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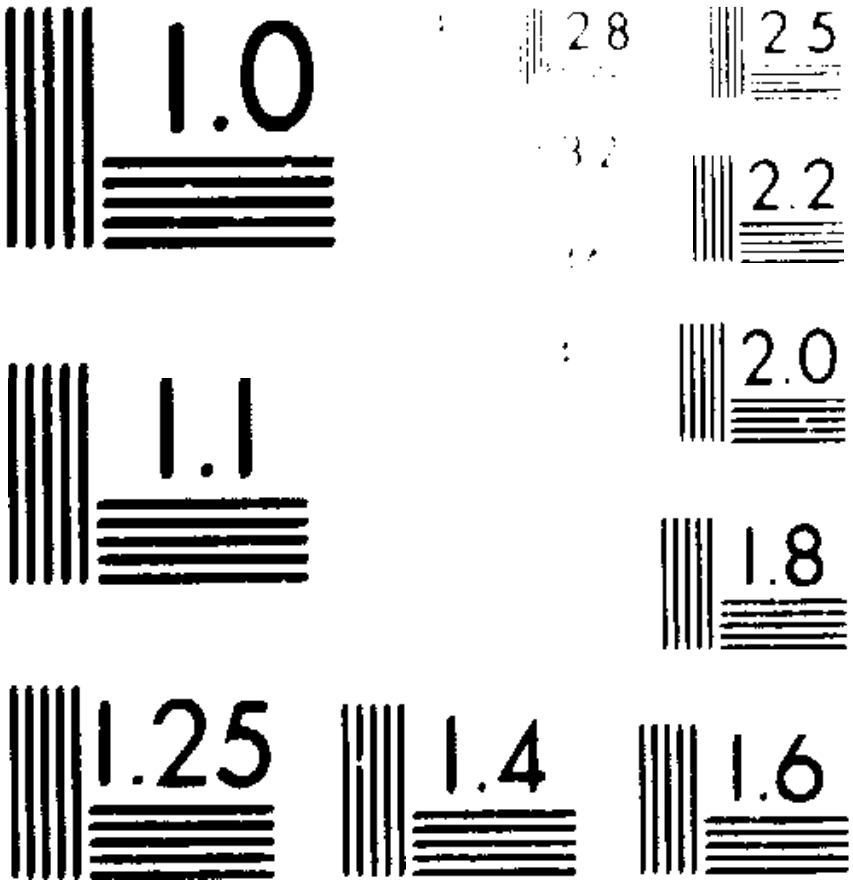
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org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DP/ID/SER.A/297
19 May 1981
English

INTEGRATED WOODWORKING PROJECT

DP/LAO/74/C10

LAO PEOPLE'S DEMOCRATIC REPUBLIC

Technical report: Assistance to the Bois Manufactures Lao (BML) Plant in Vientiane in the installation of equipment and training of personnel*

Prepared for the Government of the Lao People's Democratic Republic
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of A. Sumarokov,
expert in woodworking technology

United Nations Industrial Development Organization
Vienna

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V.81-25648

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Introduction:[1/]

The report covers a period of 13 months, i.e. from December 1979 to December 1980 according to the project budget revisions "K", "L", "M" and "N" to provide to Laos technical assistance in the woodworking industry especially by establishing the state-owned woodworking plant of BML (furniture and joinery) factory equipped with modern equipment. (see Appendices I and II).

The expert was initially appointed to the project as a woodworking adviser and was later on re-assigned as officer-in-charge to co-ordinate all UNIDO activities in the wood processing industries' sector in Laos after the departure of the project co-ordinator.

The main objective of the project was to assist the Lao Government in the erection of the first modern furniture manufacturing plant (B.M.L.) for which the project has contributed the cost of imported building materials as well as the equipment for the factory.

The expert was also responsible for UNIDO preparatory activities for an eventual follow-up project (see Appendices III to XIII) including the preparation of building specifications for the purchase of additional equipment recommended in a feasibility study: dust exhaust system, production equipment and machinery supplies. During this period, a bilingual training manual has been prepared to facilitate the transfer of technology. Training on wood-working machines has also been organized in a temporary training place to prepare machine operators who will eventually work at the new factory in advance. (see Appendices V, VII and XIII)

It is the opinion of the project officer-in-charge that, upon the completion of the new factory, further assistance will be necessary, before Laos can become self-sufficient in technical and managerial skills for the development of its timber industry. It is expected that the new

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1/ Although this report is a technical report it has been submitted after the project terminal report and therefore contains information normally included in project terminal reports to update the report submitted upon the completion of the project co-ordinator's mission to Laos.

project, which will either be financed by UNDP/UNIDO or from bilateral sources be followed-up immediately beyond the completion of the project LAO/74/010 in order to provide necessary inputs for the operation of the plant.

PART I:

Background of the project:

UNDP and UNIDO have been assisting Laos in the wood industries' sector with expertise, on the job and overseas training and equipment since 1973. Also under the project many modern woodworking machinery as well as production and maintenance equipment have been provided to Laos in order to develop the industrialization of the secondary wood processing (furniture and joinery products) industries' sector.

In spite of its large forest resources (60 percent of the total country area consists of forest), Laos lacks modern mechanized facilities for the production of furniture and joinery products. Timber is the only source of foreign currency for the country and the Government has assigned high priority to the development of the woodworking industry. However, the existing secondary processing sector is so limited in facilities, trained manpower and efficiency that most of the timber export revenue is derived from logs and sawn timber.

Laos is one of the few remaining countries in Asia which still have forest covered with valuable wood species. Based upon prior forest inventories the volume of standing timber in the country's forests is evaluated at approximately 1.6 billion cubic metres. One can find large forest areas in following provinces: Khammouane 19,600 km^2, Savannakhet 16,800 km^2, Vientiane 13,700 km^2, Champasak 12,900 km^2, Sayaboury 13,400 km^2, Houaphan 10,700 km^2, Saravan 10,100 km^2, the remaining provinces have less than 10,000 km^2 each.

Timber resources are of special significance in today's world-wide shortage of raw materials in that timber is the only known material that replenishes itself and can even increase in volume. Under these circumstances, seeing that timber is considered to be the second largest exportable commodity and represents the real wealth of the country, the Lao Government is anxious to improve the export potential of the woodworking industry and in particular of the furniture sector by modernizing the sawmilling and the secondary wood processing industries.

In this respect the existing furniture workshop of B.M.L. (a state-owned furniture plant under the woodworking State Enterprise No. 3) will be converted into a medium size pilot woodworking plant which will be the first plant equipped with modern woodworking equipment for the series production of furniture and joinery products, including housing components. UNDP/UNIDO has provided assistance for the erection of this pilot furniture plant whose input includes:

1. financing of imported building materials;
2. the provision of comprehensive management/technical expertise;
3. the introduction of the first set of advanced furniture making equipment in the country.

PART II

Objectives of the project (during 1980):

The development objectives of the project during 1980 were to:

1. Erect a platform for the country - wide development of the secondary wood processing industry whereby improving the standard of quality and productivity of the industrial transformation of wood in the country.

2. Introduce more advanced production and maintenance equipment which is essential for the modernization of the secondary woodworking industry and the training of technicians in the use and maintenance of this equipment.

3. Provide technical assistance and proper supervision for the construction of the new factory for which the project has contributed the cost of imported building materials and equipment.

4. Prepare a proposal for an eventual follow-up project: specification of additional production equipment; training in operation, maintenance and safety; installation of equipment at the new factory.

5. Complete publication of bilingual training manual already prepared in 1979.

6. Installation and testing of eighteen machines provided by UNDP UNIDO.

PART III

Assessment of the work done by the project:

During the period of his assignment the expert had the opportunity to visit and assist in form of trouble shooting to some woodworking workshops and sawmills in the vicinity of Vientiane. Most of the problems encountered were mainly due to: inadequate supervisory control, lack of skilled labour and technicians, inadequate machinery (either technically outdated or worn out), lack of spare parts and proper maintenance programmes, no safety or accident preventive programmes, etc... In this respect, unfortunately, the expert could only give some technical advice because his main task was to assist in the erection and operation of the B.M.L. state-owned furniture and joinery plant to which UNDP/UNIDO has provided the cost of imported building materials and equipment as well as preparatory activities for an eventual follow-up project.

The purpose of the current project, in its last year was to assist the Lao Government in the introduction of modern production and tool maintenance methods in view of improving the export potential of the furniture section of the woodworking industry.

In this respect, the construction of a new factory finally began under the UNDP/UNIDO financing in September 1979. Beside the construction activities which were under the supervision of building consultant, the expert who was assigned as officer-in-charge was mainly involved in the preparation of bidding specifications for purchase of additional equipment such as production machinery, machinery supplies and a dust exhaust system. In the meantime, training on woodworking machinery had been organized on temporary basis pending the completion of the new building. Eight machines were selected from the eighteen already delivered through the project, to be temporarily installed at the old B.M.L. factory for training of six machine operators and two counterparts from the technical school and State Enterprise Forest No. 3. (see Appendices IV, VI and XIII).

By a Government decision in June 1980, all activities related to the B.M.L. secondary wood processing plant previously supervised by the Ministry of Agriculture Forests and Irrigation have been transferred once again to the Ministry of Industry and Commerce. The transfer entered in effect in July 1980.

The Ministry of Industry and Commerce requested that a follow-up project should be implemented immediately under UNDP/UNIDO financing in order to complete the factory building and provide necessary funds, technical and managerial assistance for the operation of the new factory.

The construction work achieved so far during the project's life was evaluated to be ninety percent. The delay in the scheduled construction work plan was mainly due to the difficulty on the part of the local suppliers in importing raw materials, and this delay was partly due to the changes in the factory's layout made by the Government and the former project co-ordinator.

In this respect, the current project has had to be revised in order to extend its duration and provide necessary funds for additional imported building materials, from end June to end December 1980. (Appendix XII).

The UNIDO established sawdoctoring centre at the Vientiane Technical School has continued to provide sawblade maintenance service to the sawmills in Vientiane area with satisfactory results. Although the sawdoctoring expert had left the country in October 1978, the sawdoctoring activities have been maintained with a high productivity during this period. One counterpart and two former trainees were operating the centre as a saw servicing unit.

SIDA, The Swedish International Development Agency, has provided four sets of sawdoctoring equipment to the Government, one of which has been installed at the State Forest Enterprise No. 3 Sawmill. In this connection the expert has provided technical assistance for the installation and selection of the proper equipment. (see Appendix VIII). The three other sets will be installed in the provinces.

During this period one bilingual training manual on woodworking has been completed and published by the project. Most of the bilingual training manuals published so far by the project beside being used as reference handbooks in the country have been used by the expert counterparts in the regular curriculum of technical schools in the whole country (Appendices IX and XIII).[1/]

In accordance with the Government request, the project was extended so as to enable the completion of the construction work and also the delivery of remaining imported building materials which had not been delivered due to the closure of the border with Thailand.

Eighteen machines delivered by the project have been installed in the new factory waiting for the electrical connection to the main power to be tested. This was delayed due to the closure of the border (Appendix XI). At the same time, operating manuals on woodworking machines were prepared by the expert and distributed to counterparts and trainees (Appendix XIII).

The equipment provided by UNDP under project number DP/LAO/74/010 was handed over to the Government. For inventory see appendix XIV.

On the request of the Government (Ministry of Industry) the expert has selected the additional production machinery necessary for the new B.M.L. factory (Appendix IV) which will cost approximately US$ 280,000. The Ministry of Industry has prepared and proposed a two year follow-up project to UNDP costing a further US$ 860,000. Pending its approval the expert was extended for a further two months.

The expert has pointed out that without the dust exhaust system the working conditions inside the factory would be very bad for the health of the workers (see Appendix X).

Pending the provision of the necessary funds for the completion of the factory the work of the UNDP/UNIDC Integrated Woodworking Project was terminated end December 1980.

1/ Appendix IX shows front pages only since the manual has been reproduced separately by the Government.

PART IV

Conclusions and recommendations:

If Laos expects its timber products to penetrate world markets, it must first be satisfied that the industry is capable of producing materials of a quality and design accepted on such markets. It is therefore recommended that Government gives top priority towards taking the appropriate action with regard to the development of the secondary wood processing industry.

It is recommended that upon the completion of the factory building a follow-up project should be immediately implemented either financed by UNDP/UNIDO or a bilateral source to ensure efficiency and continuity in the transfer of technology.

The follow-up project is aimed to assist the Lao Government in the operation of the first modern furniture plant in the country.

Appendix I

NATIONS UNIES

ORGANISATION DES NATIONS UNIES POUR LE DEVELOPPEMENT INDUSTRIEL

ONUDI

PROJET DE LA REPUBLIQUE DEMOCRATIQUE POPULAIRE DU LAOS

DESCRIPTION DE POSTE

DP/LAO/74/010/11-04/31.7.A.

Désignation du poste	Expert en technologie du travail du bois.
Durée de la mission	Six mois.
Date d'entrée en fonctions	Dès que possible.
Lieu d'affectation	Vientiane avec déplacements dans le pays.
But du projet:	Aider à introduire des méthodes modernes de production et entretien des outils afin d'améliorer le potentiel d'exportation de l'industrie du travail du bois, en particulier dans le secteur de l'ameublement.
Attributions:	L'expert qui travaillera sous la direction immédiate du coordonnateur du projet en étroite collaboration avec les autres membres du groupe et tout particulièrement avec l'expert en conception esthétique de produits finis et objects en bois, devra s'acquitter des tâches suivantes:

1. Favoriser le développement de méthodes de traitement du bois, y compris l'adoption d'outils appropriés pour la fabrication d'articles d'exportation et de meubles fonctionnels.
2. Introduire un système de travail qui satisfasse les normes de sécurité industrielle.
3. Veiller á l'application de méthodes élémentaires de gestion d'un atelier.
4. Donner des cours de formation aux homologues, agents de maîtrise de l'industrie et des instructeurs des écoles techniques.

Toutes candidatures ou communications relatives à cette description de poste devront être adressées à:

Section du recrutement du personnel affecté aux projets, Division des opérations industrielles
ONUDI, B.P. 707, A-1010 Vienne (Autriche)

5. Préparer des manuels pour l'enseignement de la technologie du travail du bois et la sécurité industrielle, matériel de référence qui sera mis en permanence à la disposition de l'industrie et des organismes techniques.

6. Exécuter tout autre travail selon les besoins, en vue d'élever le niveau de la qualité et de la productivité des petites industries travaillant le bois.

L'expert devra également établir un rapport final exposant les conclusions de sa mission et ses recommendations au Gouvernement quant aux mesures que celui-ci pourrait éventuellement adopter.

Formation et expérience requises: Ingénieur ou technologue du bois ayant plusieures années d'expérience dans la production au niveau de l'usine et de la fabrication de meubles. Une expérience dans l'étude de travail à la tâche serait un avantage.

Connaissances linguistiques: Français ou Anglais.

Renseignements complémentaires: La forêt couvre 60 pour cent du Laos et comprend de grandes étendues d'espèces de bois recherché (tel par exemple le bois de rose) convenant parfaitement à la fabrication de produits finis du bois de haute qualité. Toutefois la transformation des grûmes est effectuée avec des méthodes et un équipement archaïque conduisant à une utilisation non-économique du bois coupé, que ce soit au niveau primaire ou secondaire de la transformation. Faisant suite à deux années de services d'un expert de l'ONUDI dans la production de meubles et la conception d'articles en bois qui ont contribué à commencer l'exportation de meubles, le gouvernement a demandé au Programme des Nations Unies pour le Développement d'étendre son assistance technique à l'industrie du travail du bois en raison du rôle croissant de ce secteur dans l'économie du pays en particulier pour le développement de l'emploi et l'obtention de devises étrangères. Le projet qui incorpore également celui approuvé de scieries/industrie de contreplaqués, durera trois ans, requèrera des services d'experts et consultants pour un total de 176 1/2 mois/homme avec une contribution du PNUD s'élevant à 300,500 dollars E.U. Le projet fonctionnera d'après un système intégré apportant une assistance technique dans les domaines suivants de l'industrie du bois: transformation de grumes de bois d'oeuvre scié (traitement et entretien des scies à débiter); conception et fabrication

de produits finis en bois (en particulier des meubles);
normalisation des bâtiments publics.

LES CANDIDATURES DEVRONT ETRE SOUMISES
AU PLUS TARD LE 5 NOVEMBRE 1976

Appendix II

W O R K P L A N

	Activity	Action		December				January				February				March				April				May			
		Exp	BML	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
1	Briefing on UNIDO project acitivites																										
2	Briefing at UNDP																										
3	Briefing at Forest Department and State Enterprise No. 3																										
4	Visit of main woodworking facilities in Vientiane																										
5	Inventory of project equipment																										
6	Selection and installation layout of project equipment to be temporarily installed for training purposes																										
7	Temporary installation of equipment																										
	- Universal grinder																										
	- Knife grinder																										
	- Cup grinder																										
	- Bench grinder																										
	- Multiple rip saw																										
	- Automatic lathe																										
	- Dovetailing machine																										
	- Tapping screwing M/c																										
8	Training																										
	- Basic working characteristics of equipment																										
	- Operation of equipment																										
	- Maintenance of equipment																										
	- Industrial safety																										
9.	Follow-up on printing of training manual compiled in 1979																										
10	Final report and de-briefing at UNDP																										
11	Travel and de-briefing at UNIDO																										

Appendix III

UNITED NATIONS DEVELOPMENT PROGRAMME

Project of the Government of the Lao People's Democratic Republic

PROJECT DOCUMENT

Title:	Establishment of a pilot furniture factory.
Duration:	2.5 years
Project Number:	DP/LAO/79/002
Primary Function:	To assist the Government of the Lao People's Democratic Republic in organizing the wooden furniture industry to become competitive in techniques, design and quality.
Sector: (Government class):	UNDP class:
Government Executign agency:	Ministry of Industry and Commerce
United Nations Executing Agency:	United Nations Industrial Development Organization
Estimated Starting Date:	June 1981
Government inputs:	UNDP inputs: US$ 1,179,050.-

Approved:

On behalf of the Government _____ Date _____

On behalf of the UNDP _____ Date _____

On behalf of the Executing Agency _____ Date _____

PART I - LEGAL CONTEXT:

The project document shall be the instrument (therein referred to as a plan of operation) envisaged in Article I, paragraph 2, of the Agreement between the Government of the Lao People's Democratic Republic and the United Nations Development Programme (UNDP_ concerning assistance under the Special Fund Sector of the United Nations Development Programme signed by the parties on _____ .

PART II - THE PROJECT:

A. Development and immediate objective:

The development objective of the project is to erect a platform for the country-wide development of the secondary wood processing industry in terms of modern concepts of technology and industrial management as applicable to local conditions. In fact, beside aiming at appropriate commercial returns the project's aim is also to provide training and experience under actual production conditions to employees of the plant being assisted and personnel from other woodworking plants in Laos.

By adopting new production processes and production and management techniques the project will make it easier for personnel for other plants to learn and achieve the same results. In particular, the project is expected to produce the first generation of extension officers for the furniture industry. The long-term economic end-result aimed at is to maximize, through an appropriate degree of productivity and profitability, the potential of the forest resources in terms of foreign currency earning.

The proposed development strategy is to assure efficient operation, with the assistance of UNDP/UNIDO, of a pilot furniture factory within the framework of the woodworking and rattan enterprise (new B.M.L. factory) of the Ministry of Industry and Commerce of the Lao People's Democratic Republic, with the task of assisting the wooden furniture industry to become competitive in techniques, design and quality. This model factory could subsequently be expanded into a furniture development centre which would serve as a basis for development of the furniture industry and the dissemination

of know-how in technology, design and marketing. Its main objective would be to improve design, productivity and quality of secondary wood products, resulting in additional employment for the country through the development of an export oriented secondary wood processing industry.

The main tasks of the project would be to assist the industry in:

1. the adoption of furniture designs suitable for the local and export markets;
2. the improvement of product engineering (choice of construction and materials);
3. the improvement of process engineering (choice and development of processes, equipment and tools, and organization of production);
4. the improvement of quality (quality standards, performance testing, quality inspection during process, quality label);
5. improvement in marketing.
6. applied research work for the selection and testing of furniture materials (wood, glues, finishes) and furniture structures;
7. development of standard furniture for local and export markets and undertaking of related product and process engineering studies (including packaging);
8. actual production of pilot batches of furniture;
9. training of management and production personnel under actual production conditions and through short courses;
10. systematic dissemination of information to the industry in Lao language;
11. production of reference and training manuals in Lao language;
12. training of management and production personnel under actual production conditions;
13. erect a platform for the country-wide development of the secondary wood processing industry in terms of modern concepts of technology and industrial management as applicable to local conditions;

14. assistance to the existing woodworking industry on an ad hoc basis.

The main features of the programme would be for the project to combine development, production and training activities and undertake actual batch production of selected furniture items so as to provide the industry with effective guidance on product and process engineering.

C. Special considerations:

Laos is a least developed, land-locked country, and as such should benefit from all the measures foreseen for this category of countries in the various General Assembly resolutions.

D. Background and justification:

Laos is one of the few remaining countries in Asia which still have forests covered with more than sixty different valuable wood species. Based on prior statistics, the volume of timber from forests in the whole country is evaluated at approximately 1.6 billion cubic metres. Under these circumstances, timber is considered to be the largest exportable commodity and thus the real wealth of the country. Furthermore, it is a renewable resource. Because of its land-locked position, as much value as possible should be added to exports of wood and forest products to cover high transport costs (and transit taxes levied by its neighbours).

Whereas it is relatively simple to export wood in the rough (logs) or semi-manufactured wooden products (sawn wood), the export of manufactured wooden products (furniture, joinery, etc...) calls for sound and aesthetically pleasing designs, high quality and competitive pricing, which can only be brought about by modern efficient industrial production. The objective of the project is to introduce, in a pilot plant, these products and production methods. This plant could then serve as a training centre not only for the personnel of the plant receiving assistance, but also for those of all other secondary wood processing plants to be established in the country to enable them introduce from the start sound products and industrial production methods, thus not only creating employment, but also earning foreign currency In the past few years most of the small furniture workshops previously in operation have gradually closed down and, as a side effect, most entre-

preneurs and technicians have left the country. Today the furniture industry in Laos is practically represented by one single medium size mechanized factory "Lao Wood Industry", set up by foreign investors and geared for export of only US$ 60,000 (per month) of one type of furniture (coffee tables) to Japan.

Under such circumstances the Lao Government is anxious to establish additional furniture production facilities to promote the export of finished wooden products. As timber is presently the only source of foreign currency for the country, the Government of Laos has asisgned high priority to the development of woodworking industry. However, the existing secondary wood processing sector is so limited in facilities and trained production and management manpower that most of the timber export revenue is derived from logs and sawn timber.

On these grounds, development of the furniture industry has an important role to play in the economic and social development of the country, especially in terms of employment opportunities and utilization of forests.

Assistance has therefore been requested from UNDP/UNIDO to provide foreign expertise and additional demonstration equipment to an existing state-owned furniture plant that would act as focal point for the development of the furniture industry by increasing efficienty in quality and quantity of production, as well as introducing better designs.

E. Outputs

The annual output in terms of product is expected to be reached at a 90 per cent capacity utilization of the plant. The 90 per cent capacity utilization is estimated to be reached in the fifth year of operation of the plant. Estimated output of the first and second year would be respectively 15 and 25 per cent.

In addition to the output of the finished products indicated above, the plant would be able to utilize the balance of the available capacity on selected machines, for example, the balance capacity of the four-side moulder could be utilized for the production of simple products (such as mouldings) for export, or simpler finished products for the local market.

The following factory personnel is expected to be trained in the implementation of the B.M.L. project:

- locally trained middle management personnel: 25
- management personnel to be trained abroad: 6
- technical personnel to be trained abroad: 4
- locally trained production personnel: 240

Moreover principal outputs of the project will be:

1. The preparation of a detailed survey of existing furniture factories under the responsibility of the woodworking and rattan enterprise of the Ministry of Industry and Commerce of the Lao Peopie's Democratic Republic and identification of the state of their equipment and training needs.

2. The introduction of industrial production methods in the B.M.L. furniture factory which will subsequently be used as "model factory" for in-plant training of personnel from other woodworking plants.

3. The development of designs for low cost furniture, suitable for the local market and higher quality products for export adapted for industrial production, including also the correct use of wood based panels in furniture.

4. The design of new products - or modification of existing furniture designs for shipment in knock-down form.

5. The strengthening of the centre for the maintenance of woodworking tools and machines presently at the Vientiane Technical School and training of personnel in the above skills in Laos.

6. The exposure of Laotian managers, furniture designers and woodworking technicians to modern conditions in furniture plants in more developed countries through three study tours (for two persons each).

7. The establishment of a nucleus of a documentation centre to cater for the furniture industry.

8. Technical manuals in Lao in the above fields.

F. Inputs:

The pilot furniture factory is to be located at the B.M.L. plant which has received assistance under the UNDP/UNIDO Integrated Woodworking Project (LAO/74/010).

This follow-up UNDP/UNIDO project can become operational, because the new factory is completed. It will provide:

1. Additional production and auxiliary equipment (for list see Appendix IV to woodworking technology expert's report).

2. Complete team of foreign experts and factory floor technicians, who will assist in establishing and operating the new plant for an initial period of 2,5 years (which may have to be further extended depending on the needs).

The dry kiln facilities required for the operation of the furniture product have already been financed by the Swedish International Development Agency (SIDA).

A. Government inputs:

The Lao Government inputs in the project will include:

1. Land of approximately 20,000 m^2 ($ 25,000, K 250,000);

2. Operating costs:

a) all raw materials - 250 m^3 sawn timber and corresponding amounts of auxiliary materials ($ 50,000 per month)

b) cost of power, etc.

c) Wages for factory personnel - 120 persons ($ 11,000 per month)

Moreover the Lao Government will contribute to the project in the following way:

Counterparts:

a) General manager - counterpart to project co-ordinator.

b) Financial accountant - counterpart to industrial accountant and product control expert.

c) Foremen of various departments - counterpart to woodworking technicians.

d) Designer and draughtsman - counterpart to furniture design expert.

e) Technicians counterparts to consultants in fields to be determined later.

f) Counterpart administrative personnel (two English speaking secretaries and two drivers) for the international experts and consultants.

g) Premises, furniture and office supplies and equipment.

h) Fuel costs for the project vehicles.

B. UNDP/UNIDO Inputs:

Experts and consultants:

The internationally recruited experts and consultants will cover the following fields:

11-01	Woodworking adviser (2, 3, 6, 8, 9, 10, 11, 12, 13, 14) 1/ (Project co-ordinator)	30 m/m
11-02	Industrial cost accountant (2, 4, 8, 9, 10, 11, 12, 13, 14) (Expert in production control for furniture plants)	13 m/m
11-03	Woodworking technician (2, 3, 4, 8, 9, 10, 11, 12, 13, 14)	28 m/m
11-04	Furniture design expert (1, 2, 6, 7, 9, 10, 11, 12, 13, 14)	18 m/m
11-05	Marketing consultant (1, 5, 7)	9 m/m
11-06	Consultants (3, 4, 6, 9, 10, 11, 12, 14) (in fields to be determined later)	12 m/m
11-99	Component total	115 m/m

1/ Numbers refer to development and immediate objectives, page 14.

Study tours:

One study tour of three weeks, to countries whose furniture industries are developed and one study tour or two weeks to woodworking machinery and furniture exhibitions each for three participants plus an accompanying expert.

Equipment:

1. A sum of US$ 285,000 - production and additional equipment for B.M.L. Factory (for details see Appendix IV).
2. A sum of US$ 20,000 - transportation equipment (2 mini buses).
3. Imported building material US$ 10,000.
4. Additional equipment, spares and contingency US$ 34,500.

UNIDO

PROJECT BUDGET/REVISION

3. COUNTRY	4. PROJECT NUMBER AND AMEND.	5. SPECIFIC ACTIVITY
LAO People's Democratic Republic	LAO/ 8x/xxx	31.7.A.

10. PROJECT TITLE
Establishment of a pilot furniture factory.

15 / 10 / 11 PROJECT PERSONNEL EXPERTS / Post title	16. TOTAL		17. 1981		18. 1982		19. 1983		20.	
	m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
11-01 Woodworking adviser/co-ordinator	30	185,500	7	40,600	12	75,600	11	69,300		
02 Industr. Cost Accountant	18	110,900	5	29,000	6	37,800	7	44,100		
03 Woddworking technician	28	173,900	5	29,000	12	75,600	11	69,300		
04 Furniture design expert	18	110,900	5	29,000	6	37,800	7	44,100		
05 Marketing consultant	9	55,200	3	29,000	3	18,900	3	18,900		
06 Consultants (to be determined later)	12	73,600	4	23,200	4	25,200	4	25,200		
07										
08										
09										
10										
11										
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13										
14										
11-99 SUBTOTAL:	115	710,000	29	168,200	43	270,900	43	270,900		

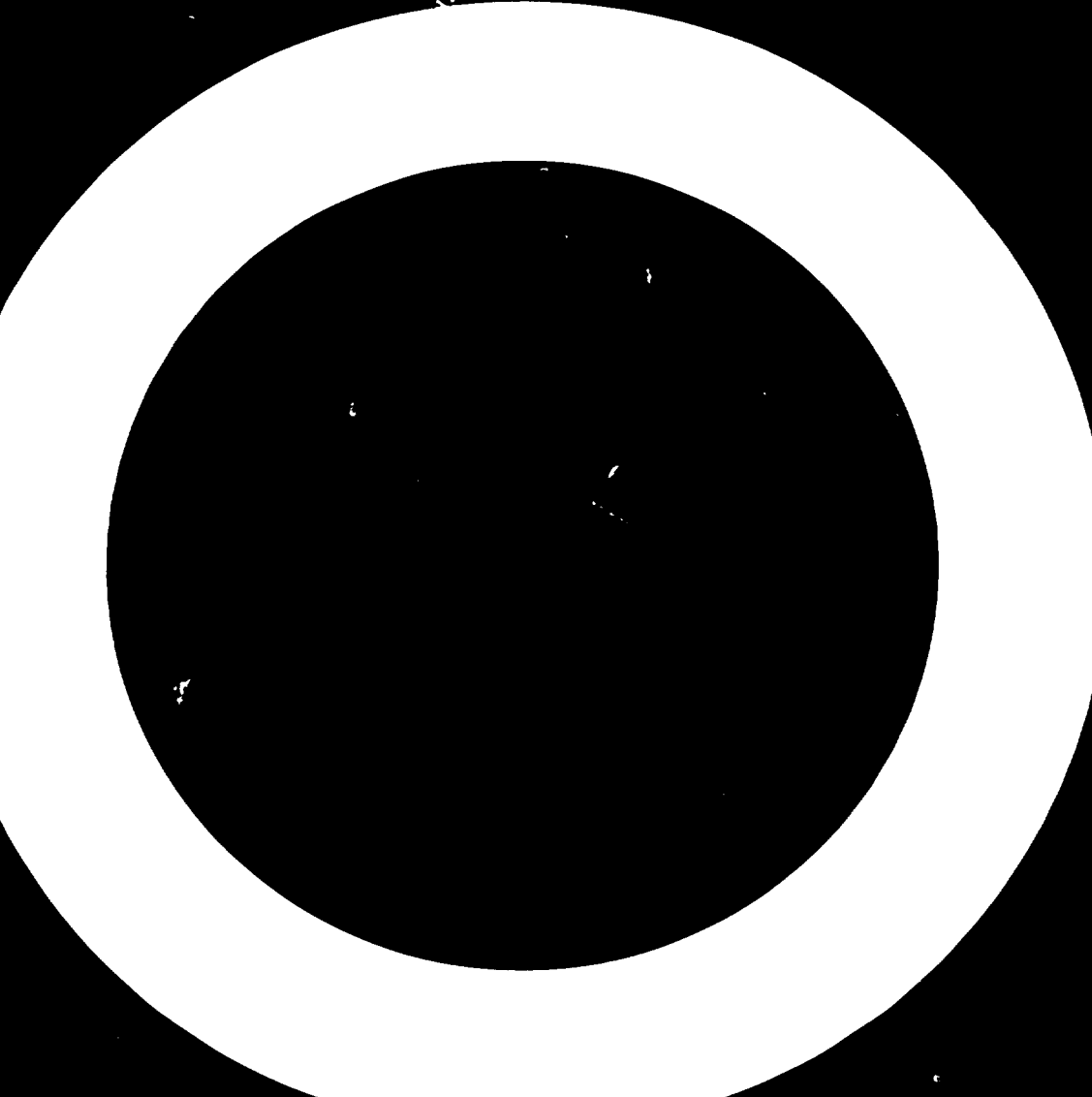
21 REMARKS

UNIDO

4. PROJECT NUMBER LAO/79/002		16. TOTAL		17. 1981		18. 1982		19. 1983		20.	
		m/m	$	m/m	$	m/m	$	m/m	$	m/m	$
12.01	OPAS Experts										
13.00	Support Personnel		34,800		8,120		13,920		12,760		
14.00	Volunteers										
15.00	Experts Travel		14,400		3,360		5,760		5,280		
16.00	Other Personnel Costs		1,500		350		600		550		
17.01	Locally hired Experts										
17.02	Locally hired Experts										
19.00	Total Personnel Component	115	760,700	29	180,030	43	291,180	43	289,490		
20.	SUBCONTRACTS										
29.00	Total Subcontracts Component										
30.	TRAINING										
31.00	Fellowships										
32.00	Study Tours, UNDP G. Training/Meetings		33,750		7,875		13,500		12,375		
33.00	In-service Training		13,500		3,150		5,400		4,950		
34.00	Group Training (non-UNDP)										
35.00	Meetings/Consultations (non-UNDP)										
39.00	Total Training Component		47,250		11,025		18,900		17,325		
40.	EQUIPMENT										
49.00	Total Equipment Component		349,500		315,000		18,000		16,500		
50.	MISCELLANEOUS										
51.00	Operations — Maintenance		12,000		2,800		4,800		4,400		
52.00	Reports		4,500		1,050		1,800		1,650		
53.00	Sundries		6,000		1,400		2,400		2,200		
55.00	Hospitality (non-UNDP)										
59.00	Total Miscellaneous Component		22,500		5,250		9,000		8,250		
99.	GRAND TOTAL:	115	1,179,950	29	511,305	43	337,080	43	331,565		

PROPOSED EXPERTS ASSIGNMENT PERIOD

Post No.		m/m	1981							1982												1983										
			6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
11-01	Woodworking Adviser Project Co-ordinator	30	←																													→
11-02	Industrial Cost Accountant Production Control	18			←																	→										
11-03	Woodworking Technician	28			←																											→
11-04	Marketing consultant	9					←		→										←		→						←		→			
11-05	Furniture Design	18									←																		→			
11-06	Consultants (fields to be determined later)	12					←		→		←		→		←		→		←		→		←		→		←		→			



TENTATIVE WORK PLAN OF PROJECT - ESTABLISHMENT OF A PILOT FURNITURE FACTORY

No. Relates to objectives		1981							1982											1983										
		6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
13	Recruitment of local project staff.																														
13	Establishment of organizational and administrative structure.																														
3, 4, 6	Specification and requisitions of equipment and supplies to be provided by the project.																														
13	Establishment of operative procedures.																														
3, 4, 6	Delivery of equipment and supplies (purchased by UNIDO Headquarters) and their installation.																														
9	Organization of training facilities for wood working and sawdoctoring.																														
9	Preparation of training schedules.																														
9	Preparation of training programmes.																														
11	Preparation of training manuals in English.																														
11	Preparation of training manuals in Laotian																														
Marketing (Post 11-05)																															
5	Market survey for export markets including contacts for possible establishment of joint ventures in Europe.																														
5	Market survey for export markets including contacts for possible establishment of joint ventures in Japan and/or Northern Australia.																														
Study Tours (Post 11-01, 11-03)																															
3, 4, 6, 9, 10	Periodical study tours (wood working machinery exhibitions, furniture and furniture supplies exhibitions and some factories.																														
Wood Machining, Sawdoctoring and Tool Maintenance																															
3, 8, 9, 10, 11, 12, 14	Training, Training manual and Assistance to the BML factory. Standardization of saw blades.																														
Product Design and Testing and Quality Control (Post 11-04)																															
1,2,4,6,7,8,9,10, 11	Furniture designs: two bedroom, two dining rooms, two reception rooms and two cabinets.																														
12,14,	Production and testing of prototypes.																														
	Preparation and printing album of furniture designs.																														
	Selection of testing methods for furniture assemblies.																														
Cost Accounting and Production Control (Post 11-02)																															
	Training, Training manuals in English and Laotian, Assistance to the BML factory.																														
1,2,4,6,7,8,9,10, 11	Selection of testing equipment.																														
	Use of measuring instruments in the manufacture of furniture components.																														

3, 4, 6, 9, 10	Periodical study tours (wood working machinery exhibitions, furniture and furniture supplies exhibitions and some factories.

Wood Machining, Sawdoctoring and Tool Maintenance

3, 8, 9, 10, 11, 12, 14	Training, Training manual and Assistance to the BML factory. Standardization of saw blades.

Product Design and Testing and Quality Control (Post 11-04)

1,2,4,6,7,8,9,10, 11	Furniture designs: two bedroom, two dining rooms, two reception rooms and two cabinets.
12,14.	Production and testing of prototypes.
	Preparation and printing album of furniture designs.
	Selection of testing methods for furniture assemblies.

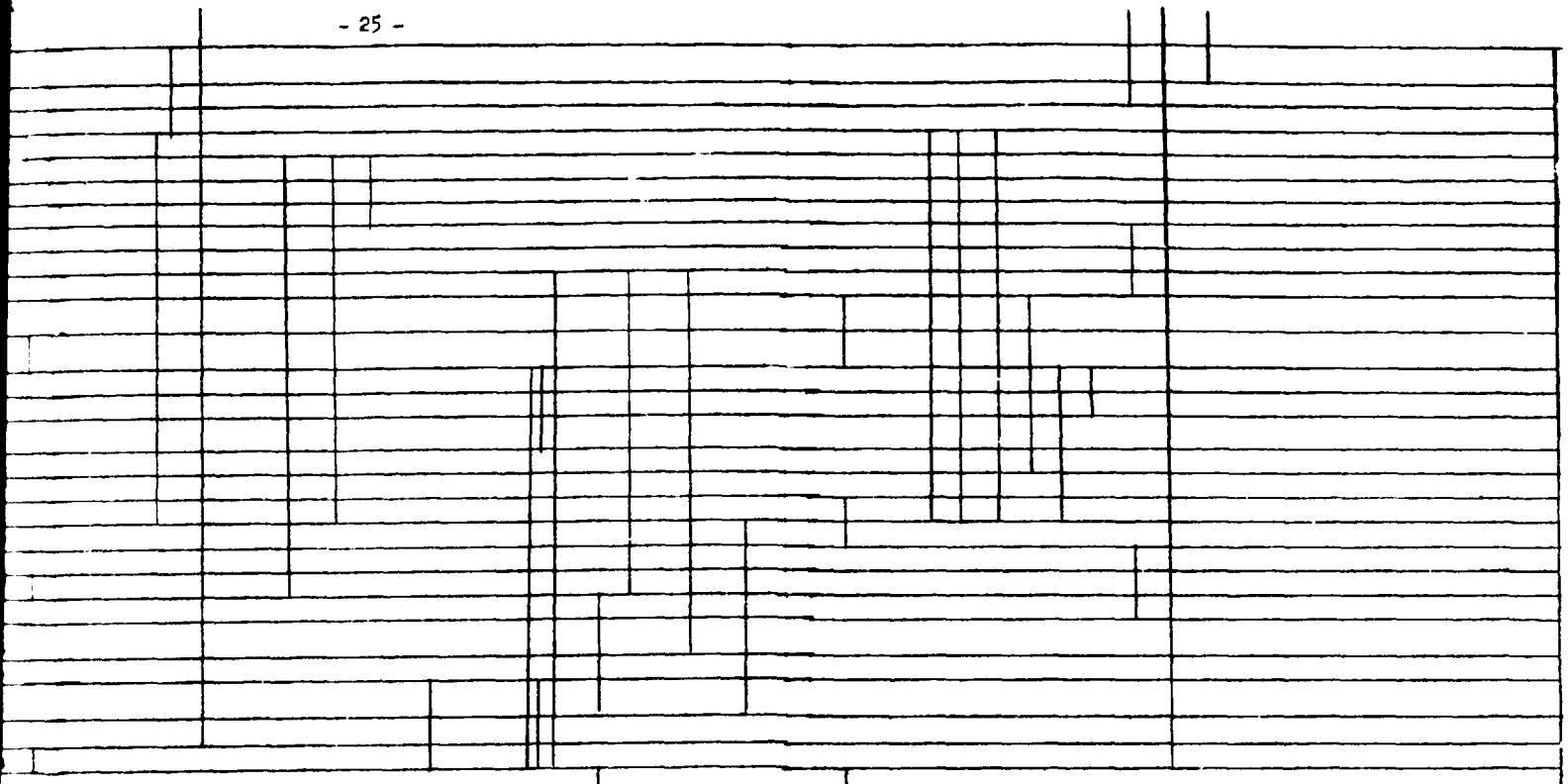
Cost Accounting and Production Control (Post 11-02)

	Training, Training manuals in English and Laotian, Assistance to the BML factory.
1,2,4,6,7,8,9,10, 11	Selection of testing equipment.
	Use of measuring instruments in the manufacture of furniture components.
12, 14	Testing of furniture under simulated control heating conditions of export market countries.

