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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
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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UNITED NATIONS INDUSTRIAL
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ENGLISH

MANUFACTURING GUIDE

MODEL GARMENT FACTORY FOR MEN'S SHIRTS AND TROUSERS[1/]

by

K.R. Lensch*

* Technical Director, Capelin Association Ltd., Geneva, Switzerland

1/ The following report gives the names of some of the firms which are known to manufacture and/or trade in this commodity, but the list should not be regarded as exhaustive. Inclusion in the list does not imply any recommendation by UNIDO. The views and opinions expressed in this paper are those of the consultant and do not necessarily reflect the views of the secretariat of UNIDO. This document has been reproduced without formal editing.

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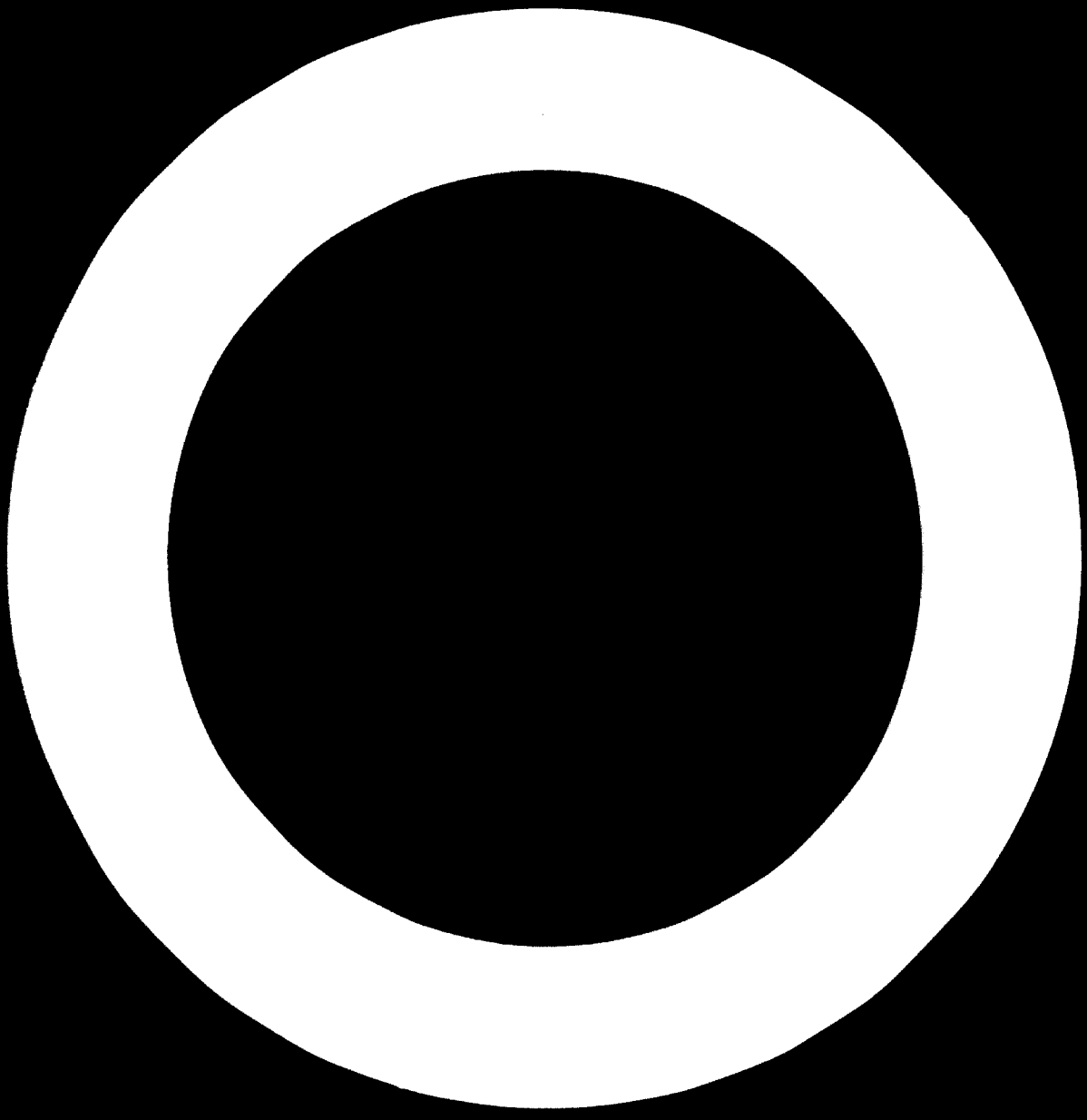

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I. INTRODUCTION

A. General

This plant installation may serve as a branch factory of a bigger company or as a factory of a marketing organization which would provide the marketing and product development facilities.

B. Standards and output

The workstandards refer to a 100 % performance of the individual operators. Under normal circumstances, due to absenteeism, training, machine break down, etc., the effective group efficiency is estimated at 85 % to be reached after 2 years (see III G). This 85 % group efficiency will be considered as 100 % output.
100 % output equals :

1.700 trousers per day and
2.550 shirts per day

C. Assumptions

The plant described herein is a hypothetical case and, therefore, certain assumptions had to be made. For these

assumptions, the experience with similar projects was taken into account. Nevertheless, some of the factors may vary considerably from case to case.

In particular, the following assumptions are of importance due to their variability :

1) Direct labour

The hourly cost of direct labour including social charges was assumed at U.S.$ 0.50 for 250 working days and 10 days vacation per year. This corresponds approximately to the present labour costs in West Africa. Both higher and lower labour costs are found in various parts of the world.

2) Raw materials

The raw material costs were assumed on the basis of :

a) 1.10 m. fabric of 1.60 m. width per trouser at a price of U.S.$ 2.67 per m.

b) 2.05 m. fabric of 0.90 m. width per shirt at a price of U.S.$ 1.17 per m.

It was, furthermore, assumed that no fabric inspection would be necessary. However, the quality of the delivered fabric may require inspection in which case some additional labour and equipment would be needed.

3) Markets

It was assumed that the production would go to mass consumption markets (domestic or export) and, therefore, the styles would remain rather constant and the production orders would be big.

4) Operator training

The initial basic operator training can be accomplished on the regular production equipment before full utilization thereof. At a later stage, some second hand equipment may have to be purchased in order to equip a training school. The size of this school and its staffing depend upon the need of training new operators, i.e. on the rate of labour turnover.

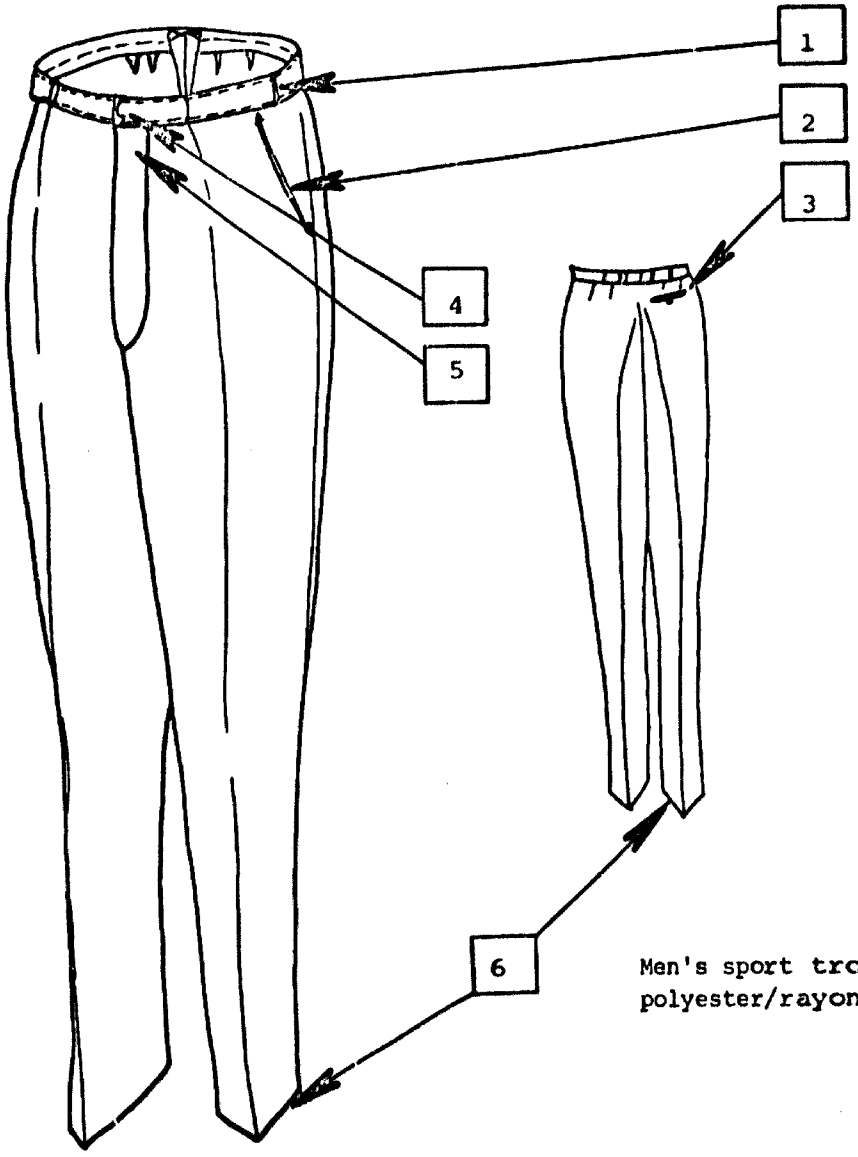
It should be noted that in many countries the government extends subsidies for the first training of operators.

5) System of operation

As system of operation, the progressive bundle system has been foreseen, which is the most suitable and economic for this kind of production.

