Alignment of bottom roller (Middle 3)	
16 May	1. Alignment of bottom roller (Middle 2)	
17 May	1. Disassembling and checking of bottom roller (Middle 8) 2. Setting and alignment of bottom roller (Middle 3) 3. Balancing of bottom roller (Middle 1)	
18 May		1. Function of roving (Senior 2, Middle 10)
RING SPINNING FRAME		
10 May	1. Alignment and inspection of roller. Pointing out of defective part and its mending 2. Alignment method of snail wire	1. Alignment method of bottom roller (Preparation procedure) a) Connection of 3 staffs b) Adjustment on check stand c) Connection of whole rollers at machine side d) Adjustment of neck of front, middle bottom rollers
11 May	1. Finding of vibration of T.C.W stud 2. Gauge setting of antinode ring	1. Alignment method of bottom roller (Work procedure) a) Temporal fixing on roller stand b) Positioning of GE and OE stand c) Putting front roller on stand d) Alignment e) Positioning of each stand f) Mending of eccentricity g) Putting of middle roller and gauge setting, etc.
12 May	1. Gauge setting of driving shaft 2. Gauge setting of antinode ring a) Mending of defective parts of L H b) Mending of large defects	1. Gauge setting of driving shaft
14 May	1. How to use spilaclean a) Reversing motor and ad ustment b) Use of cleaning gun 2. Checking and mending bottom roller distortion by left and right 3. Correct gap between flute and front roller	1. Handling of necessary tools a) Ring lifting gauge b) Bolster hook spanner

Date	Technical Guidance On The Spot	Explanation In Group Meeting
15 May	1. Procedure of operation starting 2. Setting of height of rocking shaft arm	
16 May	1. Mending of alignment of trumpet 2. Mending of hole of flute 3. Dismantling of machine 4. Adjustment and alignment of ring rail	1. Method of extracting broken bolt in tin roller a) By reverse tap b) By drill
17 May	1. Alignment and checking eccentricity of b. roller Practice of mending of defective parts	
18 May	1. Alignment of antinode ring by using hand made implement 2. Checking eccentricity and alignment of bottom roller and practice of mending of defective parts	1. Explanation of reconditioning work by using documents, 18 items on para. 1 of Ring Frame on Report on 10 May of ON THE JOB TRAINING CARRIED OUT TO DATE
19 May		1. Why height of rocking shaft arm must be uniform?
SIZING MACHINE		
10 May (12 May	1. Replacement of cylinder neck 2. Disassembling and ad ustment of cylinder steam trap	
14 May	1. Setting up cylinder piping 2. Mending of steam leakage of cylinder neck	
15 May	1. Setting up cylinder drive chain	1. Function of steam trap
16 May	1. Maintenance of creel stand 2. Installation of beaming head	
17 May	1. Installation of beaming head	1. Function of cylinder piping
18 May	1. Distribution of air piping	
KANAMARU WARPER		
18 May	1. Dismantling and adjusting clutch and brake	1. Adjusting mechanism of contact pressure of beam
LOOM		
9 May	1. Alignment of crank shaft, lathe sword and pinion shaft	

Date	Technical Guidance On The Spot	Explanation In Group Meeting
10 May	1. Setting up of let-off motion mechanism	
11 May	1. Setting up of taking-up motion mechanism 2. Alignment of swing rail shaft and crank shaft	
12 May	1. Adjustment of taking-up motion mechanism	
14 May	1. Adjustment of taking-up motion mechanism 2. Setting up of reed fly box	
15 May	1. Setting up of dobby apparatus 2. Timing of bend slider	
16 May	1. Setting up of stop motion mechanism 2. Adjustment of handle and cone clutch	
17 May	1. Setting up and checking of stop motion mechanism 2. Alignment of tappet shaft stay 3. Alignment of swing rail shaft	
18 May	1. Setting up of shuttle box	1. Relation of ratchet wheel with slip catch 2. How to get timing of crank wheel and tappet wheel
19 May	1. Alignment of side lever	

RECORD OF ON-THE-JOB TRAINING

A...Advanced class trainee
M...Middle class trainee

	Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber	Explanation In Group Meeting	Trainees Class	Trainees Nber.
CE	21.5	Counting check of leaves, neps and foreign matters in web	A	3	Maintenance cycle and its purpose Grinding cycle and its purpose Lubricating spots and its cycle	A M	2 9
	22.5	Trouble shooting method of reclothing taker-in wire (mending of groove width, etc.)	M	2	Procedure to cope with flat clipping (Explanation by ilustration)	A M	2 9
	23.5	Incorrect mounting of MCC due to incorrect setting of mounting machine	A M	1 2			
	25.5	Mounting of coiler and gearing ad ustment	M	1			
	26.5	Procedure of gauge ad ustment btwn. cylinder and flat	M	1			
BL	23.5	Mending of broken fluted roller/Replacement of shaft	M	2			
	24.5	Disassembling ALD of scutcher	A M	3 3			
	25.5	Assembling of piano motion/Gauge adjustment of pedal roller of scutcher	A M	2 3			
FF	21.5	Alignment of spindle shaft and driving shaft	M	2	Caution to be taken for performing maintenance to speed frame in operation	A M	2 10
		Mending of building cut rack	M	1			
	22.5	Alignment of bottom roller	A M	1 2	Mechanism of roving frame	A M	2 9
	23.5	Ad ustment of lifter slide bracket/ Align ment of spindle	M	2			
	24.5	Alignment of top cone drum shaft	A M	1 2			
		Balancing of flyer	M	1			
	25.5	Gauge setting of bottom roller/Alignment of cone drum shaft	M	2			
		Setting up bobbin wheel and spindle pinion	M	4			
	26.5	Mending of bobbin wheel and shaft	A M	1 4			
RF	21.5	Inspection of gearing part/Mending of draft change bracket	M	1	Cause for unstableness of height of rocking shaft arm	M	2
	22.5	Ad ustment of height of rocking shaft arm	M	2			
		Checking and mending vibration of front roll	A	1			
	23.5	Ad ustment of height of rocking shaft arm/ Mending and replacement of eccentric and vibrated rear front roller	M	2			
		Mending of lappet hinge	M	1			

Section	Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber	Explanation In Group Meeting	Trainees Class	Trainees Nber.
RF	24.5	Minute checking of each part	A	1	Function and purpose of Ring frame	A	3
	25.5	Checking and mending of bottom roller	A	1	1. Draft mechanism	M	5
	26.5	Mending of spindle gauge	A	1	2. Twist		
SZ	21.5	Mending of guide roller/Covering of teflon sheet/Mounting of warpers beam	M	3	Tension of B. Colman warpers beam	M	3
	22.5	Covering of teflon wheet on cylinder	A M	1 2			
	23.5	Courting of cylinder frame and creel stand	A M	1 5			
	24.5	Courting of cylinder frame and creel stand	A M	1 5			
	25.5	Setting and alignment of squeezing roller	A M	2 6			
	26.5	Setting of cylinder cover of size box	A M	1 6			
IN	21.5	Alignment of crank arm/Adjustment of Letting off motion	L	3	About alignment of surface roller	M L	1 3
		Alignment of taking up motion	L	2			
	22.5	Adjustment of taking up motion	A	1			
		Replacement of tappet shaft	L	4			
	23.5	Winding of surface roller strip	A M	2 2			
		Setting of letting off motion	M L	1 2			
	24.5	Adjustment of taking up motion	M L	1 5			
		Setting of surface roller	M L	1 3			
	25.5	Winding of surface roller strip	M L	2 4			
		Alignment of pinion shaft	M L	3 2			
	26.5	Adjustment of height of lathe sword	A M	1 2			
		Adjustment of height of front tongue	M	2			