Installation and Testing Equipment (Post 11-03)

Other Activities (Posts 11-01, 11-02, 11-03, and 11-04)

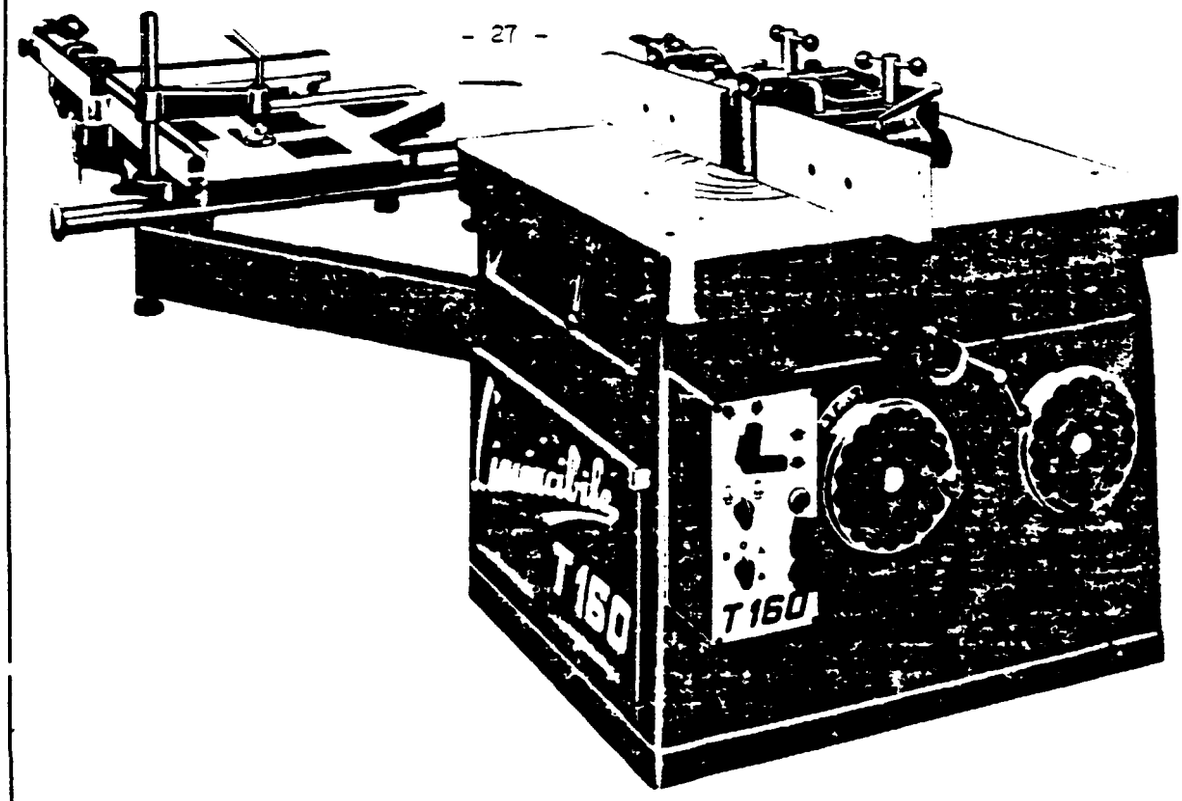
1, 7, 10, 11, 14	Country-wide survey of handicraft techniques to be utilized in the design of furniture for export.
2, 9, 10, 11, 12	Training in product engineering.
3, 9, 10, 11, 14	Training in machine operations and selection.
3, 9, 10, 11, 12	Training in tool and cutter grinding.
3, 10, 11, 14	Standardization of machines and tools.
6, 10, 11, 14	Machinability studies of furniture timber.
1, 10, 11	Standardization of hardware.
1, 2, 7, 8, 12	Prototypes and pilot batch production.
9, 10, 12, 13, 14	Trouble shooting services to industry.
————	Final report and winding-up of project.



Appendix IV

Selection of additional production machinery for BML factory

Ref. No. plan layout	Descriptions	Quantity	Unit Price C + F Vientiane (Dec. 1979) US$	Amount US$	Remarks
15 - 16	- Spindle Moulder	2	6,750	13,500	
17 - 18	- Router	2	7,975	15,950	
19	- Multiple Borer	1	5,000	5,000	
20 - 21	- Drill Press	2	2,500	5,000	
22	- Jointer	1	4,250	4,250	
23	- Thicknesser	1	6,875	6,875	
24	- Radial Saw	1	4,375	4,375	
25	- Cross cut saw	2	4,500	9,000	
26 - 27	- Band saw	2	3,750	7,500	
28	- Round Tenoner	1	6,100	6,100	
29	- Slot mortiser	1	3,050	3,050	
30 - 31	- Stroke - sander	2	3,000	6,000	
32	- Wide belt sanding m/c	1	55,000	55,000	
33	- Edge Belt sander	1	5,000	5,000	
34	- Circular Saw	1	3,900	3,900	
35	- Air Compressor	1	10,000	10,000	
36	- Dust Exhaust	1	75,000	75,000	
	Total	23		235,500	
	20 % Contingency			47,100	
	GRAND TOTAL			282,600	



T 160 specifications

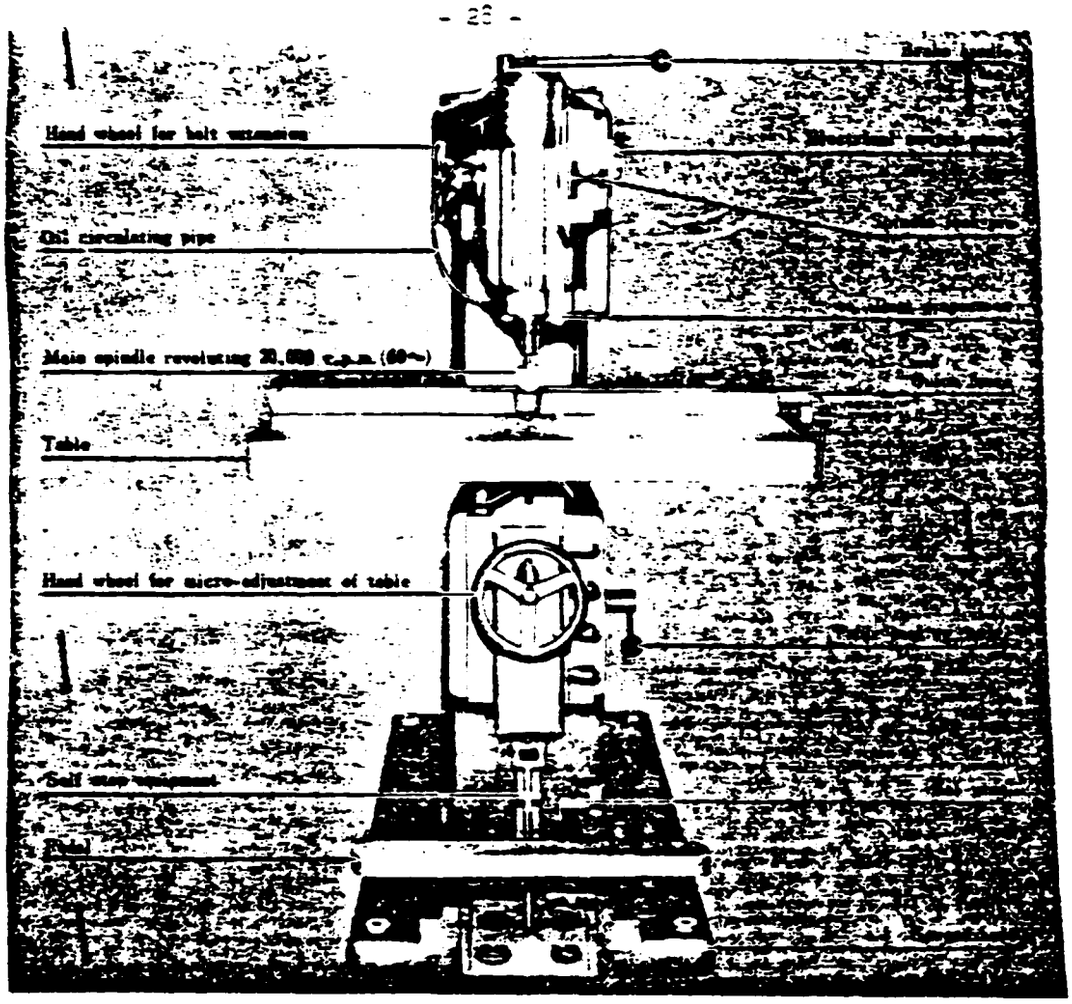
Spindle diameter	1 3/8" or 1.1/4"	35 mm. or 31.75 mm.
Size of table	39 3/8"x39.3/8"	1000x1000 mm.
Height of table	33 1/2"	850 mm.
Tenoning heads up to	16.1/8"	410 mm.
Vertical adjustment of spindle	4.3/4"	120 mm.
Tilt of spindle		÷ 45°
Spindle speeds		2900-4400-6000-7800-10000 r.p.m
* Main Drive Motor		5,5 HP
(upon request)		7,5 HP
Motor for Spindle Lift and Tilt		0,3 HP
Net weight	1740 lbs.	790 kos
Gross Weight Packed	2136 lbs.	970 kos.
Cubage	65 cu.ft.	1.8 cu.mts

STANDARD EQUIPMENT

1"1/4" or 1 3/8" loose top solid spindle with No. 5 M.K. fitting and spacing collars; independent micro-adjustment to fence and 360° movement; fence fitted top and side pressure springs; ring guard; service spanners

EXTRA EQUIPMENT

Slotted Spindle
7.5 HP or 10 HP motor instead of 5.5 HP unit
Overload switch protection
Tenoning attachment (weight 395 lbs - 180 kos.)



SPECIFICATIONS

Maximum thickness of workpiece	145		4 ½"
Maximum height from table to spindle	195		7 ¾"
" (type RO-116G)	220		8 ¾"
Distance from column to center of spindle	670		26 ½"
Vertical travel of table by foot pedal	95 (Max.)		3 ¾" (Max.)
Vertical travel of table by hand wheel	135 (Max.)		5 ⅜" (Max.)
Table area	810×500		31 ¾" × 19 ¾"
Revolution of main spindle			20,000 R.P.M. (60~) 16,600 R.P.M. (50~)
Collet chuck	12	or	½"
Belt	38 × 2235		1 ½" × 88"
Motor	2 P 1.5KW		2 P 2HP
Floor area	1060 × 610		41 ¾" × 24"
Overall height, width & depth	1450 × 810 × 1510		57" × 32" × 59 ½"
Net weight	750 KG.		1650 Lbs.
Gross Weight	950 KG.		2090 Lbs.
Export shipping measurement			110 cft.

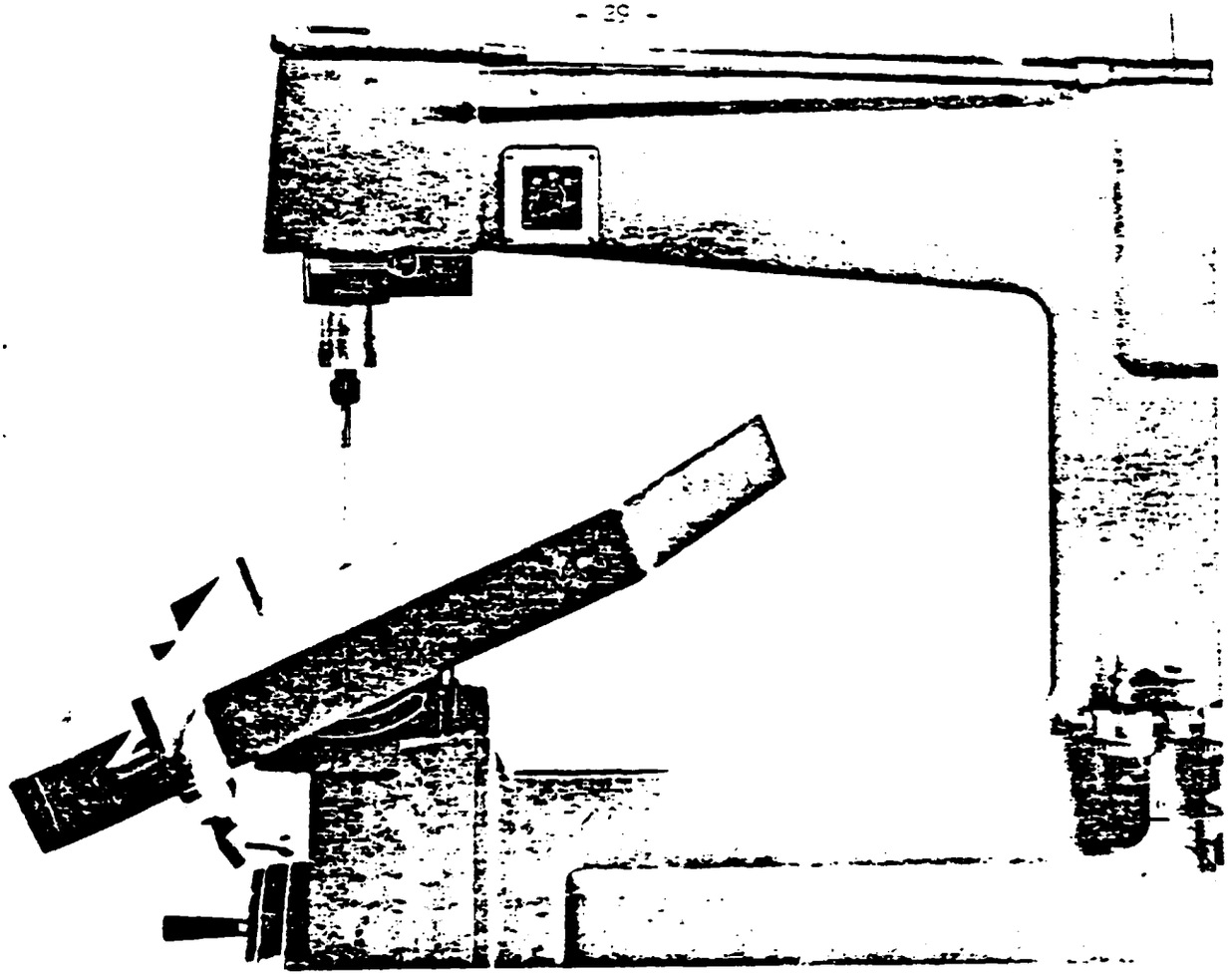
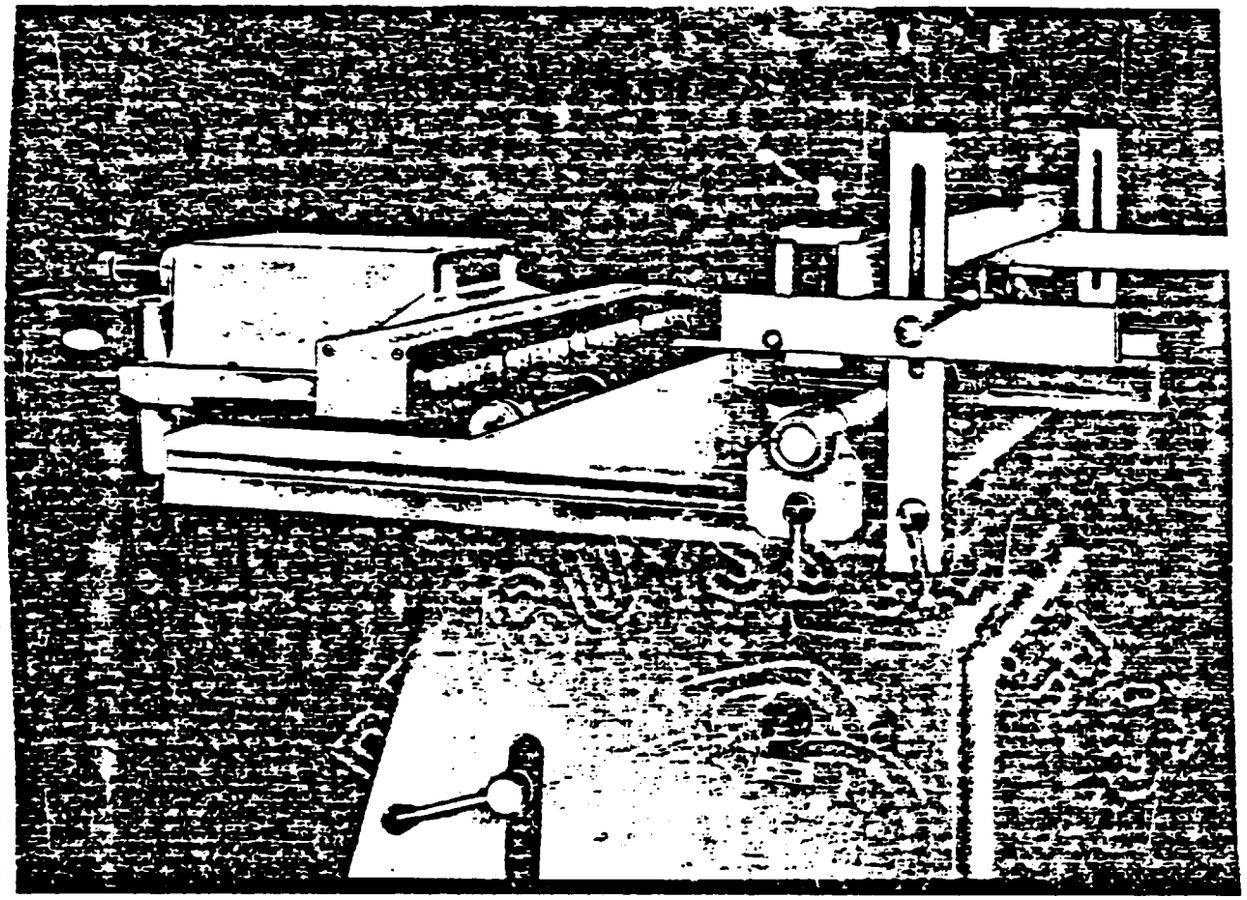


Table tilting up to 45° and fence.
The guide pin center remains always on the same axis of the cutter during table's tilting.

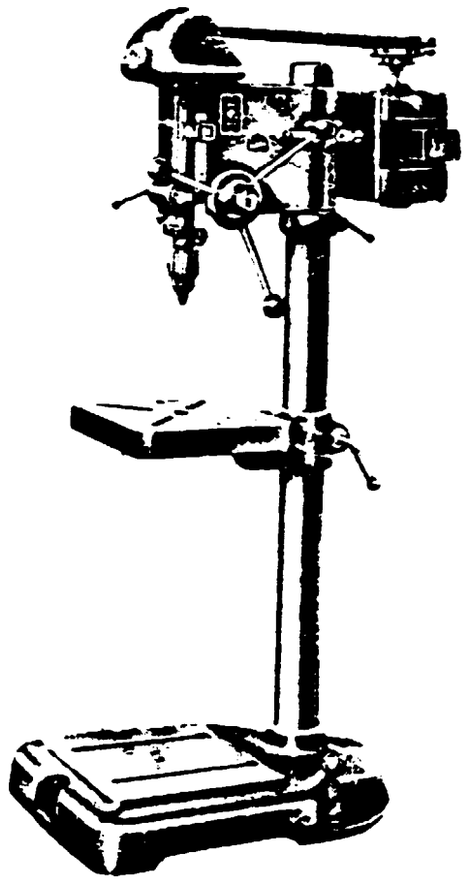
R8 specification

Clearance between spindle and frame	750 mm (19.1/2")
Spindle speed	10.000/20.000 r.p.m.
Motor	3/4.5 HP
Single-speeded motor (on request)	5.5 HP
Spindle vertical stroke	102 mm (4")
Depth end stops	Nr. 6
Table dimensions	905x770 mm (35.5/8"x30.5/16")
Max. distance between table and spindle chuck	310 mm (12.3/16")
Max. table's height	1040 mm (41")
Table's vertical stroke	200 mm (8")
Retractile guide pin with 4 positions Ø diam. available	from 5 to 18 mm (3/16" to 1/2")
Overall dimensions	905x1380x1500 mm (35.5/8"x54.5/16"x59")
Net weight	550 kgs (lbs. 1215)



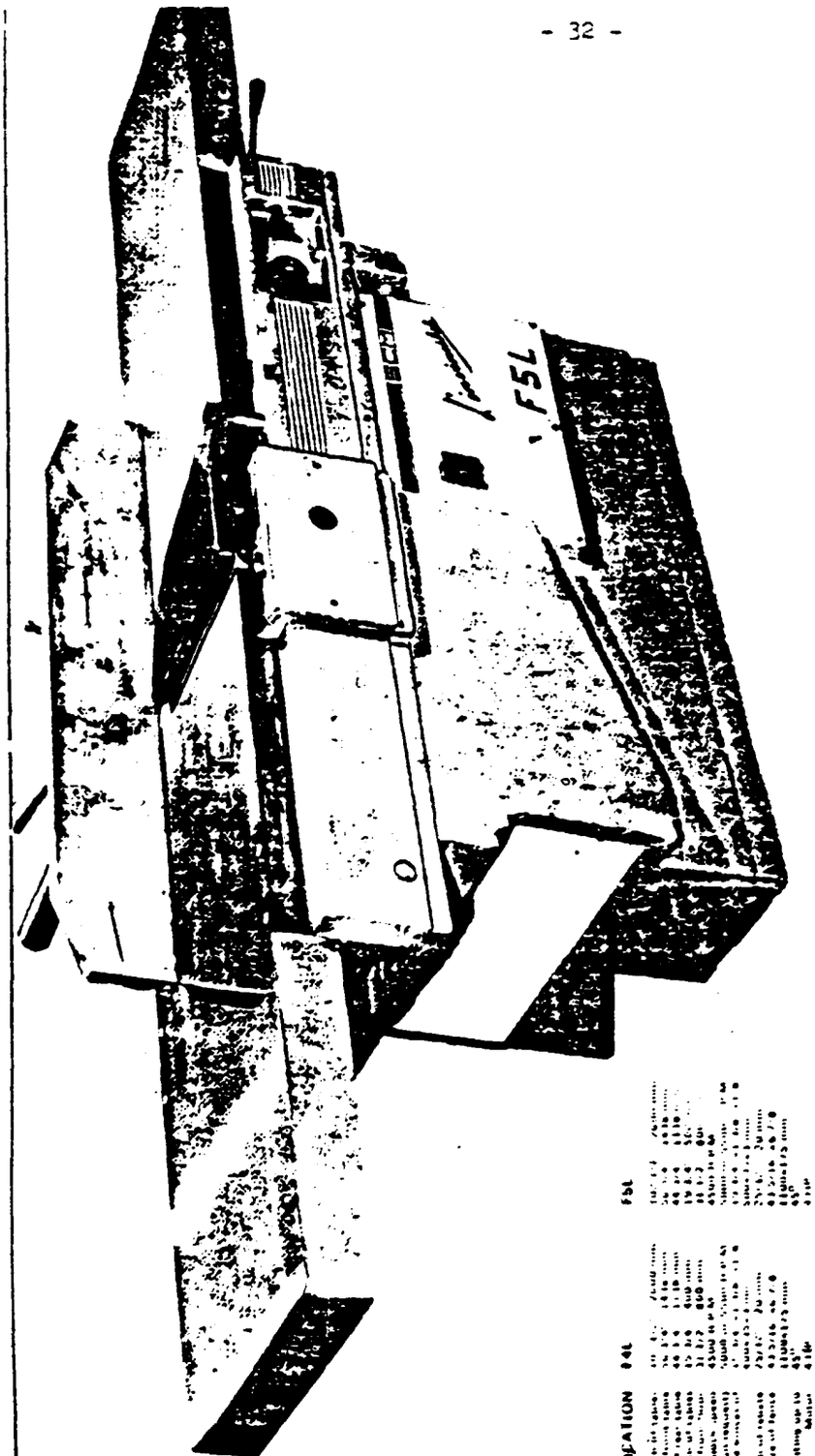
FM 25 specifications

Number of spindle heads	25
Max. centre distance between outer spindles	35.1/4" - 896 mm.
Centre distance between spindles	1.1/4" - 32 mm.
Table dimensions	48"x30.3/4" - 1220x780 mm.
Max. vertical boring depth	3.15/16" - 100 mm.
Max. horizontal height of spindles	2.3/8" - 60 mm.
Motor power	3 HP
Spindles speed	2800 r.p.m.
Max. horizontal height of spindles	2.61/64" - 75 mm.
Working pressure of pneumatic system	88. lb/in² to 117.6 lb/in² 6 ÷ 8 atm.
Net weight	1520 lbs. - 690 kos.
Gross weight	1925 lbs. - 875 kos.



S P E C I F I C A T I O N S

Maximum thickness of workpiece	145 mm
Spindle diameter	50 mm (Max)
Spindle speeds RPM	1000 - 5000
Distance from column to center of spindle	700 mm
Vertical travel of table (Max)	700 mm
Table area	750 X 750 mm
Floor space	900 X 700 mm
Overall height	2000 mm
Motor power	1½ HP.

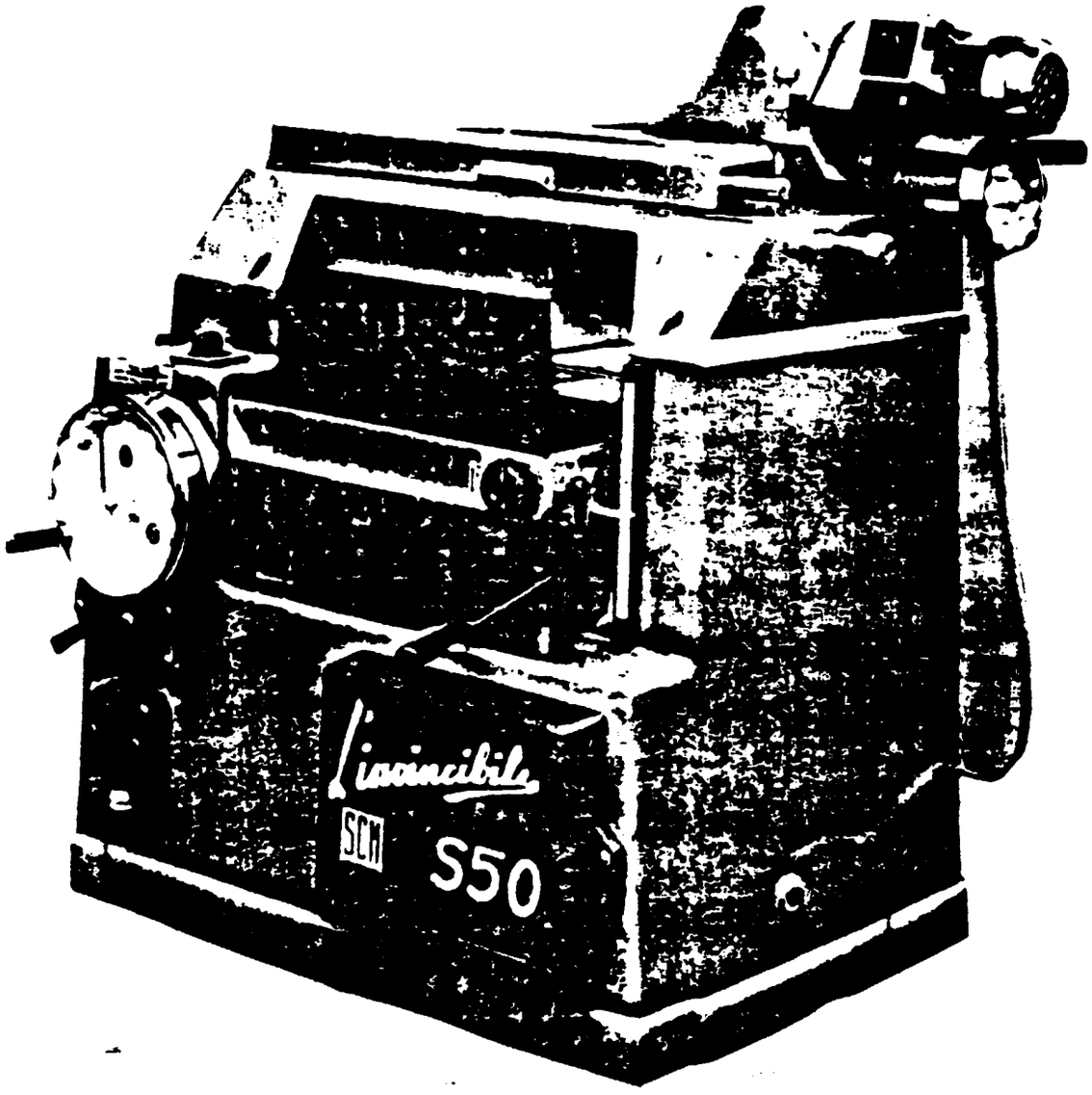


SPECIFICATION	F4L	F5L
Length of table		
Length of rip table		
Length of rip table		
Width of table		
Height of table from floor		
Cutterblock speed		
Cutterblock speed (optional extra)		
Dimensions - depth of table		
Size of fence		
Bore fitting up to		
Motor		
Motor (optional extra)		
Overall dimensions		
Net weight		
Gross weight		
Size of case		
MORTISING ATTACHMENT		
Table dimensions		
Capacities		
Longitudinal travel		
Transverse travel		
Vertical travel		
Max. distance chuck to table		
Weight		
SIDE JOINTING ATTACHMENT		
Table size		
Spindle diameter		
Interchangeable cutterblocks		
Cutterblock diameter		
Motor		
Speed of cutterblock		
Overall height		
Weight		

Selection of Production Machinery for BML factory.

woodworking **data sheets**

Ref: 22



specifications S 50

Table size	19 11/16"x31 1/2" - 500x800 mm.
Planing width	19 11/16" - 500 mm.
Thickness capacity	9 1 4" - 235 mm.
Cutterblock speed (4 knives)	4500 rpm
Cutterblock diameter	4 3 4" - 120 mm.
Rates of feed	25-43 ft/min. - 7,5-13 mts/min.
Motor	5 5 HP
Net weight	1280 lbs - 580 kg.
Gross weight	1540 lbs - 700 kg.
Overall dimensions	38 "x34"x37" - 980x880x940 mm.
Shipping dimensions	1 50 cu.mts.

EXTRA EQUIPMENT

Adjustable table rollers - Sectional infeed roller
Automatic raising and lowering of the table
Grinder - Motor 7,5 HP - Shavings hood
Overload switch protection

Technical data shown in this leaflet is not binding and SCM reserves the right to make alterations without any warning

Selection of Production Machinery for B M L factory.

woodworking **data sheets**

Ref : 23

Radial Arm Saw RS 65

This machine is one of the new RS series developed by Stromab. It combines simplicity and elegance of design with remarkable qualities: improved power and high capacity.
This advanced and well-designed machine is robust, accurate and economical.

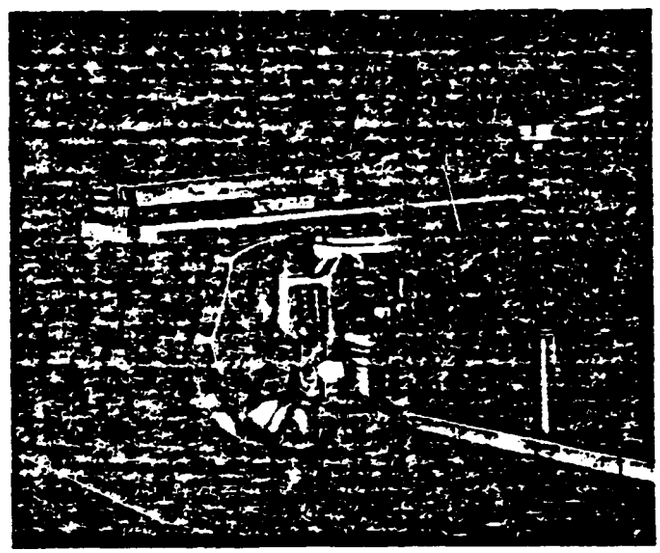
Technical Specifications

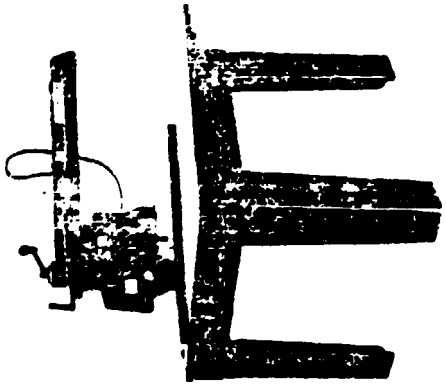
Three-phase motor (no-volt controls)	3 HP
Motor speed	3000
Blade Ø	300 mm
Motor arbor	20 mm / 30 mm
Cross-cut capacity	640 mm
Cross-cut capacity at 45°	450 mm
Depth of cut	90 mm
Depth of cut at 45°	65 mm
Rip capacity	960 mm
Miter locating stops	—45° 0° —45°
Bevel locating stops	0° 45° 90°
Column Ø	86 mm
Bearings of roller head	4
Table size	1150 x 870
Overall dimensions	1150 x 1200 x 1500
Net weight	165 Kg

Interchangeable hardened steel slideways

Optional extra:

Single phase motor, 2 HP · Tropicalised motor · Motor protection switch · Special blade guard with anti-kick-back device and adjustable shield · Automatic return of motor · Hydrostatic brake · Pneumatic system for autom. feed of blade · Rollers table · Special motor arbor · Tools guard · Wooden table extension





MOD. 1600
MOD. 1600S

:tion of Production Machinery
BML factory.

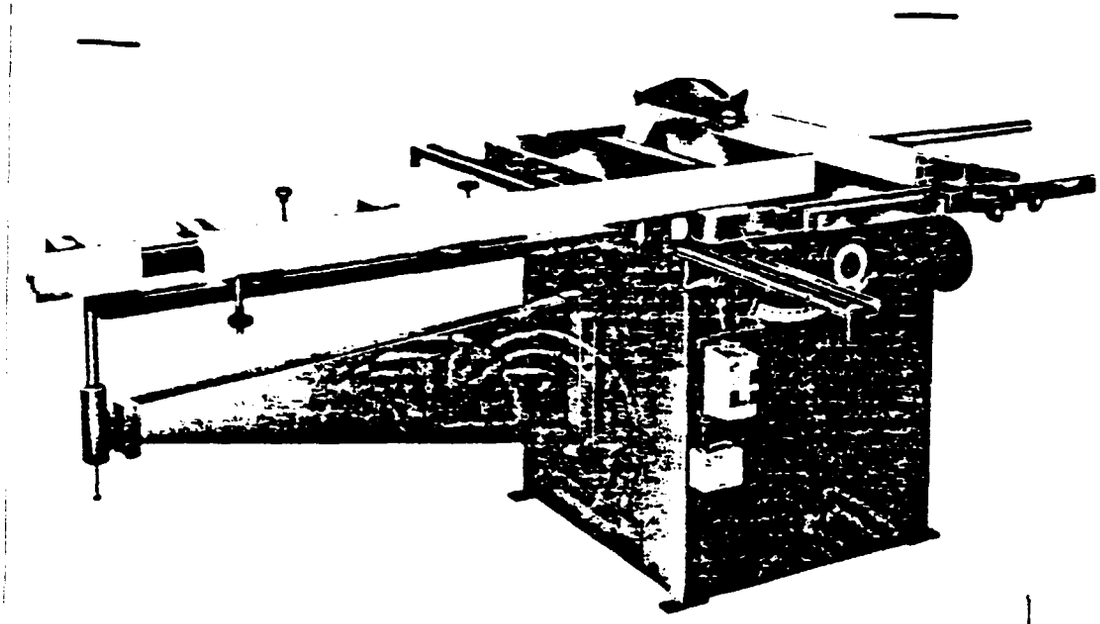
woodworking
data sheets

Ref :
24

TECHNICAL DATA — DATI TECNICI — DATOS TECNICOS

MOTOR RPM	50 CY 60 CY	MOTORE GIRI/MIN	50 HZ 60 HZ	MOTOR VELOCIDAD	50 HZ 60 HZ	3000 3600
HP SINGLE PHASE	50 CY 60 CY	HP MONOFASE	50 HZ 60 HZ	PV MONOFASICO	50 HZ 60 HZ	2.5 2.75
HP THREE PHASE	50 CY 60 CY	HP TRIFASE	50 HZ 60 HZ	PV TRIFASICO	50 HZ 60 HZ	4 4.5
MAX CROSS CUT CAPACITY		LARGHEZZA MASSIMA DI TAGLIO		ANCHO MAXIMO DE CORTE		610 mm
MAX CROSS CUT CAPACITY AT 45		LARGHEZZA MASSIMA DI TAGLIO A 45°		ANCHO MAXIMO DE CORTE A 45		445 mm
DEPTH OF CUT WITH STANDARD BLADE MAX Ø BLADE		PROFONDITA DI TAGLIO CON LAMA STANDARD MAX Ø LAMA		PROFUNDIDAD DE CORTE CON CIRCULAR STANDARD CIRCULAR Ø MAX		85 mm 110 mm
DEPTH OF BEVEL CROSS CUT AT 45 STANDARD BLADE		PROFONDITA DI TAGLIO CON LAMA STANDARD INCL 45		PROFUNDIDAD DE CORTE CIRCULAR STANDARD INCL 45		60 mm
MAX RIPPING CAPACITY		LARGHEZZA MASSIMA A REFILARE		ANCHO MAXIMO DE CORTE AL HILO		920 mm
BLADE Ø STANDARD MAXIMA		LAMA Ø STANDARD MASSIMA		CIRCULAR Ø STANDARD MAXIMO		300 mm 350 mm
BLADE BORE Ø		FORO LAMA Ø		OJO CIRCULAR Ø		30 mm
GUARD STANDARD		CUFFIA STANDARD		PROTECTORE STANDARD		350 mm
ARBOR Ø AND LENGTH		ASSE MOTORE Ø E LUNGHEZZA		ARBOL MOTOR Ø Y LARGUEZA		30 mm 60 mm
OVERALL SIZE		DIMENSIONI DI INGOMBRO		MEDIDAS DE ESPACIO		1080 - 1100 mm
NETT WEIGHT SHIPPING WEIGHT		PESO NETTO PESO LORDO		PESO NETO PESO BRUTO		145 CA 170
SEAWORTHY PACKING		IMBALLO MARITTIMO		EMBALAJE MARITIMO		0.93 M3

ROLLER HEAD WITH 4/8 BEARINGS TESTATA PORTATA DA 4/8 CUSCINETTI A SFERA CARROMOTOR CON 4/8 COJINETES A BOLAS

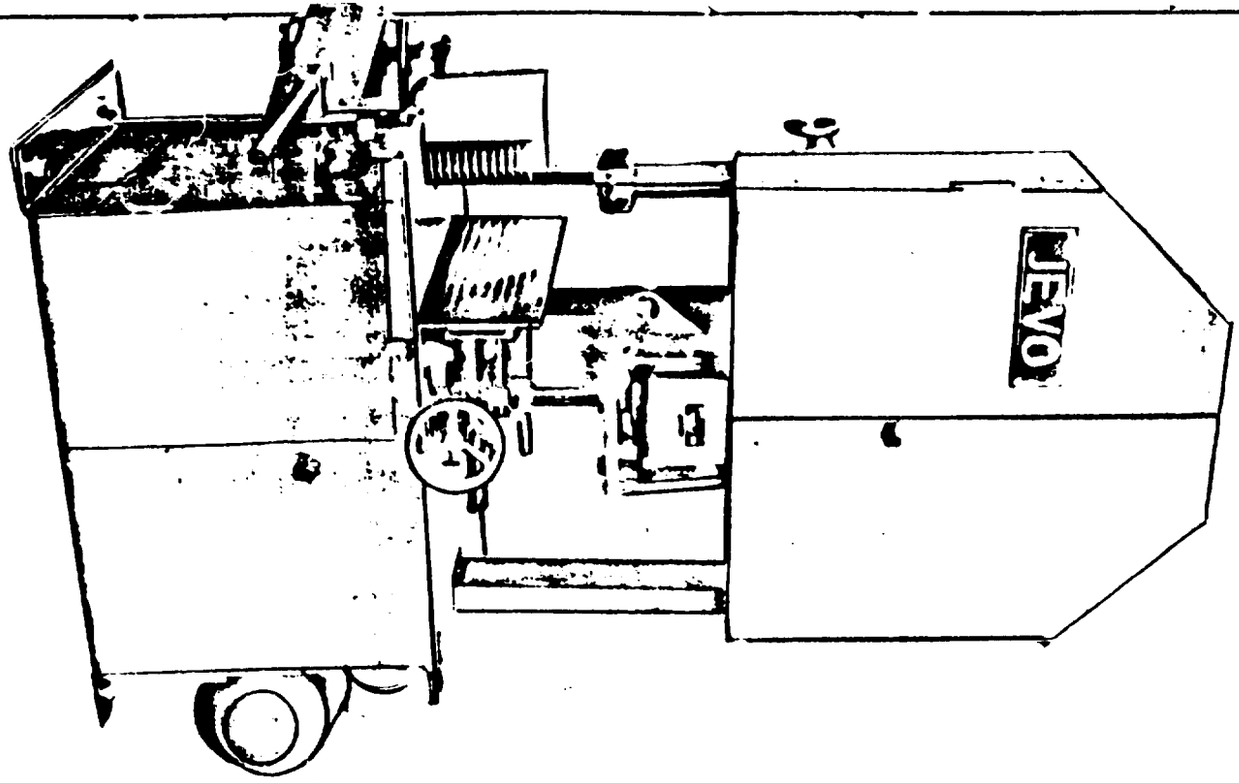


Circular saws with blades ⌀ 400 tiltable up to 45° for wood, chipboards, plastics and light alloys.