II. A. PRODUCT DESCRIPTION

Product : Men's trouser

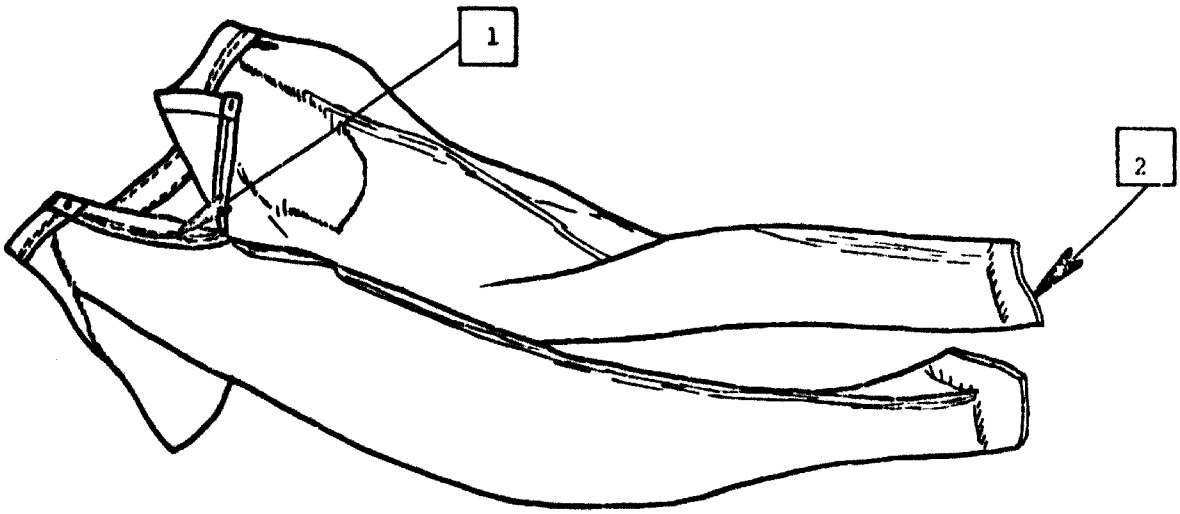


Men's sport trouser in polyester/rayon

Reference	Description :
1	8 beltloops
2	2 side pockets
3	Hip pocket with button + button loop
4	Short waist fastening
5	Buckle loop
6	No turnups (cuffs)

II. B. PRODUCT DESCRIPTION

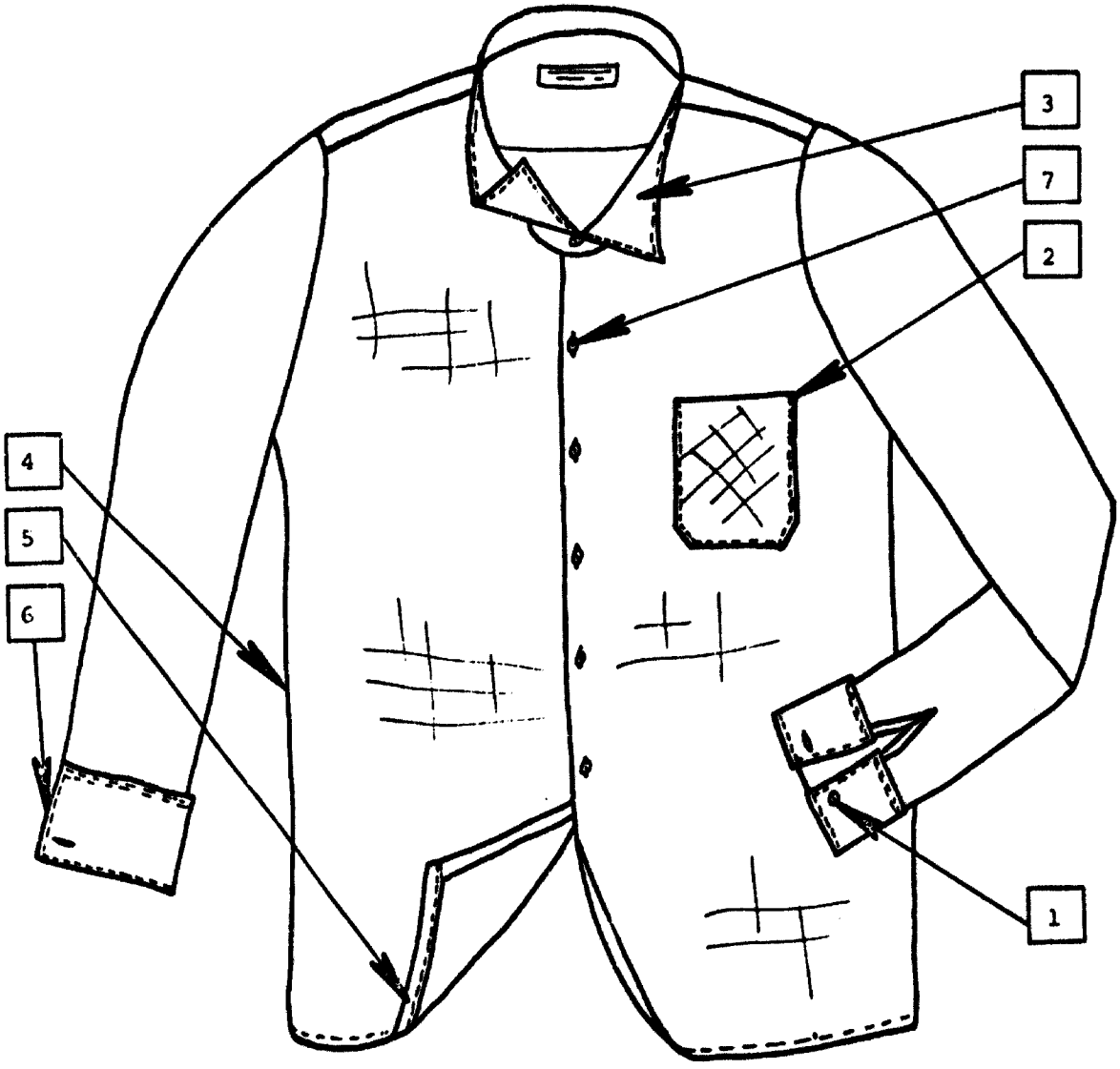
Product : Men's trouser



Reference	Description :
1	Zip fly
2	Leg openings fully taped

II. C. PRODUCT DESCRIPTION

Product : Woven dress shirt



Reference	Description :
1	One button cuff
2	Bias set breast pocket without triangle
3	One piece collar (topstitched)
4	Straight side seams
5	6 mm. bottom hem
6	Cuff topstitched
7	Six button front

ENGINEER KRL

DATE 12.73

SPECIFICATION SHEET

CLIENT

STYLE trouser

III. A Product

PRODUCT DESCRIPTION see attached diagram

OPER. No.	OPERATION DESCRIPTION	MACHINE No.	ATTACHMENT	SPCM SPI	RPM	SAM TS
	(a) preparation					
T2	back form press	FORP.				
T3	back and front serge	OL/3				
T4	rt fly overlock	OL/2				
T5	facing overlock	OL/2				
T6	darts front sew	SNLS				
T7	darts back sew	SNLS				
T8	Zip set to left fly, cut and stack	TNCO	roll			
T9	belt loops (8) sew + 1 pocket loop + 1 buckle loop	TNCS	FF			
T9a	cut belt loops + match	BLCHOP				
T10	band lining set	OL/3				
T11	band lining cut	hand	circular knife			
T12	crotch lining overlock	OL/3				
T13	facing to pocket lining set	SNLS				
T14	front pocket fuse	UNIP	fusing screen			
T15	right + lft fly set, left fly topstitch	SNLS				
T16	rt fly overlock	OL/3				
T17	front pocket set + stay	SNNF	EGSW			
T18	side + hip pocketing fix	SNNF	EGSW			
T19	Front pocket close	SSM	tape			
T20	label set to hip pocket lining	BTM				
T21	hip pocket welt overlock	OL/3				
T22	facing set to hip pocket lining	SNLS				
T23	hip pocket welt set	TNLSNF				
T24	corners cut + turn	hand	RFSC			
T25	corners tack loop insert + topstitch	SNLS				
T26	hip pocket close	SST				