RECORD OF ON-THE-JOB TRAINING

SECTION: Blow Room Machinery

A...Advanced class trainee
M...Middle class trainee

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
28.5	How to mount ALD frame and make horizontal alignment	A M	1 2			
31.5	How to fix and align worm gear of cone drum	M	1			
2.6	Re-clothing of bottom lattice and finishing of screwed surface	A M	2 2			
6.6	Build up and gauge adjustment of 2 blending beater/How to replace doffer leather of BL20	A M	1 1			
8.6	Replacement and adjustment of leather beater	A M	1 1			
12.6	Engaging and adjustment of gearing	A M	1 1			
13.6	Setting up and building up of lap scale	A	2			
14.6	Build up of valve for lap pan	A	1			
15.6	Build up and adjustment of lap scale	A M	1 1			
16.6	How to repair broken gear and parts	A	2			
20.6	Explanation and practice of resicon belt glueing	A M	2 1			
22.6	Checking points before starting up Adjustment of lap weight	A M	3 3	Maintenance control of blow room m/c 1.Cleaning 2.Lubrication 3.Lap weight check, etc.	A M	3 3
26.6	Gauge setting for porcupine cylinder and grid bar	A M	1 1			
27.6	Function of spiked lattice and evener comb	A M	1 1			
3.7	Handling of lap scale and timer setting	A	2			
7.7	Checking points before starting up blending feeder	A M	2 1			
9.7	Repair and soldering of duct	A M	2 1			
10.7	Repair of bottom lattice	M	2			
11.7	Setting of angle and gauge of grid bar	A M	1 2			
17.7	Adjustment and mending of cylinder casing circle	A	1			
18.7	Repair of calender roller shaft of scutcher	A M	1 1			
21.7	Repair of broken spiked lattice	A M	1 1			

SECTION: Blow Room Machinery

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation in Group Meeting	Trainees Class	Trainees Nber.
27.7	Repair of broken frame of scutcher	A	2			
3.8	Guidance of how to repair of broken spiked lattice	A	1			
8.8	Control of cotton feeding at blending feeder/About cause for breakage of spiked lattice	A M	1 3			
22.8	Guidance for relevant fixing angle of comb blade blending feeder	A M	1 2			
23.8	Guidance for repairing method for worn out taper lap roller	A	2			
24.8	Adjustment of gauge setting and repair for cylinder and grid bar of superior cleaner	A M	2 4			
27.8	Guidance for maintenance procedure for opener/ Instruction for repairing damaged cylinder tip	A M	3 6			
30.8	Replacement work of cylinder pins of roving waste opener	A M	2 4			
31.8	Balance adjustment of fans	A M	2 3			
1.9	Procedure for lap yard test on the spot (Lap sampling and measuring)	A	1			
3.9				Explanation about maintenance, daily check, lubrication of blowing equipment	A M	2 6
6.9	Instruction and check of lubrication and cleaning of 10 days frequency	A M	1 5			
8.10	Instruction of Periodical maintenance A	A M	3 5			
9.10	Guidance of overhaul of scutcher calender roller and check of bearings (Periodical maintenance)	A M	2 4			
10.10	Guidance of important check points of front part of the line. Cleaning and adjustment	A M	3 4			
15.10	Guidance of correction method of defective shape lap	A	2			
18.10	Check of cotton feeding and correction of defective action of feeling motion	A	1			
23.10	Lap weight check and method of 3 division test	A	3			
29.10				Action to take for improvement of quality of lap	A M	3 6
31.10				Gauge setting and adjustment of each part	A M	3 6
1.11				Procedure and methodology of periodical maintenance and lubrication part and frequency	A M	3 6

No.

RECORD OF ON-THE-JOB TRAINING

A...Advanced class trainee
M...Middle class trainee

SECTION: Card

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation in Group Meeting	Trainees Class	Trainees Nber.
29.5	Assessment of grinded condition of MCC and judgement using sidescope	A M	2 1	Explanation by illustration about structure of grinding bracket	A M	2 8
30.5	Assemble and alignment of taker-in garnet wire mounting machine	M	2			
31.5	Procedure for build up of MCC mounting machine	A M	1 3	Structure of grinding bracket and its relation with wire grinding on machine	A M	1 8
1.6	Clothing of garnet wire for taker-in/Mounting of metallic wire on doffer	M	1	Overhaul and build up of grinding bracket	A M	1 5
6.6	Set up of taker-in under casing and gauge adjustment	M	2			
8.6	Procedure for build up of MCC mounting machine/ Different gauge setting for cotton and polyester	M	1			
11.6				Calculation method of total draft/ Explanation of diagram	A M	1 10
12.6	Repair and after-treatment of cylinder casing in the event of waste cotton suction	A M	1 4			
13.6	Procedure for covering taker-in roller by G. wire	M	1			
14.6	Demonstration and guidance of repair of C. casing	M	2			
15.6	Inspection points at taker-in wire grinding and its adjustment	M	1	Spinning calculation (rotating value and surface speed/production)	A M	1 9
16.6	Trouble finding and its treatment of MCC (Making use of card)	A M	1 4			
18.6	Mending procedure of defective taker in groove	M	2			
20.6				Attitude and corncern for safety at maintenance work at card section	A M	1 10
22.6	Mounting of metallic wire	M	2			
23.6	Treatment of corrosion of bearing adaptor and Shaft	A M	1 3			
25.6	Rectification of eccentricity of coiler can	M	2			
26.6	Checking points to start up card (wire contact, engagement of gearing and safety measure	M	2			
28.6	Gage setting of flat and check points before trial running	M	2			
29.6	Difference between new MCC and used one (Check by using magnifying glass)	A M	1 3	Responsible attitude required for maintenance technicians of card	A M	2 10
2.7	Surface irregularity after rewinding repaired MCC and its mending	A M	1 5			
4.7	Building up and alignment of coiler	M	2			

SECTION: Card

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
5.7	Assembling, grinding and adjustment of doffer part	M	1			
7.7	Procedure and caution for repair damaged MCC	A M	1 3			
9.7	Cause for surface uneveness of MCC wound on doffer (Unproper tension, deficient MCC, etc.)	A M	1 3			
10.7	Horizontal alignment and eccentricity mending of coiler can bottom/Assessment of coiling condition	M	1			
11.7	Procedure and method of MCC mounting/Handling of MCC mounting machine	M	2			
12.7	Mending method of MCC flaws	M	1			
13.7	Gauge setting between cylinder and flat/Correct use of thickness gauge for precise gage setting	M	1			
16.7	Mounting of taker in wire	M	1			
17.7	Correcting method of distorted back sheet/ Adjustment of gauge setting	A M	1 2			
18.7	Adjustment of gauge setting between cylinder and doffer	A M	2 5			
23.7	Piecing up of metallic wire/Mending of belt loosening	A M	1 1			
24.7	Repair and rectification of back sheet and back concentric bend bracket	M	2			
25.7	Cleaning of filthy flat wire	M	2			
27.7	Procedure for flat stripping	A M	1 6			
31.7	Repairing method of damaged metallic wire (Partial/Overall damage)	A M	2 8			
2.8				Quality of gauge setting and its affecting on spinning property and product quality	A M	2 11
3.8	Technical guidance for engagement adjustment of eccentric pulley and worm wheel	A M	1 2			
6.8	Guidance for installation of taker-in undercasing and mote knife	A M	1 2	Explanation about relation of mote knife angle with waste generation under taker-in	A M	2 9
7.8	Guidance for procedure of ordinary wire grinding and gauge setting after grinding	M	2			
8.8	Guidance for cleaning procedure of flat wire	M	2			
11.8	Guidance for procedure of stripping and manufacturing of tools for stripping	M	2			
14.8				Explanation about how to take record and make the most of it at preventive mainte.	A M	2 11