The tilting and height adjustment of the saw-blade occurs through separate handles. One high precision guide fence allows quick adjustment of the cutting length. Parallel guide-fence and mitre-fence and graduated.

SPECIFICATIONS :	273 A	273 B	273 C
Cast-iron table	870×1000	870×1000	660×1000
Edging table, light alloy			1700×255
Cross-cutting attachment		1200×450	1200×450
Stroke of the cutting attachment		1300	1500
Cross-cutting lenght		2700	2700
Panel cutting		1000×1000	1500×1500
1 speed motor	5.5 HP	5,5 HP	5,5 HP
Speed of rotation of the saw-blade	3600 RPM	3600 RPM	3600 RPM
Cutting width between guide-fence and blade	1100 mm	1100 mm	1100 mm
Max. Cutting height	125 mm	125 mm	125 mm
Cutting height at 45°	75 mm	75 mm	75 mm
⌀ of the spindle	30 mm	30 mm	30 mm
Micrometric parallel guide-fence	inclued	inclued	inclued
Mitre-fence	inclued	inclued	inclued
Space required	1627×1000 ×1100	3650×1750 ×1100	3300×3200 ×1100

Machine equipped with an electro-magnetic and no-voltage protection.

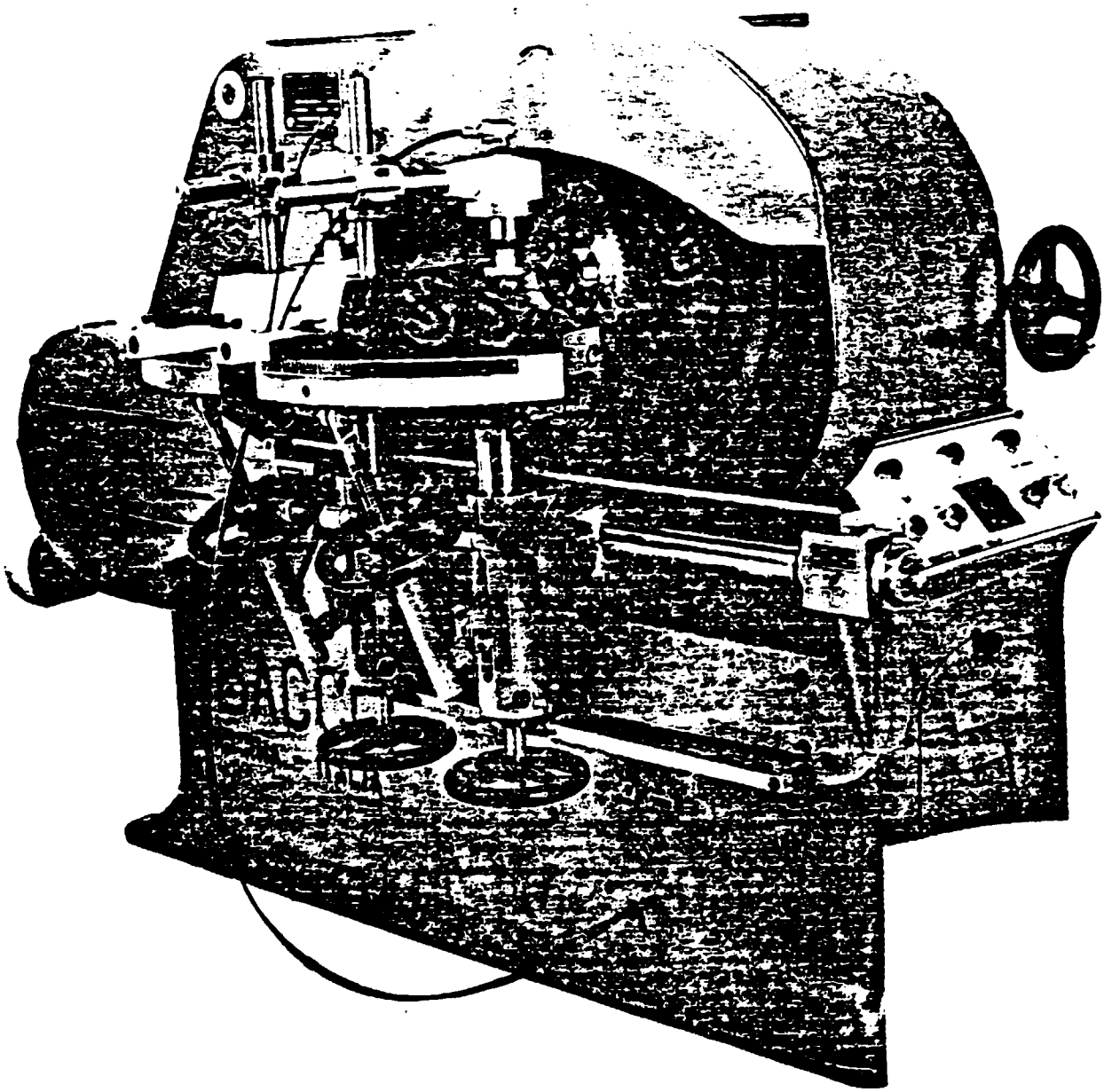


Technical data		Datos técnicos		TCN 900	TCN 1000	TCN 1200
Diameter of sawwheels	mm	Diámetro de la polea de sierra de cinta	mm	900	1000	1200
Sawblade width up to	mm	Anchura de la hoja hasta	mm	80	100	120
Sawblade length	mm	Largo de la hoja	mm	6300	6850	8000
Feed rate	m/min	Velocidad del avance	m/min	0 - 40	0 - 40	0 - 40
Cutting height, max.	mm	Altura máxima de corte	mm	400	500	600
Cutting width, max.	mm	Anchura máxima de corte	mm	220	270	380
Max. opening of spiked feed roller	mm	Paso del cilindro de avance	mm	300	300	300
Total opening	mm	Paso total	mm	520	570	680
Power requirement	HP	Fuerza necesaria, segun rendimiento	CV	10-15	20-25	25-30
Weight net	kg	Peso neto	kg	1300	1600	2000
Shipping volume	m3	Dimensiones de la caja marítima	m3	4,8	5,7	7,7

Accessories included within delivery:
1 bandsawblade, the required protection devices, tools, grease gun.

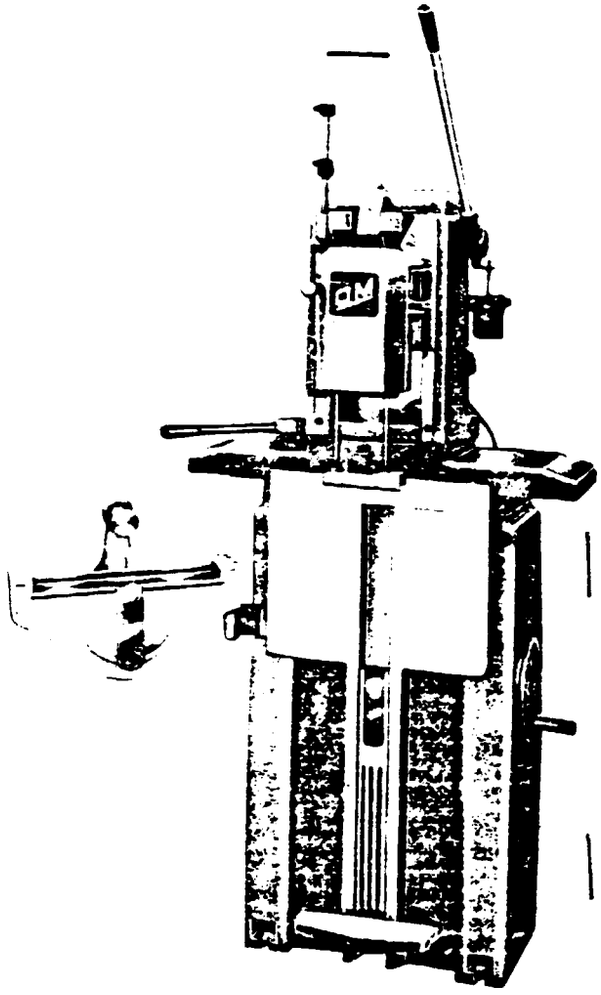
Accesorios comprendidos:
1 hoja de sierra, los necesarios dispositivos de protección, herramientas y prensa de grasa.

Made in Germany



TECHNICAL DATA

Spindle speed	r.p.m.	5700
Max. tenon length	mm	120 ÷ 2R
Max. depth of tenon	mm	90
Max. tenon thickness	mm	38
Cutter block motor	HP	4
Motor for the table movement	HP	1
Motor for the cutter block rotation	HP	1.5
Net weight	Kg	1085
Gross weight	Kg	1355
Overall dimensions	mm	1900x1290x1350
Export case size	mm	2050x1310x1500



CHARACTERISTICS

Maximum mortising depth	mm.	180
Maximum mortising lenght	mm.	250
Transaversal stroke	mm.	110
Two-directions rotation of the longitudinal carriage on the table		50°
Table vertical stroke (openable)	mm.	160
Table two-direction rotation		90°
Universal voltage motor HP 3	r.p.m.	2.800
Approximate weight	(LBS. 172) kg.	330

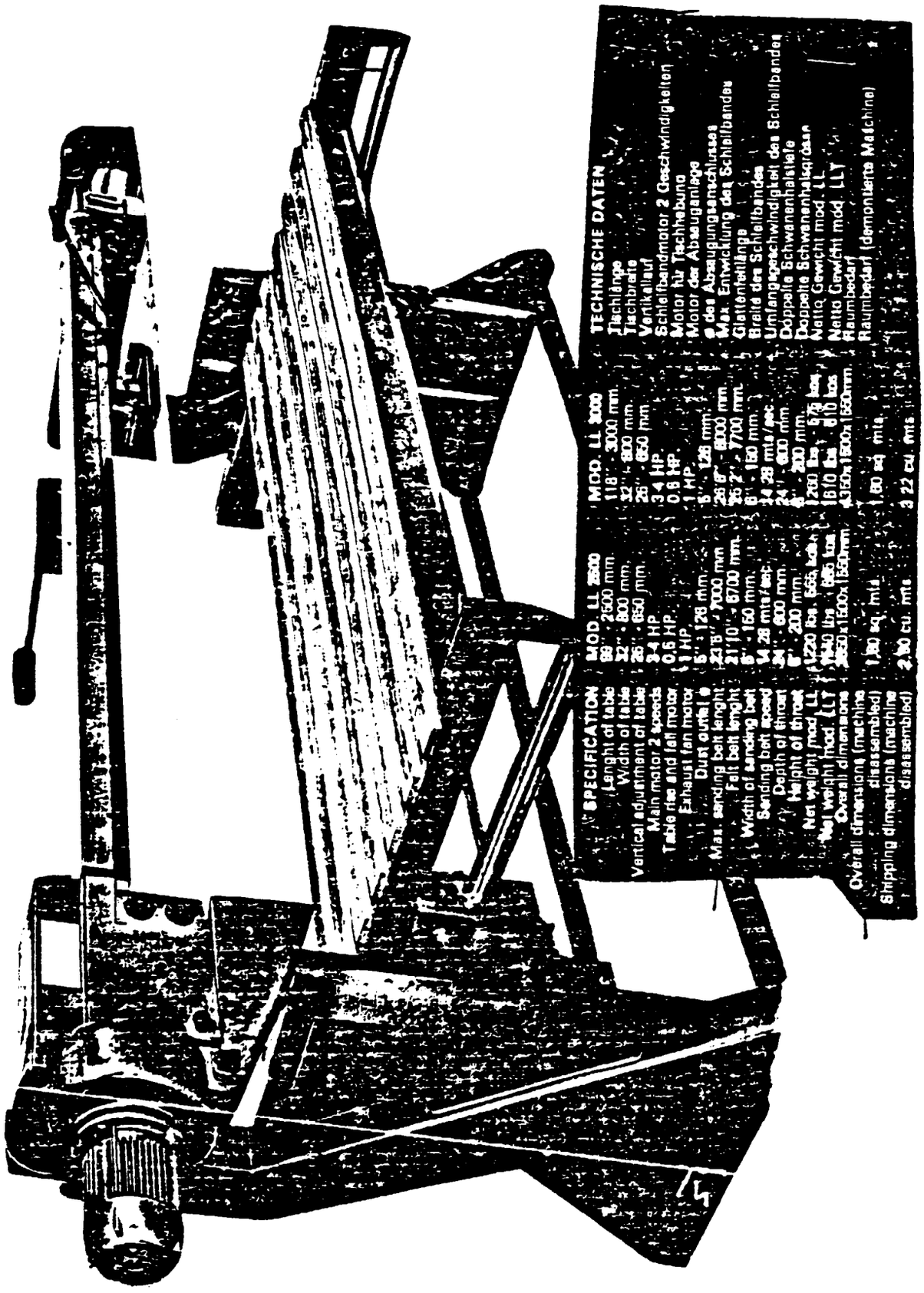
OUTFIT

1 chain-sharpening apparatus
1 device for mecking slots on doors already assembled
1 Automatic pump for chain lubrication
Service-spanners.

Selection of Production Machinery for BML factory.

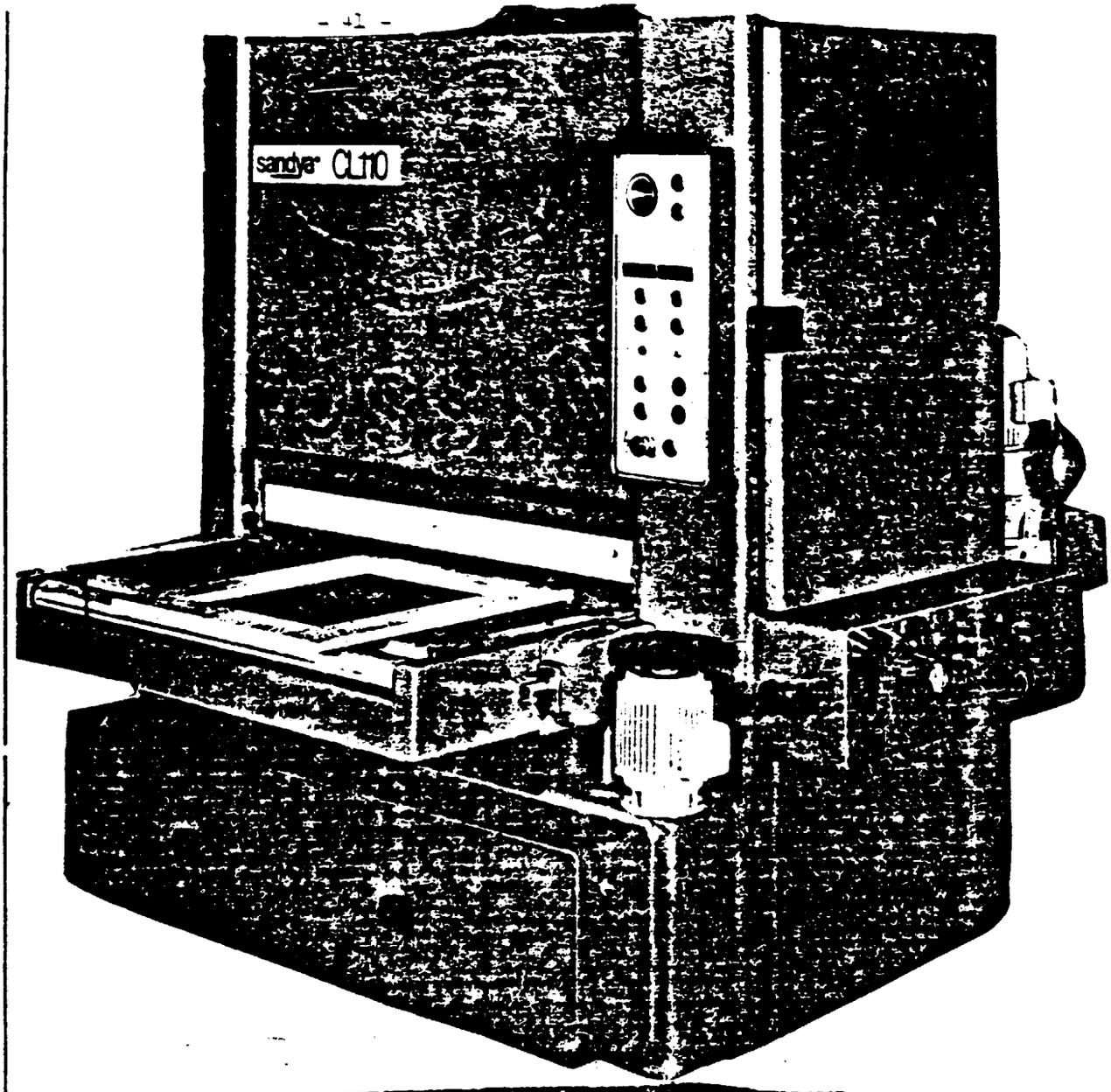
woodworking **data sheets**

Ref : 29



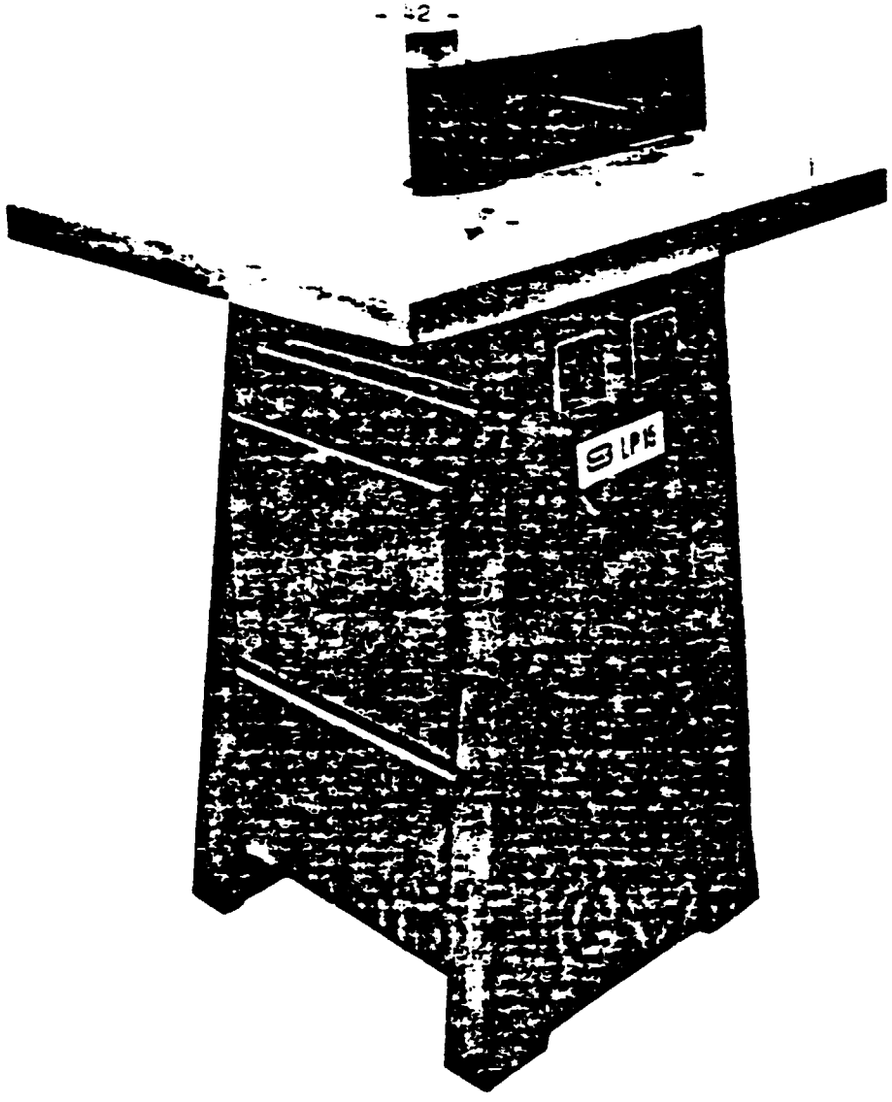
Selection of Production Machinery for B M L factory.

woodworking **data sheets**	Ref : 30_31

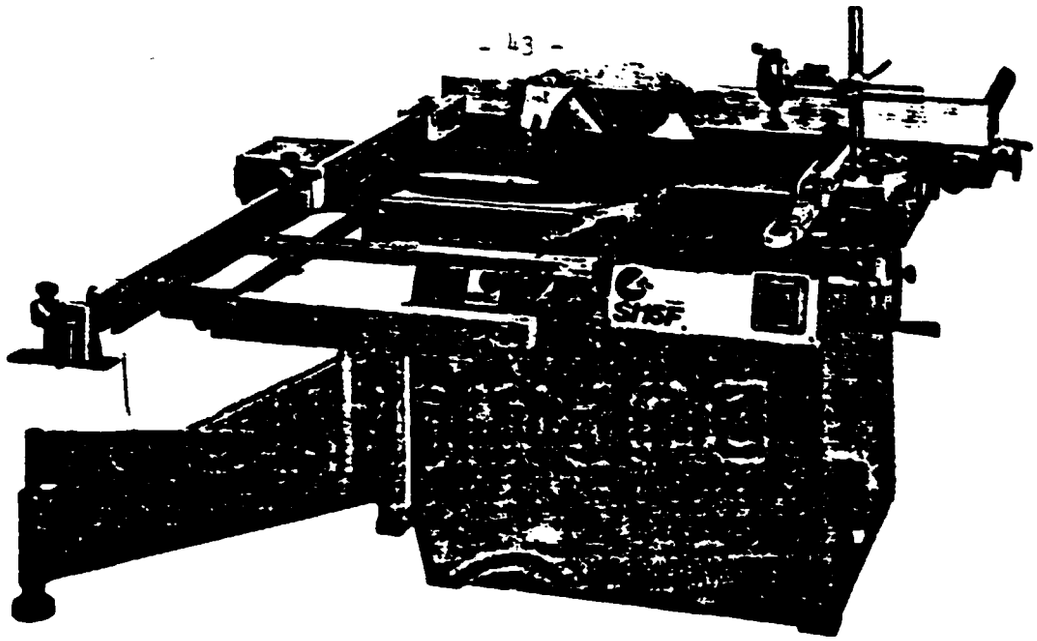


specifications CL 110

Workpiece width	43.5/16" - 1100 mm
Max. workpiece thickness	4.3/4" - 120 mm
Min. workpiece thickness	1/8" - 3 mm
Min. workpiece length	15.3/4" - 400 mm
upon request with pressure shoes	11.3/8" - 290 mm
Size of abrasive belts	84.5/8" x 44.1/8" - 2150 x 1120 mm
Thicknessing belt speed	65 ft/sec. - 20 mts/sec.
Finishing belt speed	65 ft/sec. - 20 mts/sec.
Feed speeds (variable)	from 15 to 82 ft/min.
	from 4,5 to 26 mts/min.
Thicknessing belt drive motor	20 HP
Finishing belt drive motor	15 HP
Feed drive motors	2,5 HP
Table raising and lowering motor	1 HP
Pneumatic circuit working pressure	6 Atm.
Air consumption	200 normal litres/min.
Exhaust branch diameter (2)	6.1/4" - 160 mm.
Quantity of exhaust air for each branch	2000 m³/hour
Net weight	6272 lbs - 2850 kg
Overall [illegible]	[illegible]
Shipping volume	[illegible]

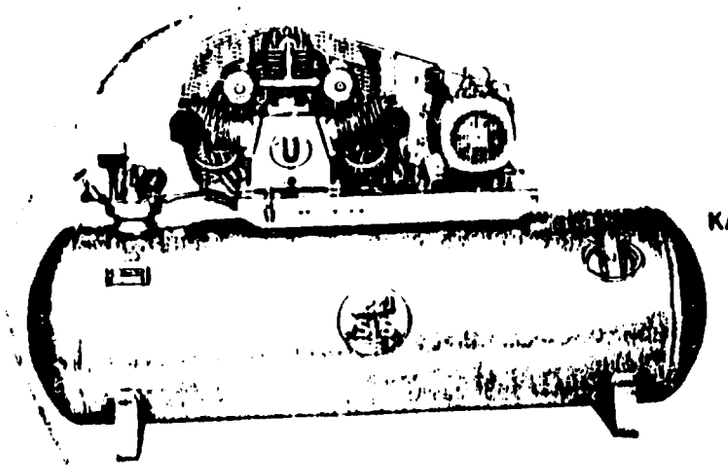


TECHNICAL DATA		TECHNISCHE DATEN
Working table extension:	800x800 mm.	Arbeitstischmasse
4-speed belt motor:	2/3 HP	Motor für Schleifband (4 Geschwindigkeiten)
Vert. oscillation motor reducer	0,25 HP	Drehstrommotorer für die Vertikaloszillierung
Belt oscillation	10-20-30 mm.	Oszillation des Schleifbandes
Belt oscillations number:	70/min.	Schwingungsfrequenz des Bandes
Oscillating group vertical movement:	80 mm.	Vertikalverstellung des Oszillationsaggregates
Length of the belt:	1200 mm.	Schleifbandlänge
Belt width:	150 mm	Breite des Schleifbandes
Abrasive belt speed:	800/1600/2400/4800 mm./sec.	Schleifbandgeschwindigkeiten
Rubber covered rollers and pneumatic rollers variable dia. upon request		Pneumatische und Gummischleifrollen (Abmessungen auf Anfrage)
Independent oscillation control		Unabhängige Steuerungsvorrichtung der Oszillationen
Net weight:	240 kgs.	Gewicht
The above data are not binding to details, as improvements are incorporated from time to time.		Konstruktionsverbesserungen vorbehalten



specifications	SI15F	SI15FS
Standard saw diameter	13.3/4" - 350 mm	13.3/4" - 350 mm
Max. saw diameter (1)	15.3/4" - 400 mm	15.3/4" - 400 mm
Max. depth of cut		
(with blade ϕ 13.3/4" - 350 mm)	4.1/2" - 115 mm	4.1/2" - 115 mm
(with blade ϕ 15.3/4" - 400 mm)	5.1/2" - 140 mm	5.1/2" - 140 mm
Max. depth of cut at 45°		
(with blade ϕ 13.3/4" - 350 mm)	3.1/8" - 80 mm	3.1/8" - 80 mm
(with blade ϕ 15.3/4" - 400 mm)	3.3/4" - 96 mm	3.3/4" - 96 mm
Standard spindle diameter	1.1/4" - 31,75 mm	1.1/4" - 31,75 mm
(other diameters on request)		
Standard motor	5,5 HP	5,5 HP
optional	7,5 HP	7,5 HP
Speed of saw shaft	3200-4500-6000 r.p.m.	3200-4500-6000 r.p.m.
Two-speed motor (on request)	4,8/6 HP	4,8/6 HP
Speed of saw shaft	1600-2250-3000-	1600-2250-3000-
(with two-speed motor)	3200-4500-6000 r.p.m.	3200-4500-6000 r.p.m.
Width of dado cut	2" - 50 mm	2" - 50 mm
Max. width of cut with rip fence	33.1/2" - 850 mm	33.1/2" - 850 mm
Size of fixed table	45.1/4"x31.1/2"- 1150x800 mm	45.1/4"x31.1/2"- 1150x800 mm
Size of sliding table	53.1/8"x9.1/2"- 1350x240 mm	53.1/8"x9.1/2"- 1350x240 mm
Sliding table stroke	51.1/4" - 1300 mm	51.1/4" - 1300 mm
Overall dimensions	52"x53"x39"- 1320x1360x1000 mm	93"x53"x39"- 2350x1360x1000 mm
Net weight	1233 lbs - 560 Kg	1365 lbs - 620 Kg
Gross weight	1607 lbs - 730 kg	1718 lbs - 780 Kg
Shipping dimensions	83 cu.ft. - 2,34 cu.m.s.	83 cu.ft. - 2,34 cu.mts.
SCORING UNIT (ON REQUEST)		
Scoring unit blade	4.1/8" ÷ 4.3/4" 105 ÷ 120 mm	4.1/8" ÷ 4.3/4" 105 ÷ 120 mm
Scoring unit int. diameter	20 mm	20 mm
Speed	8300 r.p.m.	8300 r.p.m.
Motor	0,75 HP	0,75 HP
(On request)	1 HP	1 HP

(1) The blade cannot disappear completely under the table



KA112-500

TECHNICAL DATA

Model	Order No. (without motor)	Motor (kW)	Motor (HP)	Receiver (litres)	Max. Pressure (Bars)	Displacement cfm/l.min.	F.A.D. cfm/l.min.	R.P.M.	Dimensions (mm) (Length·Width·Height)	Net weight (kg)
KA25A·200	3140	1.50	2.0	200		7.1 200	6.0 170	1040	1270 × 500 × 960	149
KA25A·200V	3670	1.50	2.0	200		7.1 200	6.0 170	1040	850 × 845 × 1365	159
KA13B·300	3144	3.00	4.0	300		12.8 362	11.8 335	690	1770 × 500 × 1070	225
KA13B·275V	3158	3.00	4.0	275		12.8 362	11.8 335	690	1050 × 845 × 1670	238
KA13C·300	3146	4.00	5.5	300	15	17.1 485	15.2 430	925	1770 × 500 × 1070	225
KA13C·275V	3160	4.00	5.5	275		17.1 485	15.2 430	925	1050 × 845 × 1670	238
KA13C·500	3148	4.00	5.5	500		17.1 485	15.2 430	925	1980 × 800 × 1180	310
KA112A·500	3152	5.50	7.5	500		24.4 690	21.8 620	660	1980 × 800 × 1210	338
KA20A·500	3197	7.50	10.0	500		31.3 886	28.8 780	700	1980 × 800 × 1340	394

Appendix V

การแก้ไข

REMEDIAL ACTION

โครงการอุตสาหะกำไม้ สะหะประชาชาด
UNDP/UNIDO INTEGRATED WOODWORKING PROJECT

วิทะยาการ อุตสาหะกำไม้ และ เครื่องประกอบ
Woodworking Technology and Equipment

โครงการฝึกหัด
Training Programme

มังกอน - พึดสะพา ๑๙๘๐
January - May 1980

โดย ท่าน ด. อุมาโรกับ, ผู้ชำนาญจาน แห่งอิงการพัทะนา อุตสาหะกำ ของ สะหะประชาชาด
by A. Sumarokov, UNIDO Expert

ตำแหน่งงาน /ลกซี ดีพี/ลาว/๐๑๐/๑๑-๐๔
Post No. DP/LAO/74/010/11-04

เครื่องใช้ใน อุตสาหะกำไม้ และ โครงการฝึกหัด
Woodworking Equipment Training Programme

กิดจะกำ /ลกซี
Activity No.

จักเลื่อยอ้วงเดือนจอย จะบิดหายใบ
Multiple rip saw

๑. /ล้องที่ดอนธุ์ทั่วไป ว่าด้วยการเดินเลื่อยอ้วงเดือน
1. General information on circular saw operations

๒. ลักจะนะสะเพาะ ของการเดิน (ความไวของการป้อน และ อื่นๆ)
2. Working characteristics (R. P. M, feed speeds, etc..)

๓. หลักการ การก่อสร้าง
3. Principles of construction

๔. การกวด ความถูกต้องแม่นยอม ของการติดตั้ง
4. Checking accuracy of mounting

๕. การตั้งเครื่องจักร เพื่องูกต่างๆ
5. Setting of machine for different operations

๖. การติดขัดต่างๆของเครื่องจักร, สายเหตุที่อาดมี และ การแก้ไข
6. Operations troubles, possible causes and remedial actions

๗. การบำลุงรักสา เพื่อป้องกัน
7. Preventive maintenance

๘. ความปอดไพ ในการเดินเครื่อง
8. Safety of operation

จักอัตโนมัติ
Automatic lathe

๑. เรื่องความรู้ทั่วไป ว่าด้วยการกลึงเรื่อง จักอัตโนมัติ
1. General information on latning operations

๒. ลักษณะและสมรรถนะ ของการกลึง
2. Working cahracteristics (Max turning lentch, swing, & max speeds, etc..

๓. การทวน ความถูกต้องแม่นยำ ของการติดตั้ง
3. Checking accuracy of mounting

๔. หลักการก่อสร้าง. เครื่องอัตโนมัติ (สำหรับจำเพาะ การกลึงเท่านั้น)
4. Principles of construction. Latne tools (Preparation to operation only

๕. การตั้งเครื่องจักร เพื่องานต่างๆ
5. Setting of machine for different operations

๖. การติดขัดต่างๆ ของเครื่องจักร, สาเหตุที่อาจมี และ การแก้ไข
6. Operating troubles, possible causes and remedial actions

๗. การบำรุงรักษา เพื่อป้องกัน
7. Preventive maintenance

๘. การบำรุงรักษา เพื่อป้องกัน
8. Safety of operations

จักเรือ " สายบิกแอ่น "
Dovetailing machine

๑. เรื่องความรู้ทั่วไป ว่าด้วยการกลึงเรื่องจักร
1. General information on lathing operations

๒. ลักษณะและสมรรถนะ ของการกลึง (ความไว, พลัง, และ อื่นๆ)
2. Working characteristics (Speed, power, etc...)

๓. หลักการก่อสร้าง
3. Principles of construction

๔. การตั้งเครื่องจักร เพื่องานต่างๆ
4. Setting of machine for different operations

๕. การติดขัดต่างๆเครื่องจักร, สาเหตุที่อาจมี และ การแก้ไข
5. Operating troubles, possible causes and remedial actions

๖. การบำรุงรักษา เพื่อป้องกัน
6. Preventive maintenance

...เหตุฉุกเฉิน ในการกลึงเรื่อง
7. Safety of operations

/เครื่องจักรเจาะรู
Tapping and screw machine

๑. /ข้อมูลทั่วไป ว่าด้วยการเจาะรูและขันเกลียว
1. General information on tapping and screw operations

๒. ลักษณะเฉพาะของการทำงาน (ความเร็ว, แรง, และอื่นๆ)
2. Working characteristics (speed, power, etc..)