ENGINEER KRL **SPECIFICATION SHEET** CLIENT

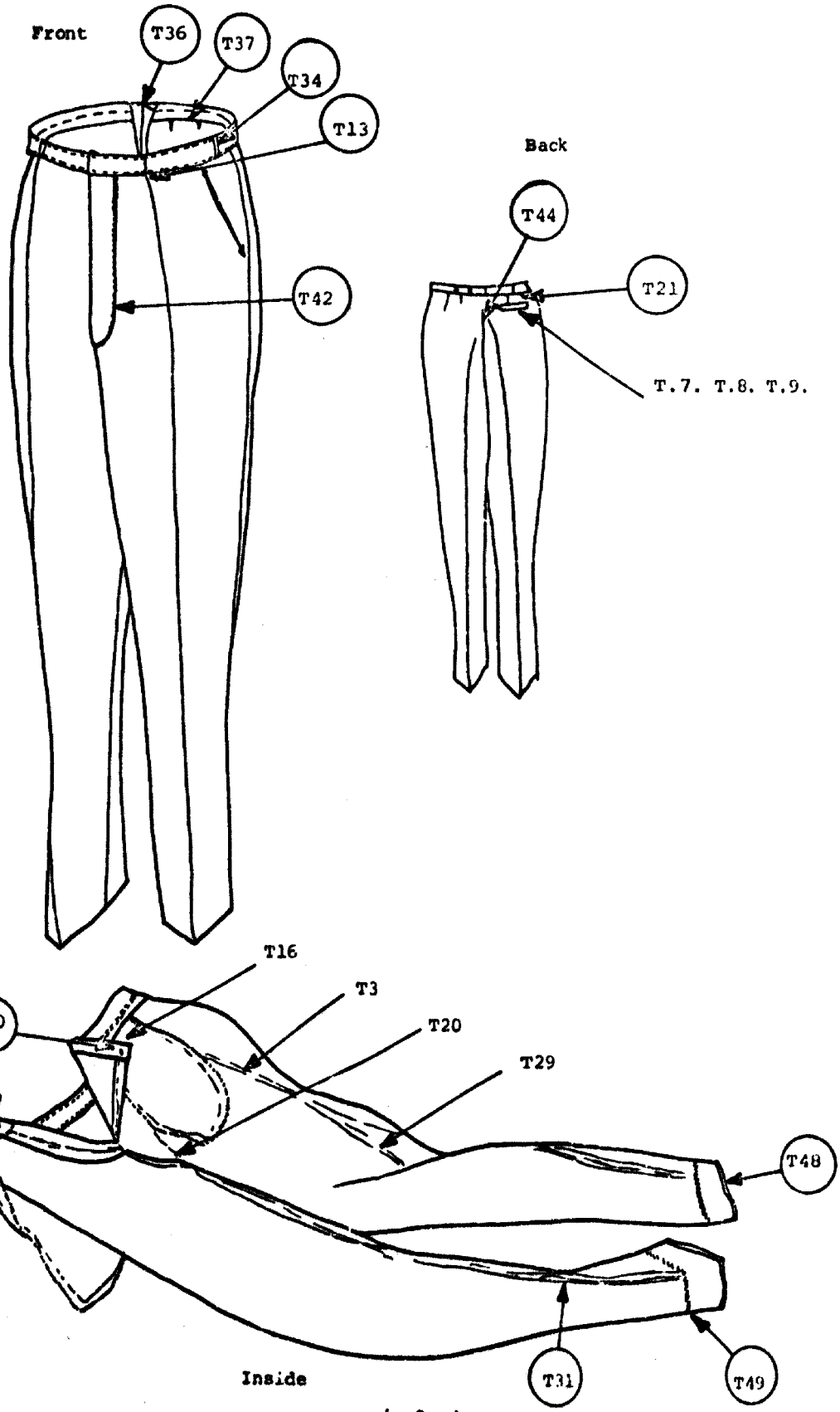
DATE 12.73 STYLE trouser

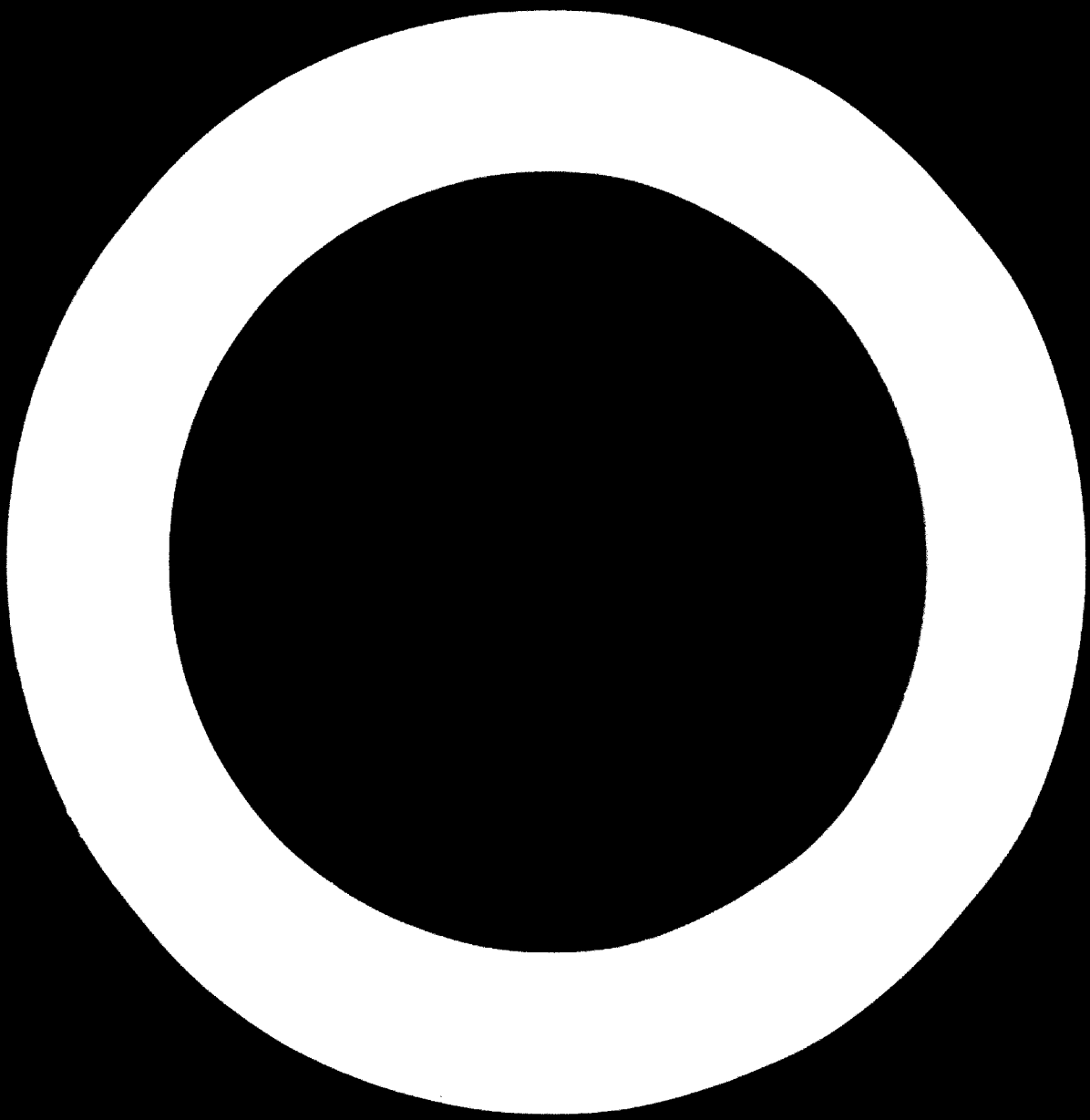
III. A. **Product**

PRODUCT DESCRIPTION see attached diagram

OPER. No.	OPERATION DESCRIPTION	MACHINE No.	ATTACHMENT	SPCM SPI	RPM	SA T
	(b) assembly					
T40	back + front match	hand				
T41	side seam close	SNCS	DHO			
T42	crotch piece set	SNLS	PUBX			
T43	inside seam close	SNCS				
T44	inside + side seam press	seam press				
T45	pocket lining fix + loop set	SNLS	ETR			
T46	button sew	BSM				
T47	waist band join	SNLS				
T48	waist band set	SNNF				
T49	seat seam + left fly binding	SNCS				
T50	rt + lft waist band corner finish + rt fly	SNNF				
T51	hook + bar set	hook + bar device				
T52	rt + lft fly topstitch	SNLS				
T53	zipper slide + bottom stop set	ZSCS				
T54	seat seam sew	TNCS-2				
T55	waist band turn + topstitch	SNLS				
T56	fly + belt loops tack	BTM				
T57	crotch bartack	BTM				
T58	trim + turn	hand	TT tunar			
T59	tape set	TNCS-3	roll + guide			
T60	hem	BLM				
	(c) finishing					
T61	leg press	leg press				
T62	waist top press	top press				
T63	control + after press	HDIR				
				Total SAM 25.		