SECTION: Card

Date	Technical Guidance on the Spot	Trainees Class	Trainees Nber.	Explanation in Group Meeting	Trainees Class	Trainees Nber.
17.8	Instruction of stripping	M	3			
20.8				Explanation about maintenance B, daily check and wire grinding/Explanation about recording method and how to deal with important items of preventive maintenance	A M	2 11
21,8	Working procedure and gauge setting of maintenance A/Instruction for lubricating place and oil quantity	A M	2 9			
22.8	Guidance of stripping method and casing cleaning	A M	1 5			
23.8	Guidance of procedure of maintenance A and wire grinding	A M	1 4			
24.8	Guidance of adjustment and repairing method of daily maintenance	A M	1 6			
27.8	Guidance of procedure of wire grinding	M	4			
30.8	Guidance of sliver doffing timing and can capacity	A M	1 5	About quality of sliver affected by handling of operatives	A	2
31.8	Guidance of job of responsible of preventive maintenance/required personnel and check record	A M	2 6			
3.9	Guidance of investigation method of neps and foreign matters of web	A M	1 2	Explanation about neps and foreign matters investigation (standard number as per each yarn count/Using of magnifying glass)	A M	1 5
6.9	Guidance of maintenance B	A M	1 4			
12.10	Guidance of replacement work of cylinder shaft and how to use each tool (detaching of shaft)	A M	2 6			
13.10	Procedure of refitting of cylinder shaft	A M	2 6	Procedure of replacement of cylinder shaft	A M	2 10
15.10	Prccedure of alignment of cylinder bend	A M	2 8			
16.10	Procedure of grinding on machine, gauge setting and adjustment of lifter BKT	A M	1 2	Procedure of grinding on machine and alignment of cylinder bend	A M	2 8
24.10				Re-explanation about procedure of grinding on machine and each gauge setting	A M	2 10
26.10				Handling of flat grinding machine	A M	2 10
30.10				Re-explanation about metallic wire mounting and its caution	A M	2 10
1.11	Procedure of deterioration check of machinery function and its calculation method	A	1			

SECTION: Drawframe

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
5.7	Building up of gearing part	M	3			
6.7	Assembling of bottom clearer part	M	2			
10.7	Alignment of bottom roller	M	4			
	Building up of creel part	M	3			
	Fitting of rod arm spring	M	2			
12.7	Setting up of bottom clearer	A M	1 2			
	Alignment of bottom roller	M	2			
	Alignment of clearer shaft	M	1			
16.7				Grinding of drill	A M	1 8
17.7	Adjustment of rotation of top & bottom clearer	M	5			
20.7				Handling, repair and adjustment of stop motion mechanism of DK type	A M	1 8
25.7	Checking and mending of deficient parts	A M	2 8			
29.7	Building up of gearing of DK type and alignment	M	4			
30.7	Alignment of bottom roller	M	2			
31.7	Setting up and alignment of coiler wheel	M	2			
2.8	Adjustment of weighting arm (Replacement of spring)	M	4			
3.8	Fitting of top clearer (DF)	M	1			
6.8	Guidance of fitting of top clearer/mending of calender roller eccentricity/fitting of creel(DF)	M	2			
8.8	Guidance of procedure for operation and adjustment of roller treatment equipment (R.shop)	M	2			
14.8	Demonstration of how to use tools for preventive maintenance	A M	1 9			
16.8				Explanation about working contents of preventive maintenance	A M	1 10
21.8				Explanation about tools and implements to be used for preventive maintenance	A M	1 9
24.8	Guidance of maintenance A/Grease and oil q'ty of FAS	M L	5 3	Explanation about notes on maintenance A work of FAS	A M L	1 8 3
25.8				Explanation about notes on maintenance A of DK	A M L	2 8 3
28.8	Guidance of maintenance B (FAS, alignment of spindle, adjustment of building motion, etc.)	M L	1 3			
29.8	Guidance of maintenance B (FAB)/Repair of broken cone drum	A M	2 4			

RECORD OF ON-THE-JOB TRAINING

A...Advanced class trainee
M...Middle class trainee

SECTION: Roving Frame

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation in Group Meeting	Trainees Class	Trainees Nber.
28.5	Alignment of bottom cone drum shaft	M	3			
	Adjustment of building motion	M	3			
	Adjustment of draft gearing	M	2			
29.5	Necessary adjustment for trial running and spinning	A M	1 2	Importance and cycle for replacement and maintenance of bearings	A M	2 8
30.5	Necessary adjustment for trial running and spinning	A M	1 7			
31.5	Capper gauge setting/Build up of aprons	M	3			
1.6	Alignment and correction of eccentricity of B. roll	M	3			
2.6	Inspection and repair of gear end part	M	2			
7.6	Installation of roller weight spring	M	3			
8.6				Purpose of each spring of FF	A M	2 8
12.6	Build up of gearing part	A M	1 2			
	Trial running and necessary adjustment	A M	1 3			
13.6				Procedure for setting and adjustment of draft gearing	A M	1 9
14.6	Cleaning and setting adjustment of top and bottom clearer	A M	2 10			
15.6	Overhaul of gear end part	M	3	How to detect deficient bearings/ Replacement cycle of bearings	A M	2 10
20.6	Caution to take at fitting bottom apron roller cover	A M	2 10	Alignment of bottom roller/Fitting and alignment of roller stand/Correction of deflection of roller neck	A M	2 10
22.6	Checking method of cone drum shaft and bearing and driving part/Mending of roller cover	M	4			
25.6	Correction of alignment of bobbin shaft and spindle	M	3	Explanation about spindle alignment	A M	2 9
29.6	Alignment of bobbin rail	M	3	Explanation about bobbin rail and lifter slide	A	2
	Balancing ad ustment of flyer	M	1		M	9
3.7	Correction of eccentric roller and shaft (Practice at eccentric check stand)	M	3			
5.7	Adjustment of building motion	M	4			

SECTION: Drawframe/Roving/Roller Shop

Date	Technical Guidance on the Spot	Trainees class	Trainees Nber.	Explanation in Group Meeting	Trainees class	Trainees Nbe
30.8	Guidance of daily check	L	1			
1.9				Explanation about procedure of daily check	A M	2 8
4.9	Guidance of maintenance A (FAB)	M	6			
5.9	Guidance of maintenance B (FAS) Operation, adjustment and maintenance of roller treatment equipment (R.shop)	L A M	3 1 8	Explanation about function of roller treatment equipment	A M	2 8
6.9	Guidance of maintenance B (FAS)	M L	6 3			
8.9	Maintenance A (FAB)	M	3			
8.10	Instruction of ordinary maintenance A and gauge setting of capper and bottom roller (FF)	A M	1 1	Matters to be attended to practice of preventive maintenance so far	A M	2 6
9.10	Re-instruction of daily maintenance	M	1	Procedure of daily maintenance	M	1
13.10	Instruction of ordinary maintenance A (FF)	A M	1 7			
15.10	Guidance of grinding of top roller of RF, FF and DF (R.shop)	A M	2 3			
17.10	Check and adjustment of building motion (FF)	M	1			
18.10	Maintenance A and lubrication	M	1			
19.10	Grinding treatment of top roller and procedure of replacement by grinded and treated roller	A M	1 3	Explanation about top roller maintenance	A M	1 5
20.10				Explanation about preventive maintenance for DY-2	A M/L	2 11
22.10	Maintenance A and replacement work of top roller treated by ultraviolet (FF)	A M	1 8	Explanation about procedure of deterioration check of machinery function	A M	2 1
24.10				Standard of ordinary maintenance A (DF)	A M/L	2 12
25.10	Maintenance A of DY-2 and cleaning of gatherer coiler tube and tapper clearer	A M	1 5			
26.10	Maintenance B of DY-2	A M	1 5	Calculation of deterioration of function	A	1
27.10	Instruction of practical skill of daily check	M	2	Standard of ordinary maintenance B (DF)	A M/L	2 12
29.10	Ordinary maintenance A (FF) and gauge setting of top & bottom roller	A M/L	1 12			
31.10	Deterioration check (DF & FF)			Standard of ordinary maintenance A,B (FF)	A M/L	2 12
1.11				ditto-		
5.11				Alignment and fixing of driving shaft	A	2
6.11				Alignment and adjustment of eccentricity of top & cone drum	M	6

RECORD OF ON-THE-JOB TRAINING

A...Advanced class trainee
M...Middle class trainee

SECTION: Ring Frame

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
28.5	Check and correction of eccentric bottom roll. /Inspection of gear part	A	1	Function and purpose of Ring frame II 1. Twist 1) T/inch 2) Twisting direction 3) Twist coefficient	A M	3 4
29.5	Check and correction of eccentric bottom roll.	A	1			
	/Inspection of parallel or interference of top roller/Check of trumpet position	A	1			
30.5	Inspection of gearing part	M	1	1. Cause of troubles at reconditioned frames (Change of contact of rotating objects/fly clogging in poker pillar/ yarn friction with spindle) 2. Shooting of yarn friction trouble	A	2
	Inspection and replacement of tin roller	M	2			
31.5	Procedure for alignment of spindle tape	M	1	Function and purpose of Ring frame III 1. Theory 2. Countermeasure against soft cop (Shooting of yarn friction trouble)	A M	2 6
	Method of check and correction of eccentric bottom roller	A	1			
1.6	Method of tin roller setting in the event of tin roller arbour being stiff/Check and mending of eccentric bottom roller	A M	1 1			
2.6	Hooking of spindle tape	M	1	Review of inspection and correction of eccentric bottom rollers on reconditioned frames	A	1
7.6				Explanation about checking places prior to overhaul of running frame (Eccentricity of bottom roller and tin roller/Abnormal sound and vibration of gear part)	A	3
8.6	Inspection of bottom roller and correction of defective parts	A	1	About error often committed on correcting defective bottom rollers	A	1
9.6	Inspection of bottom roller and correction of defective parts (How to detect accident and use of packings)	A	1			
12.6	Checking of spilaclean in the event of not rotating (tambler switch/filter choking/cord or outlet)	M	2			

