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30 October 1985
ENGLISH

ASSISTANCE TO THE TEXTILE INDUSTRY

SI/SYR/84/801

SYRIAN ARAB REPUBLIC

Syria.

Technical report: Technical assistance to the Syrian public
underwear industry*

Prepared for the Government of the Syrian Arab Republic
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Dewi G.B. Thomas
Underwear Stylist

United Nations Industrial Development Organization
Vienna

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CONTENTS

	Page
Recommendations	1
1. Preamble	3
1.1 Purpose of project	3
1.2 Duties of Author	3
1.3 Location	4
1.4 Background	4
2. Investigative Procedure	5
3. Garment Assessment	6
3.1 General remarks	6
3.2 The examined garments	7
Table 3.2.A Schedule of examined garments	8
Table 3.2.B Fault rates in packed garments	11
3.3 Sizing	11
Table 3.3.A Dimensions of menswear and womenswear	13
Table 3.3.B Dimensions of childrenswear	14
4. Manufacturing Procedures	15
4.1 Cutting	15
4.2 Garment assembly	16
4.3 Trimming	18
4.4 Inspection	18
Table 4.4 Observed non-pass rates	19
4.5 Pressing	21
4.6 Packing	21

	Page
5. Styling and Merchandising	23
6. The Development of Quality Orientation	26
7. Recommendations	29
Appendix I European Underwear	30
" II Size tables Fabric Specifications Garment Specifications	35
" III Project Background	47
" IV Details of the Examined Garments	50
" V Rimoldi Sewing Sequences	79

RECOMMENDATIONS: As distributed and discussed at a meeting of the
OMUC Management on 27 June 1985

GARMENT ASSEMBLY

RECOMMENDATIONS FOR IMMEDIATE ACTION

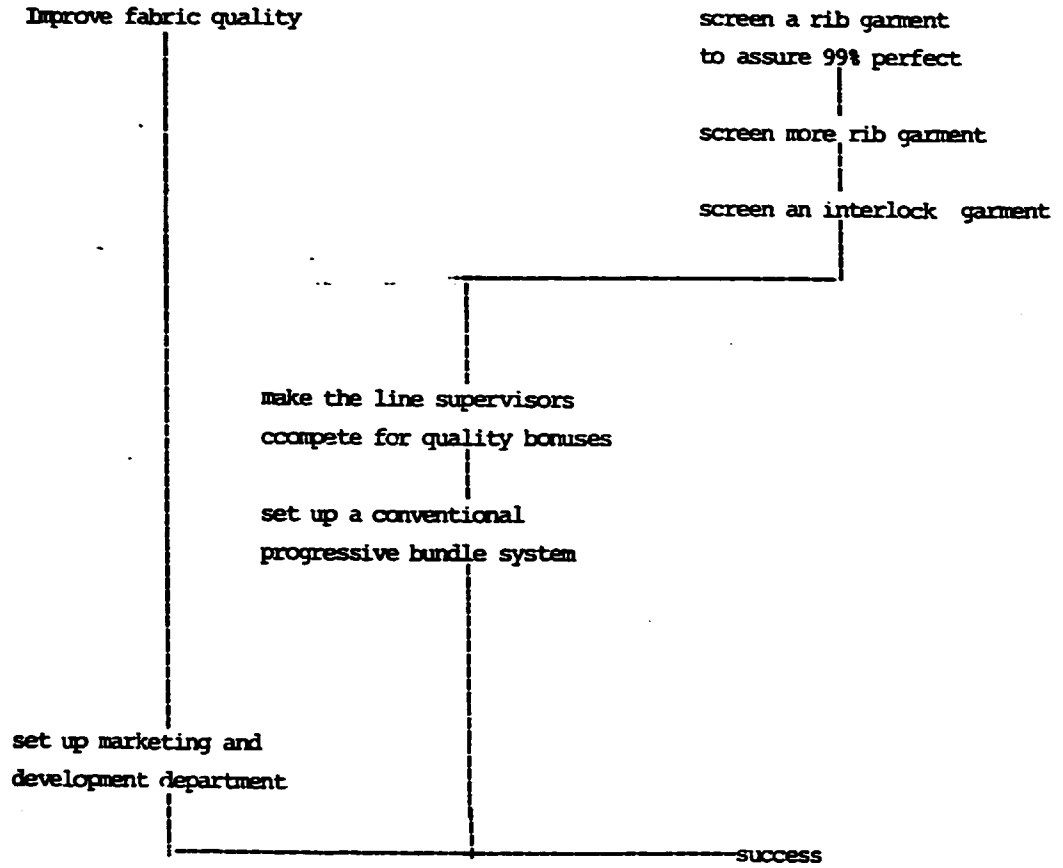
- 1- Do not inspect machine- state fabrics
- 2- Improve the interlock fabric
- 3- Keep all fabric clean at all times
- 4- Use two 12 metre lays per table
- 5- Use sharp needles for sewing, and change them daily
- 6- Put in crotch patches with the plain side showing
- 7- Use folders for all elastane- enclosing waistband
- 8- Reduce the elastane content of all waistband strips.
- 9- Get an instructress to check the method of use of hem folders
- 10- Tell the inspectors to reject all stained or dirty garments
- 11- Define a minimum standard for each garment by supplying samples and tell the inspectors to reject anything worse..
- 12- Improve or abolish pressing.
- 13- Do an extra inspection on a rib garment to ensure there are not more than 1% faulty garments the prime garment

تجميع القماش

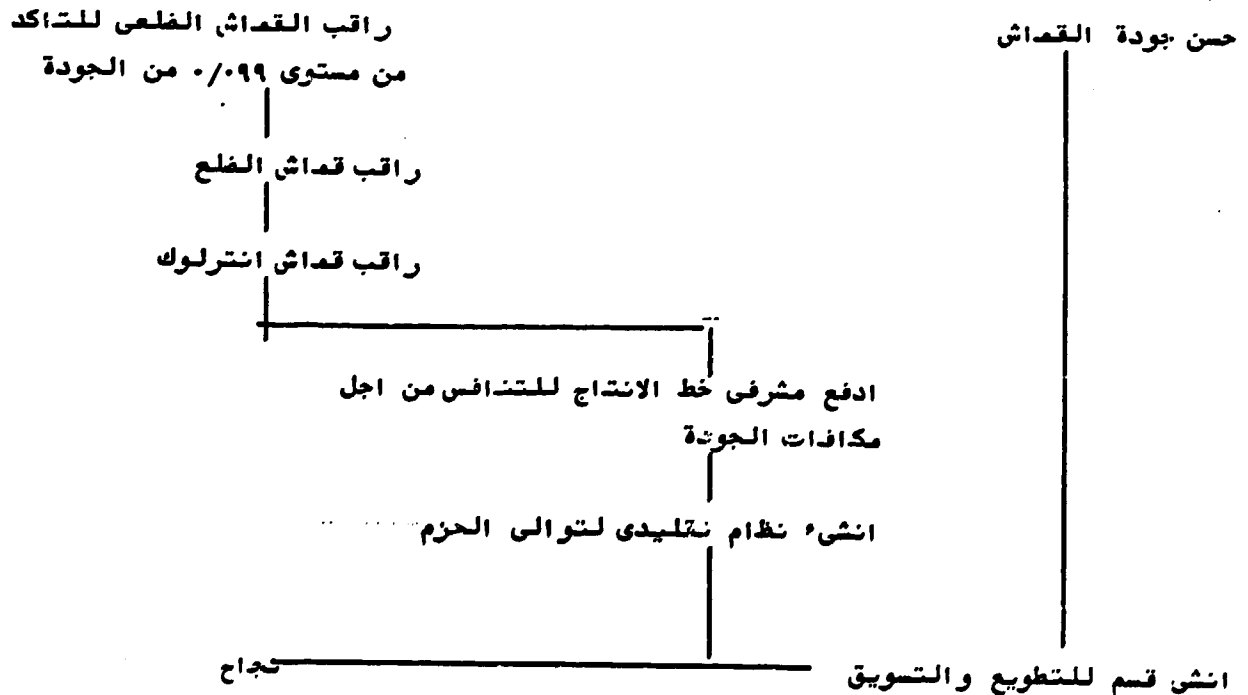
توصيات لعمل فوري

- لاتقم بفحص الاقمشة غير المصنعة .
- حسن نوعية قماش الانتربولوك .
- حافظ على نظافة القماش دوما .
- استعمل طبقتين من ١٢ متر لكل طاولة .
- استعمل ابر حادة للخياطة وقم بتغييرها يوميا .
- اطوي البقع الغريبة بحيث يبدو فقط الجانب النظيف
- استعمل حافظات مطاطية للاحزمة
- خفض المحتوى المطاطي لكافة اربطة الاحزمة .
- استخدم مشرطة لفحص طريقة طي الاطراف
- وجه كافة الدراقبين لرفض كافة الاقمشة المتسخة .
- حدد نماذج من الاقمشة ومواصفاتها واعلم المراقبين برفض اي شيء يقل عنها مستوى .
- حسن الكوي او الضيه .
- تم بمراقبة اضافية للقماش الخلعى للتأكد من انه ليس هنالك اكثر من ١ ٪ تلف في الاقمشة المعبئة .
- روج وقم ببيع الاقمشة الرئيسية سعر اعلى من المعتاد كغذاء مدعومة بالنقود .

THE PATHS TO QUALITY AND SALES



سبل الجودة والمبيعات



PRODUCT ASSESSMENT

Project SI/SYR/84/801/11-54/31.7.B

D.G.B.Thomas: "Underwear stylist".

1. Preamble

1.1 Purpose of project

The purpose of the project was to assess the performance of the textile sector with respect to production, technical and economic aspects and to set up practical solutions for coping with weaknesses, etc.

1.2 Duties of the author

1.2.1 To prepare a standard collection of children's, men's and ladies (cotton) underwear in rib, interlock and single jersey for E.E.C. markets, taking into account the optimal use of fabric and garment sewing technology. Such a collection is described in Appendix I; in most cases a whole garment was supplied, together with two dissected garments of different sizes.

1.2.2 To prepare a standard size table with indications for corresponding sizes for the Federal Republic of Germany, Switzerland, Scandinavia and the U.S.A. Various comparative size tables are presented in Appendix II, and have been disseminated to appropriate staff at the Orient Underwear Manufacturing Company, S.A. (henceforward abbreviated to O.M.U.C. or Al Shark).

1.2.3 To develop models for unutilised knitting machinery and to conduct training courses for staff. After consultation with the team's knitter, it was decided that the unutilised machinery could not in fact be used. Perfect samples, and samples with marked faults were collected for the inspectors' instruction.

1.3 Location

1.3.1 It was originally intended that the entire team should visit the Arab Company for Underwear in Aleppo. The mission was during Ramadan, so that our working hours at the factory were restricted to 8.00-14.00, and the factory was closed from June 17th to June 21st inclusive. This limitation led us, with the agreement of The General Organisation for Textiles, to ask U.N.I.D.O.(Vienna) for permission to cancel or reduce the visit to Aleppo, which was given in cable No.1143 from Mr Vassiliev on 31st May.

1.3.2 Diary

May 26th 1985	Travel to Damascus
May 27th 1985	Briefing at U.N.D.P.
May 28th 1985	Start work at factory
June 17th 1985	Factory closed at end of Ramadan
	Report writing at Hotel
June 22nd 1985	Return to factory
June 27th 1985	Management seminar
June 29th 1985	Travel to Manchester

1.4 Background

The background briefing supplied by U.N.I.D.O. is reproduced in Appendix III.

2. Investigative Procedure

2.1 Making a constructive interpretation of the terms of reference of the mission (see Preamble), it was required to assess the quality of the garments made by O.M.U.C. (the variant acronym for The Orient Underwear Manufacturing Company S.A.), to propose and, if possible, achieve corrective actions and to assess the probability of the Company exporting to the E.E.C. These are ambitious aims, which can only be met partially.

2.2 It was decided to begin by examining every item in current production. One carton of each garment, packed ready for shipment, was taken at random from piles of boxes in the holding area of the making-up floor of the Damascus Al Shark factory. These boxes had all been fully inspected, and had been packed before the onset of Ramadan.