๓. หลักการก่อสร้าง
3. Principles of construction

๔. การตั้งเครื่องจักร เพื่องานต่างๆ
4. Setting of machine for operations

๕. การปฏิบัติต่างๆของเครื่องจักร, สาเหตุที่อาจเป็น และการแก้ไข
5. Operating troubles, possible causes and remedial actions

๖. การบำรุงรักษา เพื่อป้องกัน
6. Preventive maintenance

๗. ความปลอดภัย ในการทำงาน
7. Safety of operations

/เครื่อง จักร ผืน ชนิด ใช้
Universal grinder

๑. /ข้อมูลทั่วไป ว่าด้วยการทำงานเครื่องจักรผืนชนิดใช้
1. General information on universal grinder machine operations

๒. ลักษณะเฉพาะ ของการทำงาน
2. Working characteristics

๓. หลักการก่อสร้าง, ส่วนประกอบใหญ่ และอุปกรณ์ใหม่
3. Principles of construction of main parts and spare parts

๔. การตรวจ ความเที่ยงตรงแม่นยำ ของการติดตั้ง
4. Checking accuracy of mounting

๕. การตั้งเครื่องจักร เพื่องานต่างๆ :
5. Setting of machine for different operations :

๕.๑ การผืน งานรูยาวที่มีใบมีดตรง
5.1 Grinding of slotted disc with straight knives

๕.๒ การผืน เครื่องตัดอะมีดโซ่
5.2 Grinding of chain cutters

๕.๓ การผืน ดอกกะหล่ำ จักตัวงาน
5.3 Grinding of router cutters

๕.๔ การฝน มีดกบ
5.4 Grinding of planing knives

๕.๕ การฝน สิ่ว และ มีดที่ใช้งานอย่าง
5.5 Grinding of chisels, relating knives

๕.๖ การฝน มีดกบแคบเป็นคู่
5.6 Sharpening of narrow planing knives in pairs

๕.๗ การฝน มีดกบสั้น ชนิดด้วยเหล็กกล้า และ คาบายด์
5.7 Sharpening short planing knives of steel and carbide

๕.๘ การฝนเลื่อย เลื่อยวงกลม
5.8 Sharpening of teeth circular saw blades

๖. การตรวจสอบข้อขัดข้องของเครื่องจักร, สาเหตุที่เกิด และ การแก้ไข
6. Operating troubles, possible causes and remedial actions

๗. การบำรุงเพื่อป้องกัน
7. Preventive maintenance

๘. ความปลอดภัย ในการดำเนินเครื่อง
8. Safety of operations

จักร ฝน มีด
Knife grinder

๑. เรื่องทั่วไป ว่าด้วยการดำเนินจักรฝนมีด
1. General information on knife grinder machine operations

๒. ลักษณะเฉพาะ ของการดำเนิน
2. Working characteristics

๓. หลักการ การก่อสร้าง
3. Principles of construction

๔. การตรวจ ความถูกต้องเรียบร้อย ของการติดตั้ง
4. Checking accuracy of installing

๕. การตั้งเครื่องจักร เพื่องานต่างๆ
5. Setting of machine for different operations

๖. การตรวจสอบข้อขัดข้องของเครื่อง, สาเหตุที่เกิด และ การแก้ไข
6. Operating troubles, possible causes and remedial actions

๗. การบำรุงรักษา เพื่อป้องกัน
7. Preventive maintenance

..... //

จักพิน ใบมีด ชนิดถ้วย
Cup grinder

๑. เรื่องควรรู้ทั่วไป ว่าด้วยการเดินเครื่องพิน ชนิดตั้งโต๊ะ
1. General information of cup grinder machine operations

๒. ลักษณะสะเพาะ ของการเดิน
2. Working characteristics

๓. หลักการ การก่อสร้าง
3. Principles of construction

๔. การตรวจ ความถูกต้องเที่ยงตรง ของการติดตั้ง
4. Checking accuracy of mounting

๕. การตั้งเครื่องจักร เพื่องานต่างๆ
5. Setting of machine for operations

๖. การแก้ไขต่างๆของเครื่องจักร, สาเหตุที่อาจมี และ การแก้ไข
6. Operating troubles, possible causes and remedial actions

๗. การบำรุงรักษา เพื่อป้องกัน
7. Preventive maintenance

๘. ความปลอดภัย ในการเดินเครื่อง
8. Safety of operations

เครื่อง พิน ชนิด ตั้งโต๊ะ
Bench grinder

๑. เรื่องควรรู้ทั่วไป ว่าด้วยการเดินเครื่องพิน ชนิดตั้งโต๊ะ
1. General information on bench grinder machine operations

๒. ลักษณะสะเพาะ ของการเดิน
2. Working characteristics

๓. หลักการ การก่อสร้าง
3. Principles of construction

๔. การตรวจ ความถูกต้องเที่ยงตรง ของการติดตั้ง
4. Checking accuracy of mounting

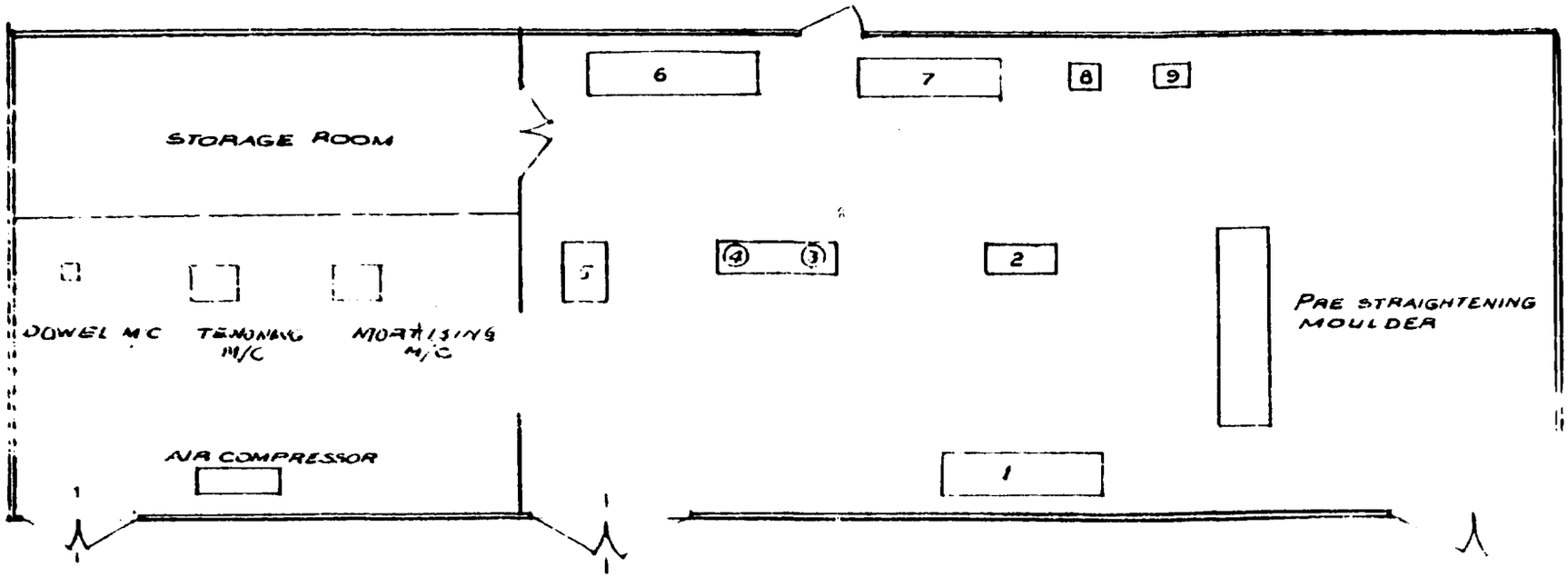
๕. การตั้งเครื่องจักร เพื่องานต่างๆ
5. Setting of machine for different operations

๖. การแก้ไขต่างๆของเครื่องจักร, สาเหตุที่อาจมี และ การแก้ไข
6. Operating troubles, possible causes and remedial actions

๗. การบำรุงรักษา เพื่อป้องกัน
7. Preventive maintenance

๘. ความปลอดภัย ในการเดินเครื่อง
8. Safety of operations

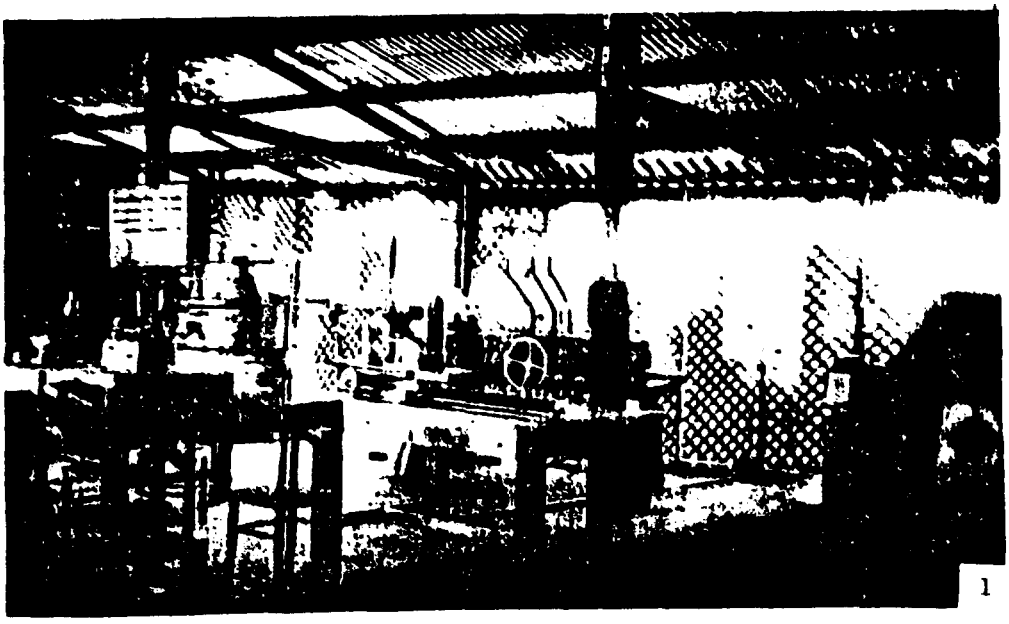
TEMPORARY TRAINING PLACE
(at BML FACTORY)



FLOOR PLAN

LEGEND

1	MULTIPLE RIPSAW	6	COPYING LATHE
2	UNIVERSAL GRINDER	7	AUTOMATIC LATHE
3	CUP CUTTER GRINDER	8	TAPPE & SEREWING M/C
4	BENCH GRINDER	9	DOVETAILER
5	KNIFE GRINDER		



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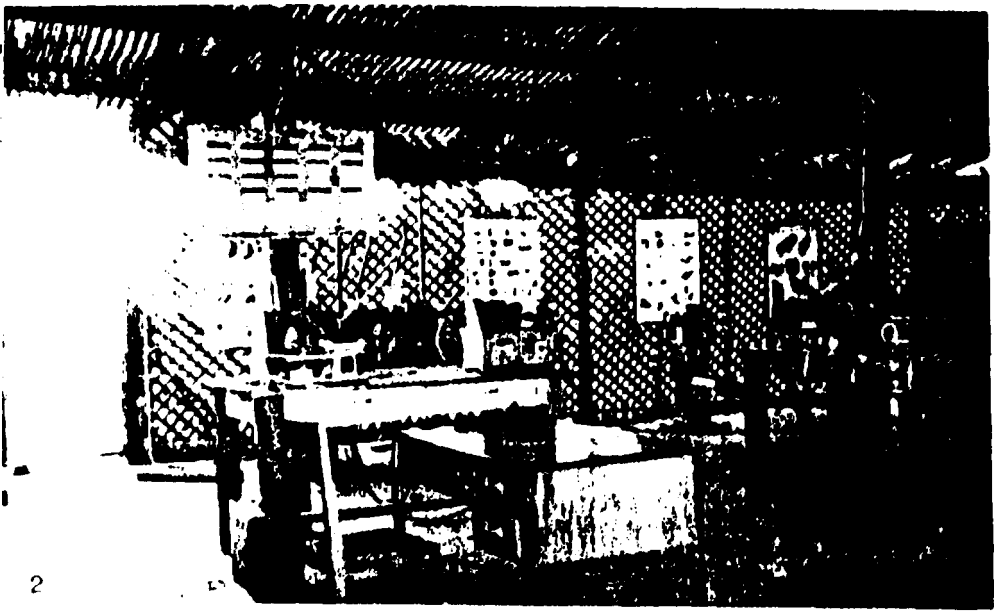
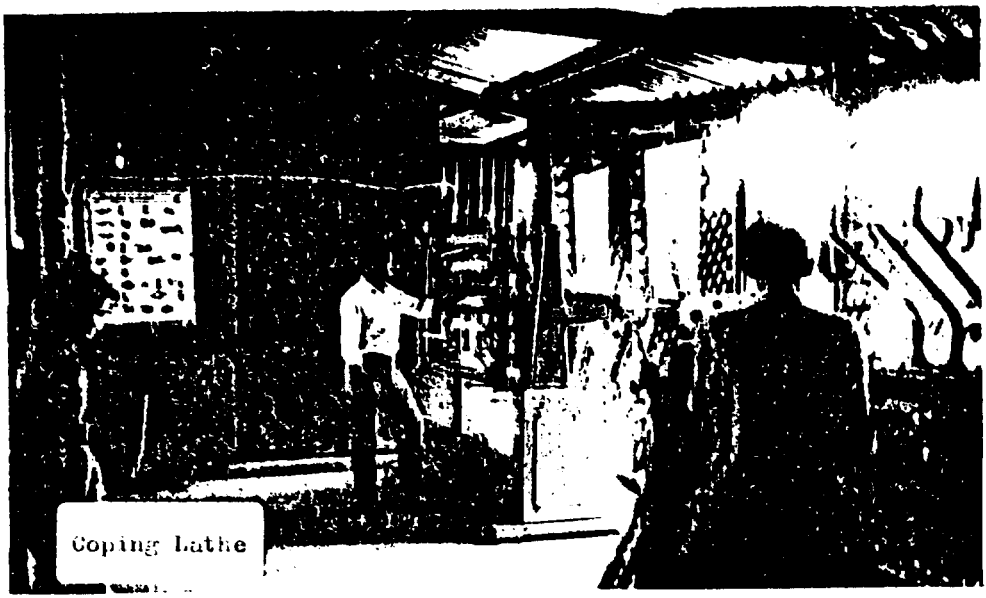
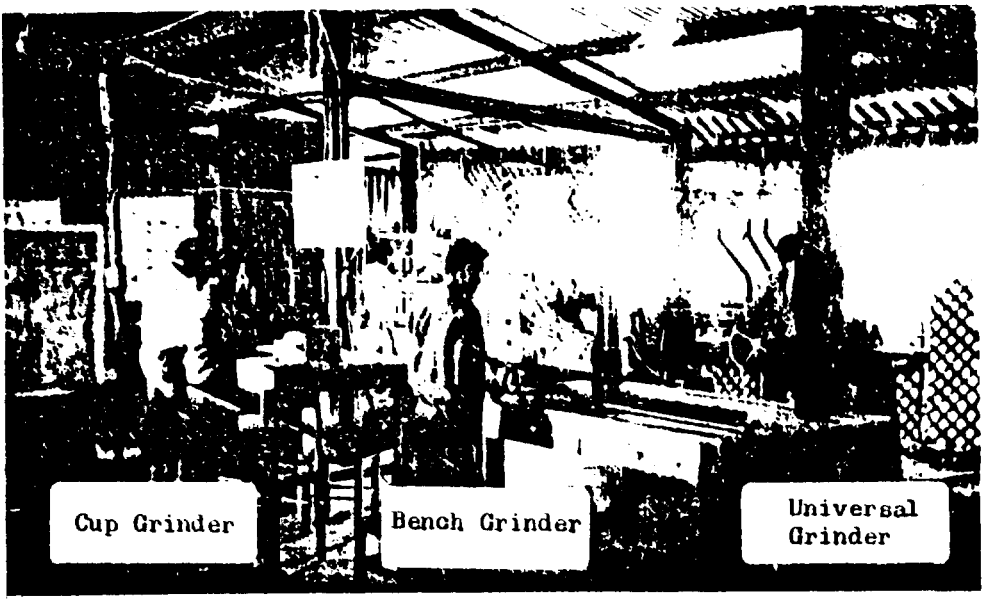
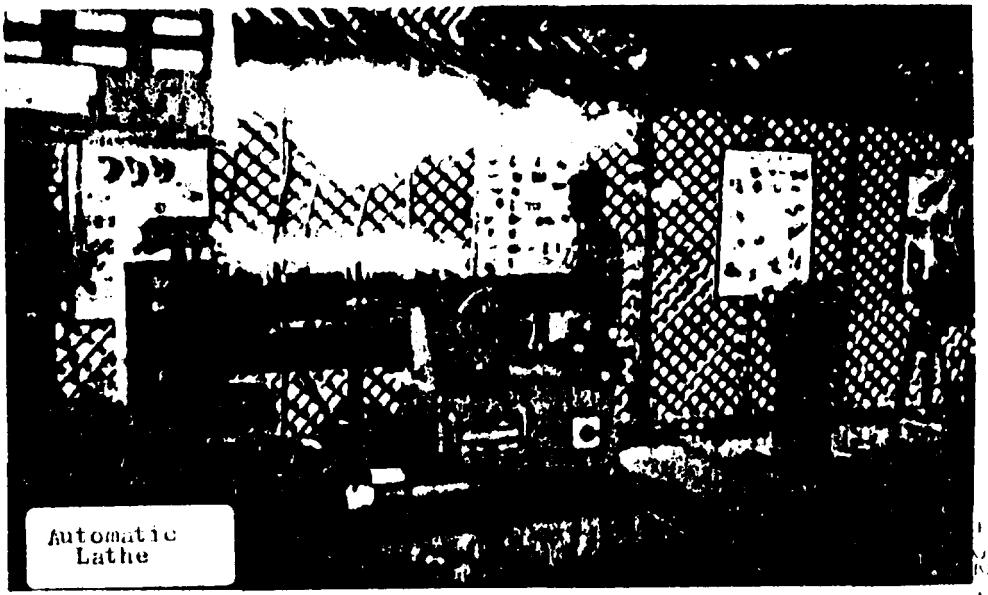
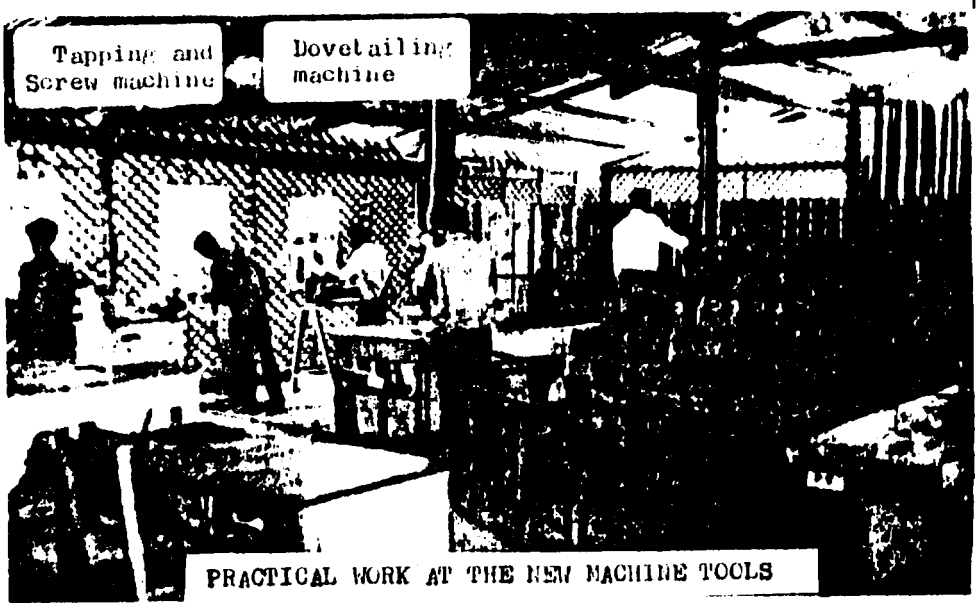


1. 2. .3. 4. TEMPORARY TRAINING PLACE FOR WOODWORKING EQUIPMENT


Coping Lathe

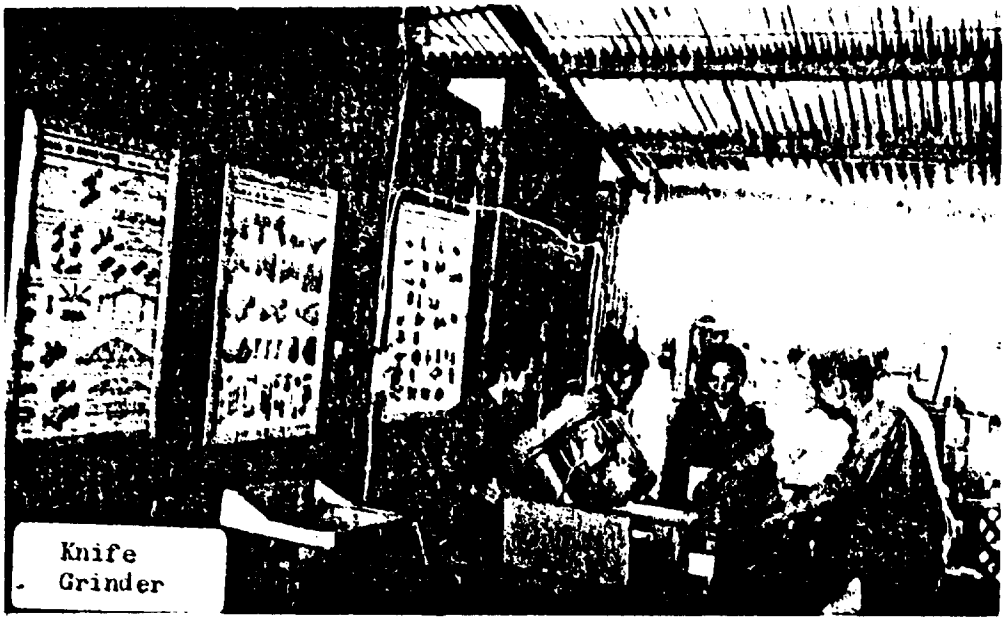

Cup Grinder
Bench Grinder
Universal Grinder



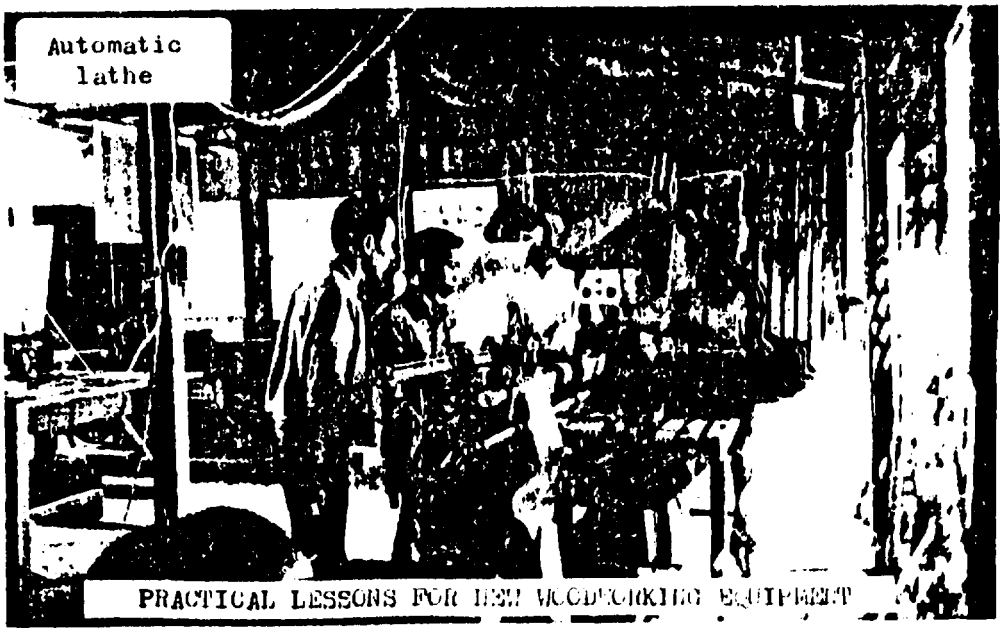


PRACTICAL WORK AT THE NEW MACHINE TOOLS

Multiple
Rip Saw

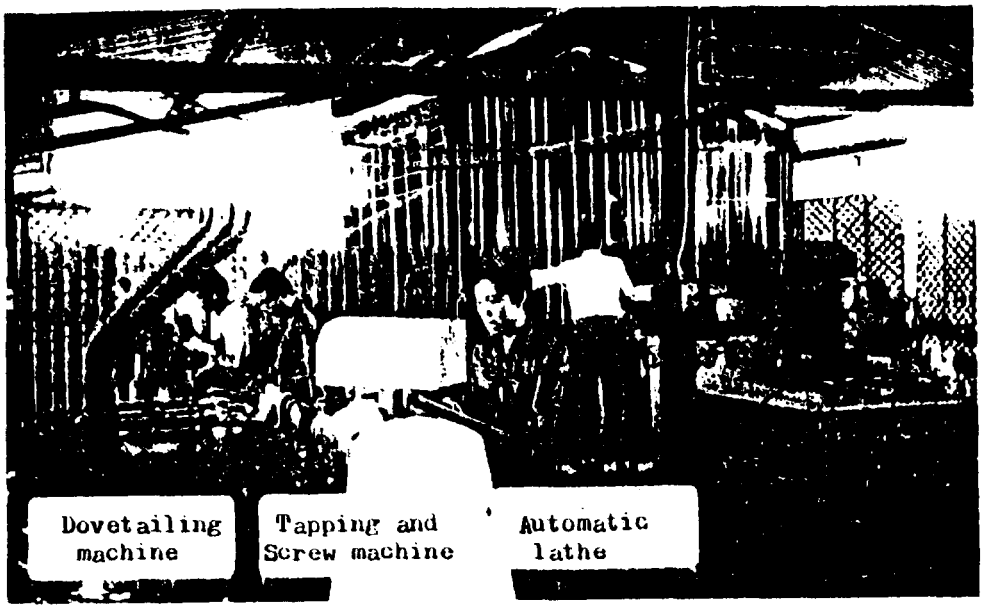


Knife
Grinder



PRACTICAL LESSONS FOR NEW WOODWORKING EQUIPMENT

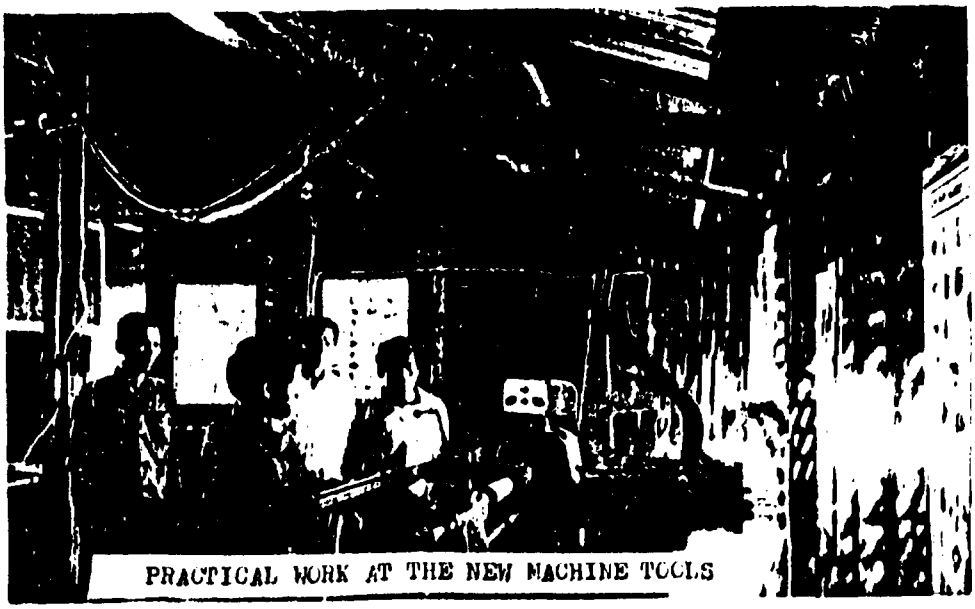
Multiple
Rip Saw



Dovetailing
machine

Tapping and
Screw machine

Automatic
lathe



PRACTICAL WORK AT THE NEW MACHINE TOOLS

1

3

2

4

1. 2. 3. 4. THEORETICAL LESSONS FOR NEW WOODWORKING EQUIPMENT

Ministry of Agriculture

UNDP/UNIDO
INTEGRATED WOODWORKING PROJECT

WOODWORKING EQUIPMENT TRAINING PROGRAMME
TIME SCHEDULE JANUARY - MAY 1980

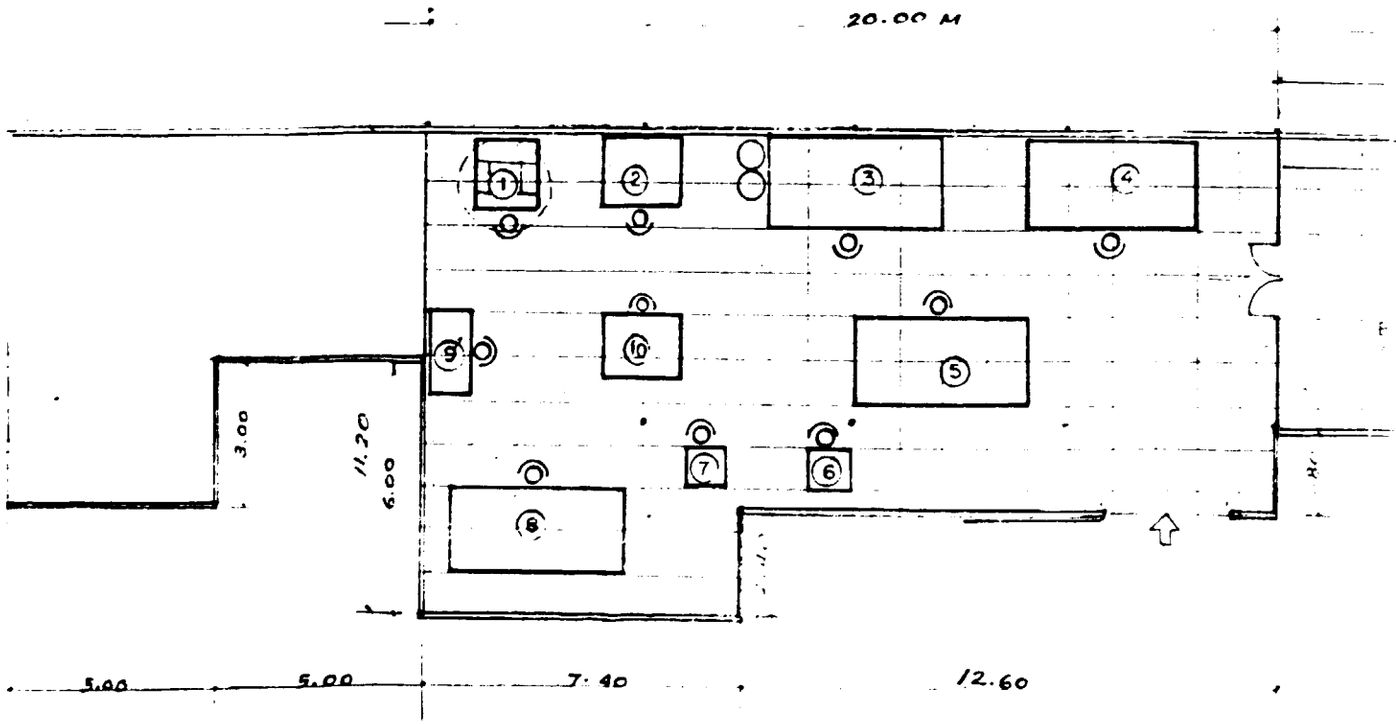
	MORNING		COUNTERPART	AFTERNOON		COUNTERPART
DATE	TIME	SUBJECT	STAFFING	TIME	SUBJECT	STAFFING
MONDAY	0800 - 1000	Theory	Bounmy	1400 - 1700	Practice & Servicing	Bounmy Bounthong
	1000 - 1200	Practice & Servicing	Bounmy Bounthong			
TUESDAY	0800 - 1000	Theory	Khamphouang	1400 - 1700	Practice & Servicing	Bounmy Bounthong
	1000 - 1200	Practice & Servicing	Bounmy Bounthong			
WEDNESDAY	0800 - 1000	Practice & Servicing	Bounmy	1400 - 1700	Trouble Shooting	Bounmy Bounthong
	1000 - 1200	" "	Bounmy Bounthong			
THURSDAY	0800 - 1000	Theory	Khamphouang	1400 - 1700	Practice & Servicing	Bounmy Bounthong
	1000 - 1200	Practice & Servicing	Bounmy Bounthong			
FRIDAY	0800 - 1000	Practice & Servicing	Bounmy	1400 - 1700	Practice & Servicing	Bounmy Bounthong
	1000 - 1200	" "	Bounmy Bounthong			
SATURDAY	0800 - 1000	Practice &	Khamphouang	1400 - 1700	Practice &	Bounmy
	1000 - 1200	Servicing	Bounmy Bounthong		Servicing	Bounthong

Appendix VII

- 50 -

BOUNPETH SAWMILL FOREST ENTERPRISE Nº 3.

INSTALLATION OF SAW MAINTENANCE EQUIPT.

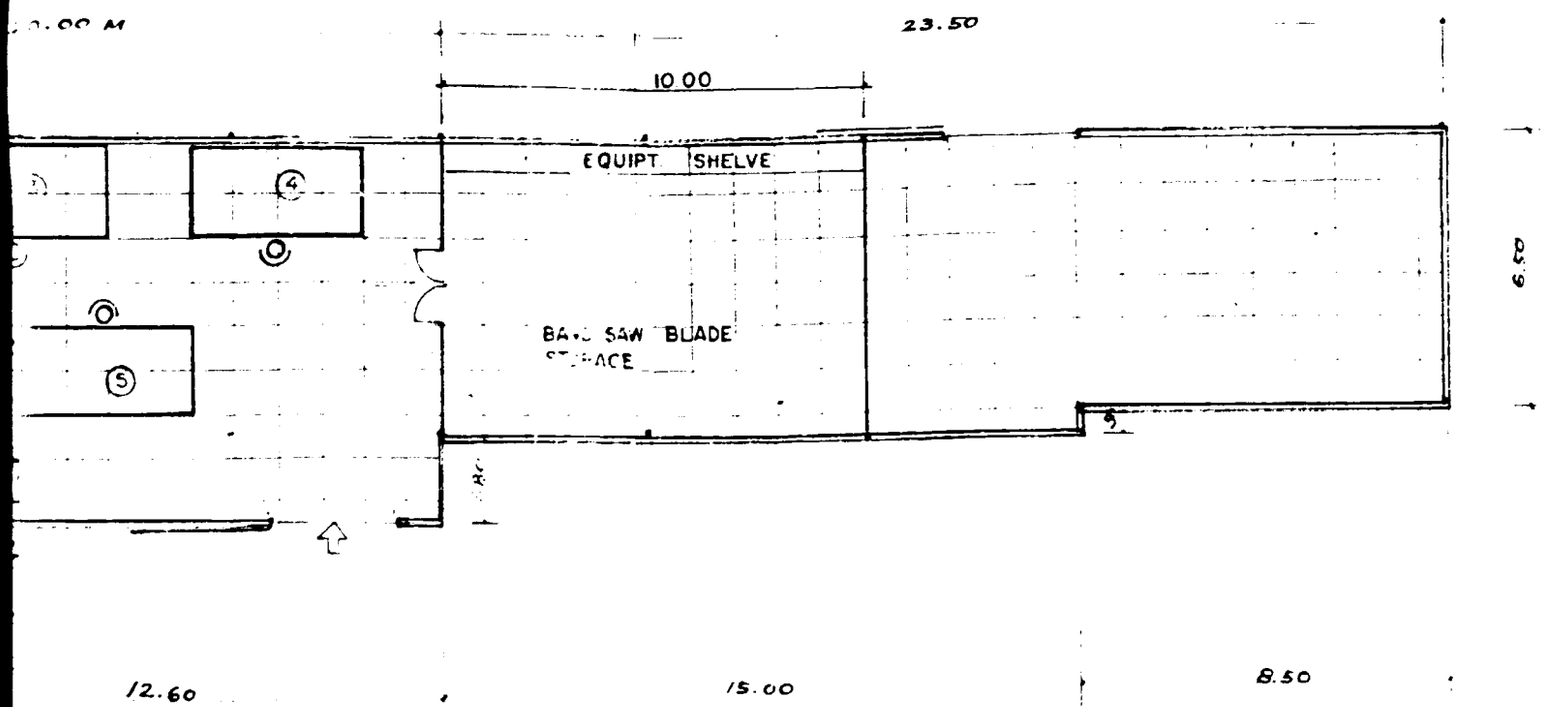


SECTION 1

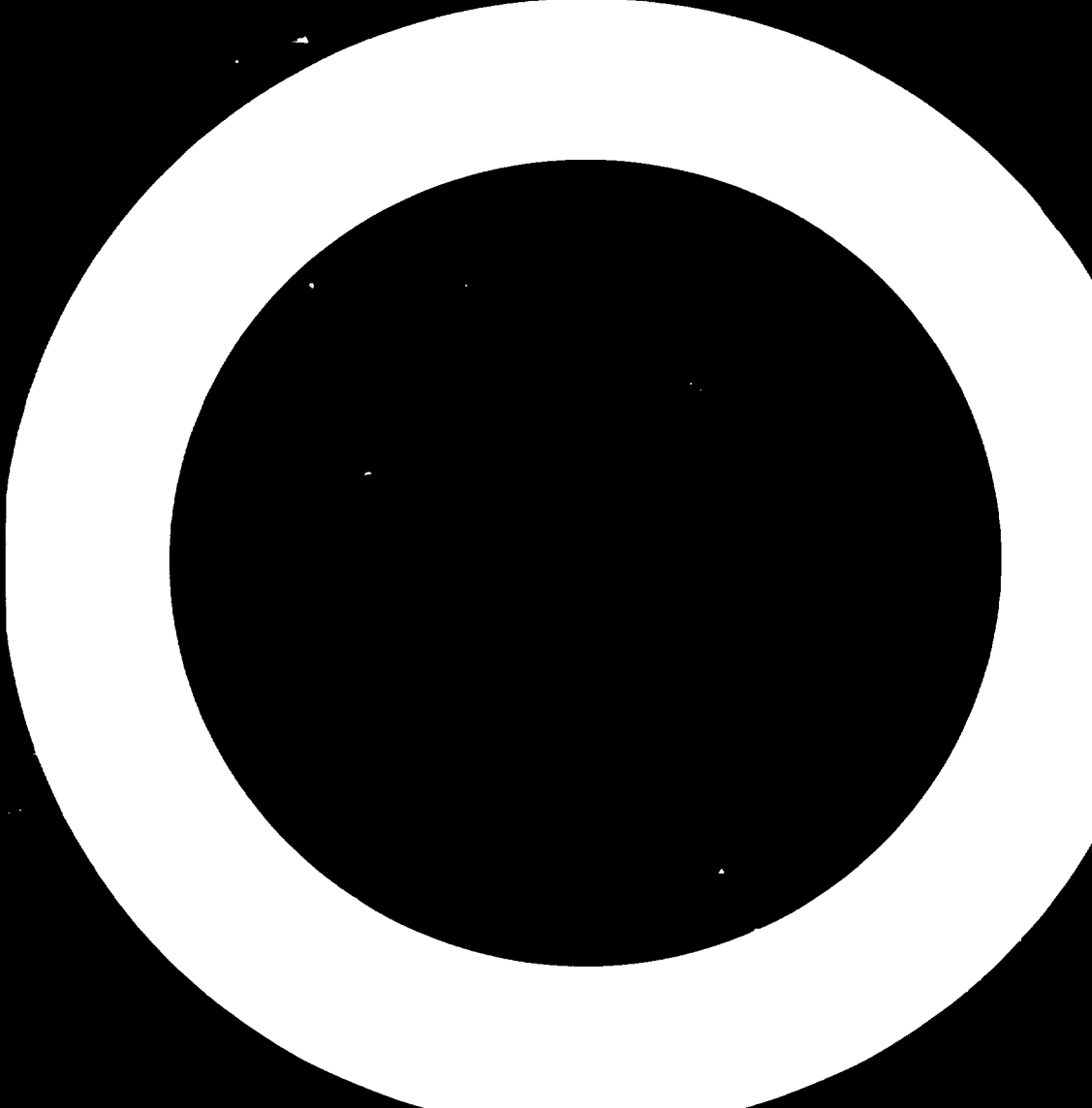
Appendix VIII

LEGEND :

1. CIRC SAW TENSIONING M/C.
2. BENCH FOR SETTING BLADES
3. WELDING EQUIPMENT
4. TENSIONING M/C FOR B.B.
5. AUTOMATIC BAND SAW SHARPENER
6. BLADE SHEAR M/C
7. FLY PRESS
8. AUTO CIRC SAW SHARPENER
9. BENCH FOR CLEANING BLADES
10. GRINDING M/C
- WORKER



SECTION 2



LAO PEOPLE'S DEMOCRATIC REPUBLIC

Direction of Forestry / Direction of University and Technical Education

UNDP / UNIDO Integrated Woodworking Project LAO/74/10

TRAINING MANUALS FOR THE WOODWORKING INDUSTRY

Group J WOODWORKING MACHINES

Section 1

UTILISATION ET ENTRETIEN DES MACHINES A BOIS

Source Utilisation et Entretien des Machines à Bois

J. HEURTMATTE.

Translated by : Somlane , Khampheng , Khamphouang
Boun Em and Khamphieng
(Technical School)

R.D.P.L.

MAY 1980

INPRODUCTION

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This is the tenth Bilingual training manual produced so far by the UNDP/UNIDO Integrated Woodworking Project. Beside being the first texts ever produced in the Lao language in various woodworking subjects the manual provides cross reference in an international language in order to facilitate the transfer of technology. Many woodworking terms have been introduced in the Lao language in connection with the context of the manual.

This manual has been integraly reproduced from the hand book "UTILISATION ET ENTRETIEN DES MACHINES A BOIS" written by J.HEURTMATTE and translated in Lao language by teachers from Vientiane technical school and Project coordinator counterparts.

The manual beside being used as a reference hand book in the industry has been introduced by one of the Project Officer in-charge's counterparts in the regular curriculum of technical school.

Vientiane, 3 June 1980

ຄໍ ນໍ

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ຄູ່ມືຝຶກຫັດເຫຼັ້ມນີ້ ເປັນຫົວທີ ສິບ ໃນຈຳນວນຄູ່ມືທັ້ງໝົດ ຊຶ່ງທາງໂຄງການ ອຸດສາຫະກຳໄມ້ ສະຫະປະຊາຊາດ ໄດ້ພິມເຜີຍແຜ່ອອກ. ດຽງຄູ່ກັນນີ້, ນອກຈາກຈະ ເປັນເນື້ງ ໃນບັນດາຄູ່ມືທີ່ໄດ້ພິມອອກເປັນ ພາສາລາວ ກ່ຽວກັບວິຊາການຕ່າງໆ ຂອງ ອຸດສາຫະກຳໄມ້, ຄູ່ມືດັ່ງກ່າວຍັງເປັນຄູ່ມືອ້າງອີງ ຊຶ່ງໄດ້ອຳນວຍຄວາມສະດວກໃຫ້ຫລາຍ ໃນການຫ່ຽນແຫຼ່ງ ເຕັກນິກວິຊາການຈາກຕ່າງປະເທດ.