SECTION: Ring Frame

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
13.6	Fitting and inspection of gear part			Summary of maintenance procedure I 1. Alignment of bottom roller 1) Preparatory work 2) Alignment work	A M	3 7
14.6				Summary of maintenance procedure II 1. Continuance of Alignment of bottom roller 2. Alignment of tin roller 1) Pre-check 2) Matters to be attended to 3) Alignment work	A M	4 7
15.6	Re-alignment of trumpet and gauge setting	M	1	Summary of maintenance procedure III	A	4
	Re-setting of traverse motion	M	1	1. Technical question and answer 1) Roller gauge 2) Weighing method (magnet type/arm type) 3) Draft 4) Other items	M	7
19.6	Check and rectification badly aligned stay BKT	M	1			
22.6	Check and mending of latch hook and bottom flange of spindle	A	1			
23.6	Practical way of spindle gauge setting (making use of rectifier and paper packing)	A M	1 2			
27.6	Check of main driving part (Alignment of motor & drive pulley and necessary rectification)	A	1			
3.7	Spindle gauge setting	M	1	After care maintenance to reconditioned frames	A	2
6.7	Practice of tidiness of reconditioned frames (Rearrange of scatterd parts under frame)	M	3			
9.7	Correction of roller shake	M	2			
14.7	Countermeasure to rise of roller after fixing of front roller bracket	A M	1 1			
25.7	Correction procedure for bottom roller shake and eccentricity	A M	1 1			
31.7	Correction of deflection and eccentricity of front roller gear end shaft	A	2			
2.8				Question and answer (Cause for outbreak of raw yarn, effect of antinodering, etc.)	A M	1 1
3.8	Notice to take for using local made GE shaft	A	1			
4.8	Guidance of adjustment of GE rocking shaft arm	M	2			
7.8	Technical demonstration how to use stroboscope	A	1			
9.8				About adjustment of height of GE rocking shaft arm		
10.8				About handling of tachometer (EE-1, 2)/ stroboscope	A M	1 10

SECTION: Ring Frame

Date	Technical Guidance on the Spot	Trainees Class	Trainees Nber.	Explanation in Group Meeting	Trainees Class	Trainees Nber
11.8	Guidance of measuring by stroboscope of RPM of spindle, traveller, drum and other places	A M	1 6			
17.8				Explanation about preventive maintenance (Maintenance A,B, lubrication, daily check)	A M	2 11
24.8	Guidance of investigation of RPM of motor pulley and twist change wheel	A	1			
25.8	-ditto-	A	1			
27.8				About implementation programme for PMS	A	2
28.8	Guidance of maintenance A	A M	1 5			
29.8	Guidance of daily maintenance	A	1			
30.8				About implementation detail of preventive maintenance	A M	1 2
8.9				About notes on ongoing preventive maintenance and its record	A	2
8.10				Matters to be attended to preventive maintenance practiced so far	A	1
10.10				Procedure and contents of daily maintenance	A M	1 6
17.10	Setting of vertical position of ring rail	A M	1 1			
20.10	Check of maintenance A	A M	1 1	About contents of maintenance B	A M	1 1
22.10				Guidance of recording system of preventive m.	A	1
29.10				Additional explanation of bottom roller problem and frame installation procedure	A M	1 11
31.10	Guidance of function deterioration check (spindle gauge, traveller clearer gauge)	A M	2 1	Additional explanation of frame installation and general spinning theory	A M	2 11
2.11	Guidance of function deterioration check (Bottom roller eccentricity, gauge deviation of flute)	A	1	Additional explanation of yarn count and spinning calculation method	A M	3 11
3.11	Guidance of function deterioration check (Parallel of top roller, tape tension)	A	1			
5.11				Additional explanation of spinning calculation and general aspect of maintenance A	A M	2 14
9.11				Collection and calculation of deterioration check data	A M	3 2

SECTION: RT-Winder

Date	Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In The Meeting	Trainees Class	Trainees Nber.
18.6	Rectifying eccentric drum shaft (on eccentric check stand)	A M	2 2			
20.6	Reconstruction of BKT for tension device	A	2			
21.6	Instruction of welding jig for reconstruct-on	A	2	Notice to take for lots of welding	A	2
22.6	How to handle files	A M	1 2			
25.6	How to handle disk cutter	A M	1 2			
26.6	Guidance for electric welding for tension BKT	A M	2 1			
27.6	Reconstruction of cradle/Manufacture of gauge	A M	1 2			
28.6				Caution to take using disc cutter	A M	1 2
2.7	Post treatment of welded tension BKT (fitting of defective ones and finishing by disc sander)	A M	2 2			
7.7	General caution at fixing parts	M	2			
9.7	Handling of files/Devicing of small chisel	A	1			
10.7	Attention to be taken for drum shaft alignment	A M	2 2			
14.7	Correction of horizontal alignment of tension brackets (by use of plumbing bomb)	A M	1 1			
17.7	Instruction of reconstruction of BRG housing cover	A	1			
23.7	Repair and adjustment of reduction gear	A	1			
24.7	Care to cradle part (Cleaning & grease up of BRG, rust removal and oiling)	M	1			
26.7	Adjustment of stop motion	M	2			
30.7	Adjustment of stop motion	A M	2 2			
31.7	Alignment of cradle	A M	2 2			
6.8	Guidance of fitting of peg	A	1			
7.8				Explanation about stroboscope	A	1
8.8	Guidance of measuring by stroboscope	A M	2 2			
13.8	Guidance of manufacturing of veil	A	1			
16.8	Guidance of winding and cutting of piano wire	A	2			
21.8	Guidance of correction of eccentric drum shaft	A	1			
4.9	Guidance of using /Adjusting of stop motion	M	1			
5.9	Guidance of manufacturing of tension BKT				A	2
7.9				Detil of preventive maintenance	M	6

No.

RECORD OF ON-THE-JOB TRAINING

SECTION: Sizing Machine & Warper

A...Advanced class trainee
M...Middle class trainee

Date	Technical Guidance On The Spot	Trainees		Explanation in Group Meeting	Trainees	
		Class	Nber.		Class	Nber.
28.5	Build in of creel and beam brake (SZ)	M	4	Take up mechanism of B.C.warper	M	4
	Trial running and adjustment of sheet tension(SZ)	A	1			
	Inspection and adjustment of brake & clutch (WP)	M	1			
29.5	Inspection and adjustment of cylinder and creel (SZ)	A M	1 3			
30.5	Trial running and each performance check and adjustment (SZ)	A M	2 3			
31.5	Ditto	A M	1 3			
1.6	Inspection and correction of drop wire (WP)	M	2			
	Overhauling of clutch part (WP)	M	4			
11.7	Periodical mairtenance for B.C.warper (WP) (Check, adjustment and replacement of brake shoe /Overhaul of front comb and clutch)	A M	1 5	Periodical maintenance for warper	A M	1 5
16.7	Dismantling of size box and repair of rollers/ Dismantling and repair of PIV (SZ)	A M	2 4			
17.7	Care of drying cylinder/Teflon sheet apply/ Overhaul of PIV (SZ)	A M	2 6	Procedure for applying teflon sheet	A M	1 6
18 to 21.7	Ditto	A M	2 6			
23 to 27.7	Assembling of PIV/Cleaning and coating of frames (SZ)	A M	2 6			
30.7	Assembling of size box/Adjustment of beaming head and PIV (SZ)	A M	1 6			