2.3 The contents of each box were then carefully measured and examined to establish fault levels and patterns in outgoing goods. This examination was extremely meticulous, the intention being to choose from the listed faults those that related either to an improvement in factory operation or to ultimate customer antagonisation.

2.4 When this study was complete, the functioning of the garment cutting, assembly, and inspection was examined in the light of its results.

3. Garment Assessment

3.1 General remarks

3.1.1 The company is currently handicapped by the low quality and lack of diversity of the fabric being supplied to the making-up division. The only two kinds available in quantity are a rib-like derivative of interlock (hereafter called 'rib fabric') and a rather heavy interlock. Apart from these all-cotton fabrics, some wool interlock is used for men's vests and long underpants, and it is said that some wool/cotton mixture is also used.

3.1.2 Of the two main cotton fabrics, the best is the rib; all the cotton interlock seen by the author was spoiled by finishing creases, which were sufficiently intense to debar the resultant products from any reputable E.E.C. retail outlet.

3.1.3 Some of the interlock was dyed or printed; the print was unimaginative and of low quality. At the time of writing there is no information on dye or print fastness or on shrinkage levels.

3.1.4 All the knitted fabric is currently being inspected in the machine state only, on the assumption that faulty knitting machines are notified. There is no evidence that this happens, and during the inspection, the fabric is mercilessly stretched and crumpled. Since the inspection is apparently functionless, and in fact harms the fabric, it could be discontinued with advantage. Inspection of the finished fabric and (possibly) batching it into larger rolls would be a better use of the equipment.

3.2 The examined garments

3.2.1 Individual garments are evaluated and discussed in Appendix IV. The findings are summarised in Table 3.2.A on the next page; it appears that 70 of the 184 examined garments (38%) should have been rejected by inspection and packing on grounds evident to a non-technical ultimate customer (see also paragraph 2.2.10) and in terms of the criteria being applied by the inspectors.

3.2.2 These criteria for rejection were extremely lax, and ignored

- (a) finishing creases,
- (b) making waistbands without a folder,
- (c) clumsy waistband attachment,
- (d) slightly unsatisfactory hems

and (e) inverted printed crotch patches,

although any of these would be sufficient to condemn a line to any major E.E.C. clothing retail chain.

3.2.3 The genesis of finishing creases is outside the scope of this report, but only dense printing would suffice to make the marred fabric acceptable.

3.2.4 Turn-over waistbands are a controversial topic at Al Shark. They enclose elastic bands, the raw edges being sewn down with a double chain cover stitch (7.15.02/406*). These are normally

* Notations follow I.S.O. 4915-1981 'Textiles-Stitch Types-Classification and Terminology' and I.S.O. 4916-1982 'Textiles-Seam types-Classification and Terminology'.

TABLE 3.2

SCHEDULE OF EXAMINED GARMENTS

Section No.	Article No.	Label size	Brief description	Number in box	Number rejectable	Reasons
1	1-6	44	Man's Y-front rib briefs	6	1	Sewing
2	1636	50	Man's printed interlock slips	12	6	All sewing
3	181	3	Child's sleeveless white rib vests	12	1	Knitting
4	240	40	Man's sleeveless blue rib vest	6	4	All sewing
5	200	40	Man's sleeveless white rib vests	6	2	Sewing; dirt
6	1506	4	Child's printed interlock vests	6	2	Printing; knitting
			Child's printed interlock pants	6	3	Dirt; sewing; stain
7	<u>419</u>	<u>92</u>	Child's printed interlock pyjama tops	12	11	All sewing
			Child's printed interlock pyjama bottoms	12	2	Stain; hole
8	803	4	Child's white rib slips	12	2	Both sewing
9	506	1	Child's sleeveless printed interlock vests	12	3	Sewing; dirt
10	481	42	Man's white intelock shorts	6	4	2 sewing; 2 dirt
11	135	42	Woman's white interlock vests	6	4	3 sewing; 2 dirt
12	187	7	Child's printed interlock briefs	6	4	Printing
13	171	38	Man's long white interlock pants	6	0	
14	426	42	Woman's white interlock slips	6	1	Knitting
15	4000	<u>116</u>	Child's coloured interlock T-shirts	10	1	Knitting
16	<u>150</u>	<u>4</u>	Child's printed interlock T-shirts	6	1	Stains
			Child's printed interlock shorts	6	0	
17	201	40	Man's white rib briefs	6	4	All sewing
18	460	<u>5M</u>	Man's white interlock T-shirts	6	5	All stains
19	<u>192</u>	<u>5M</u>	Man's white rib sleeveless vests	6	0	
20	69	42	Man's long wool pants	6	3	All dirt
21	60	42	Man's wool long-sleeve T-shirts	6	6	Sewing; stain

Note Underlined articles are for export to the D.D.R.
Underlined sizes are German system.

184 70

sewn with a folder, but the production director (Mr Madhat Sheikh El-Chabab) maintains that this reduces production unacceptably. However, the freehand quality is extremely poor the untidy raw edge is seldom under the cover-stitch, and the textured yarn cover is so tight that the fabric between the needles is folded. The result is unacceptable to any but an uncritical market.

3.2.5 A small number of garments were brought from the Arab Company for Underwear in Aleppo; the waistbands among these contrasted pleasantly with those just described, for they were very well formed. In one version, the sewing penetrated the elastic, making 7.15.01/401 rather than 7.15.02/406, and leaving a very tidy and acceptable raw edge.

3.2.6 Some O.M.U.C. waistbands use very strong weft-knit or warp-knit strips containing elastane; the waistband girths on all the menswear implied an unacceptable extension in wear, as far as E.E.C. garments are concerned, but we were again told emphatically by the production director that less power gives unacceptable deterioration in washing. This latter statement is probably associated with fierce washing methods in the Middle East.

3.2.7 The attachment of these heavy strip waistbands is very clumsy, for they are normally overlapped on to the body fabric, and the overlock seam is then cover-stitched to flatten it. Again, Aleppo come out best, with a lower elastane content in the weft knit version (making it softer), and omission of the coverstitch.

Various other possibilities are discussed in Section 1 of Appendix IV.

3.2.8 Folded overlock hems (6.06.01/504 = 504-EFc-1) are also very fault prone. These are usually made with a folder situated several centimetres in front of the needle, with the result that it is all too easy to get the initial and final free lengths wrong, quite apart from the usual possibility of over- or under-feeding the folder.

3.2.9 The final item in the list of systematic faults (3.2.2) is inverted printed crotch patches. All slip-type pants for men, women and children have side seams only, the body being a single panel; this is unusual in Western practice, but not unacceptable. The crotch linings are attached by cover-stitching (5.04.03/406=406-SSau-2). This presents no difficulty when the fabric is unprinted; for some reason, however, patches in printed slips are made of the body fabric and have their print side showing. This is obviously unfortunate, in view of the possible interaction of the print with the body fluids, and in view of the tenderness of perineal skin.

3.2.10 Neglecting these five serious systematic faults, the observed fault rates in the examined garments are summarised in Table 3.2.B below.

<u>Type of fault</u>	<u>No. of garments</u>	<u>% of examined garments</u>
Knitting	5	3
Printing	5	3
Stains & Dirt	20	11
Sewing	45	24
Seriously faulty	70	38

3.2.11 We shall return to this Table later (paragraph 4.4.3); we now confine ourselves to remarking on the apparent ineffectiveness of inspection for picking up sewing faults and stains.

3.3 Sizing

3.3.1 O.M.U.C. garments appear to be sized on the German System. Menswear is based on centrimetral semi-girths or on size numbers (see Herrenstrick-und Waschewäre in Appendix II), while womenswear is based on semi-bust girth less 6cm (Mädchen-, Damen,berbekleidung und Unterwasche), and childrenswear is based on age or, on export goods, on height (see Kinderbekleidung).

3.3.2 Tables 3.3.A and 3.3.B give actual mean garment girths for all the examined garments, together with corresponding body sizes.

3.3.3 These tables show the normal erratic correlations between theory and practice; as is unfortunately the case worldwide, a consumer is expected to crack the size code of each organisation.

3.3.4 Implied rib fabric extensions are probably marginally large, but implied interlock extensions are too large, and little or no allowance has been made for wash shrinkage. The implied extension of waist elastic on men's underpants is excessive, in spite of the claim that Syrian customers like it that way.

TABLE 3.3.A.DIMENSIONS OF MENSWEAR AND WOMENSWEAR

Article number	Garment type	Label size	Girth type	Mean garment girth (cm)	Nominal body girth (cm)
196	Rib Y-front	44	Waist	47 ¹ / ₂	88
1636	Interlock slips	50	Waist	59	100
240	Rib vests	40	Chest	52	80
200	Rib vests	40	Chest	52 ¹ / ₂	80
481	Interlock shorts	42	Waist	68	84
171	Long cotton interlock pants	38	Waist	44	76
201	Rib briefs	40	Waist	44 ¹ / ₂	80
460	Interlock T-shirts	5M	Chest	76 ¹ / ₂	-
192	Rib vests	5M	Chest	56 ¹ / ₂	-
69	Long wool interlock pants	42	Waist	56	84
60	Wool interlock T-shirts	42	Chest	97	84
135	Interlock vest	42	Bust	73 ¹ / ₂	96
426	Interlock panties	42	Waist	51	76

TABLE 3.3.B

DIMENSIONS OF CHILDRENSWEAR

Article number	Garment type	Label size	Girth type girth (cm)	Mean garment girth (cm)	Nominal body
181	Rib vests	3	Chest	36 ¹ / ₂	55
1506	Interlock vests	4	Chest	46 ¹ / ₂	57
1506	Interlock pants	4	Waist	39	54
419	Interlock pyjama tops (printed)	92	Chest	46 ¹ / ₂	
419	Interlock pyjamas trousers (printed)	92	Waist	39	
803	Rib pants	4	Waist	41	54
506	Interlock pants	1	Chest	41	50
187	Interlock pants	7	Waist	44	58
4000	Interlock vests	116	Chest	51 ¹ / ₂	57
150	Interlock vests	4	Chest	51 ¹ / ₂	57
150	Interlock shorts	4	Waist	36	54

4. Manufacturing Procedures

4.1 Cutting

4.1.1 Cutting is done on six tables, each terminated by a bandsaw; there are three automatic Rimoldi chariots and three hand driven chariots, but all cloth rolls are loaded by hand. All the fabrics used (including the prints) are circular. Lay thicknesses are usually about fifty laps (100 plies) for cotton interlock and about 75 laps (150 plies) for wood interlock and rib fabric. A straight knife and a bandsaw are used for cutting, and give dense, uniform cut piles of pieces.

4.1.2 Most of the lays are 24 metres long, while the length of a fabric roll is about 60 metres; each roll lasts less than 3 laps. Much of the layer/cutter's work thus involves putting in new rolls, and since, for some reason, these workers are all short, the effort is not negligible.

4.1.3 Lays are marked with templates on the top ply, and seem to be adequately efficient and accurately cut. This makes it necessary to account for the high fabric waste of 15%. This is believed to arise from end wastage; an average wastage of $1\frac{1}{2}$ m at each end of each roll gives 5% and brings cutting waste to a reasonable level. It is extremely difficult to estimate end waste experimentally, for U.M.U.C. practice varies, and one would have to sort all the cut piles for faulty panels.

4.1.4 The easiest way to reduce end waste would be to make 12 metre lays, so that a piece would last five laps at least, and the

probability of piece ends coming at the lay ends would be considerably increased. Two such lays could be made at a time on each table. A more fundamental solution, however, would be an improvement in fabric handling during finishing, printing and transporting.

4.1.5 The poor quality of the input fabric shows, of course, in ply distortion. The wider, unprinted fabrics make reasonable lays, although printing is erratic and often non-orthogonal. However, one edge of the garment-width fabrics is almost always heavily cockled, with deleterious effects on cutting precision. This is believed to be due to poor finishing, as is the existence of major structural distortion down centre front and back of most circular garments.