III. B. SPECIFICATION SHEET DIAGRAM





GINEER KRL

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SPECIFICATION SHEET

CLIENT

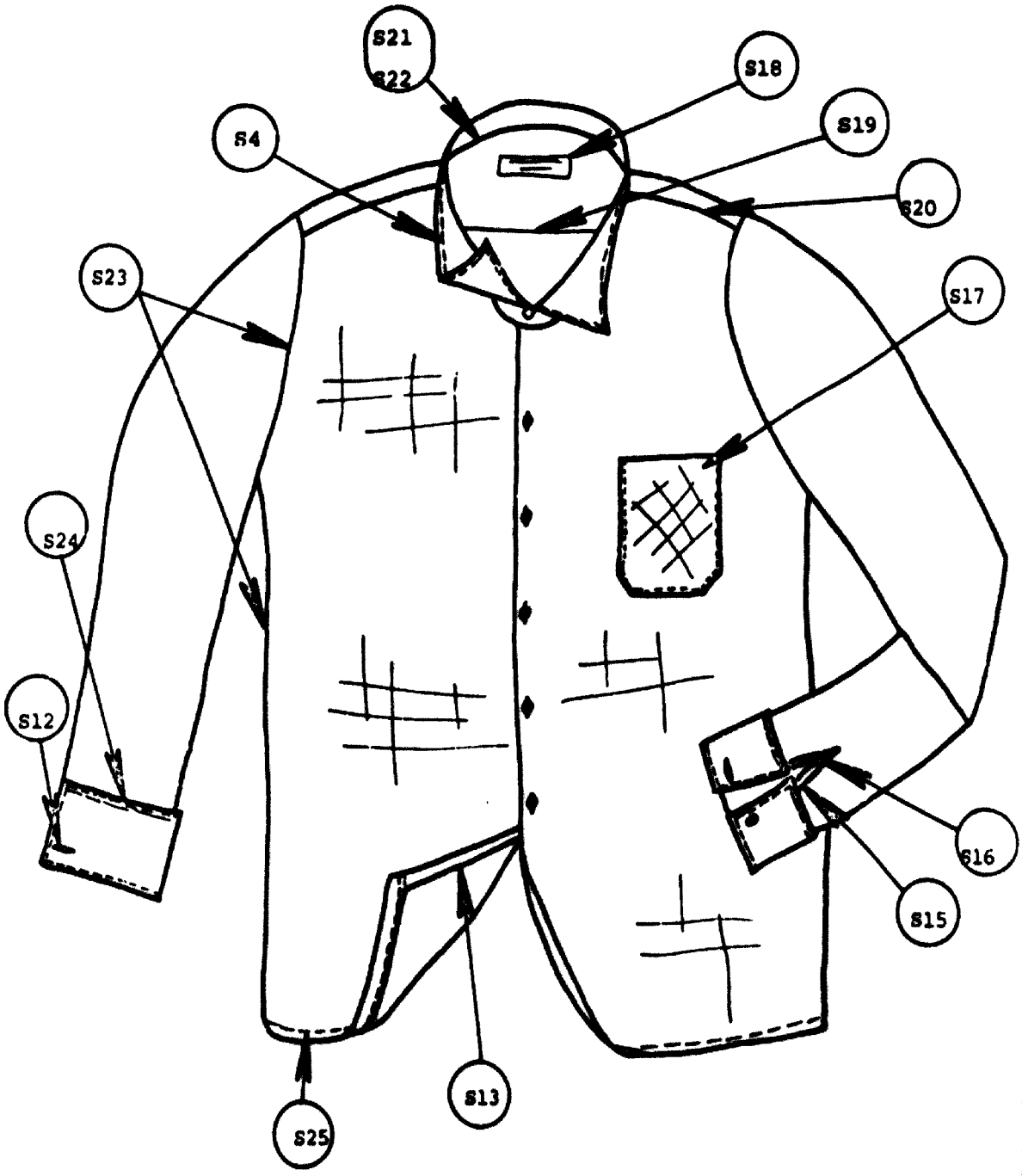
STYLE shirt

III. D **Product**

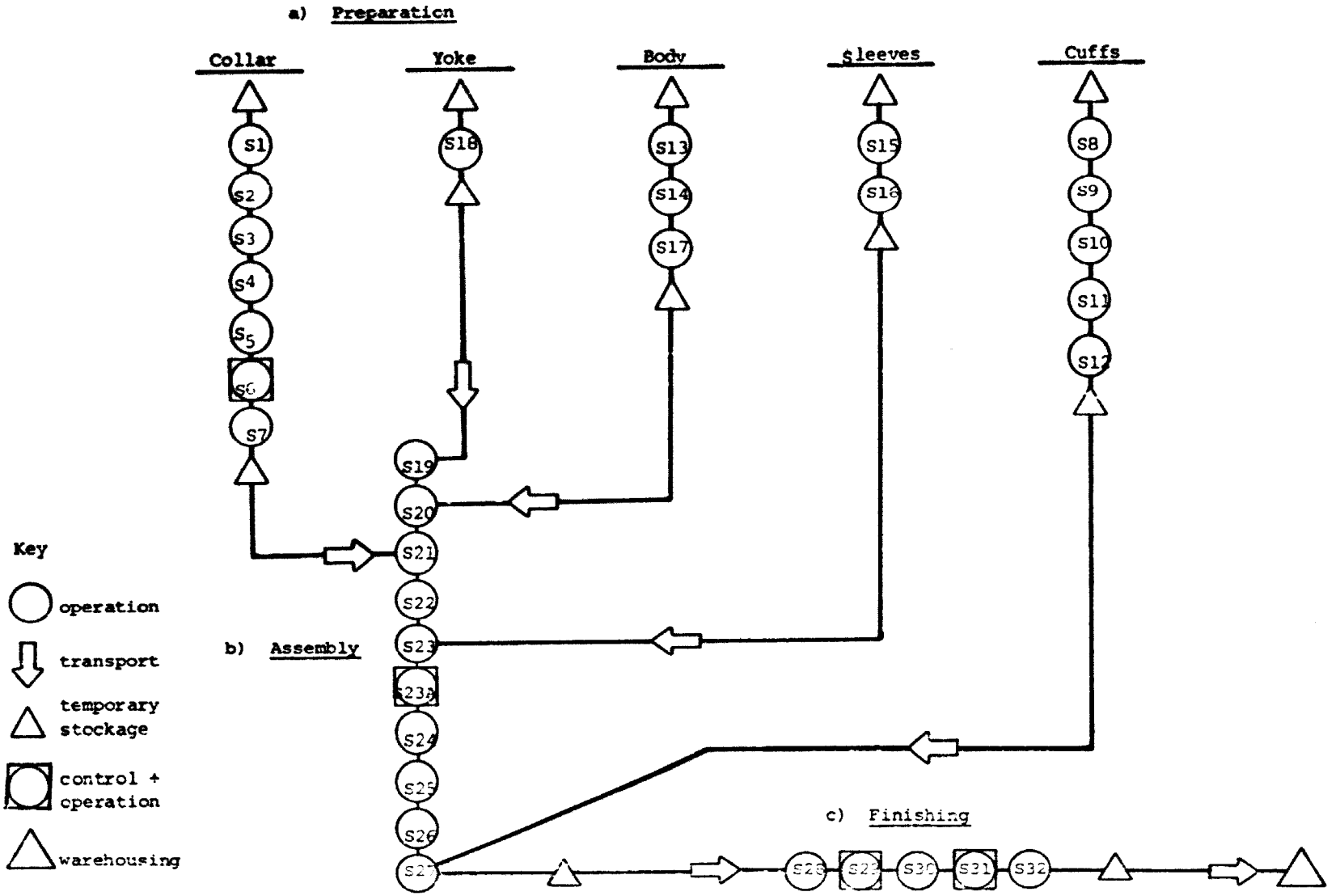
PRODUCT DESCRIPTION see attached diagram

OPER. No.	OPERATION DESCRIPTION	MACHINE No	ATTACHMENT	SPCM SPI	RPM	SAM TST
	(a) preparation					
S1	collar band hem	SNLS				
S2	collar run	SNNF				
S3	points turn + press	hand	turn + HDIR			
S4	collar topstitch	SNNF	EG			
S5	collar bead	SNNF				
S6	notch + control	hand	RFSC			
S7	button hole	BHM	CEBA			
S8	cuff hem	SNLS				
S9	cuff run	SNLS	EG			
S10	cuff turn	hand	turn + HDIR			
S11	cuff topstitch	SNLS				
S12	cuff buttonhole	BHM	CEBH			
S13	rt + lft front facing serge	OL-3				
S13A	press facing	hand	HDIR			
S14	front buttonhole	BHM	CEBH			
S15	sleeve bind	SNLS	CTR OLF			
S16	sleeve binding bartack	RTM				
S16A	pocket press (hem + edge)	hand	HDIR			
S17	pocket set	SNNF				
S18	label set to yoke	STCS	CTR			
	(b) assembly					
S19	yoke set	SST				
S20	shoulder join	SST				
S21	collar set	SNLS				
S22	collar close	SNLS				
S23	sleeve set + sides close	SST				
S23A	sleeve turn + control	hand				
S24	cuff set sandwich	SNLS				
S25	botton hem	SNLS	PUL FB TEX			
S26	button sew (8)	BSM	BSSP			
S27	trim + control	hand	cost HDSC			
	(c) finishing					
S28	press collar + cuff	hand	collar + cuff press			
S29	close button, collar form + inspect	hand				
S30	press body	press				
S31	fold + pin + inspect	hand				
S32	bag + box	hand				
				Total SAM		17.80

III. E. SPECIFICATION SHEET DIAGRAM



III. F. FLOW CHART - SHIRTS



III. G. PRODUCTION DEVELOPMENT PLAN

For 200 operators per day (a. 2 shifts = 2 x 100 operators)
b. 1 shift = 1 x 200 operators

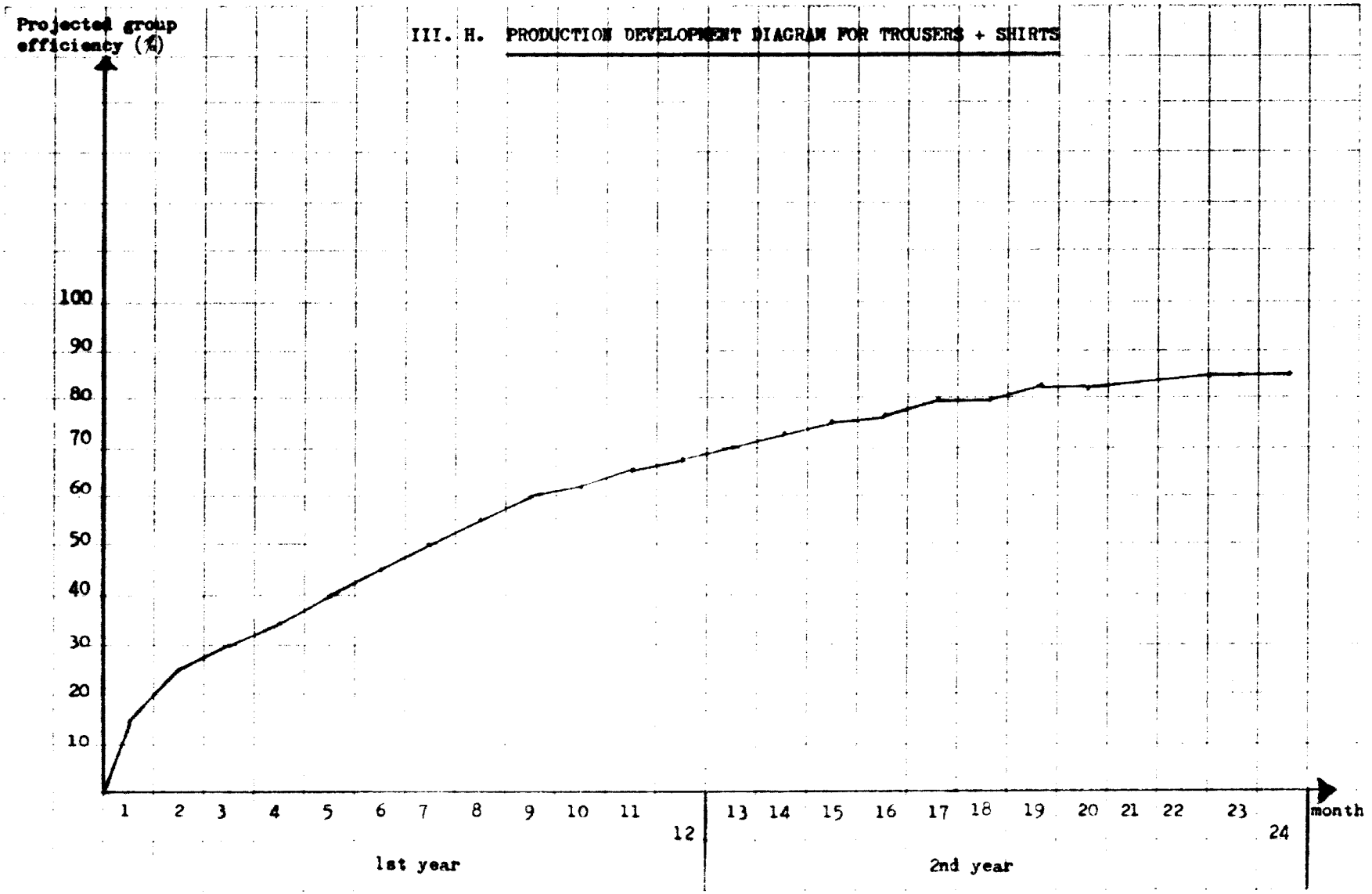
Month	Group % efficiency*	Production trousers / day	Production shirts / day
1	15	300	450
2	25	500	750
3	30	600	900
4	35	700	1050
5	40	800	1200
6	45	900	1350
7	50	1000	1500
8	55	1100	1650
9	60	1200	1800
10	62	1240	1860
11	65	1300	1950
12	67	1340	2010
13	70	1400	2100
14	72	1440	2160
15	75	1500	2250
16	77	1540	2310
17	80	1600	2400
18	80	1600	2400
19	82	1640	2460
20	82	1640	2460
21	83	1660	2490
22	84	1680	2520
23	85	1700	2550
24	85	1700	2550

*Note : It should be noted that group efficiency differs from individual operator efficiency which should reach between 80 % - 105 %.

The average group efficiency per year is therefore :

1st year	46 %
2nd year	80 %
3rd year + following	85 %

III. H. PRODUCTION DEVELOPMENT DIAGRAM FOR TROUSERS + SHIRTS



IV. A. BILL OF EQUIPMENT - SEWING MACHINES

Ref.	Code	Description	Price per mach. FOB appr. $ including stand. + motor	Quantity		Total price $	
				2 sh.	1 sh.	2 sh.	1 sh.
1	OLM	3 thread overlock machine	1.240.-	5	10	6.200.-	12.400.-
2	SNLS	single needle lockstitch machine with drop feed	890.-	22	44	19.580.-	39.160.-
3	SNNF	single needle lockstitch machine with needle feed	1.535.-	15	30	23.000.-	46.000.-
4	SNCS	single needle chainstitch machine	1.000.-	5	10	5.000.-	10.000.-
5	TNLSNF	two needle lockstitch machine with needle feed	1.670.-	1	2	1.667.-	3.334.-
6	TNCS	two needle chainstitch machine	1.400.-	4	8	5.600.-	11.200.-
7	TNCO	two needle chainstitch with lower cover	1.335.-	1	2	1.333.-	2.667.-
8	EHM	button hole machine	2.000.-	2	4	4.000.-	8.000.-
9	BST	button sew machine	1.000.-	3	6	3.000.-	6.000.-
10	BTM	bartack machine	2.000.-	6	12	12.000.-	24.000.-
11	BLM	blind hemmer	1.170.-	2	4	2.334.-	4.667.-
12	SST	safety stitch machine	1.445.-	6	12	8.670.-	17.340.-
13	OL-2	2 thread serging machine	1.235.-	3	6	3.700.-	7.400.-
14	STCS	single thread chainstitch machine	1.170.-	1	2	1.167.-	2.333.-
			Total	76	152	97.250.-	194.500.-
			+ 15 % spares & needles			14.580.-	29.175.-
			+ attachments & workaids at 700 $ / station			16.667.-	33.333.-
			Total FOB			128.505.-	257.008.-
			+ CIF + inland transp.			10.282.-	20.561.-
			Total			138.787.-	277.568.-