ຄູ່ມືເຫຼັ້ມນີ້ໄດ້ພິມອອກຈາກປຶ້ມ "ການໃຊ້ ແລະ ການບຳລຸງຮັກສາເຄື່ອງຈັກເຮັດໄມ້" ຂອງໂດ ຊ. ເຮີດເມດເຕ ແລະ ແປອອກເປັນພາສາລາວໂດຍ ອາຈານສອນ ໂຮງຮຽນ ການຊ່າງຝາກຝາສົກວຽງຈັນ ແລະ ບັນດາຜູ້ຮ່ວມງານຂອງ ຜູ້ບໍລິຫານໂຄງການ.

ນອກຈາກຈະເປັນຄູ່ມືອ້າງອີງອີກອັນນຶ່ງ ສຳລັບກິດຈະການອຸດສາຫະກຳໄມ້ແລ້ວ, ຄູ່ມືດັ່ງກ່າວນີ້ຍັງໄດ້ຖືກນຳມາໃຊ້, ໂດຍ ຜູ້ຮ່ວມງານຂອງຜູ້ບໍລິຫານໂຄງການ, ກ່ຽວກັບການ ການສຶກສອນ ພາຍໃນໂຮງຮຽນການຊ່າງ ອີກດ້ວຍ.

ວຽງຈັນ, ວັນທີ ມິ ຖຸນ ໑໙໘໐

ຄ. ອຸນາໂຣກີບ
ອຸດສາຫະກຳໄມ້
ສະຫະປະຊາຊາດ

Alexandor M Sumarokov
Officer in-charge
UNDP/UNIDO Integrated
Woodworking Project

ທອງເຫຼືອ ສຸດທະວິໄລ
ຄະນະກຳມະການ ແລະ
ອຸດສຳຫະກຳໄມ້

Thongleua SOUTHAVILAY
Deputy Director of
Forestry Department

ຫຽມ ພົມມະຈັນ
ຫົວໜ້າຄະນະອຳນວຍການ
ໂຮງຮຽນການຊ່າງຝາກຝາສົກ ວຽງຈັນ

Hiem PHOMMACHANH
Director of Vientiane
Technical school

TABLE DES

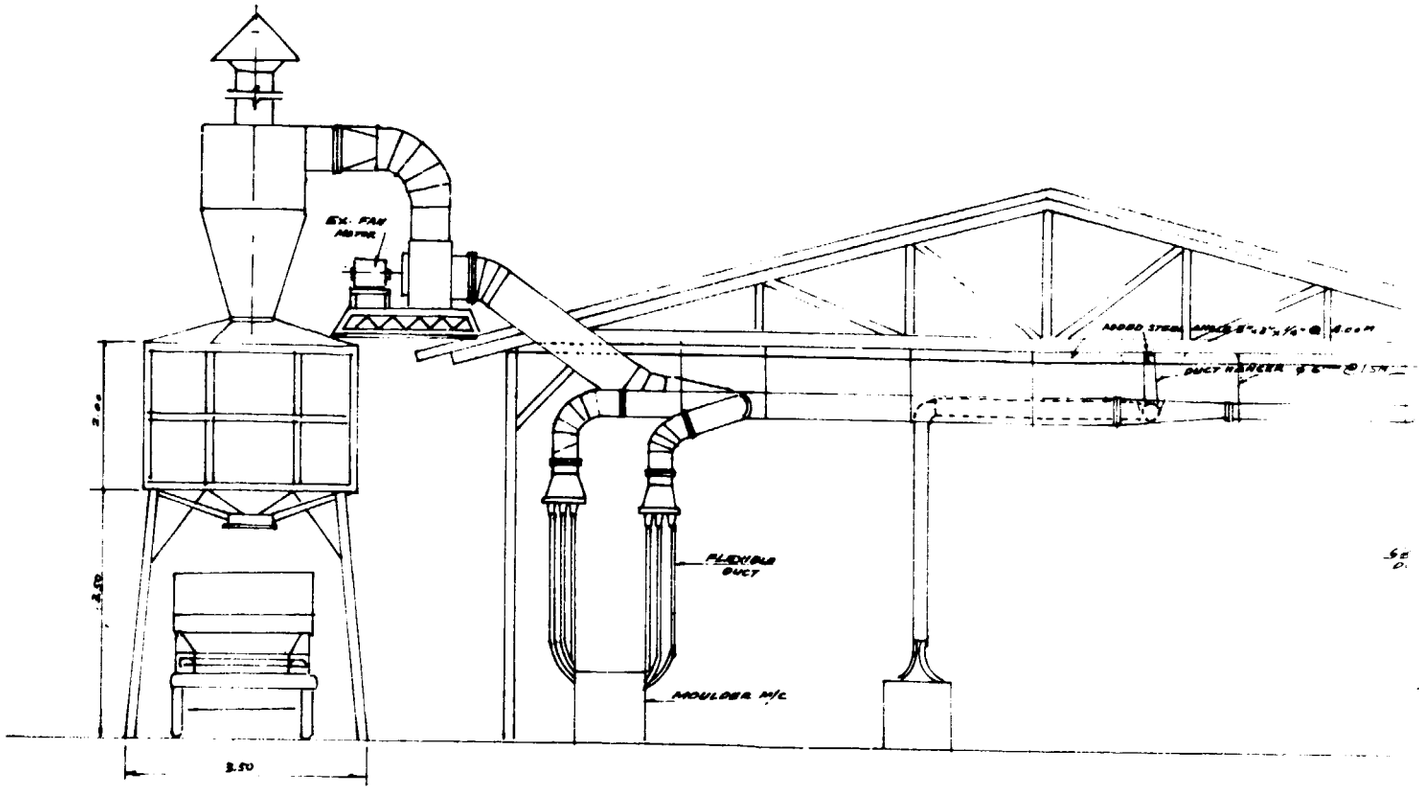
LE SIAGE DU BOIS

L'USINAGE DU BOIS

L'ENTRETIEN DES OUTILS

MATIERES

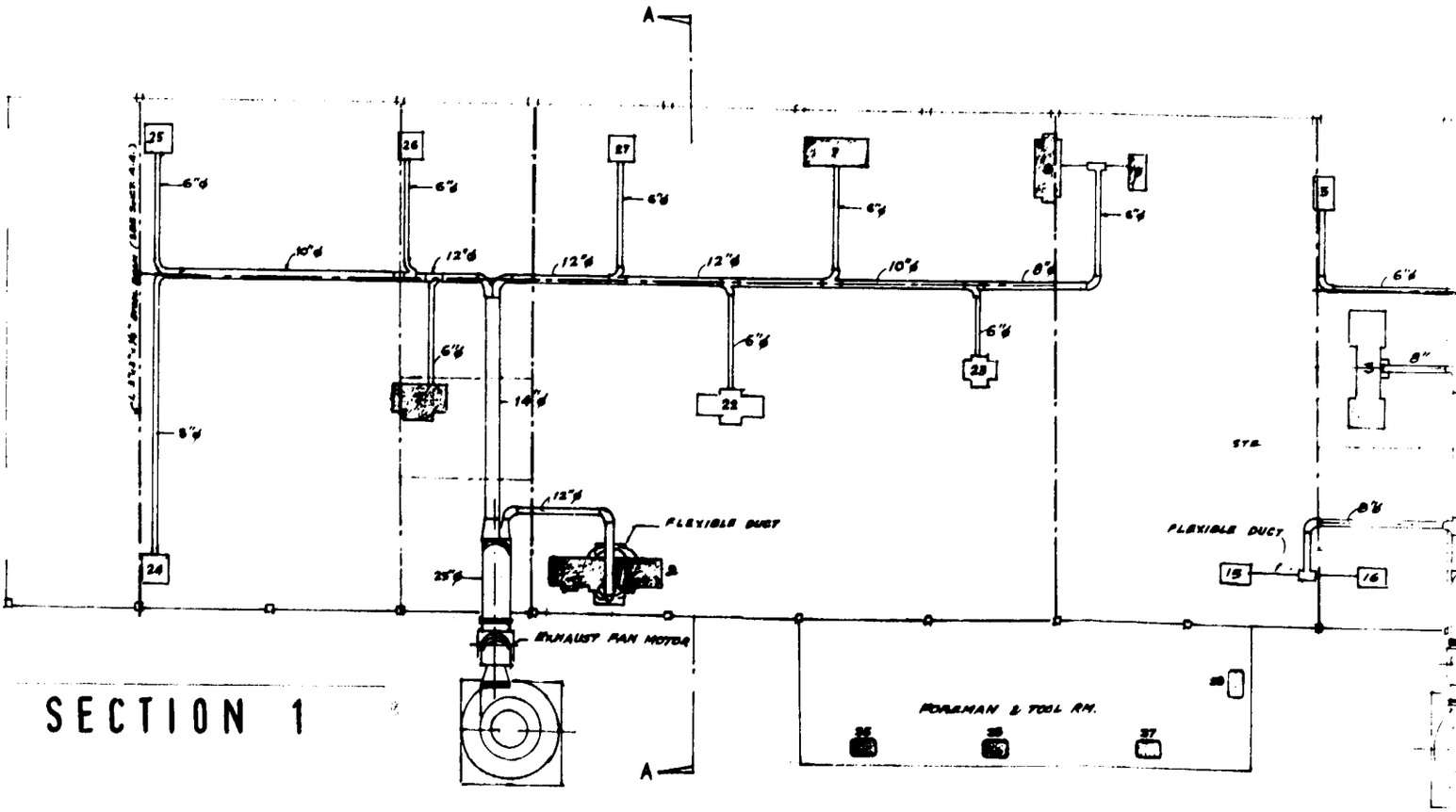
สาละบาญ



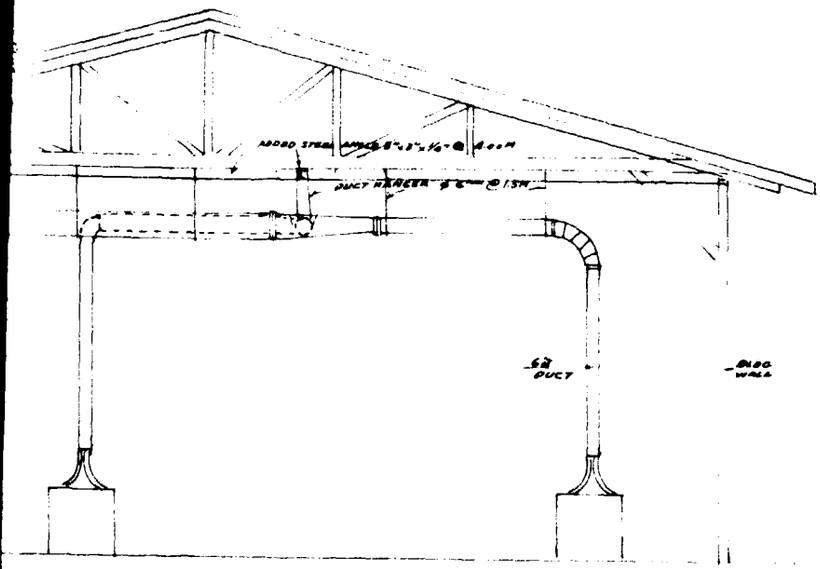
SECTION A.A

POSITION OF DUST EXHAUT HOO

SCALE 1:50



SECTION 1



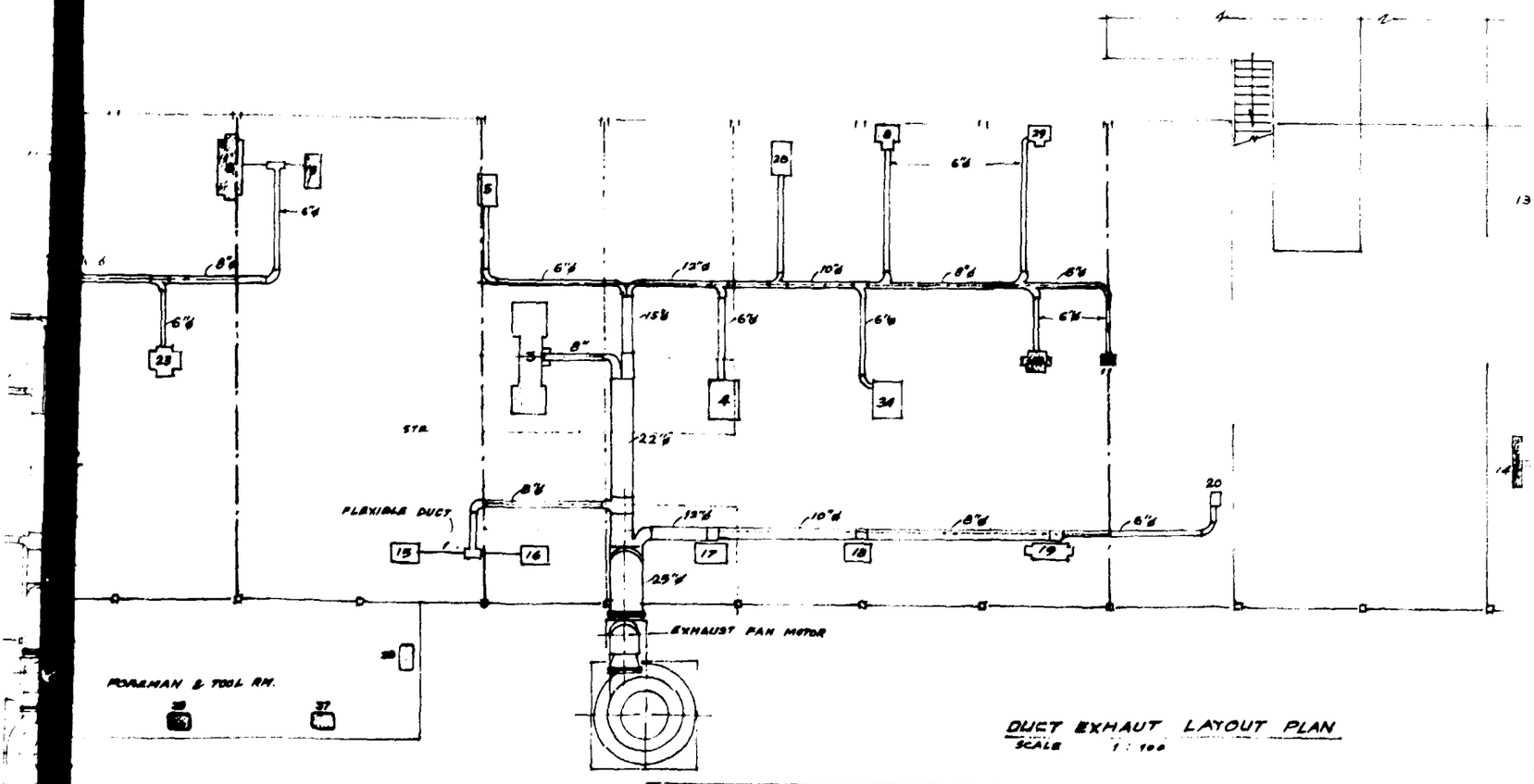
SECTION A.A

POSITION OF DUST EXHAUT HOOD

SCALE 1:50

LEGEND

1 MULTIPLE RIP SAW
2 MOULDER
3 DOUBLE CIRCULAR SAW
4 CIRCULAR SAW
5 ROUND TENONER
6 SLOT MORTISER
7 COPYING LATHE
8 AUTOMATIC LATHE
9 DOVETAILLER
10 TAPPING & SCREW MACHINE
11 DOWEL MACHINE
12 EDGE BELT BANDER
13 DRUM SANDER
14 TURNING SANDER
15 SPINDLE MOULDER
16 SPINDLE MOULDER
17 ROUTER
18 ROUTER
19 MULTIPLE BORER
20 DRILL PRESS
21 DRILL PRESS
22 JOINTER
23 THICKNESSER
24 RADIAL SAW
25 CROSS CUT MACHINE
26 BAND SAW
27 BAND SAW
28 ROUND TENONER
29 SLOT MORTISER
30 STROKE BELT BANDER
31 STROKE BELT BANDER
32 SURFACE SANDING M/C
33 EDGE BELT SANDER
34 CIRCULAR SAW.
35 CUP GRINDER
36 BENCH GRINDER
37 UNIVERSAL GRINDER
38 KNIFE GRINDER.



DUCT EXHAUT LAYOUT PLAN

SCALE 1:100

SECTION 2

PLAN OF DUCT EXHAUST FOR BML FACTORY

LEGEND

1 MULTIPLE RIP SAW
2 MOULDER
3 DOUBLE CIRCULAR SAW
4 CIRCULAR SAW
5 ROUND TENONER
6 SLOT MORTISER
7 COPYING LATHE
8 AUTOMATIC LATHE
9 DOVETAILLER
10 TAPPING & SCREW MACHINE
11 DOWEL MACHINE
12 EDGE BELT SANDER
13 DRUM SANDER
14 TURNING SANDER
15 SPINDLE MOULDER
16 SPINDLE MOULDER
17 ROUTER
18 ROUTER
19 MULTIPLE BORER
20 DRILL PRESS
21 DRILL PRESS
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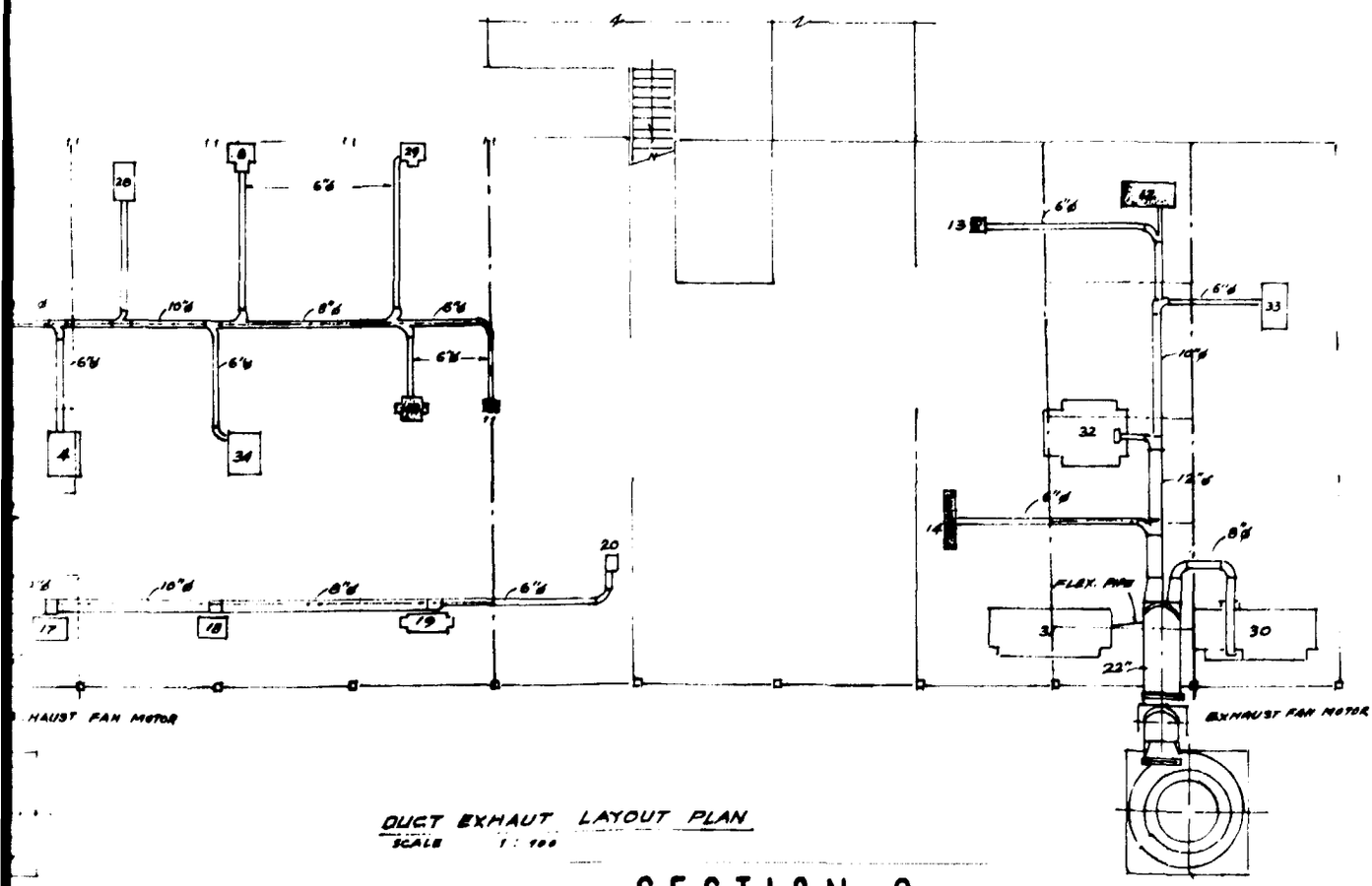
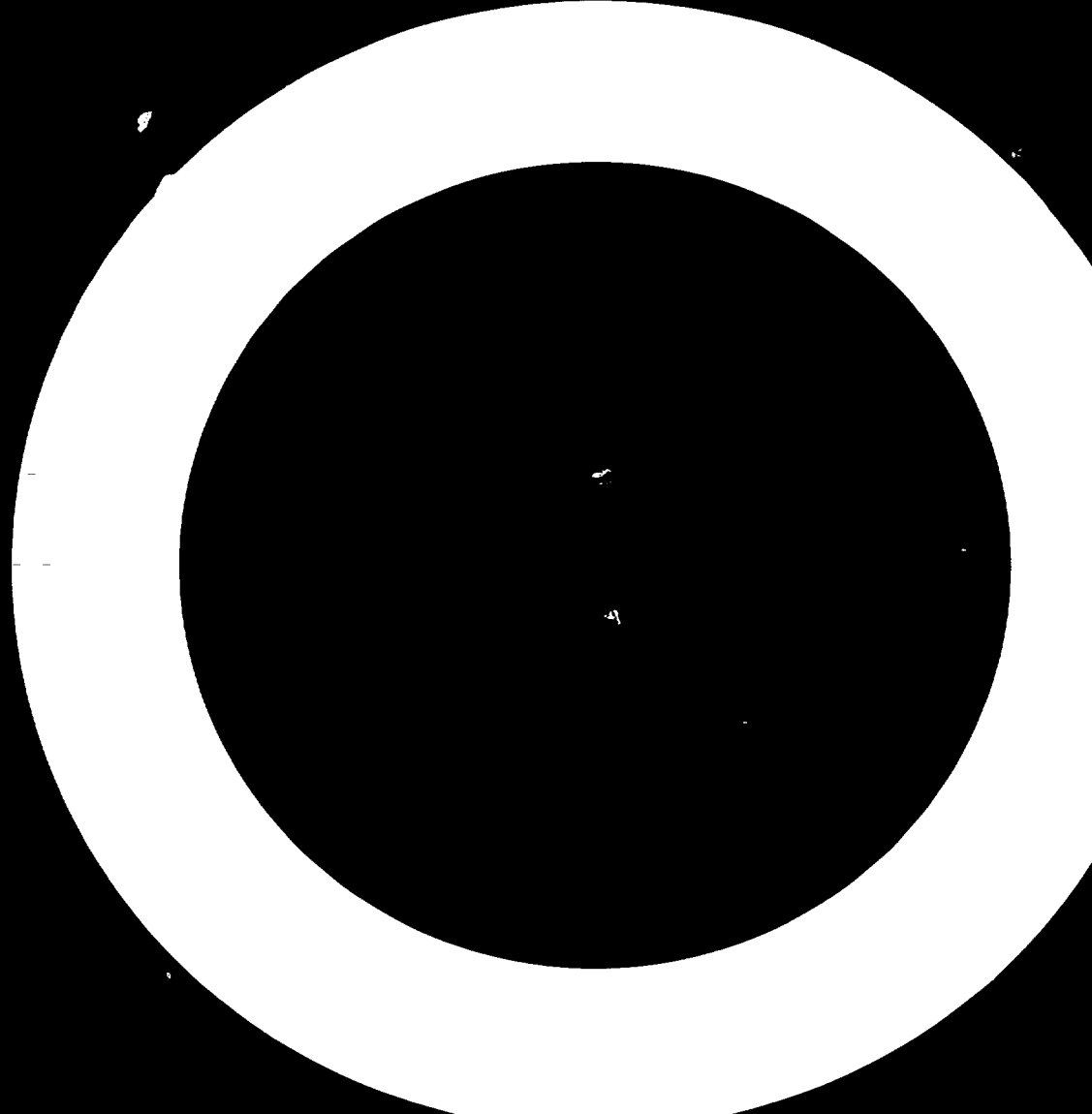
33 EDGE BELT SANDER
34 CIRCULAR SAW.
35 CUP GRINDER
36 BENCH GRINDER
37 UNIVERSAL GRINDER
38 KNIFE GRINDER.

■ Machines delivered & installed.
□ Machines to be purchased.



DUCT EXHAUT LAYOUT PLAN
SCALE 1 : 100

SECTION 3



APPENDIX XI - Installation of Eighteen Machine in New B.M.L. Factory

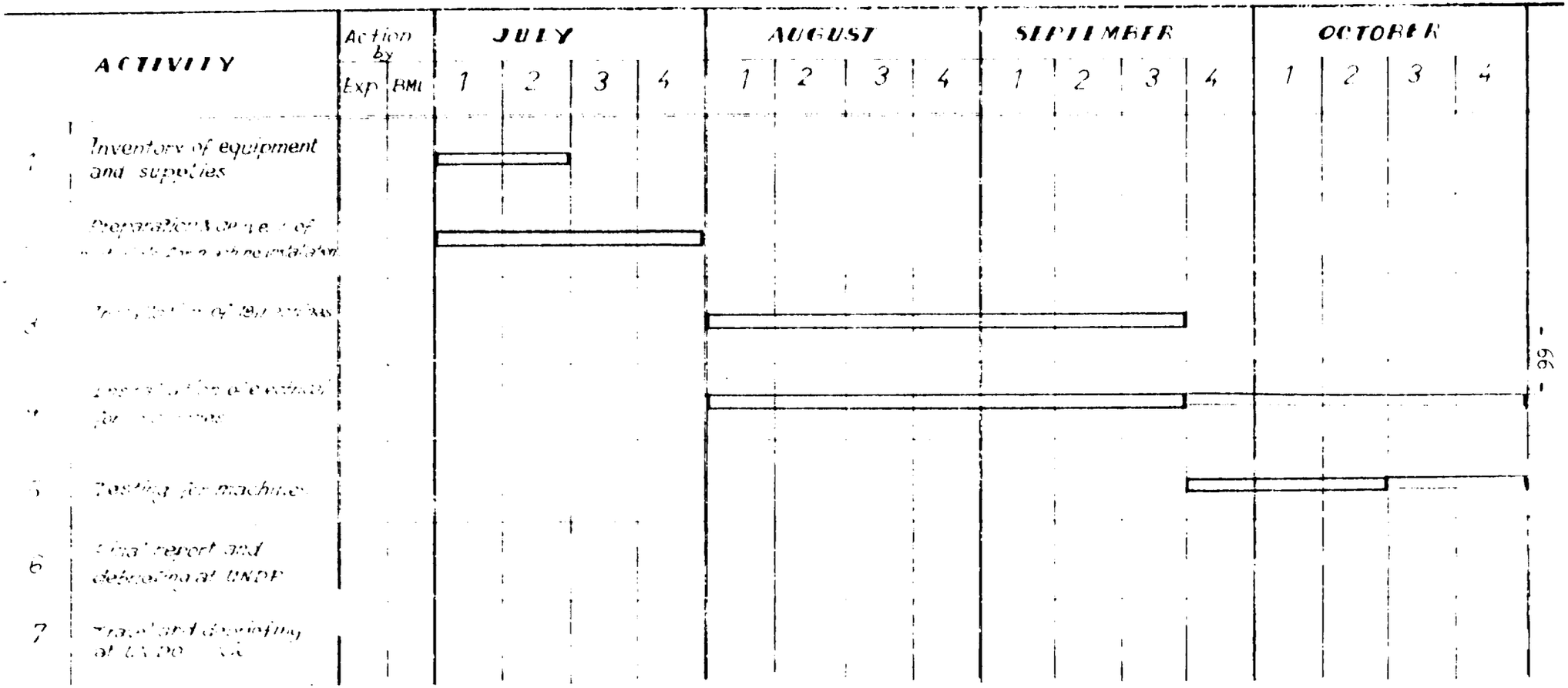
INSTALLATION OF EQUIPMENT

NEW BML FACTORY

APPENDIX XII

UNDP / UNIDO INTEGRATED WOODWORKING PROJECT

WORK PLAN



UNDP/UNIDO INTEGRATED WOODWORKING PROJECT

WORK PLAN

	ACTIVITY	ACTION by		NOVEMBER				DECEMBER			
		Exp	BML	1	2	3	4	1	2	3	4
1	INSTALLATION OF ELECTRICAL FOR 18 MACHINES										
2	TESTING FOR 18 MACHINES										
3	FINAL REPORT AND DEBRIEFING AT UNDP										
4	TRAVEL AND DEBRIEFING AT UNIDO, VIENNA										

Work Plan Continued

APPENDIX XIII - Operating Manuals for Woodworking Equipment

D O WE TAI LING MA CHI NE

1. Introduction
2. Securing the machine in position
3. Fitting the electric motors.
4. Height adjustment
5. Fitting other makes of motor
6. Clamping the boards in position.
7. Setting the machine open and concealed joints.
8. Cutting of joints.
9. Setting the machine for straight joints.
10. Setting the machine for sharp-edged open joints.
11. Setting the machine for non-rectangular joints.
12. Setting of the machine for mitre joint
13. Setting the machine for dado joints.
14. Setting the machine for mitre tongue j ts.
15. Cutting of drawer joints.
16. Drilling dowel holes.

1. Introduction

We strongly advise you to study the operating instructions carefully before using the machine for the time, so that you will rapidly become familiar with its layout and operation.
So as to ensure a clean job and to avoid overloading the motor only well-sharpened tools should be used. This is particularly important in the case dovetail joints of large pitch and depth.

The following data should be noted:
Maximum operating width:
a) for dovetailing 630mm. b) for drilling dowel holes .. 600mm.
Clamping width 8–25 mm, with rectangular pressure beams turned through 90 degrees (1, Fig. 3) 25–40 mm.

'Pitch S	Feeler pin diameter	Largest cutter diameter	Maximum cutting Depth	Surtable for board thicknesses of +)
20 mm	9,5 mm	10 mm	11 mm	From 8 mm upwards
25 mm	14,5 mm	14 mm	17 mm	From 11 mm -" -
30 mm	19,5 mm	17 mm	18 mm	From 15 mm -" -
			30 mm	From 18 mm -" -

+) Smallest thickness of board clamped in the vertical position

A pitch of 25 mm is Standard. If the pitch has a pin distance (S) of either 20 or 30 mm, both the compensating stops (4, Fig.1), which have been supplied and the corresponding feeler pin (7) should be used.
The lateral stops (2) are set 12.5 mm apart, which is half the 25 mm pitch of the standard template. For templates with a 20 mm pitch, the compensating stops are screwed to the vertical stop surface (2), whilst for templates with a 30 mm pitch they are screwed to the horizontal stop surface. In this way the boards are always displaced by half the dovetail pitch.

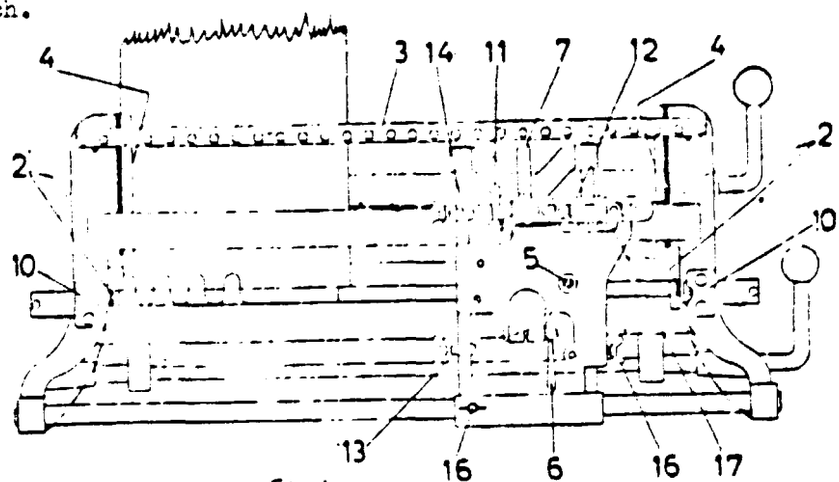


Fig.1

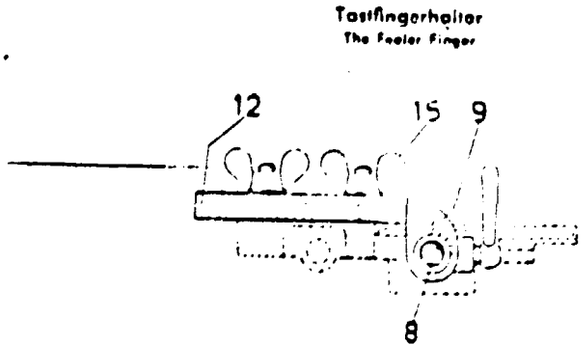


Fig. 2

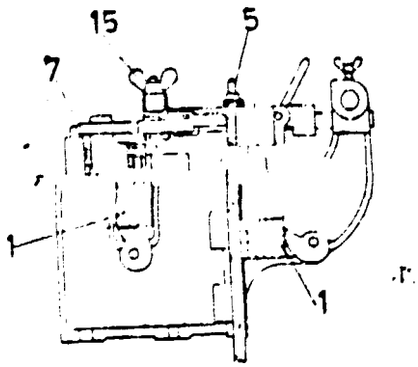


Fig 3

2. Securing the machine in position

For this purpose we would recommend the swivel support type ST 40, which is indispensible for dowel operations. The machine can also be secured to a table or screwed on to a board and clamped on a work bench. It can be used to cut any type of open or concealed rounded-off joints and these applications as well as its use for other types of cutting operation, such as the formation of grooves, tongues, dowels and mitre joints are described below.

3. Fitting the electric motors

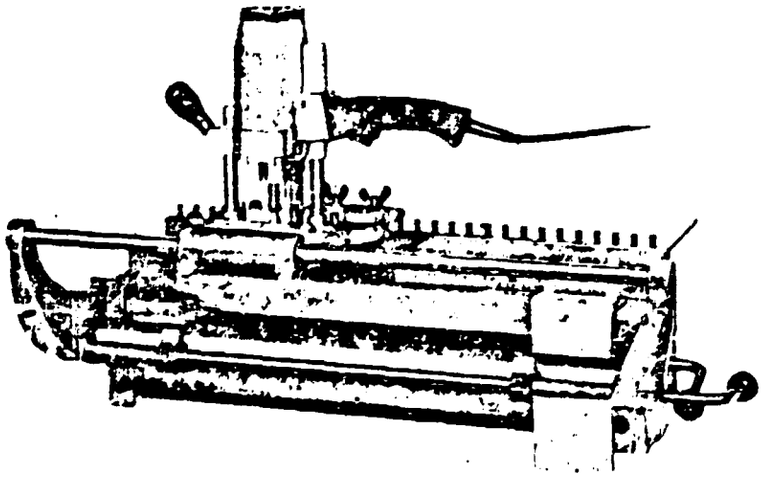
The electric motors of Type HM 16 and HM 40 D are attached with their base plates to the support of the dovetailing and dowel hole attachment and secured. With the threaded bolts provided for this purpose. Only one such bolt is used for the motor of Type HM 14, where opposite side is secured with the turret stop which is removed before assembly. An extension piece of Type LN 3C1 which is mounted on a ball bearing should be used with the latter type of motor, although this is only advisable in the case of Motors of Type HM 16 and HM 40 D. The following should be noted when fitting a motor: After the extension piece has been securely attached to the motor, the ball bearing should be inserted in the large bore of the supporting plate and held fast with the clamping lever (6). Only then should the base plate be secured to the support.

4. Height adjustment

The height of electric motors HM 14, HM 16 and HM 40 D is adjusted by turning a knob in accordance with the attached scale.

5. Fitting other makes of motor

Other makes of motor require adaptors, which can be supplied by us with the machine, it we are notified of the make and type. However we strongly advise customers to use SCHEER motors, as they guarantee a perfect fit and smooth operation.



6. Clamping the boards in position

Boards to be joined together with open or concealed joints are cut in one operation, during which they are clamped in pairs either on the left or right hand side of the machine. They must be cut perfectly at right angles. First the vertical board should be slid in from below, brought into contact with lateral stop (2) of the machine and the front clamping knob tightened. The horizontal board should then be made to touch the vertical board and to come into contact with the lateral stop when the rear clamp is tightened. After this the front clamping knob is released and the vertical board is made flush with the horizontal board with the left hand. The clamping knob is then tightened.

7. Setting the machine for open and concealed Joints *)

1. Set the machine to the required cutting depth (a) shown in Fig. 4. In open joints (a) corresponds to the thickness of the horizontally clamped board, whereas in concealed joints it is slightly smaller than the thickness of the horizontally clamped board.
2. Move the cutter laterally towards the vertically clamped board until point B (Fig. 5) is flush with the front edge. Then lock the guide carriage crossways on the cross carriage with the wing nut (16). Separate the clamping lever (11) from the feeler pin (7) and turn the broad side of the oval finger horizontally (zero point) so that the mark (8) of the finger rests on the zero point (9) of the scale attached to the feeler finger (12). Then bring the tip of the feeler finger (fig. 5) into contact with one pin of the tem plate (3) and retighten the clamping lever (11).
3. Set the cutting length "L" with the locating collar (14) so that "L" is twice the thickness of the vertically clamped board less approx. 2 mm. Then release the locked guide carriage again by loosening the wing-nut (16).
4. Move feeler pin holder (12) (according to the width of the board) far enough from the zero position of the scale to bring the outer tongues or grooves on the left and right hand sides of the board into the diesired position. When cutting at the opposite end of the machine, the feeler pin holder must be moved in the opposite direction through the same number of gradations from zero.

Small illustrations

Open rounded joints; Half concealed joints

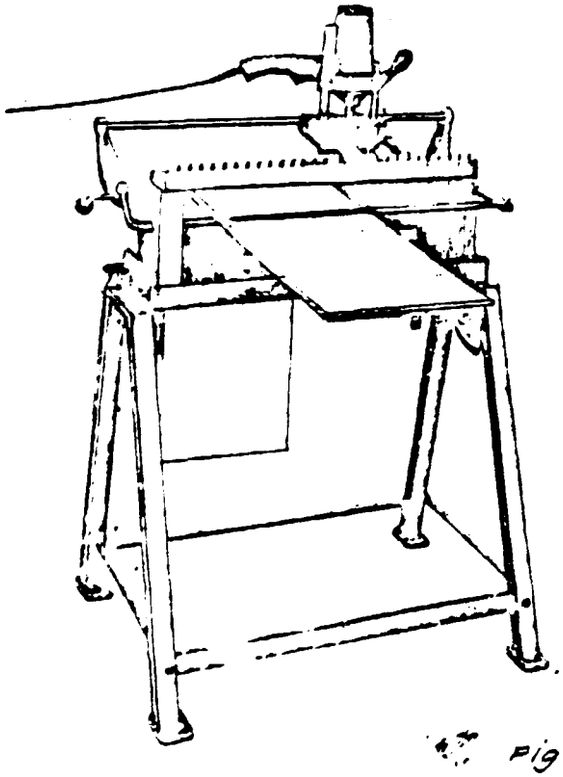


Fig. 19

8. Cutting of joints

1. Switch on motor
2. To prevent splintering make a short cut in the vertical board from righ to left. At the same time move the feeler finger along the pins of the index template.
3. A test cut is then made from left to right. Make sure that the guide finger runs directly along the row of template pins, i.e along the left hand pin when travelling forwards and along the right hand pin when travelling backwards; it should also move around the pin with its rounded-off tip.
4. Unclamp boards and put (stick) them together.
5. If the tongues are too tight increase the amount of finger play (Fig.6), whereas if they are too loose it should be reduced. The amount of play is adjusted by turning the oval finger. If even with the smallest amount of play a tight fit is not obtained, the diameter of the cutter should be reduced by grinding or the next smaller size of cutter should be used.

Fig. 6

Position of finger with minimum amount of play.