RECORD OF ON-THE-JOB TRAINING

A...Advanced class trainee
M...Middle class trainee

SECTION: SCHARER Pirn Winder

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
1.6	Overhauling of carriage and bobbin hopper	M	6	Mechanism of bobbin hopper	M	6
2.6	Adjustment around bobbin hopper	M	2			
4.6	Overhauling of unit/Replacement and adjustment of driving shaft and threader head	A M	1 8			
5.6	Overhauling of unit	A M	1 8			
6.6	Overhauling of unit	A M	1 8			
7.6	Overhauling of unit	M	8	Mechanism of bobbin feeder	M	6
8.6	Overhauling of unit/Adjustment of carriage	A M	1 8			
9.6	Overhauling and adjustment of unit	M	8			
11.6	Overhauling of unit	M	8			
12.6 15.6	Assembling and built in of unit and its adjustment	M M	6 2	14.6 Purpose and procedure of maintenance/Importance of preventive maintenance	A M	2 8
16.6	Adjustment of unit	M	6			
	Repair and adjustment of hopper	M	2			
18 to 21.6	Overhaul of unit/Replacement and adjustment of hopper chain	A M	1 8			
22.6	-ditto-	A M	1 7	Maintenance, lubrication and cleaning of pirn winder	A M	2 5
23 to 10.7	-ditto-	A M	1 7			

SECTION: Automatic Spooler

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation in Group Meeting	Trainees Class	Trainees Nber.
12.7	Overhaul of spooler drum	M	5			
13.7	Overhaul of cheese core	M	5			
14.7	Overhaul of cheese core	M	5			
28.7	Repair of thread clamp and cheese core	A M	1 6	Procedure for repair of thread clamp and cheese core	M	6
1.8	Dismantling of defective drum	M	6			
2.8	Dismantling and replacement of defective drum	M	6			
3.8	-ditto-	M	6			
4.8	Dismantling of conveyor/Check, adjustment and replacement of detector	A M	2 8			
6.8	Overhaul of bobbin pocket and snick plate	A M	2 8			
7.8	Check and overhaul of defective bobbin pocket/ Overhaul and replacement of defective traveller	A M	2 8			
8.8	Check and adjustment of conveyor belt/Replacement of trolley truck	A M	2 8	Explanation about knotter mechanism	M	8
9.8	Check and cleaning of collector pin/Adjustment of pull wire chack/Overhaul of knotter	A M	2 8			
10.8	Fitting of collector fan motor/Check and adjustment of traveller/Manufacturing of starter	A M	2 8	Explanation about traveller mechanism	M	8
11.8	Adjustment of traveller and cheese core	A M	2 8			
13.8 - 15	Check and adjustment of traveller	A M	2 8			
16.8	Fitting of throw out hook drive shaft/Check of bolt in pocket	A M	2 8			
17.8	Check of detector and bobbin pocket/Adjusting points with priority of spooler	A M	2 8	Explanation about periodical maintenance and points to be given attention	A M	2 8
20.8 - 25				Overall explanation about preventive maintenance as per each machine	A M	3 8
28.8	Guidance of maintenance A of warper	M	2			
	Guidance of maintenance A of sizing machine	M	2			
	Repair of hopper of pirn winder	M	3			
29.8	Adjustment and repair of hopper of pirn winder	M	3			
30.8	Check and adjustment of unit of pirn winder	M	4			
	Check and adjustment of warper's brake	M	2			
31.8	Maintenance A of pirn winder	M	3			
1.9	Check and adjustment of unit of pirn winder	M	6			
4.9	Guidance of maintenance A,C of pirn winder	M	4			
5.9	Guidance of maintenance B,C of pirn winder	M	3	Standard of preventive maintenance Spooler	A M	2 3

RECORD OF ON-THE-JOB TRAINING

SECTION: Loom

A...Advanced class trainee
M...Middle class trainee
L...Lower class trainee

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
30.5	Adjustment of crank shaft brass step	A L	1 3			
31.5	Fixing procedure of surface roller and intermediate wheel	L	2	Explanation about shedding motion mechanism and warp tension	A L	1 4
				Shuttle change and bobbin change	M L	2 2
1.6	Fitting of letting-off motion/cloth roller bracket	L	2			
2.6	Alignment of bracket for pinion stud	M L	2 2			
	Fitting of letting-off motion	M L	1 2			
4.6	Alignment of swing rail shaft	M	3			
	Fitting of letting-off motion	M L	1 2			
	Fitting of stop rod bracket	L	2			
5.6	Alignment of surface roller and winding of strop	A L	1 3			
	Mending of cloth roller lever	A L	1 1			
6.6	Adjustment of taking up motion	A	2			
	Alignment of swing rail shaft	L	2			
	How to measure picking time	M	2			
7.6	Alignment of swing rail shaft	A,M,L	ea.1			
	Adjustment of stop motion	A	1			
8.6	About picking stroke	A	1			
	Fitting of lathe sword	M L	1 3			
	Alignment of tappet shaft stay	M	2			
9.6	Alignment of let off pinion shaft	M,L	ea.1			
	Explanation about height of front tongue	M	2			
11.6	Adjustment of bracket for tension brake lever	M	2			
	Adjustment of letting off motion	L	2			
12.6	Alignment of lathe sword	M	2			
	Adjustment of taking up motion	L	2			

Date	Technical Guidance On The Spot	Trainees		Explanation In Group Meeting	Trainees	
		Class	Nber.		Class	Nber.
13.6	Fitting of bracket for tension brake lever	L	2	About size for catch for let off ratchet	A	3
	Alignment of tappet shaft stay	L	2			
14.6	Engaging of tappet crank wheel	A	2			
	Adjustment of dobby apparatus	L	3			
15.6	Alignment of swing rail shaft	L	1			
	Adjustment of letting off motion	M	2			
	Explanation about height of front tongue	A	1			
16.6	Alignment of crank shaft	A	1	Handling of reamer	A	2
		L	2		M	5
18.6	Adjustment of taking up motion	A	1			
		M	1			
	Adjustment of bend slider	M	2			
19.6	Adjustment of shuttle box	A	2			
	Alignment of lather sword	M	1			
		L	1			
20.6	Fitting of wheel box of letting off motion	L	3			
21.6				Explanation by illustration of Taking up motion mechanism/Fitting of lathe sword/Fitting of letting off motion/Motion of crank cotter	A M L	6 12 6
22.6	Motion of taking up motion slip catch	A	2			
	Fitting of letting off motion wheel box	L	2			
23.6	Alignment of letting off motion pinion shaft	M	1			
		L	2			
25.6	Adjustment of letting off motion	M	1			
	Adjustment of cone clatch	A	2			
26.6	Adjustment of stop motion	A	1			
	Adjustment of taking up motion	L	1			
	Assembly of shuttle box	L	1			
	Adjustment of letting off motion	M	2			
		L	1			
27.6	Regulation of dobby shedding	A	1	Explanation about assembly of shuttle change motion	A	2
	Regulation of letting off motion	M	1		M	2
28.6	Regulation of shuttle box	A	1	Adjustment of duck bill and stop finger	A	6
	Regulation of height of temple slide	M	2			
	Fitting of checking guide	L	1			
29.6	How to replace boy front	M	6			
30.6	Adjustment of tension	A	3			
	Oiling and oil short of crank					

SECTION: Loom

Date	Technical guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
2.7	Regulation of cone clutch	A	3			
	Regulation of slip catch motion	M	2			
3.7	Regulation of letting off motio n	M	3			
	Regulation of taking up motion	M	1			
4.7	Assembly of machine side snuttle box/Dismantling and reassembly of letting off motion	A M L	2 3 3			
5.7	Replacement work of reed cap	A	1			
6.7	Regulation of taking up motion	A	1	About taking up motion	A	1
	Fitting of check guide	M L	1 3			
7.7	Regulation of duck bill and stop finger	A M	1 2			
9.7	Regulation of fitting position of wood fly back	M	2			
	Regulation of slip catch motion of taking up motion	A M	1 1			
10.7	Check and regulation of warp protecting apparatus	A L	1 1			
11.7	Regulation of letting off motion	M	3			
12.7	Guidance on order of ad ustment of taking up motion	A M	2 1			
13.7	Replacement of stop rod	A M	1 1			
	Adjustment of weft hammer position	A M	1 2			
14.7	Regulation of stop motion	A M	2 2			
16.7	Regulation of taking up motion	A	2			
	Regulation of duck bill and stop finger	A	1			
17.7	Regulation of taking up motion	A M	1 2			
18.7	Regulation of duck bill and stop finger	A M	3 2			
	Regulation of weft fork and weft hammer	M	1			
19.7	Regulation of letting off motion	M	2			
20.7	Regulation of duck bill and stop finger	M	2			
23.7	Regulation of taking up motion	M L	1 1			
24.7	Regulation of position of reed	M L	1 1			

No.