4.2 Garment assembly

4.2.1 The garment assembly area currently contains 23 fully operative assembly lines, with three partially operative lines. There is one supervisor to three lines, but very little interaction between supervisors and machinists. The sewing sequences are conventional, and mostly follow the Rimoldi recommendations (Appendix V). The sewing machines are virtually all Rimoldi overlockers (504) and cover-stitchers (406 and 602), some being specialised to bind or hem; they appear well kept and adequately cleaned. Four threads are in use; an Arab textured polyester cover thread, a white thread on anonymous cones, 40/2 bright cotton from Fabra-Coates and a 40s coloured Chinese cotton thread.

- 4.2.2 The machinists shift their own materials. Ancillary labour is only used to move cut fabric in and to move garments out. The finished garments are loaded into containers which go by overhead conveyor to be trimmed.
- 4.2.3 It is a misnomer to call the sewing system a progressive bundle system, for there are no bundles; there are only piles of work in progress and finished garments. There is no system of in-process quality control, and no possibility of assigning any particular garment fault to a particular machinist. A production bonus is calculated monthly on total output, but is again general rather than specific.
- 4.2.4 Possibly as a result of this lack of attributability the work tempo (during and after Ramadan) is slow compared to most E.E.C. factories, and no evidence of active supervision was observed during the study. No attempt is made to identify process errors, and it is rare to see a mechanic or supervisor in discussion with a machinist.
- 4.2.5 In view of the types of fabric in use, and of a tendency to under-lubricate the fabric, all needles should be changed at least once a day. This should preferably be done by mechanics, since needle fitting in overlock and multi-needle machines can be tricky. It is understood that ball needles are currently in use; sharps are generally considered to produce less needle damage in most knitted fabrics.

4.2.6 More care should be taken in maintaining light levels in the sewing area. In one survey, 293 out of 569 lights were not on, including two blocks of six rows each.

4.3 Trimming

4.3.1 Containers of finished garments are off-loaded automatically from the overhead conveyor into the trimming area, and are sometimes weighed. These weights are presumably intended to be used in the calculation of the production bonus for make-up.

4.3.2 The garments then go to be trimmed. This is done using both automatic machines and scissors, and is in fact incomplete; of the 21 examined garment types, seven types were partially trimmed or not trimmed at all. This is not necessarily serious, for an ultimate customer would be only marginally put off by it. It is, however, made more serious by an apparent omission to supply the inspectors with thread clippers; pulling chains off may damage garments.

4.4 Inspection

4.4.1 While the inspection area is liberally supplied with both passive and active conveyors to the packing area, the women move containers to their tables by dragging them along the floor and lifting them - hardly advisable activity for small and/or pregnant women.

4.4.2 The inspectors have evidently been taught examination sequences, and divide garments into three categories - pass, mend and

reject. The number requiring mending overstretches the one member of the workforce assigned to the task. The rejects go to a general storage area, where they are picked over by staff (for their own use) before being sold by weight.

4.4.3 Non-pass rates vary wildly from garment to garment, probably as a function of complexity. Examples of observed rates are given in Table 4.4 below, which may be compared and contrasted with Table 3.2.B; this latter Table is repeated for convenience.

Table 4.4 Observed Non-pass Rates

Men's vests	12%
Men's briefs	4%
Child's pyjama tops	32%
Child's pyjama trousers	4 ¹ / ₂ %
Men's T-shirt vests	23%
Men's long wool pants	17%

Table 3.2.B Fault Rates in Packed Garments

<u>Type of fault</u>	<u>No. of garments</u>	<u>% of examined garments</u>
Knitting	5	3
Printing	5	3
Stains and dirt	20	11
Sewing	45	24
Seriously faulty	70	38

- 4.4.4 The total number of garments in the first four lines of Table 3.2.13 is greater than the number of seriously faulty garments, because some had several serious faults.
- 4.4.5 As previously explained (2.2.2 to 2.2.9), the reject rates of Table 3.2.B ignore the five major systematic faults which would in fact render all U.M.U.C. products except their rib vests unsaleable to any reputable E.E.C. retail outlets.
- 4.4.6 Evidently, the inspectors spot the majority of knitting and printing faults, but ignore stains and dirt, and only spot some blatant sewing faults. Any stained or dirty garment should be immediately rejected, and a much more serious view of sewing faults should be instilled. In view of the lax criteria applied by the author to the examined garments, a 38% rejection rate after packing implies a non-functional quality control process. A large set of garments with marked faults has been supplied for the instruction of the inspectors.
- 4.4.7 We also conclude that the original quality of pyjama tops and T-shirts is extraordinarily low; not only do a vast proportion get rejected by the primary inspectors, but most passed garments should also have been rejected. These are, of course, the most complex garments in current production, and their quality could be greatly improved by the introduction of cylinder-bed sewing machines for cuffs and collars.

4.5 Pressing

4.5.1 Interlock tops and men's briefs are steam pressed in sequenced conveyor-type presses. The effect, however, is negligible or deleterious.

4.5.2 The tops come roughly folded from the inspectors, and are pressed folded; such articles should be pressed flat on frames or, at the very least, unfolded. On the other hand, the briefs are put on forms, but are thrown on the conveyor without avoidance of over-lapping; the effect of pressing is minimal.

4.5.3 Pressing should therefore either be drastically improved or totally abandoned. We understand that a sequenced form-pressing machine has been ordered.

4.6 Packing

4.6.1 It may be that the packers are expected to re-inspect the garments. The actual reject rate appears to be very low, but was difficult to establish because of the dispersal of the packers into small units, with the result that they knew when they were being observed.

4.6.2 Control discs are stuck on some garments, but in the examined set, a disc was, more often than not found on a blatantly faulty garment.

4.6.3 Export garments are normally packed individually into polythene envelopes, with a foreign label on each envelope. Otherwise, only garments to be sold together (top and bottom) are packed individually; the rest are tagged in half-dozens or dozens and boxed.

4.6.4 The packaging is drab, uninformative and very depressing en masse; there is no evidence that garments packed for export are better than those for Arab consumption.

5. Styling and Merchandising
- 5.1 Since none of the current O.M.U.C. output is saleable to a reputable E.E.C. retail outlet, re-styling and garment development are theoretical rather than practical propositions. Examples of current norms in E.E.C. retail underwear have been supplied to the Company (Appendix I); most samples included a whole garment plus two dissected garments to show structure and grading. Examples of packaging were also included.
- 5.2 Current O.M.U.C. designs are associated with extremely conservative local taste and management divorced from market forces; few, if any, would be attractive to a market accustomed to quality, choice and variation. The few samples seen from the Aleppo factory showed better (but still not adequate) quality and more imagination, but failed on very poor trimmings.
- 5.3 It is not relevant to point (as the O.M.U.C. management do) to their success in selling overseas. The target market in Arab countries is probably similar to, and as uncritical as, their Syrian market, while exports to eastern Europe fulfil a need for low-grade mass supply that is unprofitable and anathematic to the target country's high-quality manufacturers.
- 5.4 I suggest that the E.E.C. underwear market is different in kind and requirements, unless it is intended to sell into a low-grade, market-stall type of operation often run at low profit margins. Supply for such outlets are normally made by cheap labour

both in Asia and in Europe; the quantities involved are large, but the merchandising may be prohibitively difficult.

5.5 If fabric can be improved to normal retail quality, and if garments can be screened to exclude 99% of all faults, I believe that the most accessible European outlets would be middle-market mail order firms (e.g. the German Quelle) or middle-market childrenswear specialists (e.g. the British Mothercare). The latter, especially, shares the O.M.U.C. obsession with toughness to the exclusion of elegance.

5.6 To achieve this aim, perfect samples must be tendered. Packaging would not in general be an O.M.U.C. option, for such organisations supply their own.

5.7 The introduction of such a high quality stream (in O.M.U.C. terms) would inevitably lead to a general improvement in quality, and thought should then be given to self-merchandising.

5.8 Current packaging is of depressingly low quality, using poorly printed boxes in drab colours with no useful information visible about the contents.

5.9 The trade marks in current use could have unfortunate connotations in the English-speaking world, and consideration should be given to changing them.

5.10 Any re-design should bear in mind the modern tendency to sell underwear in ones, twos or threes in resealable polythene envelopes printed with a logo, a size chart and an illustration of the garment. Some shops also sell loose garments, in which case a clear description is displayed at the counter, or above a set of pigeon-holes with the various sizes of each garment in a single vertical column. This assumes, of course, that self-service is in use. However, even where this is not so, it is common, even general, to sell in a descriptive envelope.

5.11 As part of such re-design, a specific box or a general box with a specific label should be supplied as a wholesale pack for each product, with an illustration or at least a verbal description on end and top.

6. The Development of Quality Orientation

6.1 The necessity for subordinating the current obsession with the quantity produced to an enthusiasm for the achievement of quality was discussed in the previous section. Here, we offer an outline plan for such a conversion. It will undoubtedly be a long and difficult operation, and must involve a drastic decrease in production.

6.2 An essential preliminary to the transformation is to ensure that the fabric going to be made-up is of normal retail quality (see retail specifications in Appendix II). It is especially important that it should not be marred by finishing faults and that it should have an adequate wash stability. Greater diversity of weight and type is also very desirable.

6.3 At the same time as this improvement is going on, a high quality stream should be introduced. This could be achieved quite quickly by giving extra inspection to a particular rib fabric garment so as to ensure that not more than 1% of the naked garments are defective in any respect. The garment could then be sold, attractively packaged, at a higher price than at present and with a money-back guarantee, as in many European stores. The number of different garments streamed in this way could gradually increase with time, and as the fabric quality improves.

6.4 The really difficult steps are the next set - the introduction into the sewing room of a definite responsibility for bad work. The sequence could probably be started by increasing supervisors'

pay on condition that they compete against one another for quality bonuses. This would imply that the output of each line was tagged, and remained tagged during trimming and inspection.

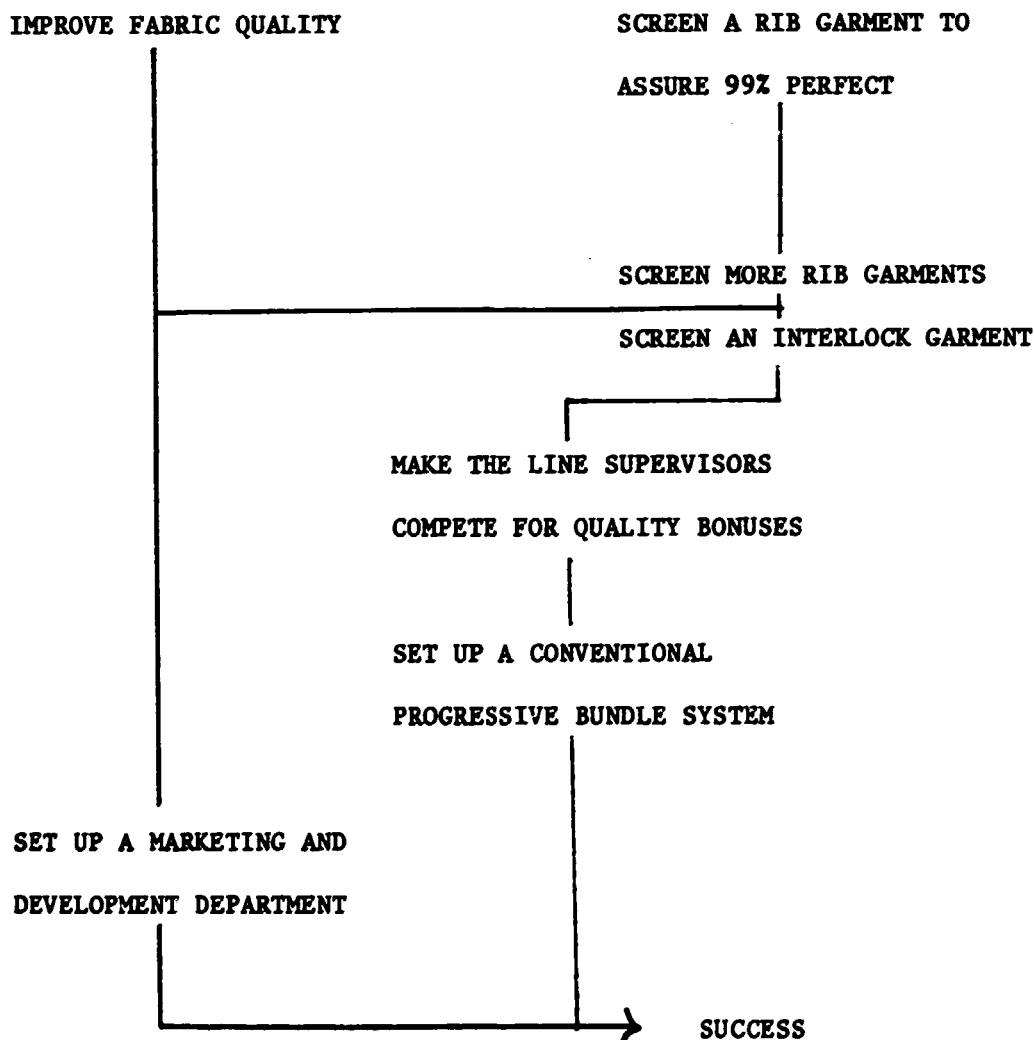
6.5 The inspectors should now each be given a set of garment samples, (samples covering nine styles were selected by the author) and instructed on the division of their material into perfects, minor defects and rejects. Occasional 10% samples of each inspector's output should be re-inspected, to ensure consistency. Rejects should be returned to the appropriate sewing supervisor for re-making or scrapping.