Position of finger with maximum amount of play.

If after a period of continuous operation, the clamping cams cause indentations to be formed in the pressure beams (1) which could lead to a loss clamping pressure, the damaged surfaces should be cut smooth or sanded.

9. Setting the machine for straight joints

Straight joints are cut with a grooving cutter.

Pitch 20 Cutter dia. 9mm. Pitch 25 Cutter dia. 12mm. Pitch 30 Cutter dia. 14 mm.

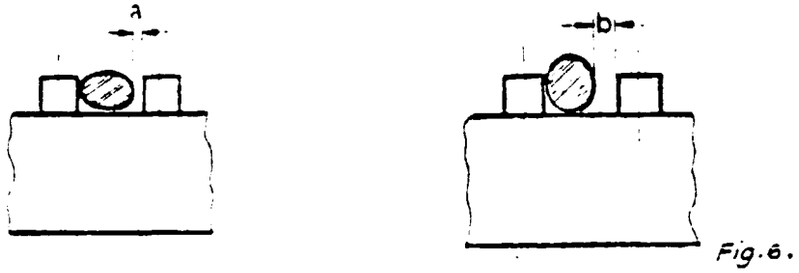


Fig.6.

Stellung des Tastfingers bei kleinstem Fingerspiel

Stellung des Tasfingers bei grobtem Fingerspiel

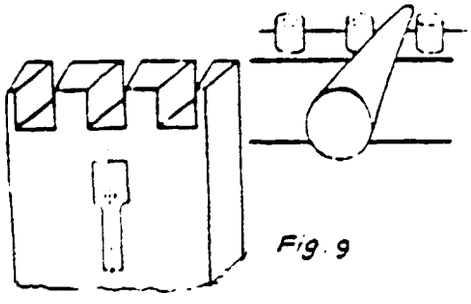


Fig. 9

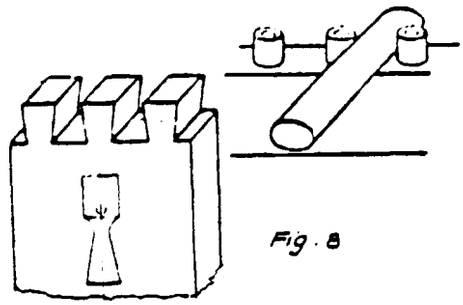


Fig. 8

Setting of the machine

1. The boards are cut separately, whilst clamped in the vertical position.
2. The cutting depth corresponds to the thickness of the counterboard.
3. The cylindrical section of the feeler pin must be located between the template pins when the cutter with the wood (Fig. 7).
4. The oval pin (finger) is rotated to give the joints their correct size.
5. After the finger holder has been set according to board width when cutting the first boards, as described in section 4, page 4 (centre), it must be moved through half the pitch when cutting the second board; this is carried out according to scale 17, i. e. a distance of 12.5 mm if a 25 mm is used.

Fig. 7 Staight Joints.

10. Setting the machine for sharp-edged, open joints

Sharp-edged open joints are made in two stages; one board at a time is clamped vertically into the machine and the cutting operation begun First a dovetail cutter and a standard-type feeler pin are used to cut a groove as shown in Fig. 8 on page 6; then the feeler pin is exchanged for a tapered pin and the operation is completed with a groove cutter as shown in Fig. 9. For the setting of the machine see section 9. Straight joints", 1-5.

Einstellen der Fraslange
The setting of the cutter length
Reglage de la longeur de fraisage.

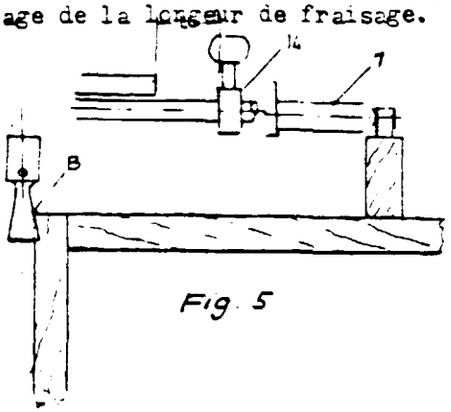


Fig. 5

11. Setting for non-rectangular joints

When cutting non-rectangular joints, the board clamped in the vertical position is first cut to the desired angle, and the side edges of the board clamped in the horizontal position are then given the same angle. A wooden wedge (A) is attached to the vertical stop (2) (Fig.1) with the hole provided so that it is in line with the desired angle (W). At the same time a stop board (B) should be screwed on to the horizontal stop of the horizontal board (Fig. 1). The setting of the machine is as described on page 3 (Concealed and open joints).

Non-rectangular joints

Fig. 10

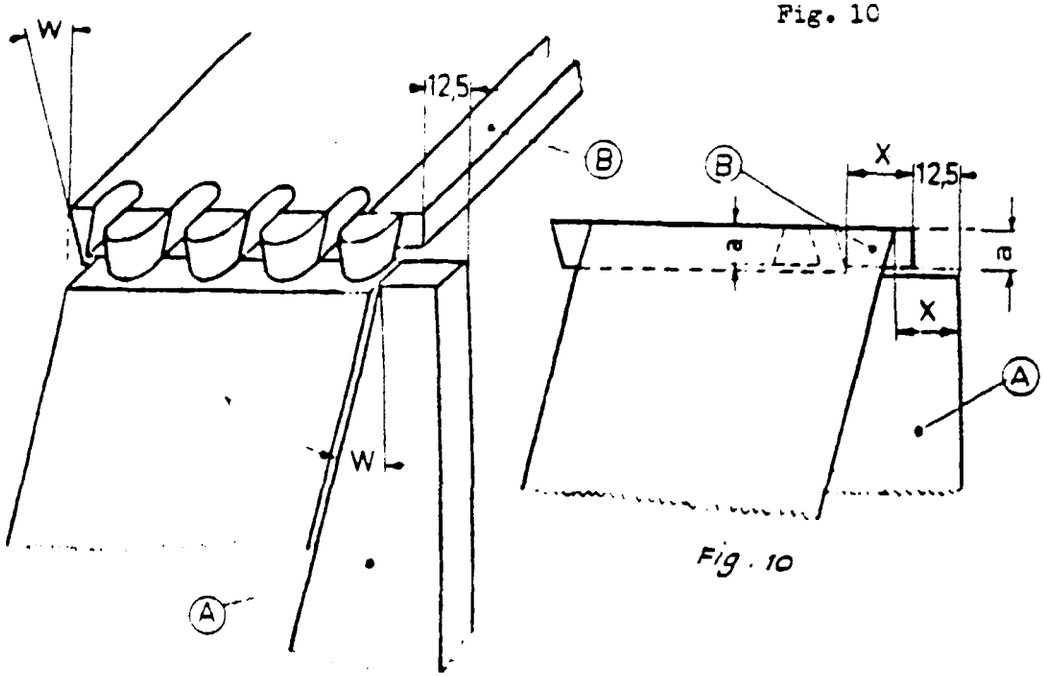


Fig. 10

12. Setting of the machine for mitre joints

Mitre joints are formed in two stages using a single cutter; before the cutting operation begins, however, the edges to be join d should be bevelled. The work is carried out as follows:

A) Bevelling

1. The board should be clamped individually in the vertical position.
2. The preliminary cutting of the boards should then be carried out with a groove cutter (Fig. 11).
3. The edge should be bevelled with a 90 degree bevel cutter (Fig. 12). Point X should be left in the same position as shown on the diagram and b should be the same distance on both boards (Fig. 13), 14).

B) Cutting Board

1. The board should be clamped in the vertical position.
2. The cutter should be set to depth C.
3. The cutter tip should be made to touch the wood (Point Y, Fig. 13).
4. The cutter length L (Fig. 5) should be made equal to (a) on the support.
5. The feeler finger should be inserted between the template pins as shown in (Fig. 7).
6. The joints are given the correct thickness bu rotating the aval finger.
7. The board should be cut from left to right whist making use of the set amount of play as described on page 3, section 5 (below).

C) Cutting Board 2

1. The board should be clamped in the horizontal position.
2. The cutter tip should be brought into contact with the wood (Point Z, Fig.14)

Othewise the procedure is the same as for the cutting at Board 1 (Point 4-7). The surfaces printed in black on the sketch should be finished with a ripping chisel. Fig. 11; Fig. 13, Board 1; Fig. 14; Board 2.

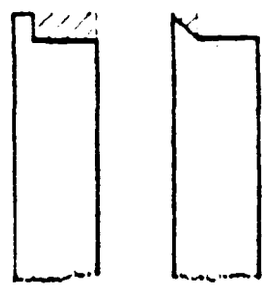


Fig. 11

Fig. 12

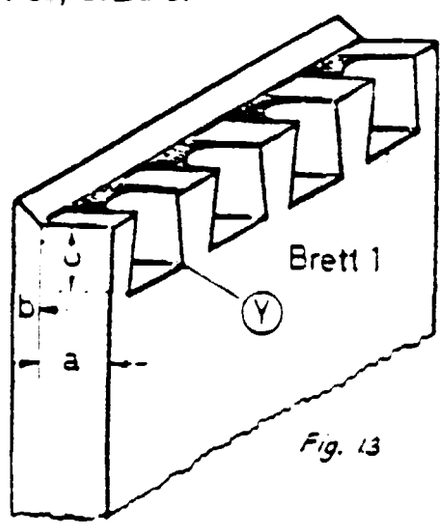


Fig. 13

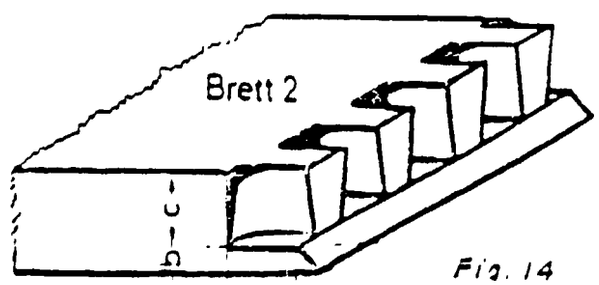


Fig. 14

13. Setting the machine for dado joints

for the formation dado joints the feeler finger holder is removed by loasening both the wing nuts. A dado cutter is used for this purpose.

A) Setting the machine for groove formation

1. Clamp the horizontal board in position.
2. Set for depth (approx. ⅓ of thickness).
3. Lock crossways travel (screw (16) of cross carriage).
4. Pull the cutter rapidly through the wood.

B) Setting the machine for tongue formation

1. Clamp vertical board into position so that it extends to the same height as the upper surface of the horizontal board.
2. The cutting depth is the same as for groove formation.
3. The front cutter position should be limited by the collar (13). cutter.

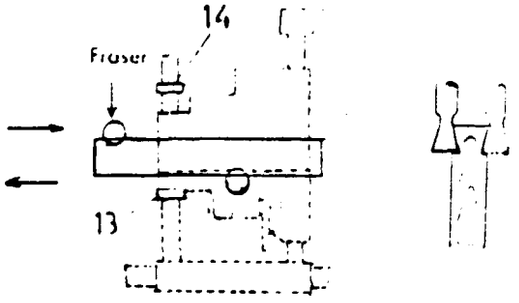


Fig. 16

14. Setting the machine for mitre-tongue joints

Make a wooden work rest V with a lateral fence A, and make sure that an angle of exactly 135 degrees is maintained between the two parts of the rest. (Fig). 17) The width of the rest will depend on the width of the workpiece. After removing the front clamping shaft from the joint cutter (uscrew studs on both the clamping cams and pull out the shaft), clamp the work rest V into the machine at right angles with the rear clamping shaft. Then clamp workpiece W to the standing section of the work rest with a screw clamp and cut the mitre joint with a facing cutter or a heavy groove cutter. The guide carriage must be locked to prevent cross travel. (Screw 16) When the cutter has been exchanged for a groove cutter of key size, the key-way can be cut.

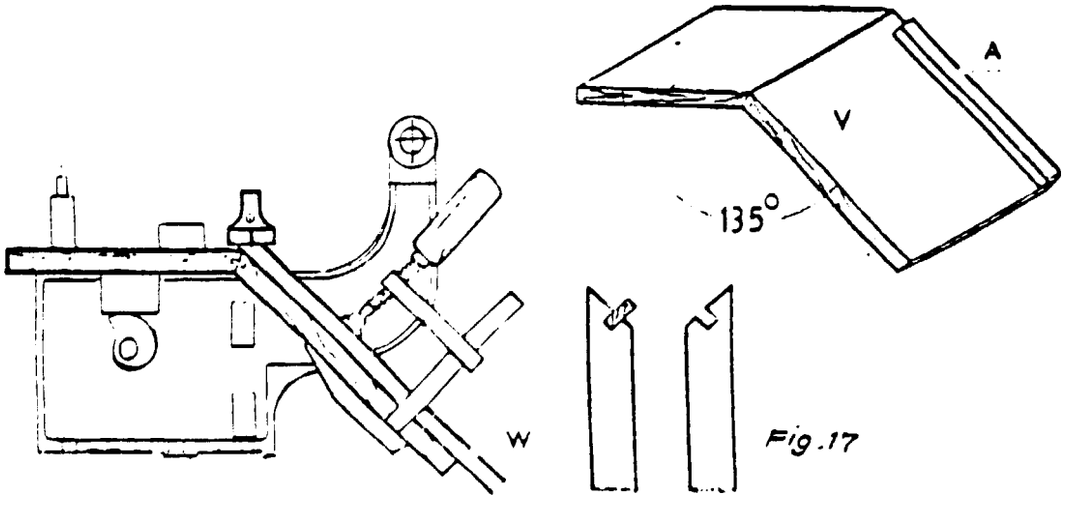


Fig. 17

15. Cutting Drawer Joints

Important note:

The bottom groove of the drawer sides and of the front section should always be visible after clamping, and the wooden pieces should always make contact on the groove side.

1. Clamp front section horizontally so that it makes contact on the right hand end of the machine. Then clamp right hand drawer section vertically, so that contact is made on the righ with the grooved side for concealed jointing. The correct setting is described on page 3.

2. Clamp front section horizontally, so that contact is made with the grooved end on the left hand side. Then clamp the left hand drawer section vertically so that contact is made with the grooved end on the left hand side for concealed jointing.

3. Bring the right hand drawer section horizontally into contact with the groove end on the right, and clamp the reardrawer section in in the vertical position on the right. Place a piece at wood between the rear section and the stop surface (2) so that it corresponds to the height of the bottom groove; then from open joints. Make sure that the number of grooves formed does not exceedthe number of dovetails. Before completing the formation of the last dovetail, remove the drawer section clamped in the horizontal position.

4. Clamp the rear section in the vertical position on the left hand side and insert a piece of wood between the rear section and the stop surface so that it corresponds to the height of the bottom groove. First cut the dovetail and after resting left hand drawer section horizontally against the grooved section on the left hand side, clamp together, Here again make sure that the number of grooves does not exceed the number of dovetails.

16. Boring dowel holes

The long dowelling fences of Type LA 318 which must be ordered specially and the special feeler finger of Type LA 318 are filted to the ZF 630 machine for the efficient boring of surface and front dowel holes. We strongly recommend the use of swivel support Type ST 640 for this purpose, as surface and front boring can then be carried out in workpieces of any length.

Securing the attachment to the swivel support and fitting the dowelling fences:
First assemble the swivel support (which to facilitate packing is delivered in sections) by screwing both feel to the lower angle iron and the upper part of the frame. Make sure that the point of rotation of the frame is located on the stronger sloping feel. At this point fit hexagonal bolts with cup washers, screw the nuts down lightly by hand and then with locknuts. Both the locking bolts with the clamping lever are mounted on the grooved side of the swivel carriage.

When fitting the attachment to the support with the 4 clamping bolts provided the rear side of the attachment must be placed over the stronger sloping feet of the support. The set screws of the end of the feet are used to take up any uneveness in the floor. The dowelling fences compsate for the movements of the fixed stops, which are necessary for the jointing operation. First insert the left hand dowelling fence (introduce the vertical stop post into the vertical clamping plane with the horizontal post parallel with the guide rod of the support and then rotate the horizontal post through 90 degrees in the horizontal clamping plane) and then secure it on the left hand side with the screws which have been provided. When the right hand dowelling fence is fitted, the cross rail (corriage) (which is separated when the unit is packed) should be secured with both countersunk screws, and the sowelling fence then inserted into the machine from the rear (fig. 18) rotated and bolted to the right hand side wall. The cross rail should then be attached to the end of the left-hand fence with a wing nut. It should be noted that when the two horizontal stop posts are fitted for the first time, they must lie exactly parallel (this should be checked with a scale and any discrepancies eliminated when the cross rail is secured). If a small notch is made on the cross rail, there is no need to make a further check with a scale, when the dowelling fences are again fitted.

When inserting the dowel feeler finger make sure that it is not fitted and that it runs easily between the pins of the template.

Fig. 18.

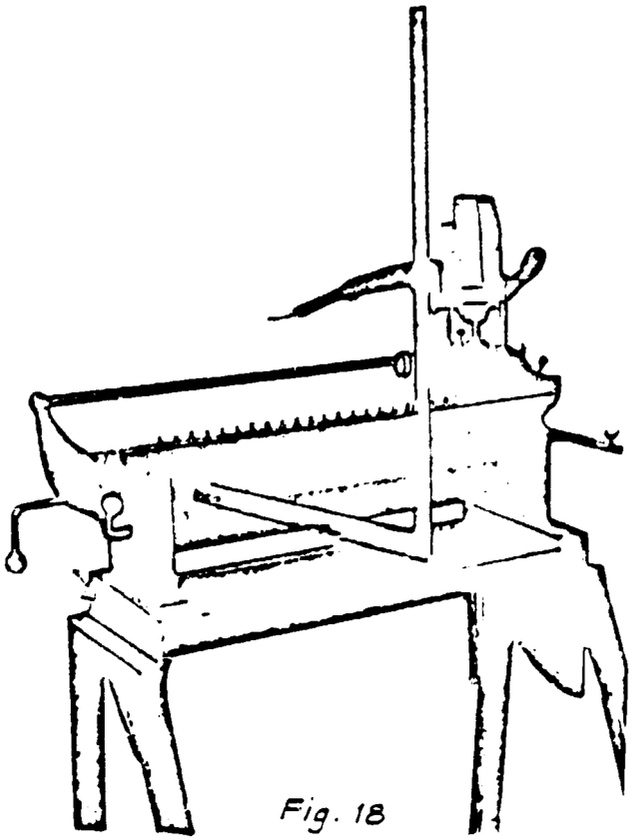


Fig. 18

Clamping the workpieces and setting the machine:

Workpieces with lengths of up to 1 m., in which front dowel holes are to be drilled can be clamped vertically into position when the machine has its normal setting. If a corner joint is to be made at the same time the other piece is clamped horizontally into position so that it makes contact with the vertical piece. The front of the vertical workpiece should be laid flush with the horizontal workpiece by a retightening process. Both workpieces should be made to fit against the fence at the side. The point of the dowel drill, which is screwed into the electric motor should be brought into line with the zero point of the scale fitted to the fence (stop), the feeler finger displaced far enough axially and fixed with a clamping handle, so that the section in the finger lies between the template pins. The driller tip should then be set to the middle workpiece thickness and this position held in the support with the front lateral collar. In accordance with this distance the support for the surface dowel holes is limited by the rear collar.
After setting the cutting depth (2) through the turret stop) and fixing the desired dowel spacings (markings should be made on the template), a dowel hole is bored on the end stop by forward and backward motion and by the lateral travel of the support (Fig. 19). Corner joints which are diagonally opposed to each other should always make contact on one side of the machine, e. g. left. When drilling on the opposite side (right), the feeler finger holder should be moved through the same number of gradations from the zero point of the scale in the opposite direction.

The drilling of dowel holes on the front faces of long workpieces

If dowel holes are to be dilled on the front faces of workpieces which exceed 1 m. in length, the attachment on the support should be retated through 90 degrees after the release of the clamping lever. A horizontally clamped board can be used as a lever to facilitate rotation. Before the attachment is rotated, the rear pressure beam should be blocked with the rear clamping lever so that it does not break away.
When the drill has been set to the centre of the workpiece thickness, the support should be secured. The lateral process is carried out by lifting the motor lightly and at the same time removing the feeler finger from the row of pins. It should then be moved in the longitudinal direction, re-inserted in the marked pin hole, and drilling can then be proceed (Fig. 20).

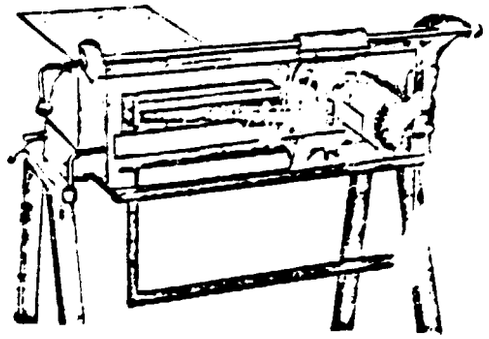


Fig. 20 /

Operating Manual for Universal Grinder

1

Operating Instructions

for Tool Grinding Machine WS 650

and Universal Sharpening Machine UFSI/II

WS 650

UFSI, II

Widma

H. U. E. Widmann oHG.

Maschinenfabrik

7900 Blaubeuren-

Gerhausen

Telephone (07344) 534

Federal Republic of

Germany

Grinding and Sharpening of Tools with Tool Grinding

Machine WS 650 or Universal Sharpening Machine UFS I/II

2

1 Grinding of slotted disc cutters with straight knives

2 Grinding of chain cutters

3 Grinding of routers

4 Grinding of planing knives

3

5 Grinding of planing knives, rip saw chisels, as well as rebating knives

6 Sharpening of narrow HSS steel planing knives in pairs

7 Sharpening of double, blades knives or short planing knives made of HSS steel and carbide

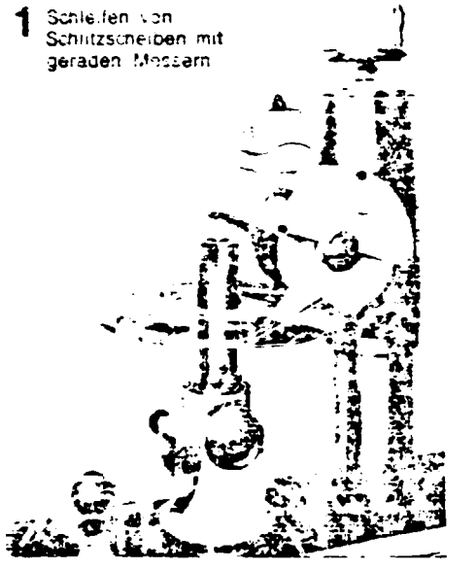
8 Grinding of router profiles

---

1 For grinding slotted disc cutters with bakes set at an angle, turn indexing head by 90° and adjust take-up spindle to pertinent degrees.

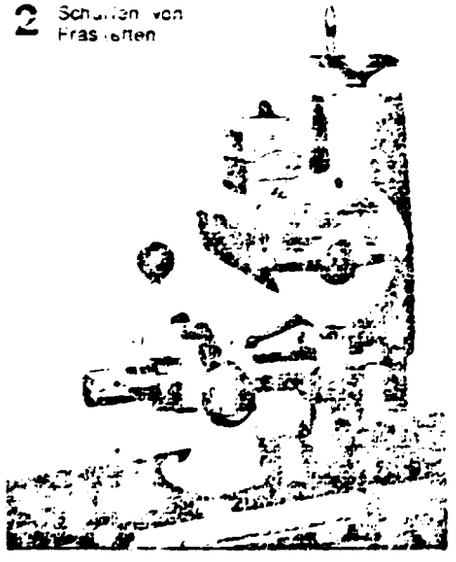
III. title page top
Grinding of straight cutters.
Set scale on indexing head to 0. For angle cutters set indexing head to required degrees. Never set table at an angle.

1 Schleifen von Schlitzscheiben mit geraden Messern



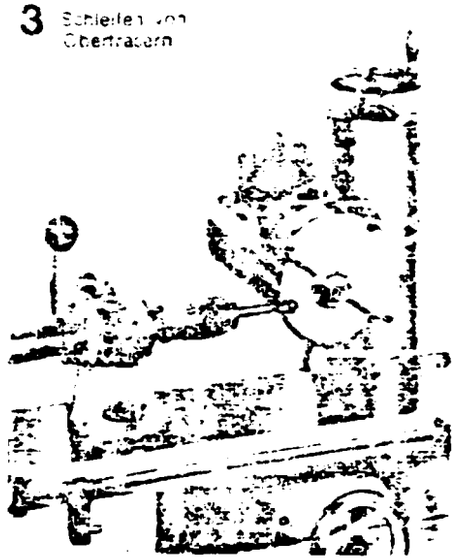
2 The holding member can be stopped from 2 sides. The chain cutter is stopped at front end, so that the chain cannot yield while grinding. Indexing is manual without feed or stop bar.

2 Schleifen von Fräsketten



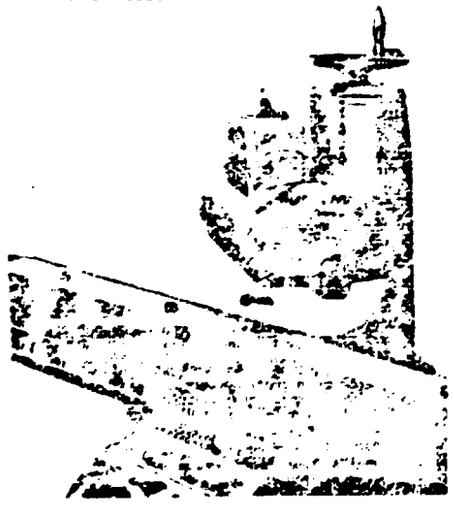
3 For this purpose, the take-up spindle is replaced against the pertinent holding device. Replacement is quick and easy by loosening handle.

3 Schleifen von Obermessern



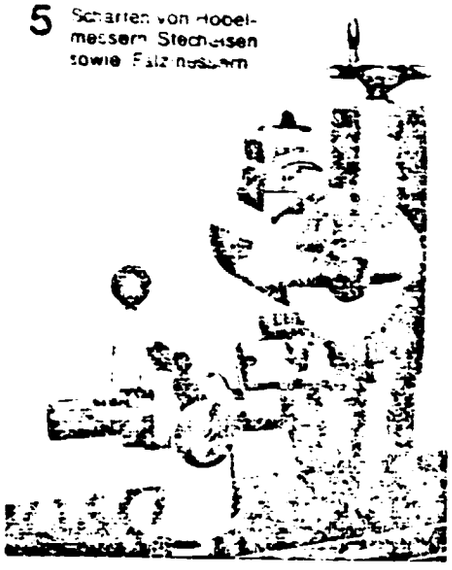
4 Use grinding wheel with a bevel of 45°. Position planing knife against stop bolt and clamp with pressure plate. For adjusting the desired cutting angle, set motor slightly lower or higher. Direction of rotation should be toward planing knife.

4 Schleifen von Hobelmessern



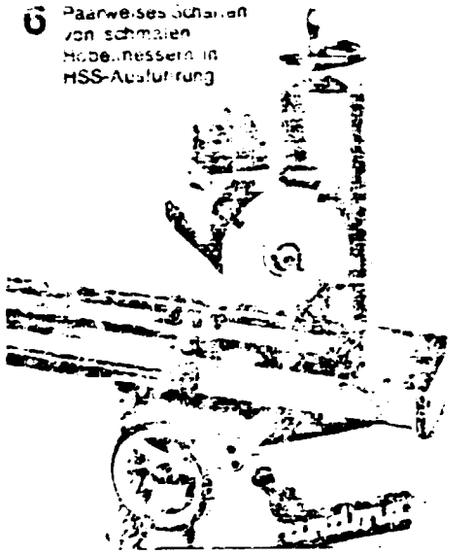
1 Sharpening of [illegible] knives, [illegible] chisels, as well as rebating knives.

5 Schärfen von Hobelmessern Stecheisen sowie Falzmessern



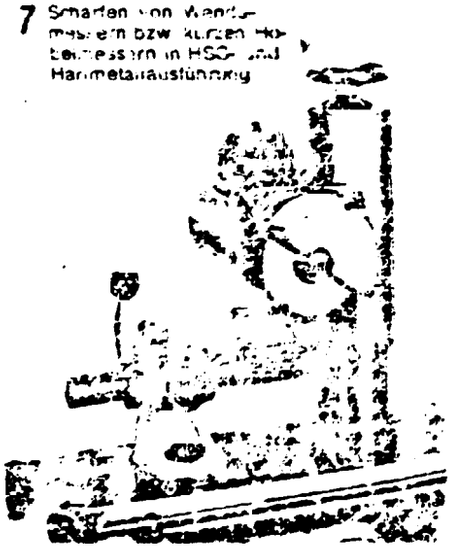
2 For sharpening carbide-tipped knives use the same fixture as shown on Fig. 5.

6 Paarweises Schärfen von schmalen Hobelmessern in HSS-Ausführung



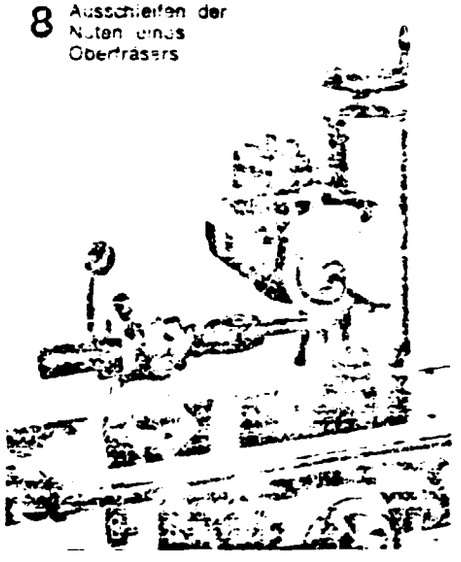
3 Sharpening of double, bladed knives or short planing knives made of HSS steel and carbide.

7 Schärfen von Wendemessern bzw. kurzen Hobelmessern in HSS- und Hartmetallausführung



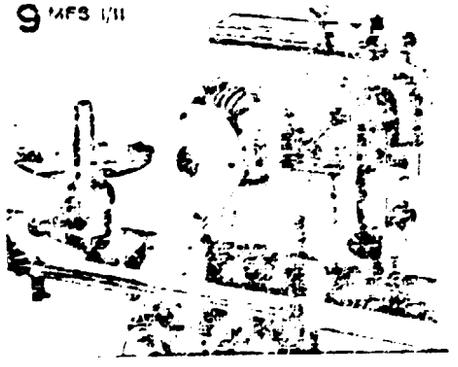
8 Direction of rotation toward cutter, so that the grinding wheel does not dig in at end of flute or groove.

8 Ausschleifen der Nuten eines Oberfrasers



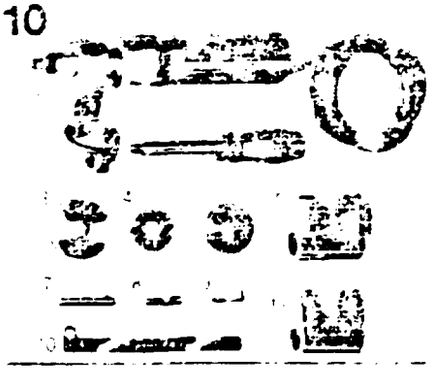
9 For hadling the universal sharpening machine MFS I/II the same instructions apply as for Figs. 1-8, also refer to illustration on title page, bottom.

9 MFS I/II



10 Spare Parts

1. Grinding motor with take-up for sharpening saw blades with hollow tooth face.
2. Chuck for various shank cutters with 1-13 mm Chucking diameter.
3. Take-up for sharpening shank cutters.
4. Index plate for non-uniform indexing
5. Adapter for larger center bores.
6. Device for sharpening planing knives and ripping chisels.
7. Take-up for cutters with cylindrical shank 6-10 mm.
8. Take-up for various types of shank cutters with internal threads for different makes as indicated.
9. Spare feeding finger.
10. Stop bar for sharpening short planing knives in pairs
11. Device for sharpening carbide-tipped planing knives. or double, bladed knives.



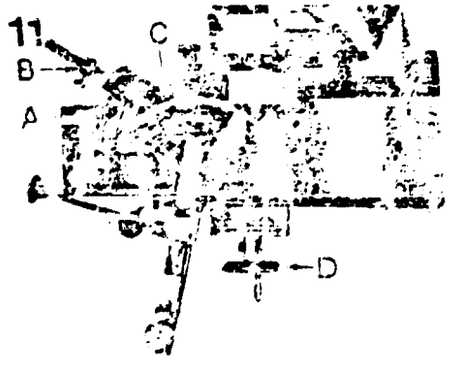
1 Mounting of indexing unit

The cutting angle can be adjusted with operating lever A.

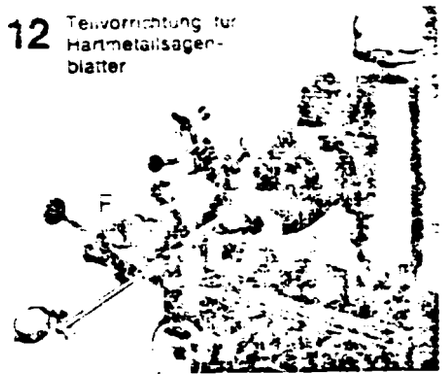
B: Stop ring for tooth pitch

C: Hex. bolt for coarse adjustment of cutting angle under segment.

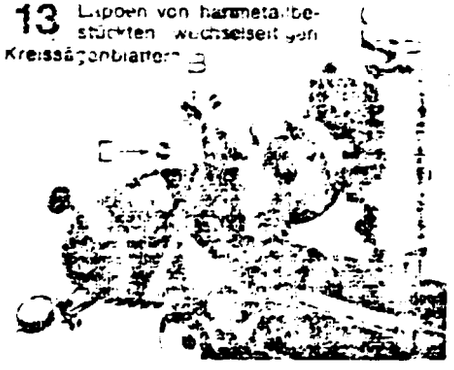
D: Hand wheel for feed.



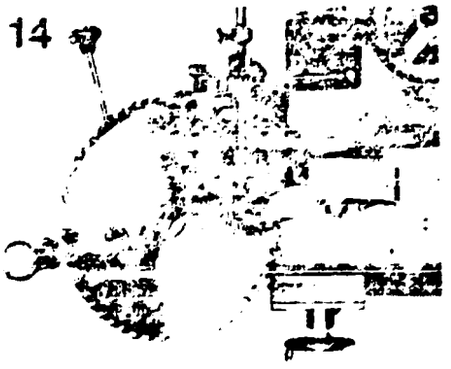
12 (Illustration without saw blade). The cutting angle is easily adjusted with hex. bolt (C).



11 For first grinding step swivel segment downwards to required number of degrees from 10 - 15° . Pull each second tooth with feed finger to end stop. Swivel lever E to the right to clamp saw blade simultaneously in position for grinding. Use stop ring B at end of eccentric shaft for setting to pitch. Repeat procedure when adjusting carbide-tipped saw blade or segment by 10° - 15° in upward direction. Check carefully with dial gauge, so that both tooth backs are ground to uniform height.

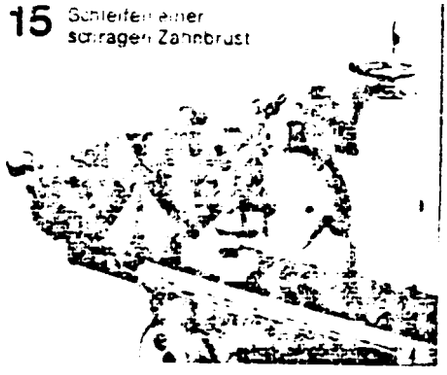


1 Grinding on tooth face.
Turn holding beam F (refer to Fig. 12). for 90° and tighten wheel with hex. bolt C (refer to Fig. 12). Turn diamond lapping wheel with the lining facing the motor.



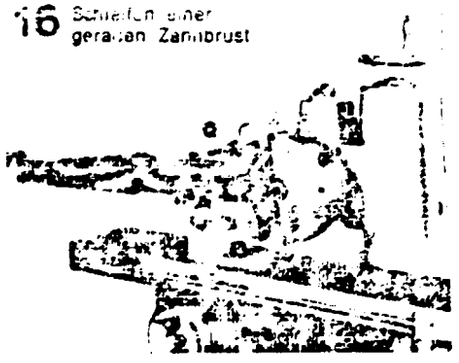
15 For this purpose, adjust holding beam F as described under Fig. 14. During 1 st grinding step, only each 2 nd tooth is sharpened. Then readjust swivel segment for sharpening the other, angular tooth face in second step. No check with dial gauge is required.

15 Schleifen einer schrägen Zahnbrust



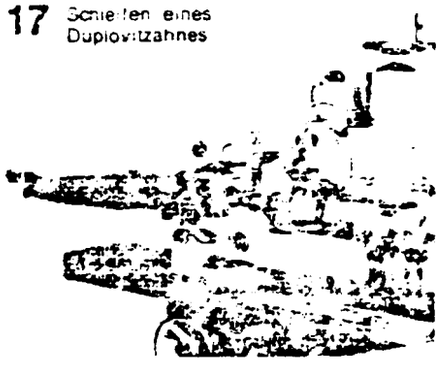
16 Sharpening a straight tooth face.

16 Schleifen einer geraden Zahnbrust



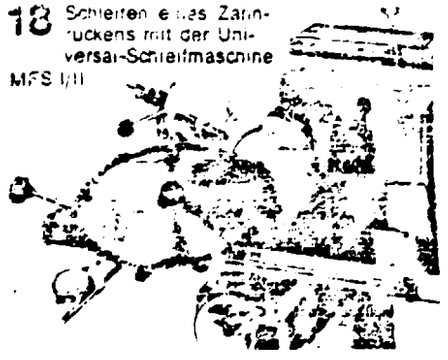
17 Set scale to C. The grinding pin should be accurately positioned in center of tooth width.

17 Schleifen eines Duplovitzahnes



18 For operating the MFS I/II with supplementary unit the same instructions apply as for Figs. 11-17.

18 Schleifen eines Zahnrückens mit der Universal-Schleifmaschine MFS I/II



Operating Manual for Heavy Duty Knife Grinder

INSTRUCTION FOR THE AUTOMATIC UNDER WATER

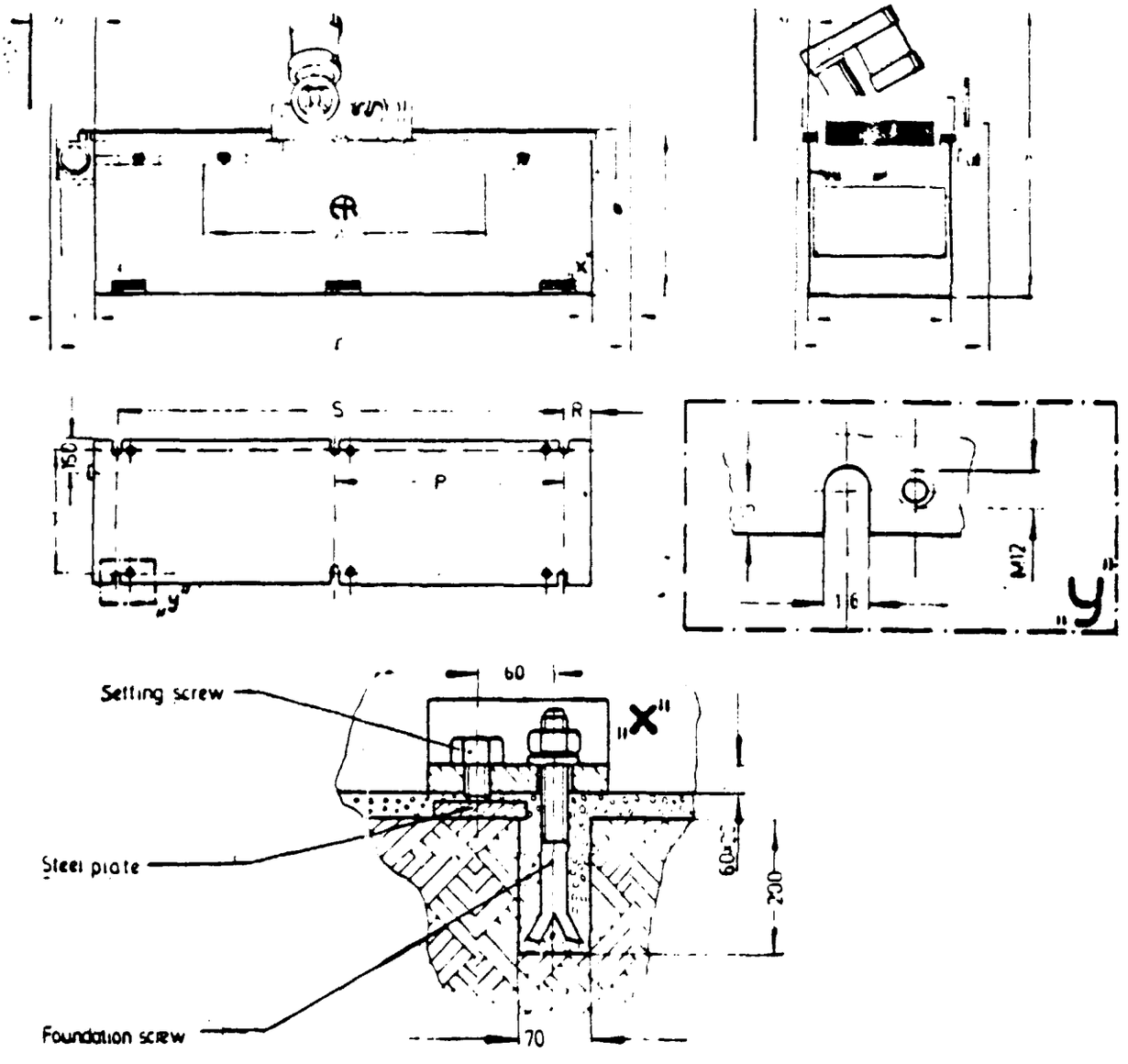
Grinding machine

- Foundation plan
- Operating instruction
- Instruction of use forcement to cement grinding wheels into flanges.
- Abrasive agent
- Order schedule for grinding wheels.
- Lubrication plan.
- Sample for clamping chopping knives.
- Spare - Parts.
- Spare - Parts drawing.
- E - plan.
- Maintenance of geared motor.