SECTION: Loom

Date	Technical Guidance On The Spot	Trainees Class	Trainees Nber.	Explanation In Group Meeting	Trainees Class	Trainees Nber.
24.7	Regulation of duck bill and stop finger	A M	1 2			
25.7	Regulation of duck bill and stop finger	A M	1 2			
26.7				About letting off motion and setting of warp tension	A	2
28.7	Regulation of reed and box back angle	A M	2 3			
30.7	Regulation of reed and box back angle	A M	1 2			
31.7	Regulation of letting off motion	A L	1 1			
1.8	Replacement of wood lathe plate	M L	1 1			
2.8	Relation between reed and box back angle and flying out of shuttle	A M	3 3			
3.8	Correction of wing for stop rod reed fly back rusted	A M	1 2			
4.8	Adjustment of duck bill and stop finter	A M	1 2			
6.8	Adjustment of angle of reed and fly back	A M	1 2			
7.8	Replacement of surface roller strip metre at loom downtime	A M	1 1			
8.8	Correction of rusted wing for stop rod reed fly back	A M	1 1			
9.8	Adjustment of duck bill and stop finger	M	2			
	Mending of rusted wing for stop rod reed fly back	A M	1 1			
10.8 - 14	Correction of angle of reed and box back and inspection of shuttles	M	6			
15.8	Replacement of worn out let off pinion	M	6			
16.8 - 21	Guidance of maintenance at loom downtime	A M/L	4 10			
22.8				About relation of shuttle accommodation with check strap	A	2
23.8 - 25	Guidance of maintenance at loom downtime	A M/L	6 14			
29.8				Explanation about maintenance plan	A M/L	3 12

No

SECTION: Loom

Date	Technical Guidance on the Spot	Trainees Class	Trainees Nber.	Explanation in Group Meeting	Trainees Class	Trainees Nber.
31.8	Replacement of broken weft fork of 50 looms	A	3			
1.9	Check of RPM of reconditioned looms					
4.9				About important items of preventive M.	A	2
5.9	Guidance of maintenance at loom downtime Correction of shaky crank cap/Grease up of letting off worm gear box/Replacement of worn out let off pinion gear/Mending of rusted wing for stop rod/Adjustment of warp stop motion/Check of reed angle, etc.	M L	2 4	About procedure of maintenance at loom running time	A	2
6.9	Guidance of maintenance at loom downtime Adjustment of warp stop motion/mending of defective crank cap	A	1			
7.9	Guidance of maintenance at loom downtime/ Guidance of maintenance at loom running	M L	2 4			
8.9	Guidance of maintenance at loom downtime Replacement of driving pulley worn out	A M/L	1 4			
12.9	Replacement of crank metal worn out	A M/L	1 8			
13.9	ditto and guidance of maintenance at loom downtime	A M/L	1 3			
14.9	Guidance of maintenance at loom downtime	M/L	6	Explanation about small defect check	A	1
15.9	Guidance of maintenance at loom downtime Guidance of maintenance at loom running	M/L M	3 3			
17.9	Guidance of preventive maintenance	M/L	3	Explanation about machinery function check	A	1
18.9	Guidance of maintenance at loom downtime Guidance of maintenance at loom running Deterioration check of machinery function	M/L M A	3 3 1			
19.9	Guidance of maintenance at loom downtime Guidance of maintenance at loom running	M/L M	6 3	Explanation about lubrication and cleaning parts	A	1
20.9	Guidance of maintenance at loom downtime Guidance of maintenance at loom running	M/L M	3 3			
21.9	ditto	A M L	1 2 3	Explanation about stick slacking	M	2
22.9 -28.9	Guidance and check of maintenance at loom downtime and running					
29.9	-ditto-			Explanation about correction of temple position	M	3
1.10 -9.10	-ditto-					

NUMBER OF TRAINEES

Section	Factory	MARCH			APRIL			MAY			Accumulative Total	
		Nber. of Trainee	Man-day By Factory	Man-day Total	Nber. of Trainee	Man-day By Factory	Man-day Total	Nber. of Trainee	Man-day By Factory	Man-day Total	Man-day By Factory	Man-day Total
BL	Viet Thang							(1)	48	48	48	48
CE	Viet Thang	7	33		13	300		13	311		644	
	Thang Loi	1	4		1	24		1	24		52	
	Khanh Hoi	1	4		1	23		1	24		51	
	Phong Phu			41			347	1	15	374	15	762
DF	Viet Thang							7	126	126	126	126
FF	Viet Thang	6	27		9	213		9	216		456	
	Thang Loi				1	24		1	25		49	
	Dong Nam				1	24		1	25		49	
	Khanh Hoi				1	24		1	21		45	
	Phong Phu			27	1	23	308	1	24	311	47	646
RF	Viet Thang	2	12		10	219		10	247		478	
	Thang Loi				1	22		1	18		40	
	Khanh Hoi				1	16		1	18		34	
	Phong Phu			12			257	1	16	299	16	568
WP	Viet Thang				8	39		11	68		75	
	Thang Loi							1	5		37	
	Phong Phu						39	1	4	77	4	116
SZ	Viet Thang				(8)	7		(11)	160		167	
	Thang Loi							(1)	12		12	
	Phong Phu						7	(1)	8	180	8	187
LH	Viet Thang				12	62		23	512		574	
	Thang Loi							3	49		49	
	Dong Nam							3	54		54	
	Phong Phu						62	2	22	637	22	699
TOTAL	Viet Thang	15	72		52	808		66	1,688		2,568	
	Thang Loi	1	4		3	102		7	133		239	
	Dong Nam				1	24		4	79		103	
	Khanh Hoi	1	4		3	63		3	63		130	
	Phong Phu			80	1	23	1,020	6	89	2,052	112	3,152
GRAND TOTAL		17	80		60	1,020		106	2,052		3,152	

Note.-

Working days

March 6 days
5 weekdays
1 Saturday

April 24 days
20 weekdays
4 Saturdays

May 26 days
22 weekdays
4 Saturdays

NUMBER OF TRAINEES

Section	Factory	Accumulative Total March-May Man-day By Factory	Accumulative Total March-May Man-day Total	JUNE Nber. of Trainee	JUNE Man-day By Factory	JUNE Man-day Total	JULY Nber. of Trainee	JULY Man-day By Factory	JULY Man-day Total	Accumulative Total March-July Man-day By Factory	Accumulative Total March-July Man-day Total
BL	Viet Thang	48		7	176		7	182		406	
	Dong Nam		48	1	6	182	1	26	208	32	438
CE	Viet Thang	644		11	279		11	271		1,194	
	Thang Loi	52		1	15		1	25		92	
	Khanh Hoi	51		1	26		1	25		102	
	Phong Phu	15	762	1	21	341	1	24	345	60	1,448
DF	Viet Thang	126					10	210		336	
	Thang Loi						1	18		18	
	Khanh Hoi						1	20		20	
	Phong Phu						1	18		18	
	Dong Nam		126				1	21	287	21	413
FF	Viet Thang	456		10	253		(10)	40		749	
	Thang Loi	49		1	20		(1)	4		73	
	Khanh Hoi	45		1	25		(1)	4		74	
	Phong Phu	47		1	19		(1)	4		70	
	Dong Nam	49	646	1	25	342	(1)	4	56	78	1,044
RF	Viet Thang	478		10	247		18	432		1,157	
	Thang Loi	40		1	18		1	26		84	
	Khanh Hoi	34		1	24		1	25		83	
	Phong Phu	16	568	1	20	309	1	22	505	58	1,382
WD	Viet Thang			4	70	70	7	177	177	247	247
WP	Viet Thang	107		(9)	18		(9)	9		134	
	Thang Loi	5		(1)	2		(1)	1		8	
	Phong Phu	4	116	(2)	4	24	(2)	2	12	10	152
SZ	Viet Thang	167		(9)	9		(8)	86		262	
	Thang Loi	12		(1)	1		(1)	9		22	
	Phong Phu	8	187	(2)	2	12	(2)	20	115	30	314
PW-D	Viet Thang			9	187		(10)	66		253	
	Thang Loi			1	22		(1)	7		29	
	Phong Phu			2	45	254	(2)	15	88	60	342
SP	Viet Thang						9	54		54	
	Thang Loi						1	6		6	
	Phong Phu						2	12	72	12	72
LN	Viet Thang	574		22	521		20	462		1,557	
	Thang Loi	49		3	68		3	60		177	
	Phong Phu	22		2	38		2	41		101	
	Dong Nam	54	699	3	21	648	1	7	570	82	1,917