IV. B. BILL OF EQUIPMENT - PRESSING MACHINES

Ref	QTY	Description	Price (FOB) per machine appr. $	Total machines 2 sh.	Total machines 1 sh.	Total cost FOB 2 sh.	Total cost FOB 1 sh.
21	FORP	form press	2.667.-	1	1	2.667.-	2.667.-
22	UNIP	universal steam press	2.633.-	1	1	2.633.-	2.633.-
23	LEGP	leg press	2.633.-	2	4	5.267.-	10.533.-
24	HDIR	hand iron + table	573.-	6	12	3.437.-	6.873.-
25	TOPP	top pressing machine for trousers	2.333.-	4	8	9.333.-	18.667.-
26	PRESS	front and back press for shirts	2.333.-	5	10	11.667.-	23.333.-
27	COCUPR.	collar + cuff press	2.333.-	1	2	2.333.-	4.667.-
28	VAC	vacuum turbine	2.750.-			2.750.-	2.750.-
29	SG	steam generator (set of 2 electr. generators)	5.500.-			5.500.-	5.500.-
			Total	20	38	45.587.-	77.023.-
			+ spare parts 10 %			4.559.-	7.702.-
			Total FOB			50.145.-	85.305.-
			+ CIF + inland transp. 8 %			4.011.-	6.831.-
			Total			54.156.-	92.216.-

IV. C. BILL OF EQUIPMENT - CUTTING EQUIPMENT

Ref.	Description	Price appr. $	Quantity 2 sh.	Quantity 1 sh.	Total cost (FOB) 2 sh.	Total cost (FOB) 1 sh.
31	spreading trolley	3.333.-	2	4	6.667.-	13.333.-
32	straight knife	833.-	3	6	2.500.-	5.000.-
33	band knife	1.382.-	2	4	2.765.-	5.529.-
34	clamp misc.	-------			167.-	333.-
35	hand shears	23.-	5	10	117.-	233.-
36	ticket printing machine	1.167.-	1	1	1.167.-	1.167.-
37	circular knives	274.-	2	4	548.-	1.096.-
38	marking drill	250.-	1	2	250.-	500.-
39	table 1'10 x 20	200/m2	1	2	1.467.-	2.933.-
40	table 1'75 x 20	250/m2	1	2	2.933.-	5.867.-
41	marker copying machine	4.167.-	1	1	4.167.-	4.167.-
		Total	19	36	22.748.-	40.158.-
		+ 10 % spare parts			2.275.-	4.016.-
					25.023.-	44.174.-
		+ CIF + inl. transp.			2.003.-	3.535.-
		Total			27.026.-	47.709.-

IV. D. BILL OF EQUIPMENT - SUMMARY

Section	2 shifts $	1 shift $
cutting	27.024.-	47.710.-
sewing	138.787.-	277.569.-
pressing	54.156.-	92.216.-
Total	219.967.-	417.495.-
+ contingencies	226.667.-	420.000.-

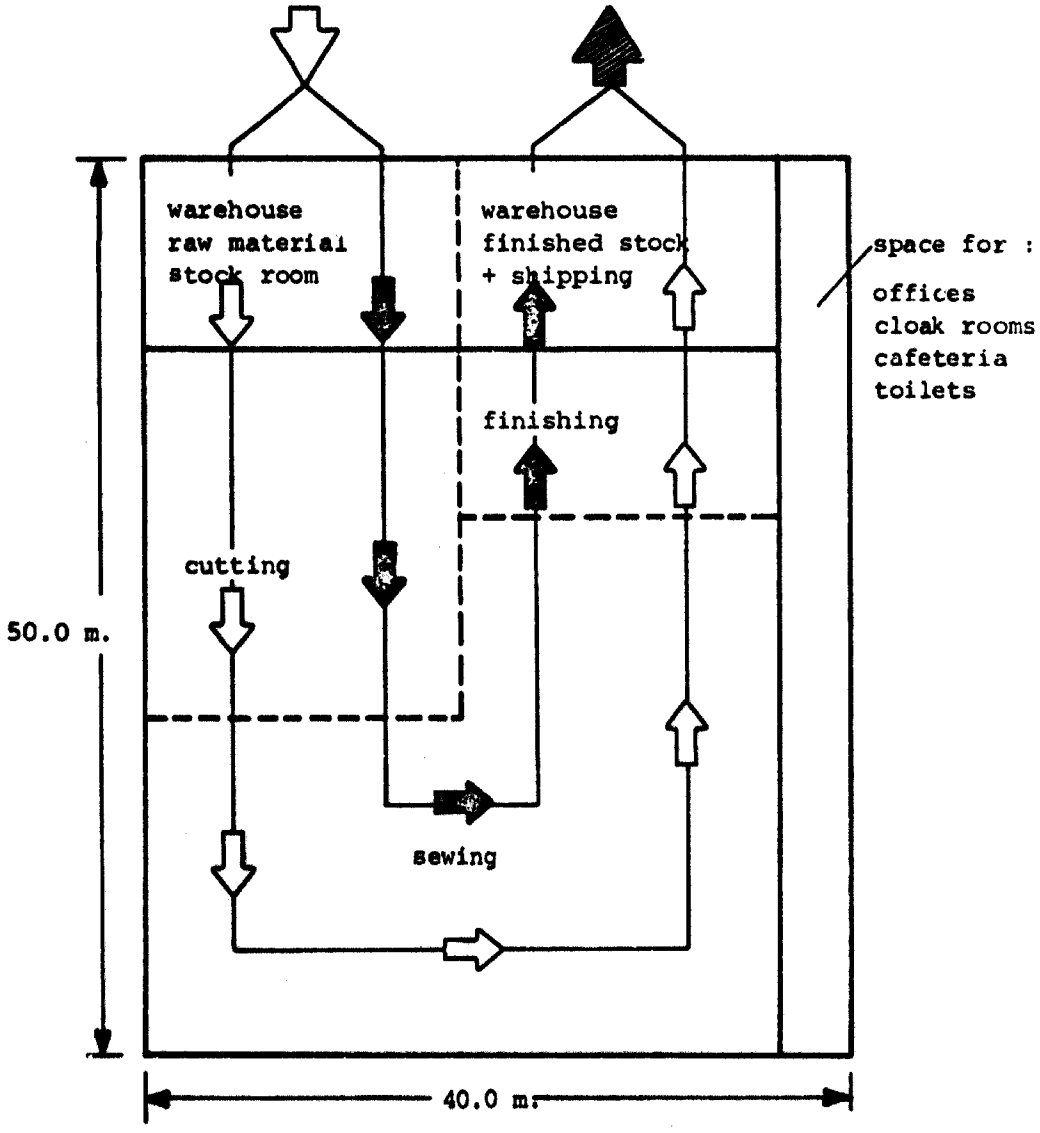
V. MANPOWER

Daily production 1700 trousers, 2550 shirts

		2 shifts per day	1 shift per day
Operators	1st shift	100	200
Operators	2nd shift	100	-
Factory manager		1	1
Factory engineer		1	1
Shift managers		2	1
Supervisors		6	5
Mechanics		3	2
Specialized technical assistants		6	6
Office + payroll clerks		4	3
Maintenance staff		2	1
Cleaning staff		4	4
Warehouse + shipping		3	3

VI. A. BASIC PLANT LAYOUT AND GENERAL WORKFLOW FOR TROUSER + SHIRT PRODUCTION

(2 shifts per day = 2 x 100 operators)



Scale : 1 : 1400

raw material

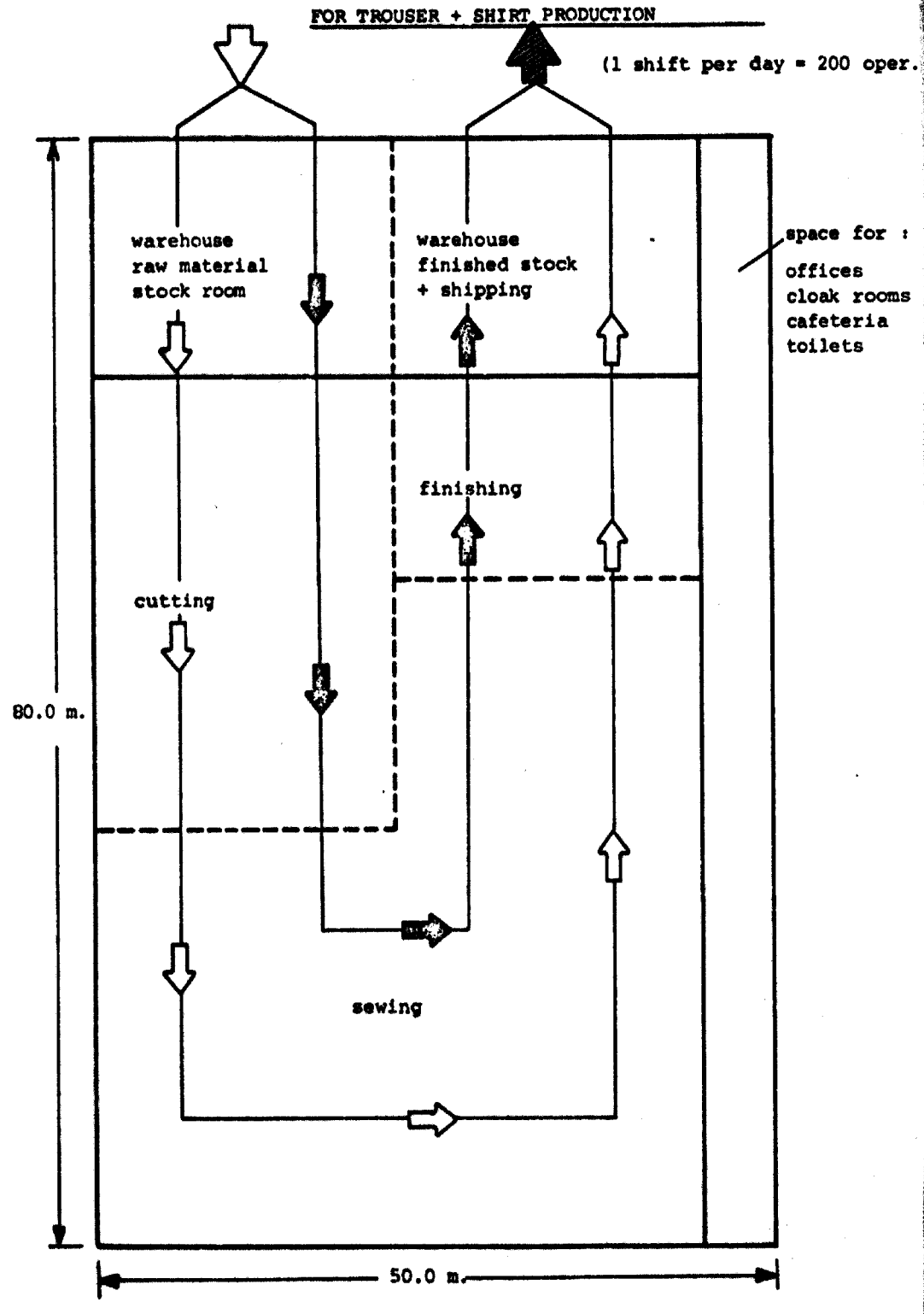
workflow trouser production

workflow shirt production

finished goods shipping

VI. B. BASIC PLANT LAYOUT AND GENERAL WORKFLOW FOR TROUSER + SHIRT PRODUCTION

(1 shift per day = 200 oper.