Operating Instructions for the AUTOMATIC UNDERWATER GRINDING MACHINE

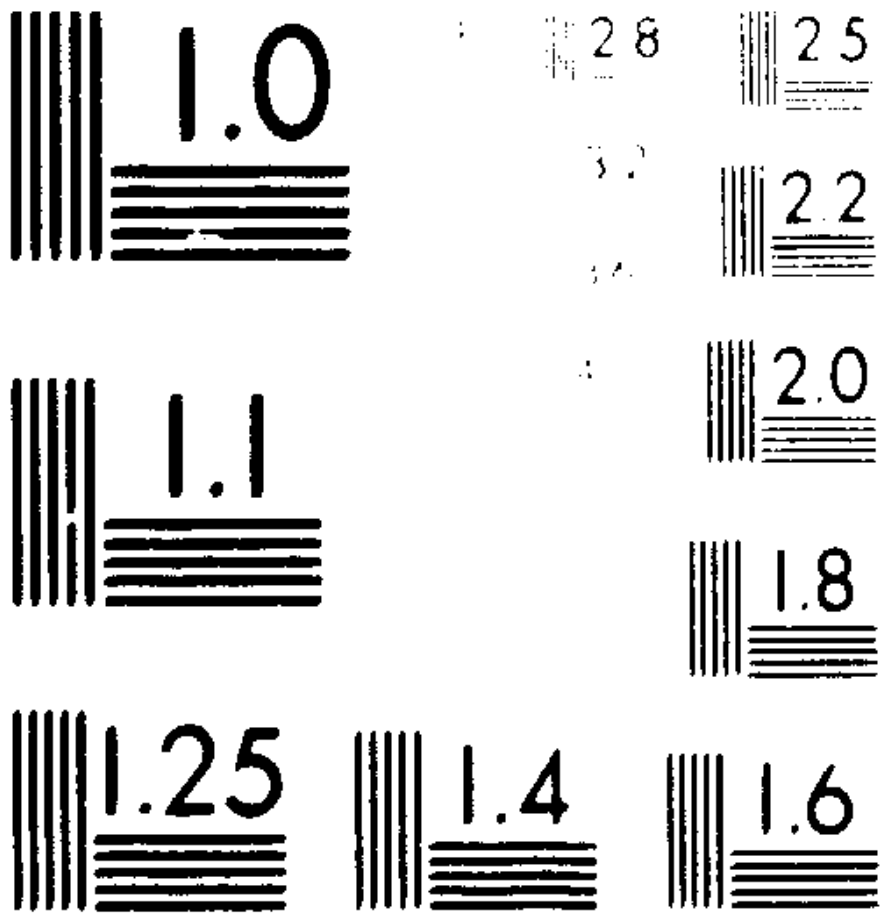
Mounting :

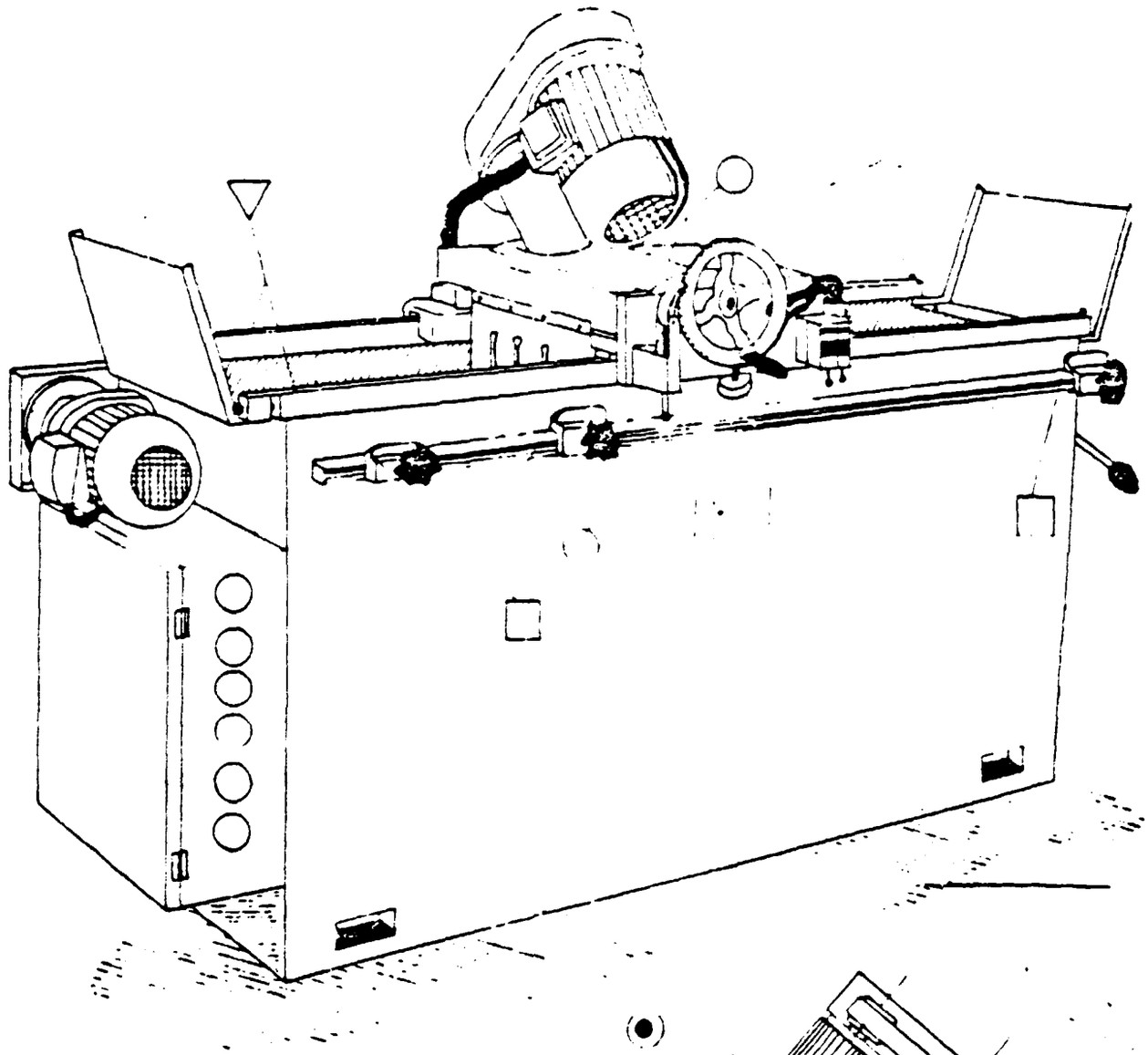
The prerequisite for faultless operation of the machine is its being properly mounted. It should be aligned exactly in vertical and horizontal directions by means of a precision air level. Uneveness of the concrete floor are to be fitted with cement mortar.

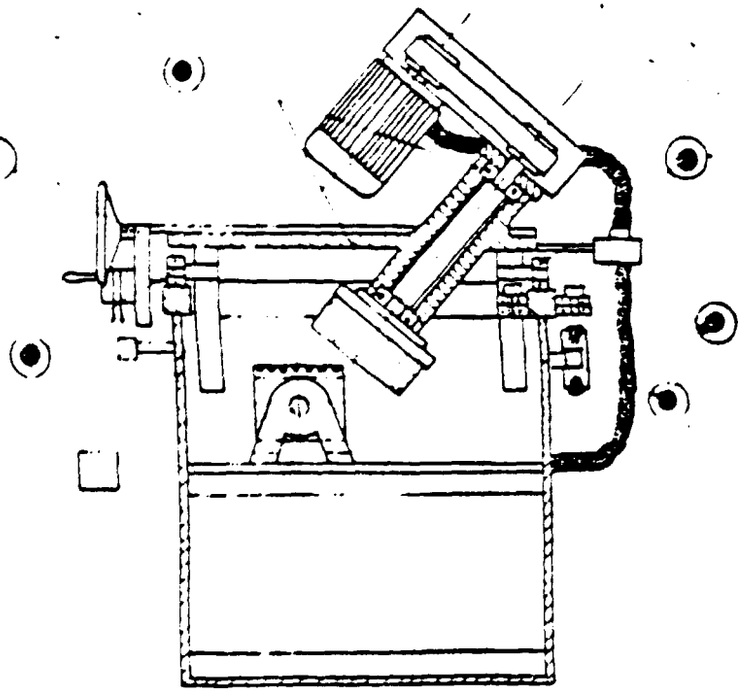


Trial run:

The standars machine is equipped with two motors for an operation voltage of 220/380Volts, 50 cycles. It should therefore be checked whether the motors are switched to the relevant operating voltage. It this is the case, the sense of rotation, which is designated by arrows, is set by a trial switch-on on the basin has to be fitted with cooling liquid mixed with water in the ration of 1:100 so the lower border of the grinding wheel dips into it. Before switching on the machine, it has to be checked whether the grinding skate is running smoothly - the leteral guides should glide smoothly in their tracks. This can be adjusted by means of the existing regulating screws.


1.0
2.8
2.5
2.2
2.0
1.1
1.8
1.25
1.4
1.6

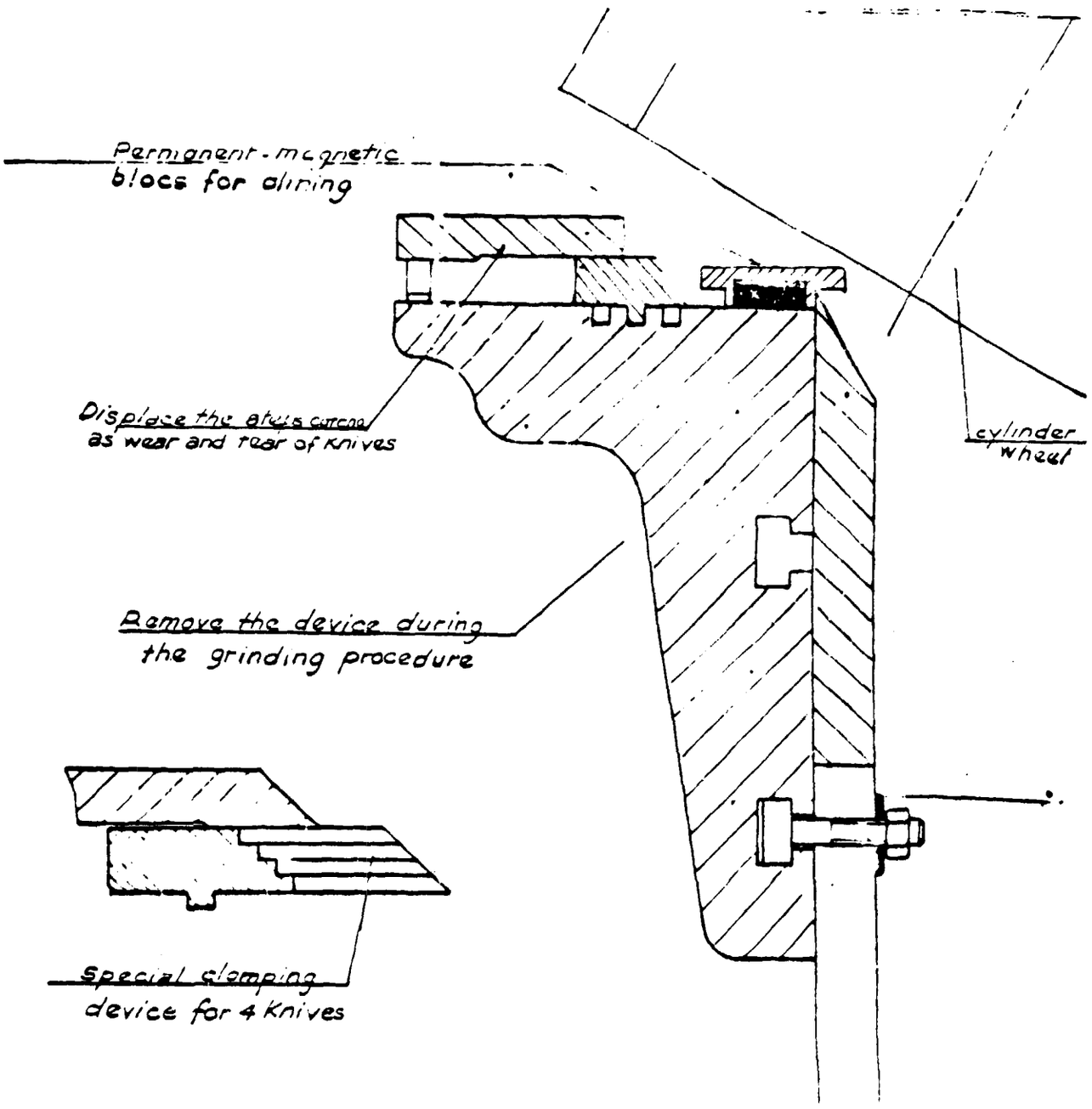


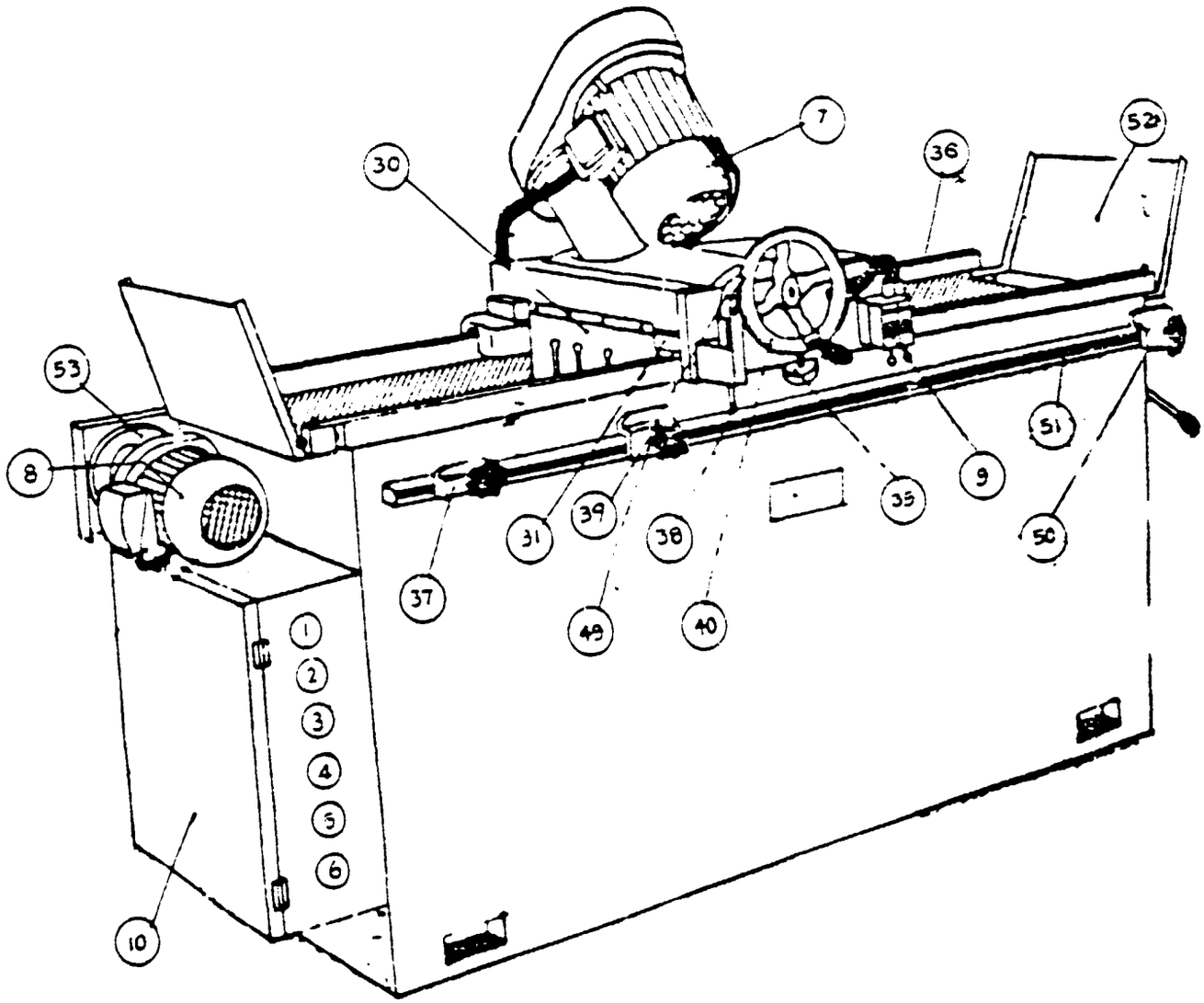


CASSIDA FLUID GL 42 BP-ENERGEROL HP10	▽	bei Bedarf as requirement suivant les besoins
	○	wöchentlich weekly chaque semaine
BP-ENERGREASE LS 2 WALZEROL DIN 51806	□	wöchentlich weekly chaque semaine
DAUERSCHERUNG PERMANENT LUBRIKATION	◉	

Inserting knives:

The machine is equipped for the set-wise grinding of strip-planning knives (35x3mm). Each machine is supplied with six stairs for the clamping-on of several kinves. This allows for a full grinding of the knives up to 15mm width by offsetting the stairs. When inserting the knives, it should be taken care that they are preciously cleaned from resin. The holding strip should be tightened according to the grinding pressure. The stairs should be inserted as far as possible towards the end of the knives. In order to equilize differences, it is necessary to select the same over the stairs. By grinding the knives along the edge, it is possible that the knives are bent through at their backs either concavely or convexly.



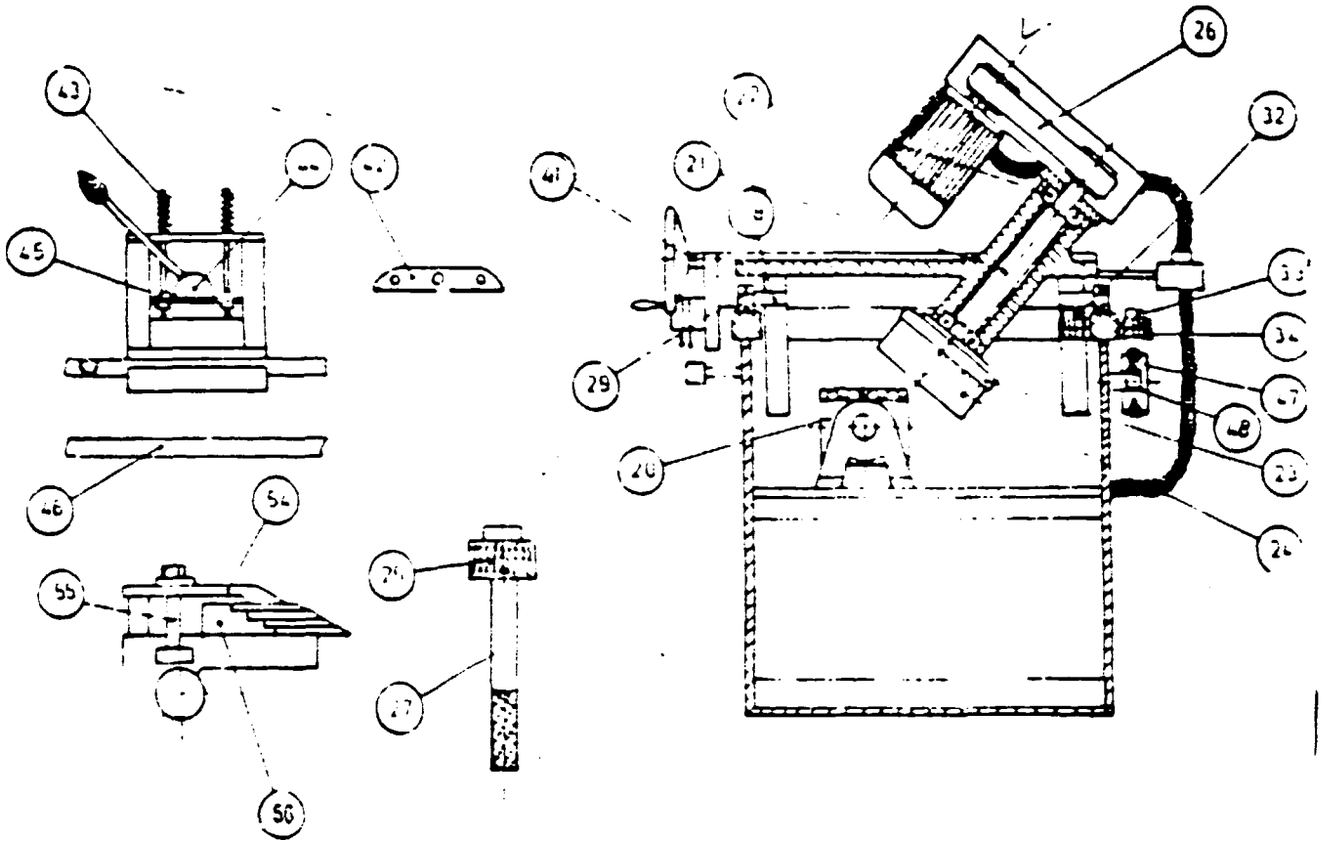


Setting to work:

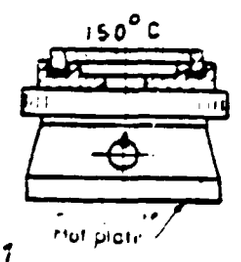
Before setting the machine to work, it is necessary to see to it that the grinding wheel has a distance of about 3 to 5mm from the knives. If this has been checked, the operation of the machine may begin. The grinding wheel is put into contact by a slight turn of the hand wheel. At the same time, the water level of the machine must be checked. Grinding is allowed only when the knives are totally surrounded by water. The automatic grinding is switched on by setting catct an control by one dent only. The depth adjustment can be limited to a certain grade and is set by turning the small lever at the hand wheel. By means of the supplied stairs, the knives can be ground to 40°. The knife b r is to be set at the marker by means of adjusting screws.

Servicing of the machine:

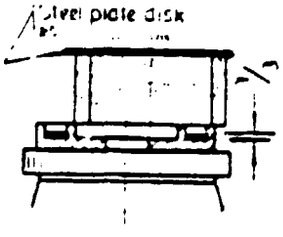
All movable parts must be lubricated with oil. Particular care should be taken that the lateral guide tracks are always clean. Importans they should be lubricated daily with a machine oil of 4-6 viscosity. The ball bearings of the grinding skate is equipped with permanent lubrication and should be replaced at the end of their service life. The servicing of the electromtor should be done by an electrician after about 5 years of operation. The gear motor has to be serviced according to a separate lubrication instruction.



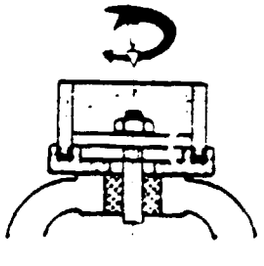
Instruction of use for cement if the matter is to cement grinding wheels into flanges



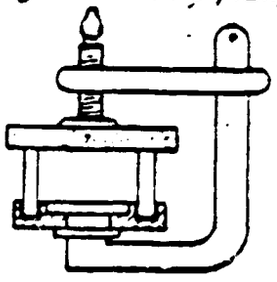
Heat up the flange, remove grinding wheel and cement residues.



Fill in cement an heat up it together with annular grinding wheel.



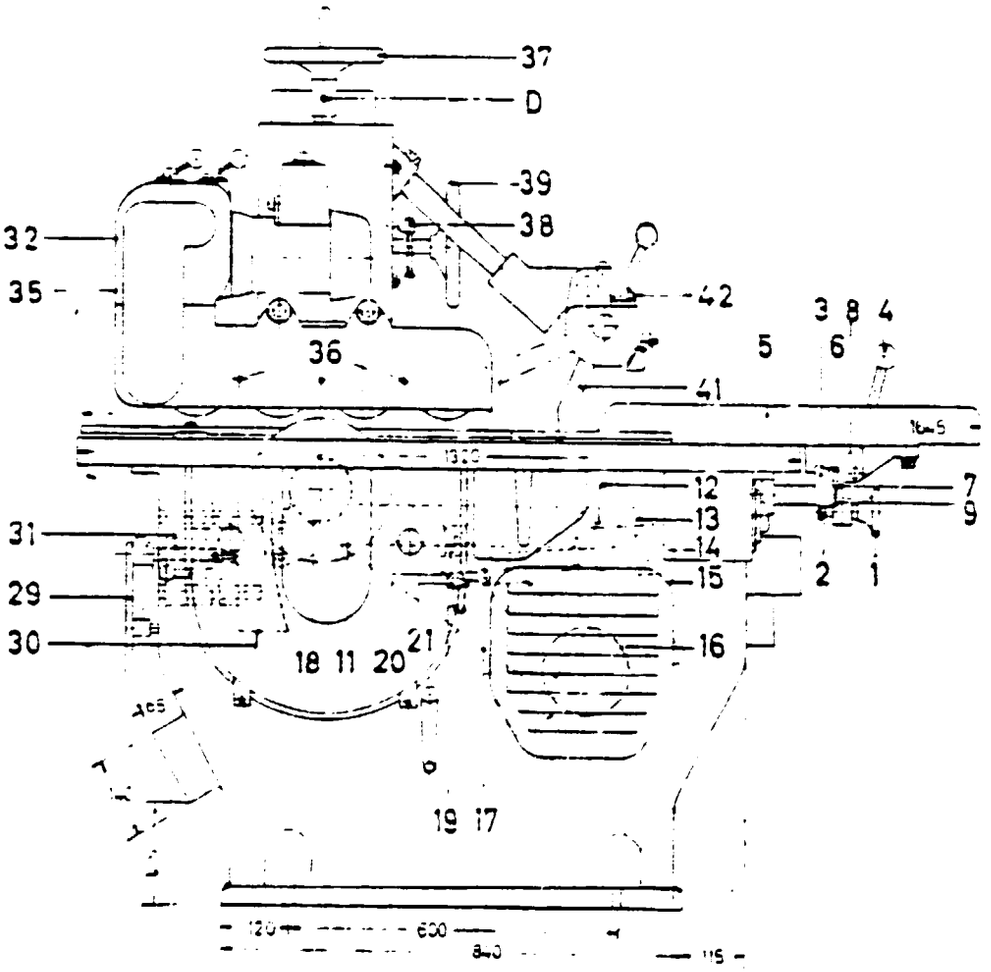
Using a vise turn in the grinding wheel into the liquid cement



Clamp grinding wheel and let the cement set. Place the assembly in horizontal position!!!

OPERATION MANUAL & SPARE PART LISTE FOR THE

MULTIPLE BLADE CIRCULAR SAWS
ROMA 113 AND ROMA 113 S.



Accessories :

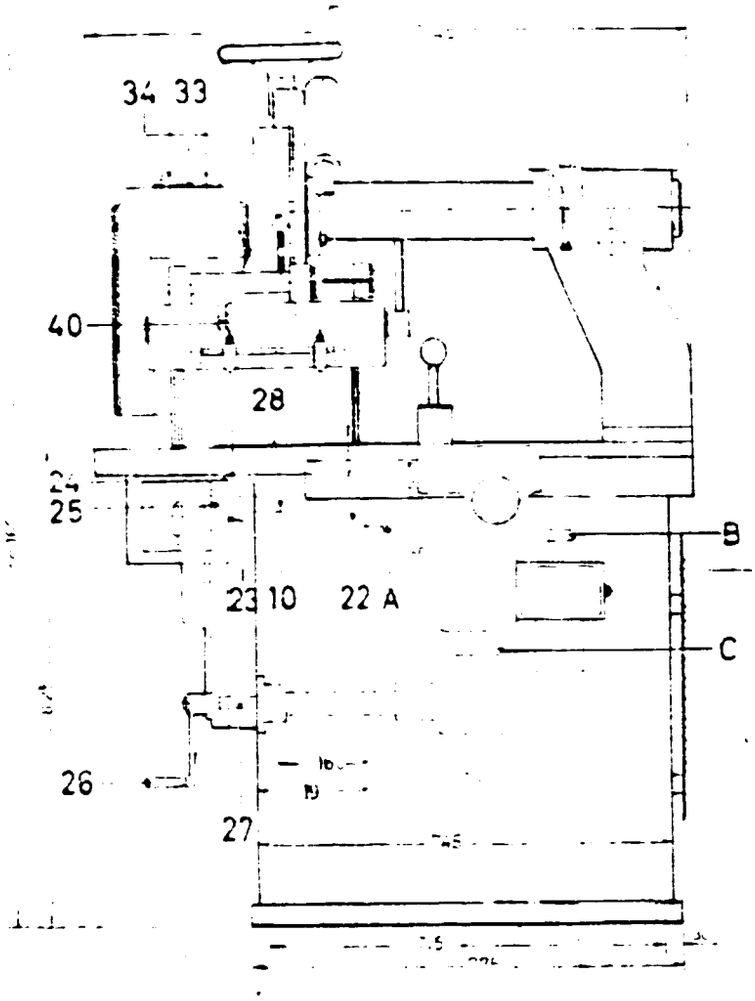
Make sure that the standard accessories (acc. to offer) and the special accessories (acc. to packing list) are complete.

Mounting of the Machine :

A concrete foundation will only become necessary when ground is in a bad condition, with uneven concrete floor it is advised to underpour the machine after alignment. For the purpose of belt tensioning, lubrication, checking the motor etc.. the machine should be mounted in sufficient distance from walls, colums and the like.

Connection of the Machine :

For machines with [illegible] power up to 22 Ampere the machines are equipped with star-delta switches with motor protection. With stronger motors, it is advised to build a motor protection switch into the current supply.



Stop Fence :

After the handwheel (1) being in connection with a pinion (2) is pulled out, the stop fence is pulled outside and the toothed fence (3) is put on. The handwheel (1) is pushed in and the pinion (2) is geared in with the toothed stop fence, so that it can easily be adjusted to the required width and arrested with the clamping lever (4). The machine fence (5) is towards the outermost saw blade and the pointer (6), which is tied up to the hand wheel (1) during transport, is placed into the provided fix base (7) of the fence guide (8), adjusted to" zero" on the rule at the fence guide and tightened with the threaded pin (9).

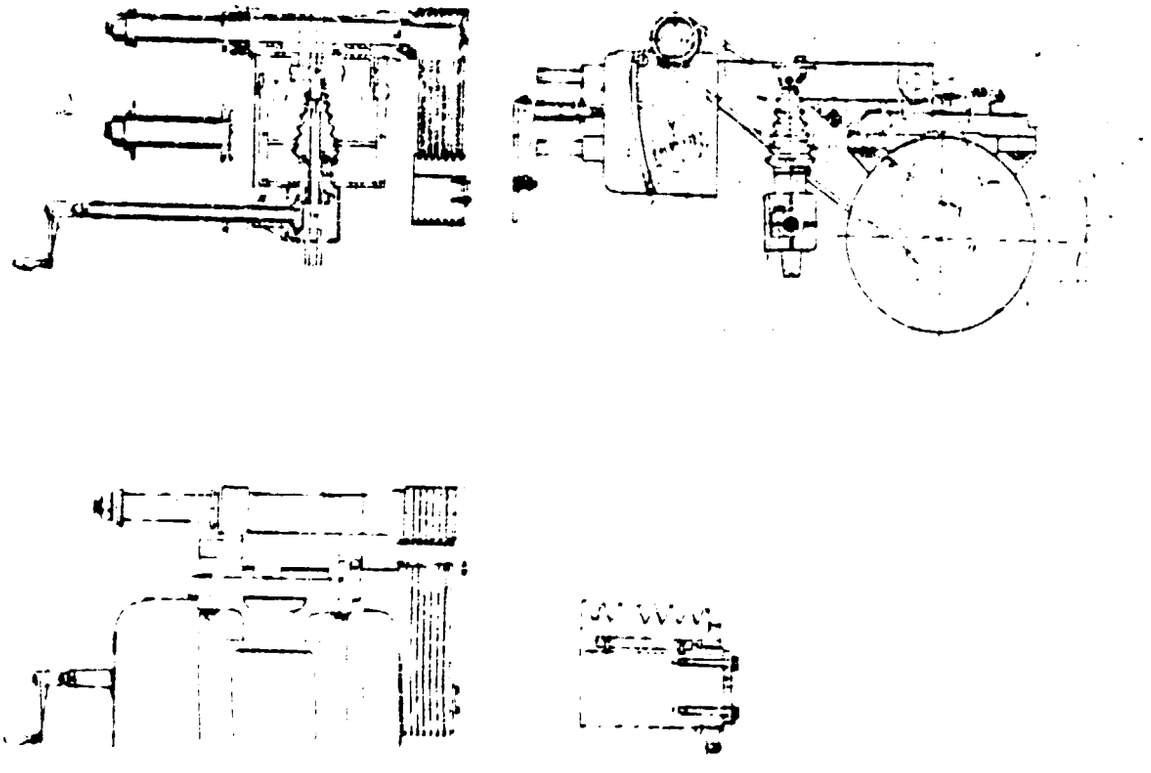
EXPLANATION OF NUMBERS IN THE DIAGRAM

ON PAGES 94 AND 95

1. Hand wheel for fence adjustment
2. Pinion for fence adjustment
3. Toothed fence rail
4. Clamping lever
5. Machine fence
6. Pointer for fence adjustment
7. Bore for pointer
8. Fence slide
9. Threaded pin for pointer
10. Saw spindle
11. Saw spindle pendulum
12. Spindle for saw pendulum
13. Spindle for motor plate
14. Motor plate
15. Motor
16. Motor pulley
17. V-belts
18. Saw spindle pulley
19. Bolt for re-tension of belt
20. Link piece for re-tension of belt
21. Counter nut for re-tension of belt
22. Saw blade bush
23. Saw blade flange
24. Groove nut for saw blade bush
25. Saw spindle nut
26. Crank for height adjustment of saw
27. Spindle for crank
28. Wooden lay-in plate
29. Stop lever
30. Segment
31. Spindle for stop lever
32. Oil level gauge
33. Drain plug for the oil filling hole
34. Switch lever for fence sprocket
35. Oil drain opening
36. Lubrication nipples for pendulum lubrication
37. Hand wheel for motor adjustment
38. Knurl screw for height adjustment of plate
39. Hand wheel for lateral adjustment of fence
40. Centre-head nut for height adjustment of spindle
41. Latches of the upper safety-tool device
42. Screw with counter nuts for adjustment of the upper safety latches
43. Motor plate (Fig. 3)
44. Saw spindle for motor plate (Fig. 3)
45. Spindle for motor plate (Fig. 3)
46. Setscrew for tensioning of the V-belts (Fig. 3).

Saw Spindle Drive :

The saw spindle (10) is double-sided ball bearing in the saw spindle pendulum (11) and the pendulum is arranged on the spindle (12) slewably. Belts motor plate (13) with motor (15) is slewable around the spindle (12). Driveof the sawspindle is effected via the motor pulley (16) by means of V-belts (17) and the saw spindle pulley (18). As the V-belts can always be well tensioned, between the motor plate (13) and the saw spindle pendulum (11) an adjusting device, consisting of bolt (19) and link piece (20) with counter nuts (21) is arranged. Mainly with new machines the bolt tension should be checked frequently ensuring smooth traction. In case a belt becomes defect, interchange the complete set of belts.



MOTOR S:

The motor plate (43) is arranged movably on the two Spindles (45), arranged in the saw spindle pendulum (44). Belt tension is effected visa the hexagonal screw (46) with a spanner SW 22.

The saw blades are arranged on a saw blade bush (22) that can be shipped on the saw spindle (10). The following hints are given to ensure the best sawing effected: Use saw blades, which are well ground, equally set and equipped with a base, exactly matching the bush. Before clamping them together, the surface of the saw blades and the intermediate rings should be carefully cleaned. Make sure the intermediate rings are exactly plane-parallel. In addition, care should be taken that the total saw blade. package including the saw blade flange (21) with the groove nut (24) (with left-hand thread) arranged on the saw blade bush (22) is clamped sturdily. Then the saw blade bush (22) is clamped together with the saw spindle (10) by means of a saw spindle nut (10).

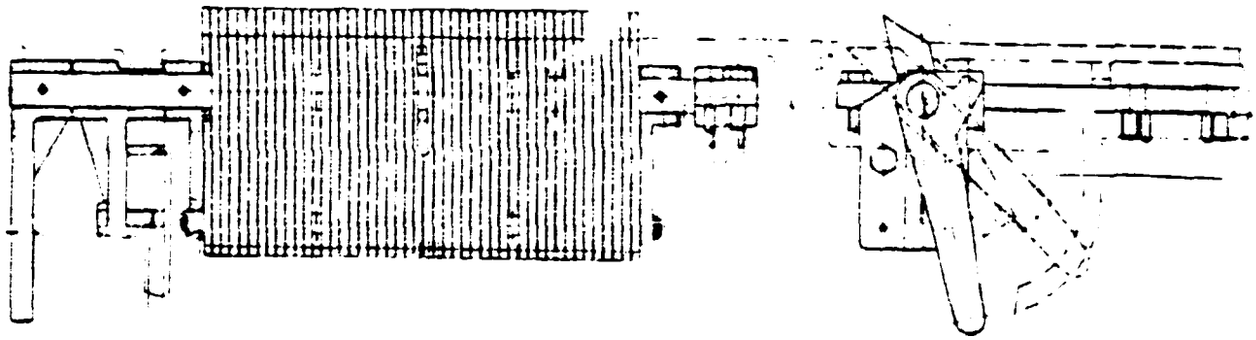
Height adjustment of the saw blades is effected by means of the crank (26), which is axially movable on the spindle (27) for the purpose of snapping in and out. By turning of the crank (26) the total saw spindle pendulum aggregate can be changed in height. After effected height adjustment the crank (26) is pulled outside, so that it hangs down loosely.

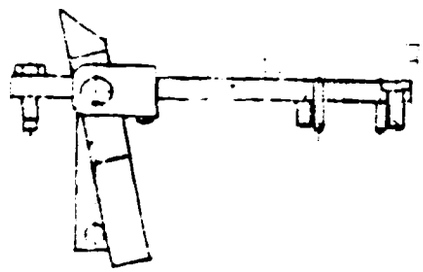
During height adjustment of the saw blades the wooden lay-in plate (28), which is inserted in the machine table, is put through. To make sure that it remains in its position, a piece of wood is put on the plate and supported by the feeder. The wooden lay-in plate (28), which should always be parallel with the feed rollers, should project above the machine table by 2-3 mm = approx. 5/64" = 1/8" and chamfered at the infeed and discharge-side. After accomplished height adjustment the saw spindle pendulum (11) is arrested by slightly pushing down the stop lever (29) at the discharge side of the machine at the machine stand, whereby a segment (30) is pressed to the pendulum (11) via spindle (31). At the front side the spindle (31) an adjusting screw with counter nut is provided, so that the lever (29) may always be adjusted in such a manner that it does not leave its vertical position when being arrested.