Note.
Working days

June 26 days
21 weekdays
5 Saturdays

July 26 days
22 weekdays
4 Saturdays

Section	Factory	Accumulative Total March-May		JUNE			JULY			Accumulative Total March-July	
		Man-day		Nber. of Trainee	Man-day		Nber. of Trainee	Man-day		Man-day	
		By Factory	Total		By Factory	Total		By Factory	Total	By Factory	Total
TOTAL	Viet Thang	2,600		73	1,760		82	1,989		6,349	
	Thang Loi	207		7	146		7	156		509	
	Khanh Hoi	130		3	75		3	74		279	
	Phong Phu	112		7	149		7	158		419	
	Dong Nam	103	3,152	5	52	2,182	3	58	2,435	213	7,769
	GRAND TOTAL	3,152		95	2,182		102	2,435		7,769	

No.

No. _____

NUMBER OF TRAINEES

Section	Factory	Accumulative Total March-July Man-day By Factory	Accumulative Total March-July Man-day Total	AUGUST Nber. of Trainee	AUGUST Man-day By Factory	AUGUST Man-day Total	Accumulative Total March-August Man-day By Factory	Accumulative Total March-August Man-day Total
BL	Viet Thang	406		7	189		595	
	Dong Nam	32	438	1	27	216	59	654
CE	Viet Thang	1,194		11	238		1,432	
	Thang Loi	92		1	12		104	
	Khanh Hoi	102		1	15		117	
	Phong Phu	60	1,448	1	24	289	84	1,737
LF	Viet Thang	336		10	260		596	
	Thang Loi	18		1	11		29	
	Khanh Hoi	20		1	11		31	
	Phong Phu	18		1	22		40	
	Dong Nam	21	413	1	25	329	46	742
FF	Viet Thang	749					749	
	Thang Loi	73					73	
	Khanh Hoi	74					74	
	Phong Phu	70					70	
	Dong Nam	78	1,044				78	1,044
RF	Viet Thang	1,157		16	424		1,581	
	Thang Loi	84		1	27		111	
	Khanh Hoi	83		1	27		110	
	Phong Phu	58	1,382	1	25	503	83	1,885
WD	Viet Thang.	247	247	7	185	185	432	432
WP	Viet Thang	134		(8)	8		142	
	Thang Loi	8		(1)	1		9	
	Phong Phu	10	152	(1)	1	10	11	162
SZ	Viet Thang	262		(8)	24		286	
	Thang Loi	22		(1)	3		25	
	Phong Phu	30	314	(1)	3	30	33	344
PW-D	Viet Thang	253		3+(8)	85		338	
	Thang Loi	29		(1)	5		34	
	Phong Phu	60	342	(1)	5	95	65	437
SP	Viet Thang	54		8	144		198	
	Thang Loi	6		1	18		24	
	Phong Phu	12	72	1	18	180	30	252
LM	Viet Thang	1,557		20	489		2,046	
	Thang Loi	177		2	47		224	
	Phong Phu	101		2	52		153	
	Dong Nam	82	1,917	-	-	588	82	2,505
TOTAL	Viet Thang	6,349		82	2,046		8,395	
	Thang Loi	509		6	124		633	
	Khanh Hoi	279		3	53		332	
	Phong Phu	419		6	150		569	
	Dong Nam	213	7,769	2	52	2,425	265	10,194
	GRAND TOTAL	7,769		99	2,425		10,194	

Note.-
Working days
August 1984 27 days
23 weekdays
4 Saturdays

NUMBER OF TRAINEES

Section	Factory	Accumulative Total March-August		September			October			Accumulative Total March-Oct	
		Man-day		Nber. of Trainee	Man-day		Nber. of Trainee	Man-day		Man-day	
		By Factory	Total		By Factory	Total		By Factory	Total	By Factory	Total
BL	Viet Thang	595		7	168		7	189		932	
	Dong Nam	59	654	-	-	168	-	-	189	59	1,011
CE	Viet Thang	1,432		11	250		11	297		1,979	
	Thang Loi	104		-	-		-	-		104	
	Khanh Hoi	117		1	12		-	-		129	
	Phong Phu	84	1,737	1	9	271	-	-	297	93	2,305
DF	Viet Thang	596		8	78		5	67		741	
	Thang Loi	29		-	-		-	-		29	
	Khanh Hoi	31		-	-		-	-		31	
	Phong Phu	40		-	-		-	-		40	
	Dong Nam	46	742	-	-	78	-	-	67	46	887
FF	Viet Thang	745		(8)	78		(5)	68		895	
	Thang Loi	73		-	-		-	-		73	
	Khanh Hoi	74		-	-		-	-		74	
	Phong Phu	70		-	-		-	-		70	
	Dong Nam	78	1,044	-	-	78	-	-	68	78	1,190
RF	Viet Thang	1,581		9	212		9	243		2,036	
	Thang Loi	111		1	23		-	-		134	
	Khanh Hoi	110		1	24		-	-		134	
	Phong Phu	83	1,885	1	22	281	-	-	243	105	2,409
WD	Viet Thang	432	432	7	162	162	7	179	179	773	773
WP	Viet Thang	142		5	30		-	-		172	
	Thang Loi	9		-	-		-	-		9	
	Phong Phu	11	162	-	-	30	-	-	-	11	1'2
SZ	Viet Thang	286		(5)	30		-	-		316	
	Thang Loi	25		-	-		-	-		25	
	Phong Phu	33	344	-	-	30	-	-	-	33	374
PW-D	Viet Thang	338		(5)	30		-	-		368	
	Thang Loi	32		-	-		-	-		34	
	Phong Phu	64	437	-	-	30	-	-	-	65	467
SP	Viet Thang	198		(5)	30		-	-		228	
	Thang Loi	24		-	-		-	-		24	
	Phong Phu	30	252	-	-	30	-	-	-	30	282
LM	Viet Thang	2,046		16	284		11	287		2,617	
	Thang Loi	224		-	-		-	-		224	
	Phong Phu	153		1	5		-	-		158	
	Dong Nam	82	2,505	-	-	289	-	-	287	82	3,081
TOTAL	Viet Thang	8,395		63	1,352		50	1,330		11,077	
	Thang Loi	633		1	23		-	-		656	
	Khanh Hoi	332		2	36		-	-		368	
	Phong Phu	569		3	36		-	-		605	
	Dong Nam	265	10,194	-	-	1,447	-	-	1,330	265	12,971
	GRAND TOTAL		10,194	69		1,447	50		1,330		12,971

Note.-

Working days

September 24 days
19 working days
5 Saturdays

October 27 days
23 working days
4 Saturdays

4-4 TECHNICAL DOCUMENTS HANDED OVER

TECHNICAL DOCUMENTS TO BE FORWARDED

1. INSTRUCTION HANDBOOK FOR HIGH SPEED DRAWFRAME MODEL DY2
2. BARBER-COLMAN AUTOMATIC SPOOLER MANUAL
3. SCHARER L/GB AFT V
4. SCHARER OPERATIONAL INSTRUCTION FOR THE FULLY AUTOMATIC FILLING BOBIN WINDER MODEL GB
5. HOW TO MOUNT METALLIC CARD CLOTHING
7. CARD CLOTHING STANDARD
8. GRINDING IN FLAT CARD
9. BKシリーズ 混打綿取扱説明書
10. CK-7C,7D高速カード取扱説明書 ℓ
11. スイスシェーラー社超高速全自動糸管捲機GB型運転保守説明書
12. CE型カード取扱説明書
13. G1,2,3型豊田自動織機取扱法