6.6 When this system has been running smoothly for a year or so, consideration should be given to the allocation of quality responsibility to individual machinists. The cut piles would be divided into sets for making one or two dozen garments, each set being put into a labelled container. As each machinist completed her operation, she would put her own mark or label on the container label. A system of this kind is almost universal elsewhere.

6.7 Naturally, during the whole of this development period, marketing strategies would be evolving. A proper marketing and development department must be set up, to include a merchandiser, a package design unit and a garment design unit. The latter would include a garment designer (preferably a bright young girl), a garment technologist, a fabric technologist and a sample hand (possibly one of the 'instructresses').

6.8 While it is true that most European retail organisations impose their own standards and packaging, it is utterly essential that samples going to a prospective customer should be perfect in every respect, and well presented. It is generally appreciated that no production garment is as good as a sample, but if the sample is faulty no order will be forthcoming.

6.9 THE PATHS TO QUALITY AND SALES



7. Recommendations for Immediate Action

- 7.1 Do not inspect machine-state fabric.
- 7.2 Improve the interlock fabric.
- 7.3 Keep all fabric clean at all times.
- 7.4 Use two 12 metre lays per table.
- 7.5 Use sharp needles for sewing, and change them daily.
- 7.6 Put in crotch patches with the plain side showing.
- 7.7 Use folders for all elastic-enclosing waistbands.
- 7.8 Reduce the elastane content of all waistband strips.
- 7.9 Get instructress to check the method of use of hem folders.
- 7.10 Tell inspectors to reject all stained or dirty garments.
- 7.11 Define a minimum standard for each garment by supplying samples
and tell the inspectors to reject anything worse.
- 7.12 Improve or abolish pressing.
- 7.13 Do an extra inspection on a rib garment to ensure there are not
more than 1% faulty packed garments.
- 7.14 Advertise and sell the streamed garments at a higher price than
usual with a money-back guarantee.

APPENDIX I

EUROPEAN UNDERWEAR
WHOLE AND DISSECTED GARMENTS SUPPLIED TO U.M.U.C.

Current Sizing Practices Related to our Collection

Garment sizing is very confused and difficult area, in spite of various attempts at clarification. The dimensions of our underwear collection follow, in general, current international practice, as set out in the tables of the appendix. Specifically, they comprise:

Womenswear

The official rules are as follows:

British usage:

Bust sizes in inches or centimetres
Hips implied as 2 inches = 5cm greater
than bust

Size 10 = 32"

Larger sizes (12, 14.....) go up in 2
inch steps

German usage:

Bust sizes in centimetres
Hips implied as 5cm greater than bust

Normal sizes = $\frac{1}{2}$ x bust, less 6
(100 bust = 44 size)

French usage:

As German, but subtracting 4
(100 bust = 46 size)

This has the peculiar result that women's panties are, apparently in France and Germany, often bought on bust size, so that a woman whose hips are not 5cm greater than her bust (52% of German women) need different sizes top

and bottom. Normal practice in the U.K. is to label partial body garments with the appropriate local dimensions rather than with a size number. Using the labels in our collection, corresponding sizes are given in the following table. It will be seen that, as is all too common in this area, conversions do not necessarily follow the rules.

Bust (inches)	32	34	36	38	-	40	42
Bust sizes (cm)	81	86	91	97	-	102	107
Hips (inches)	34	36	38	40	-	42	44
Hips (cm)	86	91	97	102	-	117	112
British size no.	10	12	14	16	-	18	20
French size no.	38	40	42	44	46	48	50
German size no.	-	-	-	-	44	46	-

It may also be of interest that, in one article (number 9), German sizing stated that 38-40 was small, and 42-44 was medium. These presumably correspond to 36-38 inch and 40-41 inch hips, respectively. In the main table detailing our collection, German sizes are enclosed in brackets.

Menswear

There is no generally understood system in the U.K. for menswear sizing, actual body dimensions being normally used. In some other E.E.C. countries, however, knitwear and underwear have size numbers (see table in Appendix). In the present context, the labels in our collection yield the following equivalences:

Size	Small	Medium	Large	Extra Large
Waist (inches)	30-32	33-35	36-39	40-42
Waist (cm)	76-81	84-89	91-99	102-107
French size no.	2	3	4	5

A 37 inch (94cm) chest also corresponds to French size 2.

Children's

The situation here is even more confusing than with clothing for adults. It is alleged that the majority of children's garments within the E.E.C. comply with the Centilong System, which only requires the retailer to put a child's height on a clothing label. Luckily, the more sensible retailers include more relevant data. The tie-up of age with garment dimensions is, however, very dubious; the relation varies from one supplier to another.

Data from labels is again quoted for underpants.

Ages	2-3	4-6	7-8	-
Boys' waists (inches)	20	22	23 ¹ / ₂	-
Boys' waists (cm)	50	56	60	-
Girls hips (inches)	22 ¹ / ₂	25	-	33-35
Girls hips (cm)	57	63	-	85-90

UNDERWEAR RETAILING IN THE U.K.

A. WOMENS UNDERWEAR

<u>NO.</u>	<u>Garment Description</u>	<u>Colour</u>	<u>Fibre</u>	<u>Price</u>	<u>Origin</u>	<u>Wash Tp.</u>	<u>Iron</u>	<u>Other</u>	<u>Sizes (inches)</u>
1	1 Vest	Turquoise	Cotton	£2.99	U.K.	4/50°C/hot	2	Reshape while damp	32 - 34
2	2 Open-top circular vests	White	Cotton	£2.25	U.K.	1/95°C/V.hot	2	"	34-36,38-42
3	2 Circular Camisoles	White	Cotton	£2.25	U.K.	1/95°C/V.hot	2	"	34-36,38-42
4	1 " "	White	Merc.Cotton	£3.99	Eire	4/50°C/hot	2	-	36-38
5	1 " "	White	Cotton	£2.99	U.K.	4/50°C/hot	2	Reshape while damp	38-40
6	2 Hip-huggers	Green & yellow stripes on white	Cotton	£1.35	U.K.	-	-	-	36-38, 40-42
7	3 Briefs	Brown	Cotton	£1.15	U.K.	4/50°C/hot	2	Reshape while damp	36-38, 40-42
8	2 Bikinis	Blue dots on white	Cotton	-	W.Germany	60°C	-	-	[38-40, 42-44]
9	2 Slips	Pink & white stripes	Cotton	-	"	60°C	3	Dry cleanable	[38-40,42-44]
10	3 Slips	White	Cotton	-	"	95°C	3	"	[44,46]
11	3 Mini-bikinis	Pink, white & blue	Merc. Cotton	-	Eire	4/50°C/hot	1		34-36,38-40
12	3 Briefs	White	Cotton	£1.40	U.K.	1/95°C/V.hot	2	Reshape while damp	36-38,40-42
13	3 Bikinis	Blue/peach/green on white	90/110 Cotton/Nylon	£1.20	U.K.	4/50°C/hot	2	"	34-36,38-40
14	2 Bikinis	Peach	87/13 Cotton/nylon	£1.70	U.K.	4/50°C/hot	2	"	34-36,38-40
15	3 Garter bikinis	Turquoise or pink/white	Cotton	£1.50	U.K.	4/50°C/hot	2	"	34-36,36-40
16	3 Bikinis	Striped white, colour edging	Cotton	£1.10	U.K.	4/50°C/hot	2	"	34-36,38-40
17	1 Bikini	White embroidered	92/8 Cotton/Polyester	£1.50	U.K.	4/50°C/hot	2	"	38-40
18	1 Garter bikini	White with coloured spots	75/25 Cotton/Polyester	£1.10	U.K.				
19	1 Bikini	Printed	Cotton	£1.10	U.K.	4/50°C/hot	2	Reshape while damp	38-40
20	1 Slip	Pink & white	Cotton	-	W. Germany	60°C	3	-	[38-40]
21	3 Bikinis displayed	Various	Cotton	£3.50	U.K.	-	-	-	34-36
22	2 Bikinis displayed	Black, white	-	-	Hong Kong	-	-	-	-
23	3 Garters displayed	Various	Cotton	£2.50 for 3	UK	4/50°C/hot	2	Reshape while damp	34-36,38-40

UNDERWEAR RETAILING IN THE U.K. (Cont'd.)

B. MEN'S UNDERWEAR

<u>NO.</u>	<u>Garment Description</u>	<u>Colour</u>	<u>Fibre</u>	<u>Price</u>	<u>Origin</u>	<u>Wash Tp.</u>	<u>Iron</u>	<u>Other</u>	<u>Sizes (inches)</u>
24	3 Boxer shorts	Printed	65/35 Polyester/ Cotton	£2.99	U.K.	4/50°C/hot	2	Iron while damp	33-35, 36-39
25	3 Y-fronts	Printed	Cotton	£1.99	U.K.	4/50°C/hot	2	Reshape while damp	30-32, 33-35, 36-39
26	3 Briefs	Striped	96/4	£1.99	U.K.	4/50°C/hot	2	"	"
27	3 Slips	Solid various	Cotton	£1.60	U.K.	4/50°C/hot	2	"	"
28	1 Slip	White/yellow/ Grey	Cotton	£2.25	U.K.	4/50°C/hot	2	"	30 - 32
29	1 Sleeveless vest	Blue	Cotton	£2.40	U.K.	4/50°C/hot	2	"	Chest up to 37
30	1 sleeved vest	Pale Yellow	Cotton	£2.99	U.K.	4/50°C/hot	2	"	"

C. GIRL'S UNDERWEAR

31	3 Briefs	Decorated White	Cotton	£1.20	U.K.	4/50°C/hot	2	Reshape while damp	22}, 25, 33-35
32	1 Brief	Embroidered pink	Cotton with 65/35 Polyester /cotton panel	£0.99	U.K.	4/50°C/hot	2	Do not soak. Rinse thoroughly. Reshape while damp.	22}

D. BOY'S UNDERWEAR

33	3 slips	Solid various	Cotton	£0.99	U.K.	-	-	-	20, 22, 23}
34	1 Brief	Printed	Cotton	£0.99	U.K.	4/50°C/hot	2	Do not soak. Rinse thoroughly. Reshape while damp.	22

E. BABIES' WEAR

35	2 Body suits in envelope	Spotted	93/7 Cotton/Polyester	£2.99 for 2	U.K.	4/50°C	2	"	0-6 months
36	2 Pyjamas in envelope.	Blue/yellow	Face cotton Back nylon	£7.99 for 2	U.K.	4/50°C/hot	2	"	18-24 months