raw material delivery

workflow trouser production

workflow shirt production

finished goods shipping

Scale : 1 : 1400

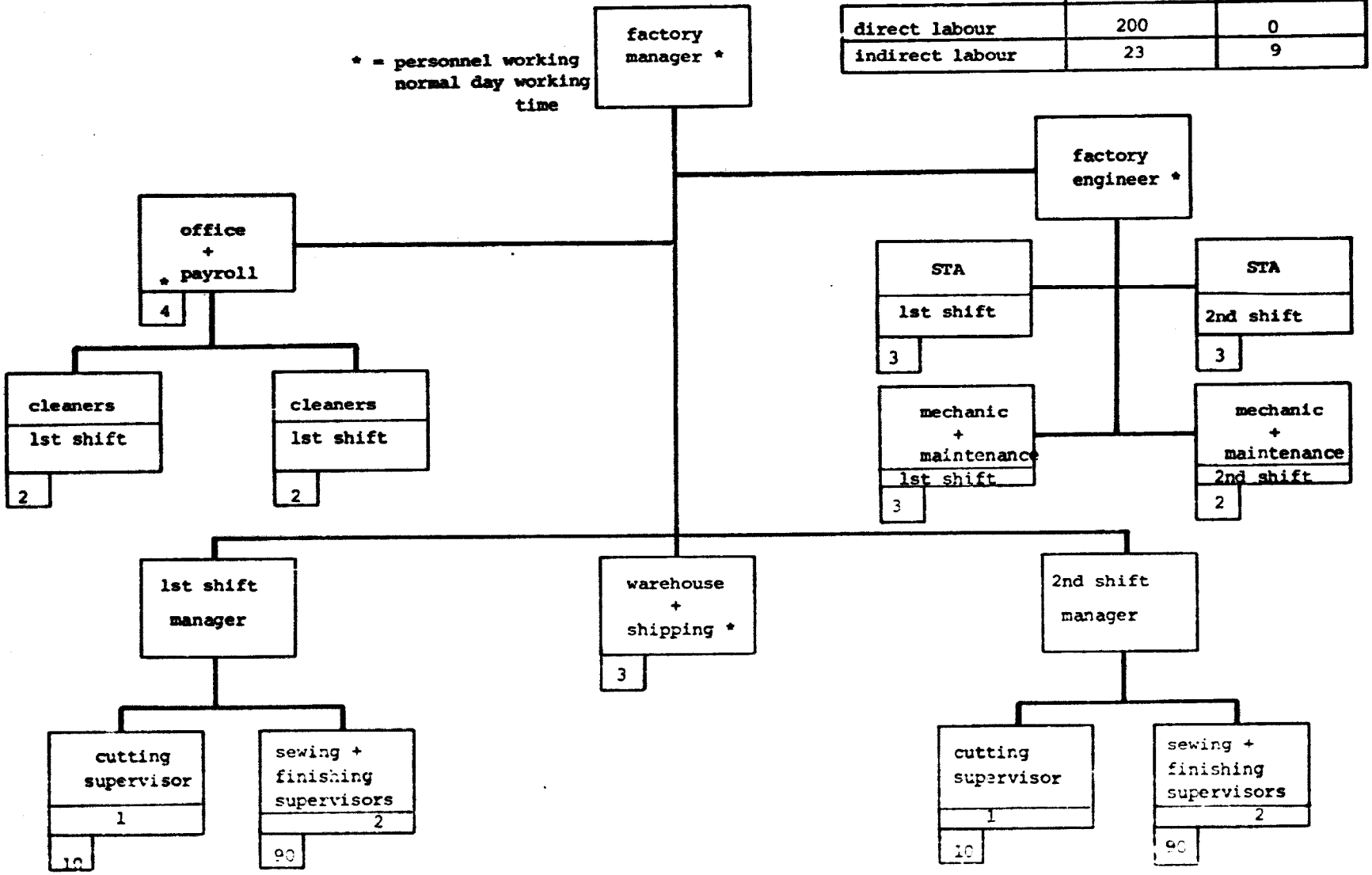
VII. A. MANAGEMENT STRUCTURE FOR TROUSERS + SHIRT PRODUCTION

(2 shifts per day = 2 x 100 operators)

STA = specialized techn. assist.

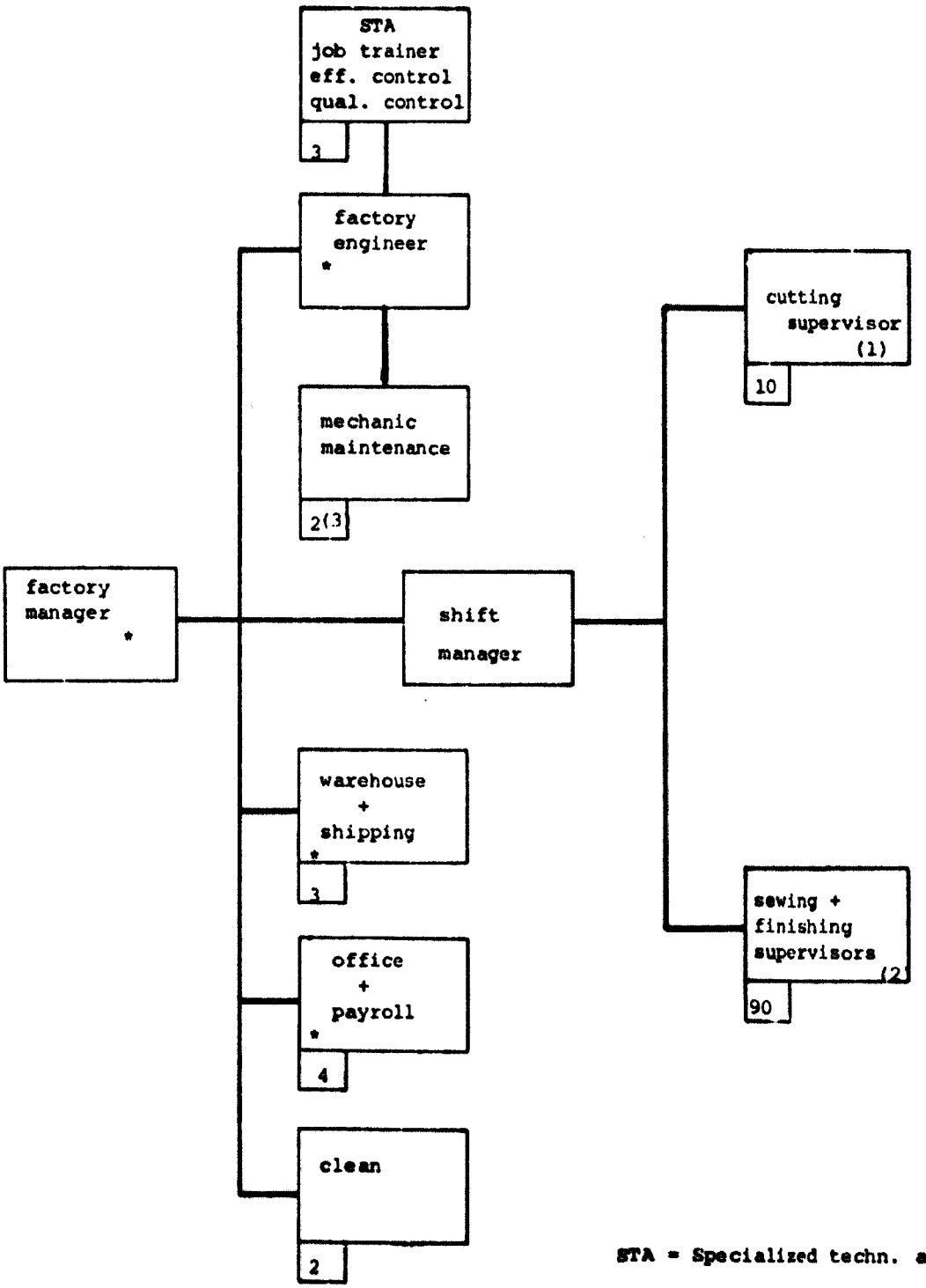
	working time shift	normal *
direct labour	200	0
indirect labour	23	9

* = personnel working normal day working time



VII. B. MANAGEMENT STRUCTURE FOR TROUSERS + SHIRTS PRODUCTION

(1 shift out of 2 shifts per day for 100 operators)