15. スイスシェーラー社超高速全自動糸管捲機
16. メタリックワイヤ巻付説明書
17. フラットカードにおける磨針について
18. USTER CUSTOMER INFORMATION SERVICE No.26 "USTER TESTING FOR THE EFFICIENT TEXTILE LABORATORY"
19. 品質管理
20. 織布部門の参考資料
21. 紡績技術教程「混打綿、梳綿工程編」
22. 〃 「精梳綿、練条、粗紡工程編」
23. 〃 「精紡、巻糸仕上工程編」
24. 〃 「織機運転作業編」
25. 織布詳論「織物分解設計」
25. 〃 「準備工程」
27. 〃 「織機工程」
28. 〃 「仕上工程」
29. 保全作業分析
30. JISに基づく技術用語辞典
31. NSK転がり軸受
32. NSK MOUNTED BALL BRG UNITS & PILLOW BLOCKS
33. INTRODUCTION TO TEXTILE TECHNOLOGY

34. 技術者カード教材「保全一般」
35. 〃 「予全」
36. 〃 「防錆一般」
37. 〃 「潤滑」
38. 〃 「品質管理」
39. 〃 「機械製図」
40. 〃 「電気の基礎」
41. 〃 「空調の知識」
42. RIETER SERVICE INSTRUCTIONS FOR THE E7 COMBER
43. RIETER OPERATING INSTRUCTIONS FOR SLIVER LAP MACHINES, MOD. E 2/4
44. 5 VIDEO CASETTES AS TRAINING MATERIAL DEALING WITH FUNDAMENTAL KNOWLEDGE ABOUT ELECTRICITY, ETC.
「電気の初歩」「テスターの使い方」「シーケンスの読み方」「シーケンスの記号と器具 1, 2」

ADDITIONAL ITEMS

1. RIETER operating instructions for combing preparation machines Part 1 sliver lap machine
2. ditto Part 2 ribbon lap machine
3. ditto Part 3 autolap
4. RIETER servicing the sliver lap machine
5. RIETER servicing the ribbon lap machine
6. RIETER service instructions for comber
7. RIETER general lubrication instructions
8. RIETER service and maintenance of comber
9. RIETER lubrication schedule for sliver lap machine
10. ditto for ribbon lap machine
11. ditto for comber
12. RIETER operation instructions of motors
13. RIETER parts list of 3 kinds of motor
14. RIETER lubrication instructions for motor
15. 定期保全基準(紡績1~4部 梳綿以降機械)
16. 定期保全基準(準備機、試機)
17. 機能調査規定(紡績1~4部、ローラー整備)
18. 機能調査要領(準備機、試機)
19. スチールデフェカ調査規定(1~4部 ローラー整備、試機)
20. Function examination table for spinning and weaving machinery 7 copies

TOYOBO

ASSESSMENT OF PARTICIPANTS TO THE STUDY TOUR

Main Section of Study	Full Name	Factory	Grade
Spinning	Tran Van Nho	Viet Thang	A
	Truong Van Na	Thang Loi	A
	Do Van Cuong	Thang Loi	B
	Hoang Xuyen	Dong Nam	B
	Phan Van Tue	Dong Nam	B
	Nguyen Huu Thung	Viet Thang	B
	Ngo Thi Minh Phu	Viet Thang	B
	Bui Nguyen Tien	Viet Thang	A
	Do Thi Chai	Viet Thang	B
	Vu Van Sau	Viet Thang	B
Weaving	Ho Sy Linh	UTE	B
	Nguyen Dang Giao	Viet Thang	A
	Cao Xuan Ngoc	Viet Thang	B
	Hoang Van To	Viet Thang	B
	Phung Xuan Dao	Viet Thang	B
Dyeing & Finishing	Pham Van Hue	Viet Thang	A
	Vu Van Nhuan	Viet Thang	B

Note: The grades were put on participants on the basis of comprehensive assessment as regards their positivism and enthusiasm towards the study.

Toyobo Engineering Co., Ltd. 13 January, 1984

5-2 SCHEDULE OF STUDY TOUR

day	Leader (1 person)	Spinning (7 persons)	Weaving (6
	Interpreter (English)	Interpreter (Japanese)	Interpreter (J
11/24 Thu	Ho Chi Minh to Bangkok		
25 Fri	Stay in Bangkok		
26 Sat	"		
27 Sun	Bangkok (10:30) —— TG740 ——> Tokyo (18:25)		
28 Mon	AM: Greetings to Viet Nam Embassy in Tokyo		,PM:
29 Tue	Tokyo [Ueno (9:00) —— Express Train "Hakusan No.1" ——> Takaok		
30 Wed	Outline of Toyobo Shogawa Factory and Toyobo Shogawa Dyeing Factory, Introdu		
12/ 1 Thu	[to join one of three	Maintenance [Blowing & Carding]	Maintenance [Prep
2 Fri	groups in the right]	" [Drawing to Roving]	" [Prep
3 Sat	Sight-Seeing		
4 Sun	Sight-Seeing		
5 Mon	[to join one of three	Maintenance [Spinning]	Maintenance [Weav
6 Tue	groups in the right]	" [Winding & Roller Shop]	" [Weav
7 Wed	AM: Summary and Discussion		,PM: Visit to Manu
8 Thu	Takaoka [Express Train "Raichoo"] ——> Osaka		
9 Fri	AM: greetings and discussion at Toyobo Engineering Co.		,PM: Visit to Manu
10 Sat	Visit to Manufacturers (shuttle), (Wire heald), and (temple)		
11 Sun	Sight-Seeing in Osaka		
12 Mon	[to join one of two	Osaka (chartered bus) -> Ise	,PM: Outline of To
13 Tue	groups in the right]	Maintenance (Spinning)	Maintenance (Weav
14 Wed	Visit to Manufacturer (rubber cot, rubber apron, rubber strip, pick		
15 Thu	Visit to Toyobo Tomida Factory (Spinning, Sewing Thread, Yarn Dyein		
16 Fri	Visit to Manufacturer (Toyoda Automatic Loom Works: Spinning Machin		
17 Sat	Nagoya —— [bullet Train "Shinkansen"] ——> Tokyo,		
18 Sun	Sight-seeing in Tokyo		
19 Mon	AM: Summary		,PM: Greetings to
20 Tue	Tokyo (12:45) —— JL717 ——> Bangkok (16:55)		
21 Wed	Bangkok		
22 Thu	Bangkok to Ho Chi Minh		

SECTION 1

Shcedule of Study Tour

	Weaving (6 persons) Interpreter (Japanese)	Dyeing & Finishing (3 persons) Interpreter (Japanese)	City of lodging (21 persons)
			Bangkok
			"
			"
18:25)			Tokyo
	,PM:		"
usan No.1" ⟶ Takaoka (15:15)] Takaoka			Takaoka, Toyama-Pref.
Dyeing Factory, Introduction of People concerned			"
	Maintenance [Preparing]	Maintenance [Dyeing & Finishing]	"
	" [Preparing]	"	"
			"
			"
	Maintenance [Weaving]	Maintenance [Dyeing & Finishing]	"
	" [Weaving]	"	"
	,PM: Visit to Manufacturer (plastic products by injection molding)		"
saka			Osaka
	,PM: Visit to Manufacturer (ring, traveller, carding cloth, MCC)		"
ild), and (temple)			"
			"
	,PM: Outline of Toyobo Ise Factory	Visit to Printing Factory	Ise, Mie-Pref./Osaka
	Maintenance (Weaving)	Visit to Machinery Manufacturer, Move	Ise, Mie-Pref.
apron, rubber strip, picker etc.)			Yokkaichi, Mie-Pref.
ewing Thread, Yarn Dyeing)			Nagoya
m Works: Spinning Machines, Looms, etc.)			"
Tokyo,			Tokyo
			"
	,PM: Greetings to Viet Nam Embassy in Tokyo		"
5:55)			Bangkok
			"

SECTION 2