APPENDIX II

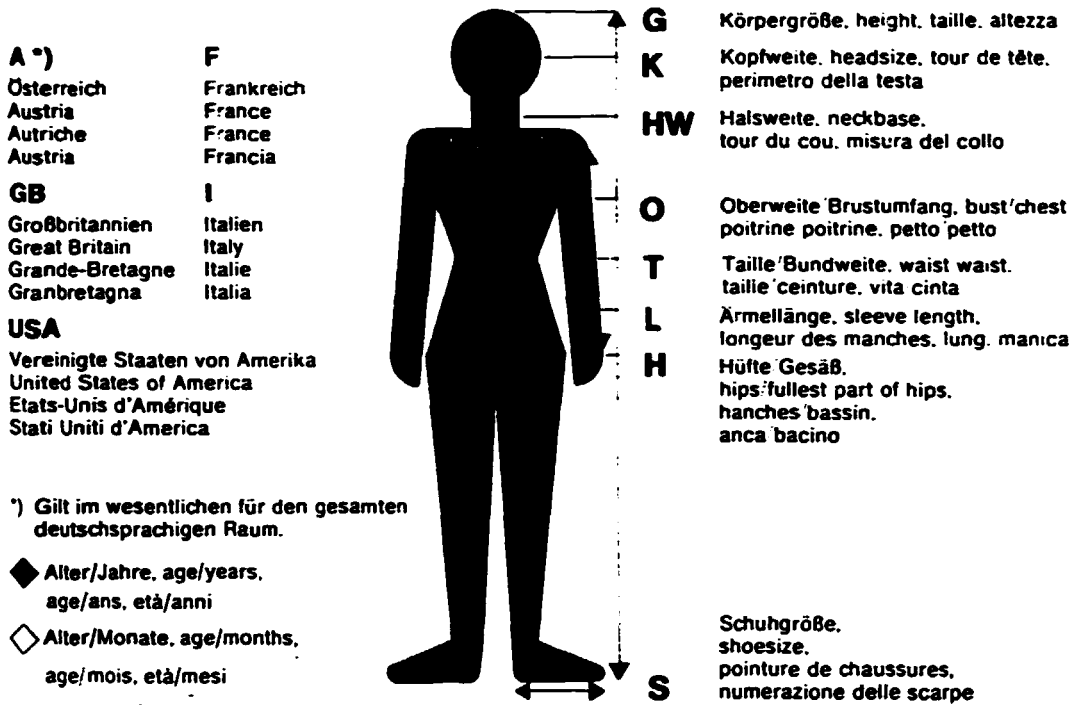
SIZE TABLES
FABRIC SPECIFICATIONS
GARMENT SPECIFICATIONS
AS SUPPLIED TO U.M.U.C.

International Size Table

The Technical Committee No. 133 of the International Standard Organization (ISO) currently is developing a unified and international standard size table. However, it will take considerable time before this study is expected to be completed. At present, an international comparison of the size table is not possible.

Therefore, the following size tables, currently in use in the major consumer market areas attempt to provide a practical guideline.

Extracted from the Promotion Institute
of the Austrian Federal Economic Chamber (WIFI)



MÄDCHEN-, DAMEN- OBERBEKLEIDUNG UND UNTERWÄSCHE (DOB)
Ladies' dresses, coats, skirts, blouses, knitwear, underwear
Prêt-à-porter féminin, bonneterie et lingerie
Abbigliamento femminile, maglieria et abbigliamento intimo femminile



in cm				A	F	I	GB	USA	in inches			
G	O	T	H	GROSSEN- BEZEICH- NUNGEN	APPELLA- TIONS DES TAILLES	TAGLIA	ORDER SIZES	ORDER SIZES	G	O	T	H
164	76	63,5	84	32				J 3	61,5	30	20,5	32
164	80	63,5	87,5	34	36 0	38		J 5, J 7 M 6	62- 62,5	31- 32	21,5- 22,5	33- 33,5
164	84	65,5	91	36 / s	38 0	40 I	32 10	J 9, M 8	63	32,5- 33	23,5	34,5- 35
164	88	70	94	38 / 00 / m	40 1	42 II	34 12	J 11, M 10	63,5	33,5- 34,5	24,5- 25	35,5- 36,5
164	92	74,5	98	40 / 0 / m	42 1-2	44 III	36 14	J 13, M 12	64	35- 36	26- 26,5	37- 38
164	96	79	101,5	42 / 1 / I	44 2	46 IV	38 16	J 15, M 14 W 34	64,5	36,5- 38	27,5- 30	38,5- 39
164	100	83,5	105	44 / 2 / I	46 3	48 V	40 18	J 17, M 16 W 36	65	38- 40	29- 32	40- 41
164	104	88	108,5	46 3	48 4	50	42 20	M 18, W 38	65,5	40- 42	31- 34	42- 43
164	110	94	114	48 4	50 5	52	44 22	M 20, W 40	66	42- 44	33- 36,5	44- 45
164	116	100	119,5	50 5	52/6	54	46	M 22, W 42	66,5	44- 46	35- 38	46- 47
164	122	106	125	52 6			48	W 44	66,5	48	41,5	49
164	128	112	130,5	54 7			50	W 46	66,5	50	44	51
164	134	119	136	56			52	W 48, W 50	66,5	52- 54	46,5- 49	53- 55
164	140	126	141,5	58				W 52	66,5	56	51,5	57
164	146	133	147	60								

s = small / klein, m = medium / mittel, l = large / groß

J = JUNIOR M = MISSES W = WOMEN

KNABENHEMDEN
Boys' shirts
Chemises — garçons
Camicie — ragazzi



HERRENHEMDEN
Gentlemen's shirts
Chemises — hommes
Camicie — uomo



A, F, I		USA/GB	A, F, I		USA/GB	
GROSSENBEZEICHNUNG = MW in cm Ordersize = MW in cm Appellation = MW en cm Taglia = MW in cm		ORDERSIZE = MW IN INCHES	GROSSENBEZEICHNUNG = MW in cm Ordersize = MW in cm Appellation = MW en cm Taglia = MW in cm		ORDERSIZE = MW IN INCHES	
MASCHENWARE Knitwear — Bonneterie — Maglieria			MASCHENWARE Knitwear — Bonneterie — Maglieria			
26		10	37	I / 3	15	
27		10 1/2	38		15 1/2	
28		11	39		15 3/4	
29		11 1/2	40		16	
30		12	41		16 1/2	
31		12 1/2	42		17	
32		13	43		17 1/2	
33		13 1/2	44		18	
34		13 3/4	45		18 1/2	
35		0 / 2	14		46	19
36			14 1/2		47	
37					48	
			Gr. 38-50 / L 83 cm Gr. 38-47 / L 84 cm Gr. 38-42 / L 85 cm			

HERRENSTRICKWARE UND -WÄSCHE
Knit- and underwear for gentlemen
Bonneterie — hommes
Maglieria — uomo



A		F	I	USA/GB			
HAKA-GROSSEN Ordersize — Gentlemen's wear Tailles — Prêt-à-porter Taglia — Abbigliamento maschile	GROSSENBEZEICHNUNGEN		APPELLATIONS DES TAILLES	TAGLIA	ORDERSIZES		
			1 / PAGE		8 1/2 9 9 1/2		
44	SMALL	1	3	2 / HOMME	38	10	
46					40	36	10 1/2
48		MEDIUM	2	4	3 1/2 PATRON	42	38
50	44					40	
52	LARGE	3	5	4 / PATRON	46	42	11 1/2
54					48	44	12
56	EXTRA LARGE	4	7	5 / GRAND PATRON	50	46	12 1/2
58						48	13

HERRENSOCKEN
Socks for gentlemen
Chaussettes — hommes
Calze — uomo



S	A	F	I	USA	GB				
	GROSSEN- BEZEICHNUNGEN	APPELLATION = POINTURE DES CHAUSSURES	MISURA	ORDERSIZES					
				SHOESIZE	SHOESIZE				
35	I	35	8 1/2	6	5-5 1/2				
36		36				6 1/2			
37		37					7-7 1/2		
38		38						8	
39		39							8 1/2
40		40							
41		41		10-10 1/2					
42		42			11-11 1/2				
43		43				12-12 1/2			
44		44					13		
45		45							
46		46							
47	47								

HERRENOBERBEKLEIDUNG (PAKA)

Men's clothing
Prêt-à-porter masculin
Abbigliamento maschile



A				F EUROPA USA/GB							
in cm				GROSSEN- BEZEICH- NUNG	APPELLATIONS DES TAILLES	GROSSEN- BEZEICH- NUNG TAGLIA	ORDER SIZE	in inches			
G	O	T	H					G	O	T	H
168	88	78	94	44	44 / 44-38 C	44-6 168	34	68	34	27.5	35
171	92	82	98	46	46 / 46-40 M	46-6 171	35- 36	68.5 69	35 36	28 28.5	35.5 36
174	96	86	102	48	48 / 48-42 M	48-6 174	37- 38	69.5 70	37 38	29 30	36.5 37.5
177	100	90	106	50	50 / 50-44 M	50-6 177	39- 40	70.5 71	39 40	31 32	38.5 39.5
180	104	94	110	52	52 / 52-47 L	52-6 180	41- 42	71 71	41 42	33 34	40.5 41.5
182	108	98	114	54	54 / 54-50 L	54-5 182	43- 44	71	44	37	43.5
184	112	102	117	56	56 / 56-52 X	56-5 184	45- 46	71	46	39	45.5
186	116	108	120	58	58 / 58-54 X	58-4 186	47- 48	71	48	41	47.5

KINDERBEKLEIDUNG

Children's clothes
Vêtements pour enfants
Abbigliamento per bambini



A			F/I		USA/GB			
in cm			GROSSEN- BEZEICH- NUNG	TAILLE = STATURE	TAGLIA = ALTEZZA	ORDERSIZE = AGE	in inches	
◆	G	O					G	O
1	80					0		
1 1/2	86					1		
2	92	54			86	2	34	21
3	98	58	3 98		94	3	37	22
4	104	60	4 104		102	4	40	23
5	110	62-63	5 110		108	5	43	24
6	116	64-65	6 116		114	6	46	25
7	122	66	7 122		120	7	48	25 1/2
8	128	68-70	8 128		126	8	50	26 1/2
9	134	70	9 134		132	9	52	27 1/4
10	140		10 140		138	10	54	28
11	146	72-74	11 146		144	11	56	28 3/4
12	152	74	12 152		150	12	58	29 1/2
13	158	76-80	13 158 36		156	13	59 1/2	30 1/2
14	164	80	2 14 164 38		162	14	61	31 1/2
15	170	84-86	3 15 170 40		168	15	62 1/2	32 1/2
16	176		4 16 176 42					

BABY- UND KLEINKINDERBEKLEIDUNG

Infants', babies' and toddler's wear
Vêtements pour bébés et petits enfants
Abbigliamento per baby e bambini piccoli



A		F		I		USA/GB	
in cm		GROSSEN- BEZEICH- NUNG	APPELLATION DE TAILLE = AGES	TAGLIA = ETA	ORDERSIZE = AGE	in inches	
◇	G					O	G
1	50	36					
2	56	38	36 0				
3	62	41	62 1	3 mois	3 mesi	3 months	24
4							17
5							
6	68	44	68	3-6 mois	3-6 mesi	6 months	26 1/2
7							18
8							
9	74	48	74 2				
10							
11							
12	80	52	80 3	6-12 mois	6-12 mesi	12 months	29
13							19
14							
15							
16						1 1	31
17							20
18	86	54	86 4	12-18 mois	12-18 mesi	18 months	31 1/2
19	92	58	92 5	2 ans	2 anni	24 months	34
20						1 2	21
21	98	58	98 6	3 ans	3 anni	36 months	36 1/2
22						1 3	22
23							22
24				4 ans	4 anni	1 4	40
25							23

DAMENSTRUMPFHOSEN
Ladies' tights
Collants
Collants (calzamataglia)



A			F				I	USA/GB
S	S	DOB-GROSSE	GROSSEN- BEZEICH- NUNG	APPELLATION DE TAILLE	G	GEWICHT kg Weight Poids Peso	TAGLIA	SIZE
34-36	7 1/2-8 1/2	34-36	00					
35-37	8-9	36-38	0	0	142-154	39-51	0	EXTRA SMALL
36-38	8 1/2-9 1/2	38-40	I	1	142-163	39-57	1	SMALL
37-39	9-10	40-42	II	2	151-169	48-63	2	MEDIUM
38-40	9 1/2-10 1/2	42-44 (46)	III	2x	142-157	57-78	3-3 L	LARGE
38-40	9 1/2-10 1/2	44-46 (48)	IV	3	157-175	54-69	4	EXTRA LARGE
				3x	151-166	72-87	4x	
38-40	9 1/2-10 1/2	48-50	V	4	163-181	60-75		
				4x	157-181	66-96	4 L	
38-40	9 1/2-10 1/2	52-54	VI	5	169-181	66-84		
				x = UBERGROSSEN Oversizes Tailles extra Misura extra				