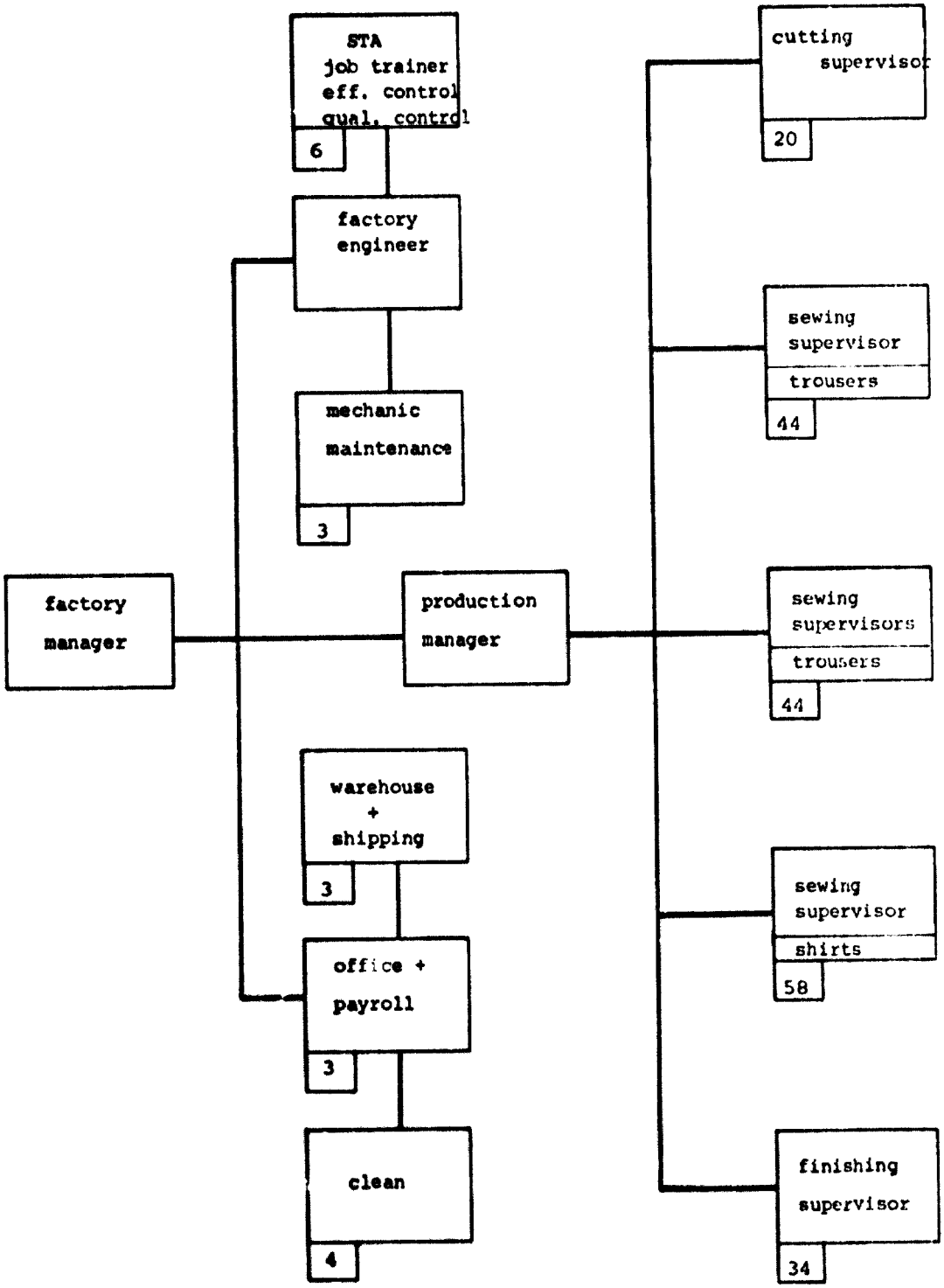


STA = Specialized techn. assist

	working time shift	normal*
direct labour	100	0
indirect labour	11 (12)	9

VII. C. MANAGEMENT STRUCTURE FOR TROUSERS + SHIRT PRODUCTION

(1 shift per day = 200 operators)



STA = specialized technical assistants

(200) direct labour

27 indirect labour

PROJECTED - CASH FLOW
- PROFIT AND LOSSES

	2 shifts/day 2x100 operators	1 shift/day 1x200 operators	period of construction 6-12 months		1st year output 50 %		2nd year output 90 %		3rd year output 100 %		4th year output
			2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift	2 shifts
Annual capacity for trousers (pieces)	425.000	425.000									
(250 working days) for shirts (pieces)	637.500	637.000									
1. Capital requirements	US$	US$									
a) fixed capital	2 shifts / 1 shift										
land about	8000 m² / 16000 m²								8.333	8.333	8.333
building about	2000 m² / 4000 m²	333.333.- / 666.667.-	333.333	666.667							
Equipment, furniture + fixtures											
prod. equipment (see bill of equipment)		226.667.- / 420.000.-	226.667	420.000							
auxiliary equipt		6.667.- / 10.000.-	23.333	10.000							
furniture + fixtures estimated		20.000.- / 30.000.-	20.000	30.000							
Total (excl.land)		586.667.- / 1.126.667.-									
b) working capital	No. of months										
direct materials, direct labour, indirect labour, supplies	2										
total		600.000.- / 600.000.-			300.000	300.000	540.000	540.000	600.000	600.000	600.000
Total capital (excl.land)		1.186.667.- / 1.726.667.-									
2. Depreciation and building maintenance											
Building 2 %		6.667.- / 13.333.-							8.333	8.333	8.333
Building maintenance		(8.333.-) / (8.333.-)									
Prod. equipment 33 %		74.800.- / 138.600.-									
Auxiliary equipment 10 %		667.- / 1.000.-									
Furniture + fixtures 10 %		2.000.- / 2.000.-									
Total depreciation		84.134.- / 154.933.-			84.134	154.933	84.134	154.933	92.467	163.267	92.467
3. Materials and supplies	annual requirements	annual cost									
a) direct materials											
fabric	888.000 m.	2.750.000.- / 2.750.000.-			1.516.667	1.516.667	2.583.333	2.583.333	2.750.000	2.750.000	2.750.000
lining, thread, trimmings		416.667.- / 416.667.-			225.333	225.333	391.333	391.333	391.333	416.667	416.667
Total		3.166.667.- / 3.166.667.-									
b) supplies											
lubricants + hand tools		500.- / 500.-			1.667	1.667	500	500	500	500	500
maintenance + spare parts (prod. equipt)		20.000.- / 20.000.-			10.000	10.000	20.000	20.000	20.000	20.000	20.000
office supplies		1.667.- / 1.667.-			1.667	1.667	1.667	1.667	1.667	1.667	1.667
Total		22.167.- / 22.167.-									
4. Power, fuel and water	2 shifts / 1 shift										
a) elect.power:connected load:											
with elect.steam generator	220 kw / 370 kw										
with oil or coal " "	150 kw / 300 kw	33.333.- / 33.333.-			22.000	22.000	33.333	33.333	33.333	33.333	33.333
b) fuel, water											

PROJECTED - CASH FLOW
- PROFIT AND LOSSES

	2 shifts/day 2x100 operators	1 shift/day 1x200 operators	period of construction 6-12 months		1st year output 50 %		2nd year output 90 %		3rd year output 100 %		4th year output 100 %		5th year	
			2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift
s (pieces)	425.000	425.000												
s (pieces)	637.500	637.500												
	US$	US$												
shifts 1 shift														
$0\ m^2$ $16000\ m^2$														
$0\ m^2$ $4000\ m^2$	333.333.-	666.667.-	333.333	666.667										
+ fixtures									8.333	8.333	8.333	8.333	8.333	8.333
ll of equipment)	226.667.-	420.000.-	226.667	420.000										
	6.667.-	10.000.-	23.333	10.000										
stimated	20.000.-	30.000.-	20.000	30.000										
	586.667.-	1.126.667.-												
No. of months														
2														
	600.000.-	600.000.-												
ll)	1.186.667.-	1.726.667.-			300.000	300.000	540.000	540.000	600.000	600.000	600.000	600.000	600.000	600.000
maintenance														
	6.667.-	13.333.-												
	(8.333.-)	(8.333.-)												
	74.800.-	138.600.-							8.333	8.333	8.333	8.333	8.333	8.333
	667.-	1.000.-												
	2.000.-	2.000.-												
	84.134.-	154.933.-			84.134	154.933	84.134	154.933	92.467	163.267	92.467	163.267	92.467	163.267
annual requirements	annual cost													
888.000 m.	2.750.000.-	2.750.000.-			1.516.667	1.516.667	2.583.333	2.583.333	2.750.000	2.750.000	2.750.000	2.750.000	2.750.000	2.750.000
ngs	416.667.-	416.667.-			225.333	225.333	391.333	391.333	391.333	416.667	416.667	416.667	416.667	416.667
	3.166.667.-	3.166.667.-												
s	500.-	500.-			1.667	1.667	500	500	500	500	500	500	500	500
rts (prod. equipt)	20.000.-	20.000.-			10.000	10.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000	20.000
	1.667.-	1.667.-			1.667	1.667	1.667	1.667	1.667	1.667	1.667	1.667	1.667	1.667
	22.167.-	22.167.-												
2 shifts 1 shift														
load:														
ator 220 kw 370 kw	33.333.-	33.333.-			22.000	22.000	33.333	33.333	33.333	33.333	33.333	33.333	33.333	33.333
150 kw 300 kw														

5. Transportation

a) own transport equipment. None necessary.

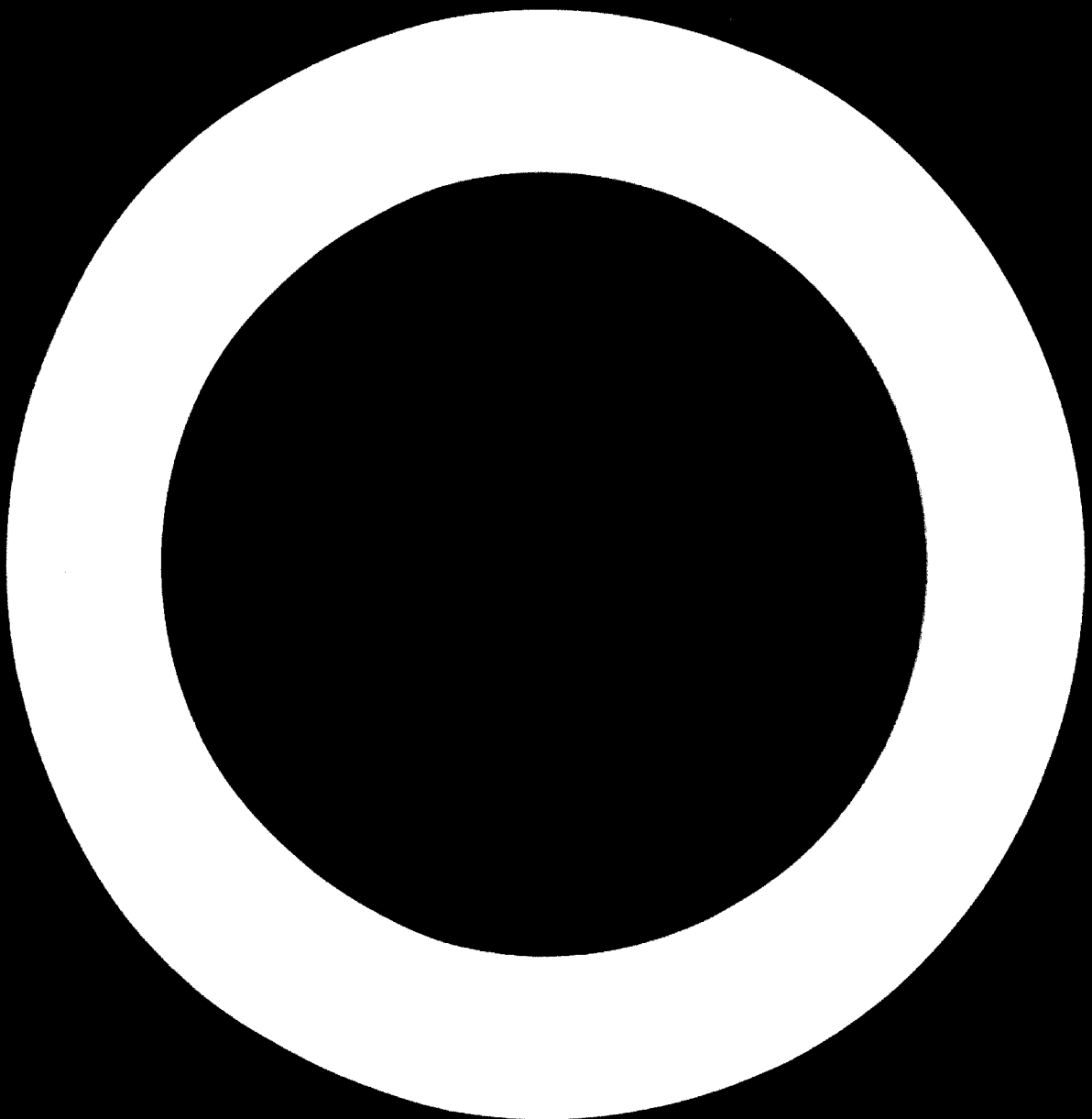
b) external transport facilities. No special requirements.