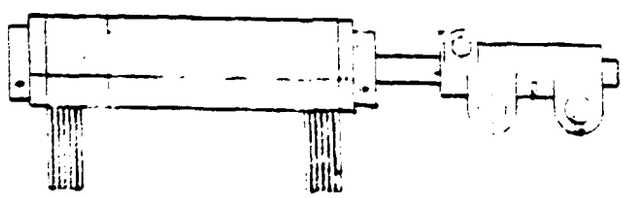
Note: Before changing the height adjustment of the saw blades pull the stop lever (29) upwards, so that the locking device is released.

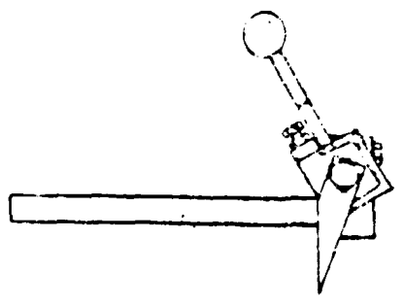
Anti-kick-back Devices :

There should always be kept so clean that the single latches swing slightly. The latches of the upper anti-kick-back device (41) should be adjusted in such a manner that the tips are only just above the machine table. The two screws and counter nuts (42) serve for adjustment.









Suction :

The suction should be chosen as strong as possible. The socket, cast on at the discharge side of the machine stand, serves for the connection of the suction.

Saw Blades :

The saw blades are arranged on a saw blade bush (22) that can be shipped on the saw spindle (11). The following hints are given to ensure the best sawing effected: Use saw blades, which are well ground, equally set and equipped with a base, exactly matching the bush. Before clamping them together, the surface of the saw blades and the intermediate rings should be carefully cleaned. Make sure the intermediate rings are exactly plane-parallel. In addition, care should be taken that the total saw blade. Package including the saw blade flange (23) with the groove nut (24) (with left-hand thread) arranged on the saw blade bush (22) is clamped sturdily. Then the saw blade bush (22) is clamped together with the saw spindle (11) by means of a saw spindle nut (10).

Height adjustment of the saw blades is effected by means of the crank (26), which is axially movable on the spindle (27) for the purpose of shipping in and out. By turning of the crnak (26) the total saw spindle pendulum aggregate can be changed in height. After effected height adjustment the crank (26) is pulled outside, so that it hange down loosely.

During height adjustment of the saw blades the wooden lay-in plate (28), which inserted in the machine table, is cut through. To make sure that it remains in its position, a piece of wood is put on the plate and supported by the feeder. The wooden lay-in plate (28), which should always be parallel with the feed roll, should project above the machine table by 2-3 mm = approx. 5/64"= 1/8" and chamfered at that infeed and discharge-side. After accomplished height adjustment the saw spindle pendulum (11) is arrested by a locking device on the stop lever (29) at the discharge side of the machine at the machine stand, whereby a segment (30) is pressed to the pendulum (11) via spindle (31). At the front side the spindle (31) an adjusting screw with counter nut is provided, so that the lever (29) may always be adjusted in such a manner that it does not leave its vertical position when being arrested.

Note: Before changing the height adjustment of the saw blades pull the stop lever (29) upwards, so that the locking device is released.

Lubrication and Maintenance :

Lubricating Points:
Nipple A and B: at the saw spindle pendulum for lubricating of the ball bearings every 400-500 operation hours 2 strokes with the grease gun.

Nipple C: Lubricating the height adjustment of the pendulum, one stroke with the grease gun per month.

Nipple D: Lubricating the height adjustment of the feeder, one strole with the grease gun per month.
Recommended grease: Calypsol W I 17.

Feed Attachment ROWA 113 SE in 4-Roller Execution :

Before leaving the factory, the machine ROWA 113 with oil-filled feeder has been undertaken a through trial run., Nevertheless, the oil level of the feeder should be checked before putting it into service. The oil should reach up the middle of the oil level gauge (32). After the gear is run in after about 500 operation hours the oil should be exchanged, further oil exchange after every 2000 operation hours. When e changing the oil, it is advised to rinse the gear with Diesel oil or rinsing oil. The drain plug for the oil filling hole (31) is placed between the switch levers (34). and for the drain opening (35) below the oil level gauge (32) (for this: allen key SW 6).
Recommended oil: Motor oil SAE 30.
Oil quantity : about 2 litres
The 3 lubrication nipples (A) for the pendulum bearing of the rollers at the side of the apparatus should be greased after about 100 operation hours with the engine running (2 to 3 strokes with the grease gun). Adjustment of the required feed speed at the switch levers (34) of the gear according to the table at the apparatus should always be extenied when idle running. Care should prevent the gear wheels from being damaged. Clamping-over of the pole-changeable motor can be affected under load.
Height adjustment of the feeder is actuated via the handwheel (37). The pressing power should be chosen just so strong to ensure " slide-free conveyance of the workpieces. After effected height adjustment the slide guide is to be locked via the knurl screw (38). Lateral adjustment of the feeder is done via the handwheel (39). To ensure that the edge-planed timber moves closely along the machine fence, the feeder should be adjusted with slight pressure towards the fence. Regulation is effected by means of the head (40), which is secured by by 2 threaded pins after adjustment. When rubber rollers are worn, they should be ground to the same diameter. New rollers are available on stock.

Note: When cutting exceptionally heavy or wet timber, it is recommended to insert a double roller plate instead of the standard wooden lay-in plate into the opening of the machine table, furthermore, also the feed rollers can be chosen as saw blade rollers. When cutting with multiple blades, it is of advantage to adjust the apparatur laterally in such a way that the feed rollers project only very little above the outermost left-hand saw blade. This makes the feed power act centrally to the saw blade package.

APPENDIX XIV

UNITED NATIONS / NATIONS UNIES

Country LAOS Project No. [illegible] Page 1 of 7

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Project Title INTEGRATED WOODWORKING PROJECT Period ending December 1980

NON - EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	Received M	Received Y	Condition	Qty on hand	Remarks	LOCATION BML	LOCATION VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
74/1	1	1	EA	PROJECT VEHICLE CITROEN DALAT 1974 (ONU 040) SR No. 86302-870 / ENG. SR No. 051018691	2,800	LP	1	3	75	B	1	UN74010/001A1		X
		1	EA	"THOMAS" PAINT SPRAYER, MOD D.V.1/7 DV/1/7 (002 B 1)	129	LP +)	1	6	74	F	1	+) upon agreement with Res. Rep. (Letter of 5 Dec. 74) these items have been transfered from LAO/73/006.		X
		1	EA	MAKITA DRILL STAND, MOD/6400-B DV/49 INV. No. UN74010/003 B 2	137	LP +)	1	7	74	G	1			X
		1	EA	MAKITA GROOVE CUTTER (004 B 3) DV3/80)	420	LP +)	1	7	74	G	1			X
		1	EA	POWER BELT SANDER MAKITA MOD. 9401 (005B4)			1	7	74		1			
		2	EA	TYPEWRITERS, OLIVETTI, MODEL LINEA 88/38cm Ser. No. 9078721 and 8471670	706	LP	2	1	75	F	1	UN74010/006C1 UN74010/007C2	X X	
		1	EA	AIRCONDITIONER, Ser. No. Co. 539177	500	LP	1	2	75	F	1	UN74010/008C3		
74/1	1	1	EA	PROJECT VEHICLE CITROEN DALAT 1975(ONU 041) SR. No. 86302867/ENG. SR. No. 0501008301	2,750	LP	1	3	75	B	1	UN74010/009A2	X	
75/2	7	1	EA	MOISTURE DETECTOR, MODEL RC-1B MOORE	190	15-5-00553	1	10	75	G	1	UN74010/010B5		X
		1	EA	BAND SAW SETTING MACHINE, HAND OPERATED VOLUMER WERKE	194	LP	1	7	75	G	1	UN74010/011B6		X
75/2	9	1	EA	SPRAY GUN, CGA-502-84FF	84	15-5-00554	1	1	76	F	1	UN74010/012B7		X
75/2	14	1	EA	PAINT ARRESTOR SPRAY BOOTH, DF-6202 DEVILBISS	918	15-5-00554	1	1	76	G	1	UN74010/013B8		X
75/2	5	1	EA	ELECTRI BANDSAW BUTT WELDING MACHINE, IDEAL TYPE BS 2,220/380V	775	15-5-00555	1	3	76	G	1	UN74010/014B9		X
75/2	3	1	LOT	UNIVERSAL GRINDING MACHINE, TYPE MFS/II, WIDMA	2,686	15-5-00551	1	12	75	G	1	UN74010/015B10		X
75/2	6A	1	EA	COMBINED SAW SPINDLE MOULDER AND TENONING MACHINE WITH ACCESSORIES AND SPARE PARTS SCM	2,227	15-5-00793	1	4	76	G	1	UN74010/025B17		X

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Project Title INTEGRATED WOODWORKING PROJECT Period ending Decemb

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent
(1)	(2)	(3)	(4)	(5)	(6)
75/2	15	1	EA	VU-LITE III OPAQUE PROJECTOR MODEL 12305 SR. No. 93233	717.-
75/2	6	1	EA	COMBIEN WOODOWRKING MACHINE WITH ACCESSORIES (JOINTER)/THICKNES/SLOTTING) LUREN	2,357
75/2	2	1	EA	AUTOMATIC GRINDER TYPE 600T STEHLE	2,549
75/2	1	1	EA	ROUTER "L' INVINCIBLE" R-8 SCM	4,402
75/2	4	1	EA	BRAZING EQUIPMENT VODO B-600 WITH ACESSORIES + SAPRES VOLIMER DORNHAN	1,897
75/2	8	1	EA	MANUAL SIDE GRINDER VODO MP-600 WITH ACESSORIES AND SPARES VOLIMER DORNUAN	2,612
75/2	10	1	EA	TOYO VIEW D45M 4" x 5" CA MERA WITH LENES	355.70
75/2	11	1	EA	DRYING OVEN MODEL 1078 MOORE	121.-
	12	1	EA	MOISTURE CONTENT SCALE MODEL P830 MOORE	297.-
76/3	1	1	EA	CHUCK INSERT 7-13 MM WIDMA (for grinder MFSZ)	76.-
76/3	2	1	EA	MORSE, CONE TAPER MK 2 f FOR GRINDER MODEL MFS2 WIDMA	83.-
76/3	3	1	EA	REDUCTION GEAR FOR MFS 2 GRINDER SUITABLE FOR GRINDER OF HSS "SPOON TYPE" ROUTER CUTTERS WIDMA (for grinder MFSZ)	237.-
77/1	6	1	EA	SIZING CIRCULAR SAW TYPE F45 ALTENDORF	4,141.-
77/1	6.1	1	EA	SCORING UNIT (FOR ABOVE)	396.-
77/1	5	1	EA	MILLING CUTTER, PLANING KNIFE AND CUTTING TOOL GRINDING MACHINE WIDMA TYPE UWS320/380 VOLTS 50 HZ TROPICALIZED 1 HP	2,350
77/1	5.1	1	EA	FIXTURE FOR PLANING KNIFES UP TO 650 MM (for above)	275.-

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NON EXPENDABLE PROPERTY CONTROL RECORD

P.O. Shipping Advice Ref.	Received			Condition	Qty. on hand	Remarks	LOCATION	
	Qty.	M	Y				BML	VTL
(7)	(8)	(9)	(10)	(11)	(12)	(13)		
15-5-00776	1	12	75	G	1	UN74010/016C4	X	
15-5-00775	1	4	76	G	1	UN74010/026B18		X
15-5-00675	1	3	76	G	1	UN74010/024B16		X
15-5-00599	1	2	76	G	1	UN74010/021B13		X
15-5-00685	1	5	76	G	1	UN74010/027B19		X
15-5-00685	1	5	76	G	1	UN74010/028B20		X
15-5-00777	1	7	76	G	1	UN74010/030E1	X	
15-5-00552	1	2	76	G	1	UN74010/022B14		X
15-5-00552	1	2	76	G	1	UN74010/023B15		X
15-6-00400	1	3	77	G	1	UN74010/034B22		X
15-6-00400	1	3	77	G	1	UN74010/036B23		X
15-5-00400	1	3	77			UN74010/037B24		X
15-5-00571	1	4	78	G	1	UN74010/045B32	X	
15-7-00517	1	4	75	G	1	UN74010/045B32	X	
15-5-00526	1	4	78	G	1	UN74010/044B31	X	
- " -	1	4	78			- " -	X	

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Project Title INTEGRATED WOODWORKING PROJECT Period ending December 1980

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NON - EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	Received M	Received Y	Condition	Qty. on hand	Remarks	LOCATION BML	LOCATION VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
77/1	5.2	1	EA	MOUNTING FOR SHANK MILLING CUTTERS (for above)	90.-	15-5-00526	1	4	78	G	1	UN74010/044B31	X	
		1	EA	AIR CONDITIONER, PHILCO MOD. BAP 16 E 8 SER. No. 8PZN11596	520.-	LP	1	5	75	F	1	UN74010/017C5		X
		1	EA	AIR CONDITIONER, PHILCO MOD. BAP 16 E 8 SER. No. 8PZN11594	520.-	LP	1	5	75	C	1	UN74010/018C6	X	
		1	EA	POWER DRILL, HITACHI MOD. 50/60H2 SER. No. 430412	77.-	LP	1	12	74			UN74010/019B11 for LAO/73/006	X X	
			EA	TYPEWRITER OLIMPIA (LAO/ KEYBOARD) SER. No. 7-2379219	350.-	D.V. 6/11(L.P)		2	78	F	1	UN74010/054C8	X	
			EA	PORTABLE GRINDER JOKEY (SPECIAL ITEM)	200.-	15-8-D0595		5	79	G	1	UN74010/076B46		X
			EA	ELECTRIC CALCULATOR SANYO MOD. CI-2162 DP SR. No. 11402146	105.-	D.V. 10/34(LP)		8	78	F	1	UN74010/055C9	X	
			EA	HAND PLANER "MAKITA" MOD. No. 1804 SR. No. 19723E. (WITH ACCESSORIES)	170.-	D.V. 12/20		11	79	G	1	UN74010/90B53		X
			EA.	ELECTRIC POWER DRILL "MAKITA" 16mm MOD. NO. 6016, Sr No. 14803E	90.-	D.V. 12/10		11	79	G	1	UN74010/91B54	X	
			EA	CIRCULAR SAW 15, "MAKITA" WITH BENCH MOD. No. 5401. SR No. 1717E	350.-	D.V. 12/20		11	79	G	1	UN74010/92B55	X	

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Project Title INTEGRATED WOODWORKING PROJECT Period ending December 1980

NON EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	Received M	Received Y	Condition	Qty on hand	Remarks	LOCATION SNL	LOCATION VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
77/11		1	EA	COMBINED TURNING LATHE/SANDER VULCANINO/ ORIENTE C/W MOTOR 1.5 HP 380 VLTS 50HZ INCLUDING 13 EA TOOLS 36 EACH BANDING BELTS LOCATELLI	4,520.-	15-7-00647	1	6	78	G	1	UN74010/043B30	X	
77/2	1	1	EA	NO. 51 BARNHART BAND WHEEL GRINDER COMPLETE W/4-SCREW END BRACKETS SN 1305	1,175	15-7-00698	1	2	78	G	1	UN74010/040B27		X
77/2	1.1	1	EA	MOTORIZED HEAD ATTACHMENT COMPLETE W/2H.P. MOTOR, 380, VOLT, 50HP TROPICALIZED (FOR ABOVE)	775.-	- " -	1	2	78	G	1	- " -		X
77/1	2	1	EA	SEMI-AUTOMMATIC LATHE, MODEL SUPERVULCANO 1200 EQUIPED LOCATELLI	11,910.-	15-7-00662	1	6	78	G	1	UN74010/042B29	X	
77/1	1	1	LOT	AUTOMATIC MULTIPLE BLADE CIRCULAR SAW, NO. 8437443 type 113S, 40 HP MOTOR TROPICALIZED 220/380 VLTS 3 PH 50HZ WITH automatic FEED UNIT MODEL 145 WITH 2-SPEED MOTOR SENDEN EUROPA	12,082.-	15-7-00670	1	4	78	G	1	UN74010/047B34	X	
77/3	1	1	EA	GNOM DOWEL MILLING MACHINE TYPE DK110 MOTOR 380 VLTS, 3 PH 50 CYCLES WITH STANDARD ACC. AND ONE MILLING 6mm DIAM. SPIRIAL-GROOVED, No. 3806 LOSER	1,132	15-7-00846	1	4	78	G	1	UN74010/046B33	X	
		1	EA	AIR COMPRESSOR, SWAN MODEL SU-1, SERIAL No. 411 390	174.-	LP	1	11	77	STOLEN		UN74010/039B26		
78/1	3	1	EA	LOROCH AUTOMATIC SAW SHARPENING MACHINE MODEL JLM V/C	5,670.-	15-8-00277	1	1	79	G	1	UN74010/071B42	X	
78.1	1	1	EA	EQUALIZING MACHINE MODEL EMS-E VOLIMER WERKE	5,685.-	15-8-00278	1	11	78	G	1	UN74010/073B44	X	
78/1	1.3	1	EA	SAW GUIDE WITH MAGNETIC HOLDING DOWN ROLLER (FOR ABOVE)	439.-	15-8-00278		11	78	G	1	- " -	X	
78/1	1/4	1	EA	BACK FEED ARRANGEMENT (FOR ABOVE)	979.-	15-8-00278		11	78	G	1	- " -	X	

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Project Title INTEGRATED WOODWORKING PROJECT Period ending December 1980

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

NON - EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US $ Equivalent	P.O. Shipping Advice Ref.	Received Qty.	Received M	Received Y	Condition	Qty on hand	Remarks	LOCATION SNL	LOCATION NTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
			EA	POCKET CALCULATOR TOSHIBA MOD LC (SPECIAL ITEM)	60.-			6	79	G	1	UN74010/069-C19 1/	X	
78/3	1	1	EA	HEAVY DUTY AUTOMATIC STRAIGHT KNIFE GRINDER MODEL M18 LOKOCH	7,426.- ~~4,045~~	15-8-00313 ~~15-8-00535~~	1	11	78	G	1	UN74010/074-B45	X	
78/1	4	1	EA	SLIDE HEAD TYPE STRETCHER, MODEL RS-16R HAMADA	4,095.-	15-8-00535	1	1	79	G	1	UN 74010/072. B43	X	
78/1	4.1	1	SET	ROLLERS (FOR ABOVE)	737.-	15-8-00535						- " -	X	
78/1	5	1	EA	ARSTRONG CIRCULAR SAW STRETCHER ROLL COMIL. NO. 3-60-C										
		1	EA	MOTOCYCLE HONDA TYPE L70 - K3E FRAME No. 79 ks. - B07667 (ONU 110 plate)		LOG. Purch. D.V. 10.45		8	78	G	1	UN74010/059A3	X	
		1	EA	MOTOCYCLE HONDA TYPE L70 - K3E FRAME No. 70 ks - B07640 (ONU 109 plate)	1,048	- " -		8	78	G	1	UN74010/060A4	X	
		1	EA	AIR CONDITIONER YORK MOD. RCH - 15 x - 48D SR No. HP 042156	539.-	LOG. Purch. D.V. 3/31		1	79	G	1	UN74010/064C15	X	
		1	EA	AIR CONDITIONER YORK MOD RCH - 15 x - 48D SR No. HP -042100	539.-	- " -		1	79	G	1	UN74010/065C16	X	
		1	EA	PHOTOCOPY M/C TOSHIBAFAX MOD. BD-704	2,489.-	D.V. 3/31(L.P.)	1	79		G	1	UN74010/066C17	X	
		1	EA	PICK-UP VAN TOYOTA DINA RU 20L-JR SR. No. 2001708 (ONU 118 plate)	7,690.-	D.V. 3/32(LP)				G	1	UN74010/067A6	X	
		1	EA	DUPLICATING MACHINE GESTETNER 420	1,238.-					G	1	UN74010/068C18	X	
		1	EA	PHOTOCOPY MACHINE 3M MOD TERMOFAX SR. No. 1500	893.30			6	78	F	1	UN74010/053C7	X	

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Country LAOS Project No. DP/LAO/74/010 Page 5 of 7

Project Title INTEGRATED WOODWORKING PROJECT Period ending : December 1980

NON EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	Received M	Received Y	Condition	Qty. on hand	Remarks	LOCATION GNL	LOCATION VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
		1	EA.	Air conditioner WEATHERITE WESTINGA HOUSE Mod No. AE 100 SR No. 030487	140.00	Local purchase DV & 11/51	1	1	79	F	1	UN74010/076C20 (2nd Hand)	X	
		1	EA.	Air conditioner "FEEDERS " MOD. No. AJ 110 FT - 205 220V, 50z, 1Hp	150.00	Local purchase DV & 11/51	1	1	79	F	1	UN74010/077C21 (2nd Hand)	X	
		1	EA.	Air conditioner " FEEDERS "" MOD. No. ACB - 08F28 SR No. KE 801300, 115V, 60 Hz	90.00	DV & 11/51	1	1	79	F	1	UN74010/078C22 (2nd Hand)	X	
		1	EA.	Circular Saw "SHARPENER GULLETTER M/C Type: EQ/T, ∅ 12" to 84" P.S. 380V, AC/ 3 phases SR No. 268	1851.63	15.8.D0559	1	7	79	G	1	UN74010/082B27		X
		1	EA.	Typewriter "OLIMPIA" SR No. 8-2502-01-0								UN74010/080C24		
		1	EA	RENAULT 12 1330 Frame // 7348701 Engine // UNDP 033								UN74010/067A7	X	
		1	EA.	LAND ROVER 88 1974 Frame // 92402561 A Engine // 90149691 A Regist // UNDP 052			1					UN74010/062A5	X	

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Project Title INTEGRATED WOODWORKING PROJECT Period ending December 1980

NON - EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	Received M	Received Y	Condition	Qty. on hand	Remarks	LOCATION SAIL	LOCATION VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
		2	2	ARMSTRONG SWAGE No. 8½	480.-	UNIDO CABLE		6	78	G	2	UN74010/048B35		
			1	- " - SHARER No. 5500 - B	225.-	No. 16179		6	78	G	1	UN74010/049B36		
				(SPECIAL ITEMS)										
				WE CERTIFY THAT THE QUANTITIES OF NON-EXPENDABLE EQUIPMENT RECEIVED LESS THE QUANTITIES OF NON-EXPENDABLE EQUIPMENT WRITTEN-OOF REFLECT THE PHYSICAL COUNT OF THE ITEMS ON HAND AS AT _____										
				T O T A L — —										

Resident Representative UNDP ..... (signed) Date : 5.12.1980

Government Counterpart : ..... (signed) (Boun thong) Date : 29.11.80

UNIDO officer in charge..... (Sumarokov) Date 29.11.80

Vice Director of factory..... (K hamphay) Date 28/11/80

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Country LAOS Project No. SM/LAO/76/005 Page 1 of 1

Project Title MANAGEMENT AND PRODUCTION ASSISTANCE TO WOODWORKING INDUSTRY, LAOS Period ending December 1980

NON - EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. /Shipping Advice Ref.	Received Qty.	Received M	Received Y	Condition	Qty. on hand	Remarks	LOCATION SML	LOCATION VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
76/1	5	1	EA	PROFILE DRUM AND BELT SANDER, MAKE ZUCKERMANN, TYPE GU SPECIAL WITH TROPICALIZED MOTOR AND STANDARD TOOLS	1,676.-	15-6-00533	1	3	77	G	1	UN76/005/001	X	
76/1	6	1	EA	EDGE BELT SANDER HOFER TYPE BSM IV WITH TROPICALIZED MOTOR	1,756.-	15-6-00533	1	3	77	G	1	UN76/005/002	X	
76/1	6.2	1	EA	OSCILLATION UNIT (FOR ABOVE)	453.-	15-6-00533	1	3	77	G	1	- " -/003	X	
76/1	6.7	1	EA	FEEDING ATTACHMENT, HOLZLER TYPE 117 WITH TROPICALIZED MOTOR	1,959.-	15-6-00533	1	3	77	G	1	- " -/004	X	
76/1	2	1	EA	PREASTRAICHTENING MOULDER, CUBISH TYPE 172-S/7	14,126.-	15-6-00555	1	5	77	G	1	- " -/005	X	
76/1	1	1	EA	DOUBLE CROSSCUT CIRCULAR SAW, RUCO MODEL22 WITH TWO BUILT-IN THREE PHASE 220/380V/50Hz	8,759.-	15-6-00522	1	8	77	G	1	- " -/006	X	
76/1	1.2	1	EA	PNEUMATIC LATERAL MOVER AND SERVICING UNIT (FOR ABOVE)	1,067.-	- " -	1	8	77	G	1	- " -/007	X	
76/1	1	1	EA	AJUSTABLE REBATING CUTTER TYPE 1353 HSS 160 X 20 - 39,5 X 40 MM	203.-	15-6-00618	1	6	78	G	1		X	
76/1	2	1	EA	ADJUSTABLE REBATING CUTTER TYPE 1355 HSS DETTO 160 X 40 - 79,5 X 40 MM	242.-	15-6-00618	1	6	78	G	1		X	
76/1	3	1	EA	VARI-ANGLE CUTTERHEAD TYPE 1194 170 X 50 X 50/40 MM WITH 2 FLANGED SLEEVE 50/40	223.-	15-6-00618	1	6	78	G	1		X	
76/1	4	1	EA	SCRIBING DISC TO ABOVE BLOCK (1194 V)	48.-	15-6-00618	1	6	78	G	1	exp.	X	
76/1	5	1	EA	TC KNIVES TURNBLADE DESIGN TO ABOVE HEADS	9.-	15-6-00618	1	6	78	G	4	exp.	X	
76/1	6	1	EA	TC SCRIBERS FOR DISC NO. 1194 V	9.-	15-6-00618	1	6	78	G	1	exp.	X	

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Country LAOS Project No. SM/LAO/76/005 Page 2 of 3

Project Title MANAGEMENT AND PRODUCTION ASSISTANCE WOODWORKING INDUSTRY, LAOS Period ending December 1980

NON-EXPENDABLE PROPERTY CONTROL RECORD

40 Seq. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	M	Y	Condition	Qty. on hand	Remarks	LOCATION BNL	LOCATION VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
76/1	7	1	SET	PROFILE CUTTER COMBINATION TYPE 438 HSS, D 40MM	324.-	15-6-00618	1	6	78	G	1		X	
76/1	9	1	PCE	ADJUSTABLE GROOVING-CUTTER OF TYPE 619 HSS D 40MM	232.-	15-6-00618	1	6	78	G	1		X	
76/1	10	1	PCE	PANELLING CUTTER TYPE 719 HSS 160 X 20 X40MM Z-6, 30	154.-	15-6-00618	1	6	78	G	1		X	
76/1	11	2N	PCE	UNIVERSAL CUTTERBLOCK TYPE 488 120X40X40MM AND 4 SPARE KNIVES EACH	111.-	15-6-00618	2	6	78	G	2		X	
76/1	12	12	PCE	KNIVES TYPE 500 170 X 30 X 30 MM, HSS	96.-	15-6-00618	12	6	78	G	12	Expendible	X	
76/1	3	1	EA	TENONING MACHINE - TYOE T3P BACCI	3,641.-	15-6-00592	1	7	77	G	1	UN76005/008	X	
76/1	4	1	EA	MORTISING MACHINE TIPE MOH BACCI	2,023.-	- " -	1	7	77	G	1	- " /009	X	
76/1	10/11	1	EA	SCREWING AND TAPPING MACHINE, TYPE DBA FELE	1,975.-	15-6-00553	1	10	77	G	1	- "/011	X	
76/1	9/1	1	EA	ELECTRONOTOR ST 67, 220 VOLT 1200 WATT NO/70672200 (DOVETAILLING M/C) SCRIFFLER	280.-	15-7-00319	1	11	77	G	1	- "/012	X	
76/1	9.3	1	EA	ZINKENFRASGERATE 7501, NO. 68610100 (DOVETAILLING M/C)	530.-	- " -	1	11	77	G	1	- "/012. A	X	
76/1	7	1	EA	HORIZONTAL COPYING LATHER TYPE T3M-O FITTED WITH 3 CHUCKS BACCI	5,333.-	15-7-00318	1	1	78	G	1	- "/010	X	
76/1	8	1	EA	CUP CUTTER GRINDER, TROPICAL INSULTATION 220/380 VLTS 50 KZ REICHENBACHER	1,358.-	15-7-00599	1	11	77	G	1	- "/013	X	
76/1	8	1	PCE	ADJUSTABLE TONGUE-CUTTER OF TYPE No. 612HSS 160 X 17 - 27 X 40MM	183.-	15-6-00618	1	6	78	G	1			
				TOTAL =	46,770 $									

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Country LAOS Project No. SM/LAO/76/005 Page 3 of 3

Project Title SEE PAGE 1 (M.F.) Period ending December 1980 NON EXPENDABLE PROPERTY CONTROL RECORD

(1) Req. Ref.	(2) Item No.	(3) Qty.	(4) Unit	(5) Description	(6) Serial Number of Equipment	(7) P.O. Shipping Advice Ref.	(8) Received Qty.	(9) M	(10) Y	(11) Condition	(12) Qty on hand	(13) Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)

WE CERTIFY THAT THE QUANTITIES OF NON-EXPENDABLE EQUIPMENT RECEIVED LESS THE QUANTITIES OF NON-EXPENDABLE EQUIPMENT WRITTEN-OFF REFLECT THE PHYSICAL COUNT OF THE ITEMS ON HAND AS AT ————————

Resident Representative UNDP ..... (Signed) Date : 5. 12. 1980

Government Counterpart . . .. (Signed) (Boun thong) Date : 29.11.80

UNIDO officer in charge..... (Sumarokov) 29.11.80.

Vice Director of BML factory..... (Kham phay) Date 28/11/80

CONTINUATED UNDER LAO/74/010

UNITED NATIONS / NATIONS UNIES

UNITED NATIONS DEVELOPMENT PROGRAMME

City LAOS Project No. VC/LAO/76/027 Page 1 of 2

Project Title PILOT PLANT FOR THE PRODUCTION OF MODULAR WOODEN BRIDGES Period ending December 1980

NON EXPENDABLE PROPERTY CONTROL RECORD

PO Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	M	Y	Code Item	Qty in Unit	Remarks	Location MNL	VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
76/1	1	1	EA	CUT OFF ELECTRIC SAW, HEAVY DUTY										
76/1	2	6	EA	CIRCULAR SAWS, HIGH SPEED STEEL										
76/1	3	1	EA	PORTABLE, ELECTRIC ARC WELDING SET								UN73013/016		
76/1	4	1	EA	HEAVY DUTY PORTABLE ELECTRIC DRILL										
76/1	5	3	EA	SETS OF DRILL BITS FOR DENSE WOOD										
76/1	6	50	GAL	WOOD PRESERVATIVE OF "DIP DIFFUSION" TYPE		LP								
76/1	7	3	EA	AUGER TO DRILL 3½ (ø) HOLES	10,000.-1/	PAD 76-0355								
77/2	1	1	EA	HYDROLIC CULINDER PAR NO. RC308"	400.-	15-7-00293	1	8	77	F	1	UN76027/007		
77/2	2	1	EA(1)	HYDRAULIC HAND PUMP. PART NO. P 85"	388.-	- " -	1	8	77	F	1	- "/008	X	
		1	EA(2)	POWER DRILL, HITACHI SIZE 13MM DIA	86.-	LP	1	2	77			lost		
		1	EA(3)	WINCH TRACTEL, MODEL TIRFOR TU 32" WITH PULLEY BLOCK A-30 + WIRE ROPE	493.-	LP	1	5	77	F	1	UN76027/002	X	
		1	EA(4)	WINCH TRACTEL, MODEL TIRFOR TU 32" WITH PULLEY BLOCK + WIRE ROPE	463.-	LP	1	6	77	F	1	- " -/003	X	
		1	EA(5)	WINCH TRACTEL, MODEL TIRFOR TU 32" WITH PULLEY BLOCK A-¥) + WIRE ROPE	462.-	LP	1	6	77	F	1	- " -/004	X	
		1	EA(6)	CALCULATOR, CANON MODEL F-51" SER. NO. 449253 WITH AC. POWER ADAPTER	80.-	LP	1	6	77	G	1	-"-/ 005	Pakchong Offi	
		1	EA(7)	WELDING MACHINE, LINCON" SER. NO. A801140	2,275.-	LP	1	6	77	B	1	-" -/006	X	

Items 1, 2, 3, 4, 5, 6, and 7 are in temporality use by with Mekong Committee (PAK Cheng)

Given back from Mekong Comitee, Localized at BML Factory now.

UNITED NATIONS / NATIONS UNIES

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Country LAOS Project No. VC/LAO/76/027 Page 2 of 2

Project Title SEE PAGE 1 (I.W.P.) Period ending December 1980

NON EXPENDABLE PROPERTY CONTROL RECORD

PO Req. Ref	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	M	Y	Cond. Code	Qty. written off	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)

WE CERTIFY THAT THE QUANTITIES OF NON-EXPENDABLE EQUIPMENT RECEIVED LESS THE QUANTITIES OF NON-EXPENDABLE EQUIPMENT WRITTEN-OFF REFLECT THE PHYSICAL COUNT OF THE ITEMS ON HAND AS AT _____

Resident Representative UNDP ..... (Signed) Date : 5.12.1980

Government Counterpart ..... (Signed) (Boun thong) Date : 29.11.80

UNIDO officer in charge..... (Sumarokov) Date : 29.11.80

Vice director of BML factory..... (Khamphay) Date : 28/11/80

Country LAOS Project No. SM/LAO/73/013 Page 1 of 3

Project Title Assistance to Pilot Woodworking Plant Period ending December 19[illegible]

NON - EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty	Received M	Received Y	Condition	Qty. on hand	Remarks	LOCATION BML	LOCATION VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
74/1	11/1	1	EA	SAW DOCTORING TOOL ARMSTRONG SWAGE	225.-	15-4-00426	1	1	75	F	1	UN73013/001		✗
74/1	11.2	1	EA	- " - " - B SHAPER	203.-	15-4-00426	1	1	75	F	1	UN73013/002		✗
74/1	12	1	EA	- " - " WELDING CLAMP	245.-	15-4-00426	1	1	75	F	1	UN73013/003		✗
74/1	10	1	EA	FURNCAE, MUFFLE, MODEL MR260 HERAUS	815.-	15-4-00425	1	2	75	G	1	UN73013/004		✗
74/1	6a/i	1	EA	BANDSAW LEVELLING PLATE SPEAR & JAKSON										
74/1	6a/i	1	EA	BANDSAW ANVIL " "	156.-	15-4-00424	1	5	75	G	1	UN73013/006		✗
74/1	7a/i	2	EA	CIRCULAR SAW ANVIL " "	357.-	15-4-00424	1	5	75	G	1	UN73013/007		✗
74/1	9	1	EA	BRAZING CLAMPS FOR BANDSAW" "	585.-	15-4-00424	1	5	75	G	1	UN73013/008		✗
74/1	11:4	1	EA	MERAMAID SHARPER " "	119.-	15-4-00424	1	5	75	G		UN73013/009		✗
74/1	1	1	EA	AUTOMATIC SAW SHARPER MODEL CANA/e VOLIMER WERKE	3,379.-	15-4-00427	1	2	75	G	1	UN73013/010		✗
74/1	1c/i	1	EA	BAND SAW MOUNTING DEVICE	469.-	15-4-00427	1	2	75	G	1	UN73013/011		✗
74/1	6	1	EA	MODEL VWM ROLL SAW STRETCHER VOLIMER WERKE	1,065.-	15-4-00427	1	2	75	G	1	UN73013/012		✗
74/1	2	1	EA	MODEL JLM-VC AUTOMATIC SAW SHARPENER ROLOCH	2,372.-	15-4-00423	1	1	76	G	1	UN73013/013		✗
74/1	5	1	EA	ELECTRIC GRINDING MACHINE - IDEAL MODEL SM201	1,038.-	15-4-00733	1	2	75	G	1	UN73013/014		✗
74/1	19	1	EA	SAFFIRE DH WELDING SET	314.-	15-4-00513	1	9	75	F	1	UN73013/028		✗
		1	EA	CALCULATOR, SHARP-8010	39.-	LP	1	11	75	F	1	UN73013/029	✗	

Project No. SPP/LAO/73/013 Page 2 of 3

Project Title Assistance to Pilot Woodworking Plant Period ending December 1980 NON - EXPENDABLE PROPERTY CONTROL RECORD

HQ Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	M	Y	Condition	Qty. on hand	Remarks	Location BHL	Location VTL
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
76/4	2.1	1	EA	700 314 002 DOLMAR GRINDER TYPE 314 WITH 220V, 50 CYCLES (SINGLE PHASE AC.) MOTOR FOR 2-LINK SCRATCHER CHAINS	198.-	15-6-00394	1	6	78	G	1	UN73013/030 replacement		X
76/3	1	1	EA	C. NA/E 53/N48 GanG SAW CARRIAGE FOR A BLADE WIDTH UP TO 3" (800 MM) (ATTACHMENT FOR VOLLMER GRINDER)	1,132.-	15-6-00395	1	4	77	G	1	UN73013/031		X
76/5	5	1	EA	BENCH PROFILE GRINDER TYPE RBS SATURN. COMPLETE WITH MOTOR 220/380V/50 CYCLES	726.-	15-6-00392	1	4	77	G	1	UN73013/032	X	
				T O T A L =	13,864./									

UNITED NATIONS / NATIONS UNIES

Country LAOS Project No. SM/LAO/73/013 Page 3 of 3

Project Title SEE PAGE 1 (I.W.P) Period ending December 1980

NON-EXPENDABLE PROPERTY CONTROL RECORD

PO Req. Ref.	Item No.	Qty.	Unit	Description	US Dollar Equivalent	P.O. Shipping Advice Ref.	Received Qty.	M	Y	Condition	Qty written off	Remarks
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)

WE CERTIFY THAT THE QUANTITIES OF NON-EXPENDABLE EQUIPMENT RECEIVED LESS THE QUANTITIES OF NON-EXPENDABLE EQUIPMENT WRITTEN-OFF REFLECT THE PHYSICAL COUNT OF THE ITEMS ON HAND AS AT _____

Resident Representative UNDP ..... (Signed) Date : 5.12.1980

Government Counterpart : ..... (Signed) (Boun thong) Date : 29.11.80

UNIDO officer in charge..... (Somarokov) Date : 29.11.80

Vice Director of BML factory..... (Kham phay) Date : 28/11/80

APPENDIX XV

List of staff project LAO/74/010 - UNDP/UNIDO Integrated Woodworking Project

N.	Family Name	Post	Period of work from	to
		International Staff		
1.	Alexander M. Sumarokov	LAO/74/010/11-04 Woodworking Technology Expert Project Officer-in-Charge	26 Nov. 1979	9 Jan. 1981
2.	Shocken Ashitomi	LAO/74/010/11-11 Civil Engineer	1 Dec. 1979	30 Aug. 1980
		Local Staff		
3.	Mr. Borenta	Assistant of Project Co-ordinator	1 Dec. 1979	30 March 1980
4.	Mr. Somchin	Technician Assistant Material Control	1 Dec. 1979	30 Sept. 1980
5.	Ms. Tongfouan	Typist	1 Dec. 1979	30 Sept. 1980
6.	Mr. Da	Droughtsman	1 Dec. 1979 (periodically)	30 Sept. 1980
		Goverment Counterparts		
7.	Mr. Bounmy	Fitter	1 Feb. 1980	24 Dec. 1980
8.	Mr. Bounthong	Fitter	1 Jan. 1980	24 Dec. 1980
9.	Mr. Khampheng	Tooldresser	1 Feb. 1980	24 Dec. 1980