DAMENSTRÜMPFE
Stockings
Bas pour dames
Calze — donna



A, I, USA/GB		F		
S	GROSSENBEZEICHNUNG Size Appellation de taille Taglia	APPELLATION DE TAILLE	G	GEWICHT kg Weight Poids Peso
36	8 1/2-9	0	142-154	39-51
37		1	142-163	39-57
38	9 1/2-10	2	151-169	48-63
39		2x	142-157	57-78
40	10 1/2-11	3	157-175	54-69
41		3x	151-166	72-87
		4	163-181	60-75
		4x	157-181	66-96
		5	169-181	66-84
		x = UBERGROSSEN Oversizes Tailles extra Misura extra		

KINDERSTRÜMPFE
Children's stockings
Chaussettes — enfants
Calze — bambini, ragazzi



A, F, I			USA/GB	
◆	GROSSENBEZEICHNUNG Size Porture Taglia	S	S	SIZE
1- 2	2	18 (12 cm)	2	1
		19	3	
		20	4	
		21 (14 cm)	5	
3- 4	4	22	6	2
		23	7	
		24 (16 cm)	8	
		25	9	
5- 6	6	26	10	3
		27 (18 cm)	11	
		28	12	
		29	13	
7- 8	8	30 (20 cm)	14	4
		31	15	
		32	16	
		33 (22 cm)	17	
9- 10	10	34	18	5
		35	19	
		36 (24 cm)	20	
		37	21	
11- 12	12	38	22	6
			23	

BÜSTENHALTER
Brassieres
Soutiens-gorge
Reggiseno



A		F	I	USA/GB
GROSSENBEZEICHNUNG in cm B ¹⁾ UNTER DER BRUST Under the bust Sous la poitrine Sotto il petto		APPELLATION en cm B ¹⁾ UBER DIE BRUST Over the bust Tour de poitrine Sopra il petto	TAGLIA in cm B ¹⁾ SOTTO IL PETTO	ORDERSIZE in inches B ¹⁾ OVER THE BUST
60		75	60	28
65		80	65	30
70		85	70 I	32
75		90	75 II	34
80		95	80 III	36
85		100	85 IV	38
90		105	90 V	40
95		110	95	42
100		115	100	44
105		120	105	
110		125	110	
115		130	115	
*) KORBCHENGROSSE		*) PROFONDEUR DES BONNETS		*) TAGLIA DELLE COPPE
AA A B C D	sehr klein klein normal groß sehr groß	petite poitrine poitrine moyenne poitrine forte poitrine tres forte		piccolo normale forte molto forte
				smallest small normal large extra large

SCHLÖPFER, MIEDERHÜSCHEN
Elastic belts and panties
Gaines elastiques
Mutandine



A, F, I	USA/GB	
GROSSENBEZEICHNUNG = TAILLE in cm Ordersize = Waist in cm Appellation = Tour de taille Taglia = Vita	WAIST in inches	ORDERSIZES
55	22 1/2	21-22
60	23 1/2	23-24
65	24 1/2-26	25-26
70	26-28	27-28
75	27 1/2-30	29-30
80	29-32	31-32
85	31-34	33-34
90	33-36 1/2	35-36
95	35-39	37-38
100	41 1/2	39-40
105	44	41-42
110	46 1/2-49	43-44

HERRENSCHUHE
Shoes for gentlemen
Chaussures — hommes
Scarpe — uomo



DAMENSCHUHE
Ladies' shoes
Chaussures — femmes
Scarpe — donna



A, F, I	GB	USA	
S	S	S	cm
38	5	6	25
39	6	7	26
40	7	8	27
41	8	9	28
42	8	9	29
43	9	10	30
44	10	11	31
45	11	12	32
46	12	13	33
47	13	14	34
48	13	14	35

A, F, I	GB	USA	
S	S	S	cm
34	2	3	23
35	3	4	24
36	4	5	25
37	4	5	26
38	5	6	27
39	6	7	28
40	7	8	29
41	8	9	30
42	8	9	31
43	9	10	32
44	10	11	33

KINDERSCHUHE
Children's shoes
Chaussures pour enfants
Scarpe — bambini, ragazzi



A, F, I		GB	USA
GROSSENBEZEICHNUNG Size Pointure Numerazione	in cm	ORDERSIZES	
17	11	- 2 -	- 3 -
18	- 12 -	- 3 -	- 4 -
19	- 13 -	- 4 -	- 5 -
20	- 14 -	- 5 -	- 6 -
21	- 15 -	- 6 -	- 7 -
22	- 16 -	- 7 -	- 8 -
23	- 17 -	- 8 -	- 9 -
24	- 18 -	- 9 -	- 10 -
25			
26			
27			

A, F, I		GB	USA
GROSSENBEZEICHNUNG Size Pointure Numerazione	in cm	ORDERSIZES	
28	- 19 -	- 10 -	- 11 -
29	- 20 -	- 11 -	- 12 -
30	- 21 -	- 12 -	- 13 -
31	- 22 -	- 13 -	- 1 -
32	- 23 -	- 1 -	- 2 -
33	- 24 -	- 2 -	- 3 -
34	- 25 -	- 3 -	- 4 -
35		- 4 -	- 5 -
36		- 5 -	- 6 -
37			
38			

HANDSCHUHE
Gloves
Gants
Guanti



A, F, I, GB/USA			
	GROSSENBEZEICHNUNG Size Pointure Taglia		
	LEDER Leather Cuir Cuoro	STRICK und STOFF Knit and fabric Maille et tissu Maglia e tessuto	SYNTHETICS Synthetic fibres Fibres synthétiques Tessuti sintetici
BABY		0 1 2 3	
KINDER CHILDREN ENFANTS RAGAZZI		4 5 6 7	
DAMEN LADIES FEMMES DONNA	6 1/8 6 7/8 7 7 1/8 7 1/2 7 3/4 7 7/8	8 9 10	SMALL MEDIUM LARGE
HERREN GENTLEMEN HOMMES UOMO	8 8 1/8 8 1/2 8 3/4 9 9 1/8 9 1/2	11 12 13	SMALL MEDIUM LARGE

DAMEN- UND HERRENHÜTE
Hats — ladies' and gentlemen's
Chapeaux — femmes et hommes
Cappelli — donna e uomo



A, F, I	GB	/	USA
GROSSENBEZEICHNUNG = K Size = K Pointure = K Taglia = K	SIZE	POINTS	SIZE
51	6 1/8	2	6 1/8
52	6 1/4	2 1/2	6 1/4
53	6 3/8	3	6 3/8
54	6 1/2	3 1/2	6 1/2
55	6 5/8	4	6 5/8
56	6 7/8	4 1/2	7
57	7	5	7 1/8
58	7 1/8	5 1/2	7 1/8
59	7 1/4	6	7 1/4
60	7 3/8	6 1/2	7 3/8
61	7 1/2	7	7 1/2
62	7 5/8	7 1/2	7 5/8
63	7 3/4	8	7 3/4
64	7 7/8	8 1/2	8

Extracted from Hard's Yearbook for the Clothing Industry, 1979
 Body and garment dimensions for women and children, as used in West Germany.

Size No.	36	38	40	42	44	46	48	50	52	54
Height	156	160	164	167	170	172	173	174	174	175
Bust	84	88	92	96	100	104	108	112	116	120
Waist	68	70	72	76	80	86	92	98	102	108
Hips	92	96	100	104	108	112	116	120	124	128
Nat. Waist	37	38	39	40	41	42	42	43	43	44
Jacket Length	66	68	70	72	74	76	77	78	78	78
Coat Length	110	112	114	117	119	120	121	122	122	122
½ Back	17	17-6	18-4	19-2	20	20-3	20-6	20-9	21-2	21-5
Elbow	44	45	46	46	47	48	49	50	52	52
Sleeve Length	72	73	74	75	76	77	78	79	80	81
Waist Band	66	66	70	74	78	84	88	96	98	106
Skirt Length	68	70	74	76	78	79	80	80	80	80
Trousers Side-Seam without Band	94	96	98	100	103	105	106	107	108	108
Rise	24	25	25	26	27	28	29	29	29	29
Trousers Inside Leg	70	71	73	74	76	77	78	78	79	79
Ski Trousers Inside Leg	78	79	81	82	84	85	86	86	87	87

Approx. age	Infants and Girls					Boys and Girls				Girls									
	3m	6m	9m	12m	15m	2	3	4	5	6	7	8	9	10	11	12	13	14/15	
Height	62	68	74	80	86	92	98	104	110	116	122	128	134	140	146	152	158	164	
Weight	5.5	8.0	9.5	11.0	12.5	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chest	45	46	48	50	52	53	55	57	59	61	63	66	69	72	76	79	83	87	
Waist	-	-	-	50	51	52	53	54	55	57	58	59	61	62	63	64	66	67	
Hip	-	-	-	52.5	55	56.5	59	61	63.5	66	68	71.5	75	78.5	83	86	90.5	94.5	
Across back	-	-	-	20.5	21.5	22	22.5	23	24	25	26	27	28	29	30	31	32	33	
Armscye girth	-	-	-	22	23	24	25	26	27	28	29	30	31	32	33.5	35	37	38.5	
Neck base	-	-	-	24	24.5	25	26	26.5	27.5	28	29	30	31	32	33	34	35	36	
Shoulder	-	-	-	6.5	7	7.3	7.5	8	8.3	8.5	9	9.3	9.5	9.8	10	10.3	10.5	11	
Upper arm	-	-	-	15	15.5	16	16.5	17	17.5	18	18.5	19	20	20.5	21.5	22.5	23.5	24.5	
Thigh girth	-	-	-	29	30	31	32	33	35	37	39	41	43	45	47	49	51	53	
Scye depth	-	-	-	9.5	10	10.5	11	12	12.5	13.5	14	15	15.5	16.5	17	18	18.5	19.5	
Neck to waist	-	-	-	20	21	22	23	24	25.5	27	28	29.5	30.5	32	33.5	35.5	37.5	39.5	
Waist to hip	-	-	-	9	9.5	10.5	11	12	12.5	13.5	14	15	15.5	16.5	17	18	18.5	19.5	
Cervical height	47	53	59	65	71	76	81.5	87	92	98	103	109	114	119	125	130	136	141	
Cervical to knee	-	-	-	44	47	51	54	57	61	65	69	72	76	80	84	88	92	95	
Body rise	-	-	-	15.5	16.5	17	18	19	20	21	22	23	24	25.5	26.5	28	29	30	
Side-seam	31	36	41	46	51	56	60	64	68	72	77	81	85	89	93	96	100	103	
Vertical trunk	69	73	78	82	86	90	94	99	103	107	112	116	121	127	134	140	146	151	
Crotch length	-	-	-	41	43	45	47	49	51	53	55	57	60	63	66	69	71	74	
Shoulder and arm	24	26.5	29	31.5	34	36.5	39	42	45	48	51	54	57	60	63	66	69	72	

German Standard for the Sizes of Women's Underwear

DE 687 254 : 648.02 : 648.33 DEUTSCHE NORMEN
 Mod 1969
 DIN
 61 560

Mittleren
 Größenbezeichnungen

Größenbezeichnung

Maße in cm

3. Größen

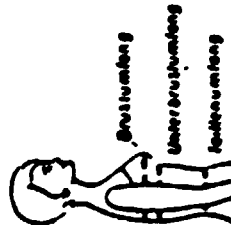
3.1. Sockenhalter und elastische Corslets

Größenbezeichnung	Unterbrustumfang	Bezeichnung für Brusthöhe				bisherige Größenbezeichnung
		A	B	C	D	
65	41 bis 47	77 bis 79	81 bis 83	81 bis 83	2	
70	48 bis 54	82 bis 84	84 bis 86	86 bis 88	3	
75	52 bis 57	87 bis 89	91 bis 93	93 bis 95	4	
80	56 bis 62	92 bis 94	94 bis 96	96 bis 98	5	
85	60 bis 66	97 bis 99	101 bis 103	103 bis 105	6 bis 7	
90	64 bis 70	102 bis 104	104 bis 106	106 bis 108	8	
95	68 bis 74	107 bis 109	111 bis 113	113 bis 115	9	
100	72 bis 78	112 bis 114	114 bis 116	116 bis 118	10	
105	76 bis 82	117 bis 119	121 bis 123	123 bis 125	11 bis 12	
110	80 bis 86	122 bis 124	124 bis 126	126 bis 128	13	
115	84 bis 90	127 bis 129	131 bis 133	133 bis 135	14	
120	88 bis 94	132 bis 134	134 bis 136	136 bis 138	15	
125	92 bis 98	137 bis 139	139 bis 141	141 bis 143	16	

Die in dieser Norm enthaltenen Größenbezeichnungen sind von den Europäischen Kommissionen genehmigt, für die Standardabweichungen von 13 Modulen angegeben, im Juli 1967 vereinbart worden.