6. Manpower	annual salary	number 2 sh.	number 1 sh.	2 shifts/day 2x100 oper. US$ annual cost	1 shift/day 1x200 oper. US$ annual cost
a) direct labour US$ -.50/hour incl. social cost				208.000.--	208.000.--
b) indirect labour					
management					
- factory manager	20.000	1	1	20.000.--	20.000.--
- factory engineer	13.333	1	1	13.333.--	13.333.--
- shift manager	10.000	2	1	20.000.--	10.000.--
- mechanic	11.667	3	2	35.000.--	23.334.--
Total		7	5	88.333.--	66.667.--
supervision, office, etc.					
- supervisors	5.000	6	5	30.000.--	25.000.--
- spec.techn.ass.	4.000	6	6	24.000.--	24.000.--
- office	3.333	4	3	13.333.--	10.000.--
- maintenance	3.333	2	1	6.667.--	3.333.--
- warehous + ship.	3.333	3	3	10.000.--	10.000.--
Total		21	18	84.000.--	72.333.--
Other					
- clean	1.667	4	4	6.667.--	6.667.--
Total		4	4	6.667.--	6.667.--
Total		34	27	179.000.--	145.667.--

c) training needs: factory manager, factory engineer, shift managers and mechanics must be fully experienced. With the supervisor, 6 trained STA and 5 skilled operators they will train all other operators. Plant should reach 85 % group efficiency - 100 % output in 2 years

7. Total annual costs and sales revenue		
a) annual costs		
direct materials	3.166.667.--	3.166.667.--
direct labour	208.000.--	208.000.--
indirect labour	179.000.--	145.667.--
supplies, power, fuel, water	55.500.--	55.500.--
interest, legal and audit fees	66.700.--	66.567.--
depreciation and building maintenance	92.467.--	163.268.--
Total annual manufacturing costs	3.769.000.--	3.798.334.--
sales costs and contribution to gen.adm.	666.667.--	666.667.--
b) annual sales revenue		
425.000 trousers x US$ 5.-- = 2.125.000 637.000 shirts x US$ 4.17 = 2.654.167	4.779.167.--	4.779.167.--
c) profit before tax	344.167.--	306.833.--

period of construction	1st year output 50 %		2nd year output 90 %		3rd year output 100 %		4th year		5th year	
	2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift	2 shifts	1 shift
	162.000	162.000	170.667	197.333	208.000	208.000	208.000	208.000	208.000	208.000
	88.333	66.667	88.333	66.667	88.333	66.667	88.333	66.667	88.333	66.667
	84.000	72.333	84.000	72.333	84.000	72.333	84.000	72.333	84.000	72.333
	6.667	6.667	6.667	6.667	6.667	6.667	6.667	6.667	6.667	6.667
	179.000	145.667	179.000	145.667	179.000	145.667	179.000	145.667	179.000	145.667
	1.583.334	1.583.334	2.850.000	2.850.000	3.166.666	3.166.666	3.166.666	3.166.666	3.166.666	3.166.666
	162.000	162.000	197.334	197.334	208.000	208.000	208.000	208.000	208.000	208.000
	179.000	145.667	179.000	145.667	179.000	145.667	179.000	145.667	179.000	145.667
	33.333	33.333	55.500	55.500	55.500	55.500	55.500	55.500	55.500	55.500
	33.333	33.333	66.700	66.566	66.700	66.566	66.700	66.566	66.700	66.566
	84.133	155.933	84.133	155.933	92.467	163.268	92.467	163.268	92.467	163.268
	2.075.133	2.113.600	3.432.667	3.471.000	3.788.333	3.805.667	3.768.333	3.805.667	3.768.333	3.805.667
	333.333	333.333	600.000	600.000	666.667	666.667	666.667	666.667	666.667	666.667
	2.407.333	2.407.333	4.333.200	4.332.000	4.779.167	4.779.167	4.779.167	4.779.167	4.779.167	4.779.167
	- 1.133	- 39.600	300.533	261.000	344.167	306.833	344.167	306.833	344.167	306.833



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1140 Broadway
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C. **Tabellenbuch fuer die Bekleidungs-Industrie**

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Schiele u. Schoen GmbH
Markgrafenstrasse 11
D - 1 Berlin 61

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P.O. Box 1345
Columbia, South Caroline 29202

B. **Techniques de l'Habillement**

Editions Asteria
5, rue Greffuhle
F - 75008 Paris

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C. Bekleidung und Waesche, Buchdruckerei und Verlag

Heinrich Lapp
Luepertzenderstr.157 - 163
P.O. Box 345
4050 Münchengladbach, F.R. of Germany

D. British Clothing Manufacturer

Knightway House
20, Soho Square
London W.1, England

E. Vêtment et Confection

La Fédération Nationale des
Industries du Vêtement et Confection
20, av. des Arts
Bruxelles, Belgium

III. TECHNICAL INSTITUTES AND TRADE ASSOCIATIONS

A. American Apparel Manufacturers Association, Inc.

1611, Kent Street
Arlington, Virginia 22209

B. Bundesverband Bekleidungsindustrie e.V.
Plittersdorfer Strasse 93
532 Bonn Bad - Godesberg 1

C. The Clothing Institute

17/18 Henrietta Street
G.B. - London, WC2E 8QN

D. Cetih

14, rue des Reculettes
F - 75 Paris 13e

E. Institut Wł/okiennictwa

Ul. Gdanska no. 91/93
Łódz, Poland

F. La Fédération Nationale des Industries du Vêtement et Confection

20, av. des Arts
Bruxelles, Belgium

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G. Clothing Industry Design Institute

VIII, Jozsef ut. 28
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Tailor and Cutter House
42, Gerrard Street
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C. Machines Matériel Matières (MMM)

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F - 75008 Paris

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London, W.C. 2

V. PROFESSIONAL ENGINEERING SERVICES *

A. Capelin Associates Limited
50, rte des Acacias
1227 - Carouge - Genève, Switzerland

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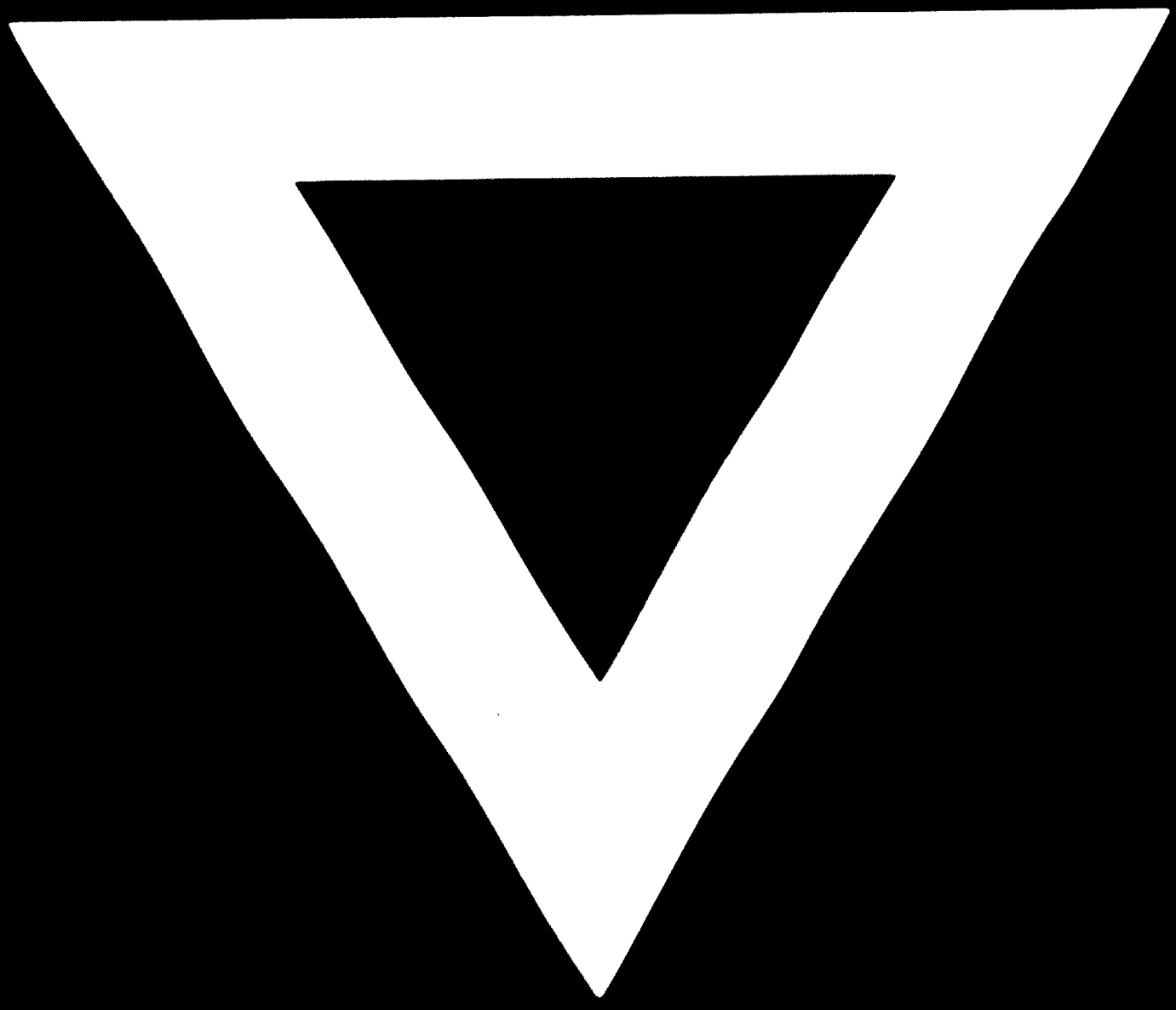

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