1. Zweck und Geltungsbereich
 Zweck dieser Norm ist, die Größenbezeichnungen von Miederwaren zu vereinheitlichen.
 Die in dem Tabellen angegebenen Abmessungen geben die Körpermaße des Trägers, nicht die Körpermaße, die von der Herstellerin und der Herstellerin zu wählen sind.

2. Anwendung
 Um die einheitliche Größe eines Miederwerks zu bestimmen, werden die Elemente des Trägers an dem mit dem Maß ermittelten Körper mit einem Bandmaß auf dem Maßband abgemessen folgendermaßen:



3.2. Socken

Größenbezeichnung	Tallkreisumfang
65	53 bis 64
70	63 bis 74
75	73 bis 84

3.3. Elastischbänder und -Mieder

Größenbezeichnung	Tallkreisumfang
65	63 bis 65
70	68 bis 72
75	73 bis 77
80	78 bis 82

3.4. Sockenhalter, Sockenhalter, Mieder mit sehr begrenzter Behebung und Irrumpfhaltergebnis

Größenbezeichnung = Tallkreisumfang	
64	67
68	71
72	75
76	79
80	83

3.5. Corslets und Mieder ohne Behebung sowie Sportgürtel

Größenbezeichnung = Tallkreisumfang	
68	72
72	76
76	80
80	84
84	88
88	92
92	96
96	100

Textile Home Treatment Indications

With the introduction of new fibres and its blends with natural fibres in an endless variation the International Textile Trade has introduced a symbol scheme to inform the consumer about the recommended washing and cleaning practices as follows:

Washing Symbol: Wash tub (Hand and machine wash)								
	Normal washing	Mild washing (delicate fabrics)	Normal washing	Mild washing (delicate fabrics)	Normal washing	Mild washing (delicate fabrics)		No washing
Bleaching Symbol: Triangle								
	Bleaching is possible							No bleaching
Ironing Symbol: Iron								
	Hot position		Middle position		Low position			No ironing
Dry cleaning Symbol: Washing drum								
	The circle indicates the use/non-use of organic solvents. The letters within the circles are instructions for dry-cleaning							No dry cleaning

An additional symbol was introduced for lukewarm washing:



The manufacturers determines the appropriate washing and dry cleaning instructions for each garment and print labels with the symbols on a special printing machine. The labels are sewn into the individual garments.

Body dimensions condensed from Neckermann and Quelle catalogues.

Body dimensions for boys and girls

Approx. age (years)	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-12
Size/height	92	98	104	110	116	122	128	134	140	146
Chest girth	56	58	60	62	64	66	68	70	73	75
Waist girth	53	54	56	57	53	59	60	62	63	64
Hip girth	57	60	63	64	65	67	70	73	76	80
Inside leg	38	43	47	51	55	59	63	67	70	74
Outside leg	50	54	58	63	67	71	76	80	85	89

Body dimensions for adolescent boys

Approx. age (years)	13	14	15	16	17	-	-
Size/Weight	152	158	164	170	176	182	189
Chest girth	77	80	83	86	89	92	95
Waist girth	67	70	72	73	75	77	80
Hip girth	84	87	90	93	96	99	102
Inside leg	78	81	84	87	89	92	95
Outside leg	93	97	101	105	108	111	113

Body dimensions for adolescent girls

Approx. age (years)	13	14	15	16	17	-
Size/height	152	158	164	170	176	182
Adult size no.	32	34	36	38(76)	40(80)	42(82)
Bust girth	76	79	84	88	92	96
Waist girth	64	65	66	68	72	76
Hip girth	82	86	90	94	98	102
Inside leg	78	81	84	87	89	92
Outside leg	93	97	101	108	108	111

Extracted from Kunick

Five Sizing Systems Compared (centimetres)

Age Groups	Girls aged 4 years						Girls aged 9 years						Teenettes aged 14/15					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Column No.																		
Height	104	102	105	104	104	103.7	134	132	130	134	134	132.5	164	162	165	164	164	163.7
Bust girth	57	56	58	58	57	57.2	69	66	68	66	67	67.2	87	86	85	84	86	85.5
Waist girth	54	53	55	56	54	54.5	61	57	60	60	59	59.5	67	62	66	66	66	65.2
Hip girth	61	62	56	63	60	60.5	75	72	68	73.5	72.5	72.1	94.5	93	94	92	93	93.3
Nape to waist	24	23.8	25	24	24	24.2	30.5	29.8	29.5	29.5	30.0	29.8	39.5	38.8	37.5	38.5	39	38.5
Waist to ground	64	63	63.3	63	63.2	63.3	85	84	81.8	85.5	85.2	84.0	103	102.8	105.8	104.5	104	104

Key to column numbers:

1. British Standard 3728: 1970/1982.
 2. French Children's Body Measurements.
 3. Average Body Measurements of Swedish Children 1957.
 4. Body Measurements for German Standard Children's Wear.
 5. Extracts from Size Charts 13 and 14.
 6. Arithmetic means of columns 1, 2, 3, 4.
- Source: Columns 1 to 4, from a report by Wilfred Radwell, FCFI, Clothing Institute Journal 1970.

PROJECT BACKGROUND

Background Information

The textile industry, a traditional sector in Syria, plays an important role in the country's socio-economic development. This industry, however, is presently facing challenging and difficult problems which needs to be overcome. The issues involved were discussed extensively between the Minister of Industry of the Syrian Arab Republic and the Executive Director of UNIDO in October 1984, who concluded that there is an urgent need to:

- assess the performance of this sector with respect to production, technical and economic aspects, detecting bottlenecks and weaknesses in the Syrian textile industry compared with similar ones in more developed states;
- set-up practical solutions for coping with such obstacles and promoting this traditional industry to better levels of performance.

It was recognised that the above would have to be implemented in successive phases. Under the circumstances, the Government has decided that, as a first stage, the two underwear factories in the public sector, the Orient Company for Underwear in Aleppo, including their yarn supplying spinning mill, Hama Company, would receive UNIDO technical assistance.

The subsequent UNIDO fact-finding mission carried out extensive discussions with the Ministry of Industry, the General Organisation for the Textile Industry, the Orient Underwear Manufacturing Company and visited the factory. As a result, the following conclusions emerged:

(i) Marketing problems cause inefficiency in the mill. Around 50% of the output is exported

(ii) Marketing problems originate from

- inadequate styling;
- improper wet processing and finishing of fabrics;
- irregular yarn quality;
- price/quality/style relation

(iii) Efficiency related to technical shortcomings are:

- inadequate yarn packaging at delivery;
- unutilised knitting machinery because of lack of proper yarn counts, knitting technology (single jersey, body length, jacquard patterned ladies underwear and pile (plush) fabrics and styling for this type of product);
- disrupted production planning (priority for sudden export orders);
- hand packaging of final products, where mechanisation is a factor of availability of the appropriate type of plastic bags.

In order to solve these problems, an urgent UNIDO assistance is required in the field of spinning, knitting design, wet processing, and cost accounting.

The following mills where assistance is to be rendered is described as follows:

The cotton spinning mill, Hama Company, is equipped with two units of 30192 spindles each. All machinery are of Chinese origin (Unit I established in 1971, Unit II established in 1975). The cone-winding machines of Unit I were replaced by Karl Mayer automatic winders and equipped with Loepfe electronic yarn clearers. In addition to the original drafting pendulum arms they were replaced by SKF manufactured pendulum arms.

The cotton used is of medium and long staple and the emphasis is on the manufacturing of No.32/1 Ne knitting yarn. Other yarn counts are 20, 24, 26 and 30 Ne. The total output of 32/1 Ne knitting yarn is estimated to be 1600 tonnes yearly. (1200 tonnes - Orient Underwear Manufacturing Company; 400 tonnes - Arab Company for Underwear in Aleppo). The remaining capacity is sold to private knitting mills and weaving mills.

The Orient Underwear Manufacturing Company in Damascus with over 100 circular knitting machines (Albi), Kleinewefers bleaching range, and the sewing room, equipped with modern Rimoldi sewing machines, has a yearly output of approximately 1.5 million dozens.

In addition, approximately 25,000 pieces of leisurewear (T-shirts) and children's pyjamas are produced. This output represents around 70% of its capacity: about 50% of the output exported.

The main problems are appropriate styling, consistent quality of its knitted fabric, irregular finishing quality, sewing room organisation, inefficient packing methods etc.

The Arab Company for Underwear in Aleppo which is about one quarter in size compare to the Orient Underwear Manufacturing Company, faces similar problems. Both factories are in need of a cost/price/quality comparative study.

APPENDIX IV

DETAILS OF THE EXAMINED GARMENTS

1. Product number 196, size 44

1.1 Description

Man's white rib Y-front briefs. Folded weft knit waistband.

1.2 Dimensions

Sample No.	1	2	3	4	5	6	Means
1/2 waist	24 ¹ / ₂	25	24	24	22 ¹ / ₂	23	23.8
Rise	36	35	37	32 ¹ / ₂	36 ¹ / ₂	37 ¹ / ₂	35.7
1/2 seat	38	37	40	34 ¹ / ₂	38	37	37.6

1.3 Garment examination

In all six garments, the body fabric was unacceptably extended during waistband attachment.

4 not trimmed. Probably the wrong size.

5 unsatisfactory front binding

1.4 Discussion

The waistband is evidently difficult to attach correctly because of its thickness compared to the body fabric, which also makes the seam very bulky. The current seam is 504-SSa-1 = 1.01.01/504 followed by 602-0Sa-2 = 5.01.02/602; Aleppo omits the second operation. There are several alternatives.

If it is essential to retain the folded elastic, the body fabric could be extended into the fold as 3.01.01/602. If the fabric is allowed to be used singly, the best way is probably to serge

its cut edges and enclose it in body fabric, as 7.15.02/602 or 7.15.02/406; the stitching here is outside the elastic. Other, more elaborate, methods are also possible.

The power of the waistband is much greater than would be acceptable in Europe, and its relaxed girth about 12cm less than that expected for the normal British Small size.

Item 5 should have been rejected.

2. Article Number 1636, Size 50

2.1 Description

Man's printed interlock slip, with white-bound legs. Turn-in waistband enclosing a 1/2cm wide elastic ribbon (7.15.02/406).

2.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	7
Colour	Blue	Brown	Red	Red	Red	Red	Red
1/2	31 1/2	30 1/2	30 1/2	29	29 1/2	30	29
Rise	36	32	34 1/2	34 1/2	35	35	34
1/2	35	33	33 1/2	35	34	34	34 1/2
Outside leg	17	15 1/2	18	18	18	18	18
Sample No.	8	9	10	11	12	Means	
Colour	Red	Red	Red	Red	Red	-	
1/2	27 1/2	28	30	30	30	29.6	
Rise	32 1/2	34 1/2	35	34 1/2	35	34.4	
1/2 seat	30 1/2	35	35 1/2	33	36	34.1	
Outside leg	16 1/2	18	17 1/2	18	17	17.5	

2.3 Garment examination

All the waist sewing was dreadful and the waist cover threads were too tight. All the crotch patches should have been plain side out rather than print side out.

1. Oddly shaped crotch patch seams.
Print fault on back panel near right side seam.
2. Run-off on waist sewing.
4. Folded run-off on crotch patch sewing. Folded binding on right leg.
8. Side seams had to be pulled out.
Left leg binding tight.
10. Run-off on crotch patch/binding. Poor leg binding.
Leg openings $3\frac{1}{2}$ cm different.
12. Poor right side seam.

3, 5, 6, 7, 9, 11 No comment.

2.4 Discussion

The box contains neither a single colour nor a proper mixture of colours.

Six of the twelve items should have been rejected.

3. Article Number 181, Size 3

3.1 Description

Child's white rib sleeveless vest, with bound neck and armholes and a folded overlock hem.

3.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	7
Width	18	18	18 ¹ / ₂	17 ¹ / ₂	18	17	19 ¹ / ₂
Back length	38 ¹ / ₂	39 ¹ / ₂	40	38	39 ¹ / ₂	39	38 ¹ / ₂

Sample No.	8	9	10	11	12	Means
Width	19	18 ¹ / ₂	19 ¹ / ₂	18	18	18.3
Back length	39 ¹ / ₂	39	38 ¹ / ₂	38	39 ¹ / ₂	39.0

3.3 Garment examination

- 2. Knitting fault on front seam.
- 6. Extra fabric in shoulder straps.
- 9,11. Extra fabric in shoulder straps. Very wavy hem.
- 1, 3, 4, 5, 7, 8, 10, 12 No comment.

3.4 Discussion

As with most models of this type of vest (see sections 5, 6 and 9 of this Appendix), there is a tendency to introduce an excess of rib fabric between the armhole and neck bindings. This could indicate either excessive machine overfeed or excessive binding tension.

Final inspection should have rejected item 2.

4. Article Number 240, Size 40

4.1 Description

Man's dark blue rib circular sleeveless vest, with matching armhole and neck bindings and a folded overlock hem.

4.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
Width	25 ¹ / ₂	25 ¹ / ₂	26	26	25 ¹ / ₂	27 ¹ / ₂	26.0
Back length	69 ¹ / ₂	70 ¹ / ₂	69 ¹ / ₂	70 ¹ / ₂	70 ¹ / ₂	70	70.1
Length at	76	78 ¹ / ₂	77	78	77 ¹ / ₂	79	77.7

4.3 Garment examination

- 1,6. Shoulder straps differ in width. Poor hem.
- 2. Shoulder straps differ in width.
- 4. Left shoulder untidy.
- 3,5. No comment.

4.4 Discussion

Due to a modification of the original Rimoldi recommendation for this type of of article (see article 200 Appendix V), the shoulders have become unsightly, with an underarm binding seam as well as a partial shoulder seam. It can be done well (see section 19 of this Appendix) but is usually very messy. I suggest it would be better to copy the British examples (No. 29 of Appendix I), in which all bindings operations start and finish at the top of the shoulder. The garment can then be completed with an overlock, flat lock or interlock seam.

Items 1, 2, 4 and 6 should have been rejected.

5. Article Number 200, Size 40

5.1 Description

Man's white rib circular sleeveless vest, with white binding and folded overlock hem.

5.2 Dimensions (cm)

Sample	1	2	3	4	5	6	Means
Width	27	25	25 ¹ / ₂	36	27 ¹ / ₂	26	26.2
Back length	74 ¹ / ₂	75	76	74	73 ¹ / ₂	75	74.7
Length at right shoulder	83 ¹ / ₂	81	82	79 ¹ / ₂	81 ¹ / ₂	81 ¹ / ₂	81.5

5.3 Garment examination

- 1, 5, 6 Extra fabric at shoulders
2. Extra fabric at shoulders. Dirty back.
3. No comment.
4. The straps differ in width. Very poor left shoulder.

5.4 Discussion

See section 3 of this Appendix for a discussion of shoulders.
Items 2 and 4 should have been rejected.

5. Article Number 1506, Size 4

6.1 Description

Child's printed interlock vest and pants, with coloured interlock bindings.

6.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
Colour	Green	Green	Blue	Blue	Red	Red	-
Width	24	23 ¹ / ₂	23	23	23 ¹ / ₂	23	23.3
Back length	41	43	43	41 ¹ / ₂	42	41 ¹ / ₂	42.0
Length at shoulder	44	44	45	45	45	44 ¹ / ₂	44.6
¹ / ₂ Waist	18	17 ¹ / ₂	19	20	21	21 ¹ / ₂	19.6
Depth	21	21	21	21 ¹ / ₂	21	21 ¹ / ₂	21.2
Side seam	10 ¹ / ₂	1- ¹ / ₂	11	11	11	11	10.8

6.3 Garment examination

6.3.1 Vests

All the vests suffer from finishing creases.

1. No comment.
2. Extra fabric at shoulders. Print fault on back.
- 3, 5 Extra fabric at shoulders,. Poor hem.
4. Extra fabric at shoulders. Poor right side seam.
6. Poor hem. Knitting faults on back.

6.3.2 Pants

All the pants have too tight cover threads at the waists.

1. Blue marks inside waist.
- 2, 4. No comment.
3. Mess at inside waist/right side seam.
5. Chains caught into binding outside crotch.
6. Stain on back.

6.4 Discussion

See section 3 of this Appendix for a discussion of shoulders.

Items 2 and 6 of the vests and items 1, 3 and 6 of the pants (at least) should have been rejected.

7. Article Number 419, Size 92

7.1 Description

Child's printed interlock pyjamas with long sleeves and legs, and folded white trim at neck and cuffs.

7.2 Dimensions

7.2.1 Tops

Sample No.	1	2	3	4	5	6	7
Colour	Blue	Green	Green	Blue	Turquoise	Blue	Red
1/2 chest	24	23	22 ¹ / ₂	23 ¹ / ₂	23 ¹ / ₂	23	23
Length	38	37	38	38 ¹ / ₂	39 ¹ / ₂	39	37 ¹ / ₂
Underarm sleeve	24	24	24	24 ¹ / ₂	25	25 ¹ / ₂	43

Sample No.	8	9	10	11	12	Means
Colour	Turquoise	Red	Red	Turquoise	Green	
1/2 chest	22 ¹ / ₂	22 ¹ / ₂	24	23 ¹ / ₂	23	23.2
Length	38 ¹ / ₂	38 ¹ / ₂	38	39	39	38.4
Underarm sleeve	24	23	23 ¹ / ₂	24	24	24.0

7.2.2 Bottoms

Sample No.	1	2	3	4	5	6	7
Colour	Blue	Green	Green	Green	Blue	Turquoise	Blue
1/2 waist	18 ¹ / ₂	18 ¹ / ₂	21 ¹ / ₂	19 ¹ / ₂	18 ¹ / ₂	21 ¹ / ₂	18
1/2 hips	22	22	22 ¹ / ₂	23	20	20	21 ¹ / ₂
Length	50	50	50	50	49 ¹ / ₂	50	49 ¹ / ₂

Sample No.	8	9	10	11	12	Menas
Colour	Red	Turquoise	Red	Red	Turquoise	
1/2 waist	20 ¹ / ₂	20	21	20	17	19.5
1/2 hips	21	22	22	22	22	21.7
Length	51	51	50 ¹ / ₂	51	48 ¹ / ₂	50.1

7.3 Garment examination

7.3.1 Tops

1. Poor back waist trim attachment.
2. Armhole seams differ in shape.
3. Poor cuff seam ends. Messy left armpit.
4. Knitting fault in neck trim. Asymmetric neck.
Poor waist trim attachment. Poor left cuff seam end.
5. No comment.
6. Poor waist trim attachment.
7. Poor waist and cuff attachment.
8. Skewed print on front panel.
9. Poor waist and cuff trim attachment.
10. Poor waist and cuff trim attachment. Cuff seam ends poor.
Waist trim is put on skew. Skewed print on front and back.
Dirt inside back.

11. Poor back waist trim attachment.
12. Asymmetric neck. Variation in width of neck trim.

7.3.2 Bottoms

All the waistbands are very poorly sewn.

1. Untidy waist buttonhole.
 6. Stain on back of right leg.
 12. Hole in right leg seam. Print fault on left front.
- 2, 3, 4, 5, 7, 8, 9, 10, 11. No comment.

7.4 Discussion

These garments were individually packed (matching top and bottom) in polythene envelopes, and labelled in for export. Far from being suitable for export, one would have no hesitation, in a European context, in rejecting the lot as being of far too low a quality for retailing in a reputable shop.

The tops are dreadful; the trim attachment is very erratic. many cuff ends are unsatisfactory, the effects of print distortion are obvious, and a knitting fault and a dirty mark should have been seen. The cuffs would have been better put on in the round, using a cylinder-bed machine (there are none in the factory).

Eleven tops and two bottoms should have been rejected.

8. Article Number 803, Size 4

8.1 Description

Girl's white rib slips with enclosed elastic waist.

8.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	7
1/2 waist	20 ¹ / ₂	21 ¹ / ₂	20 ¹ / ₂	21 ¹ / ₂	20 ¹ / ₂	20 ¹ / ₂	20 ¹ / ₂
Depth	22 ¹ / ₂	23 ¹ / ₂	23	24	24 ¹ / ₂	23 ¹ / ₂	23 ¹ / ₂
Side seam	12 ¹ / ₂	13	12	13	13	12 ¹ / ₂	13 ¹ / ₂

Sample No.	8	9	10	11	12	Means
1/2 waist	19 ¹ / ₂	19 ¹ / ₂	20 ¹ / ₂	20	20 ¹ / ₂	20.5
Depth	22 ¹ / ₂	21 ¹ / ₂	23 ¹ / ₂	25	23	23.3
Side seam	12	12 ¹ / ₂	12	13	13	12.7

8.3 Garment examination

All the garments have very poor waistbands.

1. Differently sized legs.
- 6,8 Label caught in waist sewing.
10. Waistline skewed.

8.4 Discussion

Apart from the usual dreadful waistband sewing, the rib fabric had been greatly extended at the waist.

An odd feature was that about half the garments were inside-out. Both blue and red labels were used, with no size on the red labels.

Items 1 and 10 should have been rejected.

9. Article Number 506, Size 1

9.1 Description

Child's sleeveless dress or vest in printed interlock with white bindings edged with coloured picot.

Folded overlock hem.

9.2 Dimensions

Sample No.	1	2	3	4	5	6	7
Colour	Red	Red	Red	Red	Red	Red	Blue
Width	20 ¹ / ₂	19 ¹ / ₂	21	21	21	20	20
Back length	34	33	34 ¹ / ₂	35	34 ¹ / ₂	36	35

Sample No.	8	9	10	11	12	Means
Colour	Blue	Blue	Blue	Blue	Blue	-
Width	20 ¹ / ₂	21	19 ¹ / ₂	21	21	20.5
Back length	35	36	35	35	35	34.8

9.3 Garment examination

- 1, 2, 5. Extra fabric at shoulders. Hem not straight.
3. Extra fabric at shoulders. Poor left side seam.
4. Extra fabric at shoulders.
6. Extra fabric at shoulders. Hem not straight. Break in neck edging. Dirt on front neck.
- 7,10,11. Hem not straight.
8. Print fault on front. Hem not straight.
9. Asymmetric neck. Hem not straight. Blue mark on hem.
12. No comment.

9.4 Discussion

A pretty little garment spoiled by finishing creases, careless, sloppy sewing and a lack of pressing.

The label attachment in back neck is often untidy, tends to spoil the neckline and will be obtrusive in wear. It should go in a side seam.

At least, items 6, 8 and 9 should have been rejected.

APPENDIX V

RIMOLDI SEWING SEQUENCES

Production rate: 5,200 per 8 hours

	Machine description	No. of machines
er seam -	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504 Seam type SSa-1	2
400	Overlock, straight single needle, 3 thread, 3.3mm seam. Attachment for fastening down beginning of seam. Stitch type 504. Seam type SSa-1	6
and	Twin needle, three thread, 3.5mm needle gauge flat bed machine. Differential feed. Fitted with collarette cutting device and appropriate folder. Stitch type 406.	1
and	Twin needle, three thread, 4.5mm needle gauge, flat bed machine. Differential feed. Fitted with strap cutting device and appropriate folder.	4
er seam -	As above	2

Side seam 37¹/₂ 39¹/₂ 38¹/₂ 37 38¹/₂ 39¹/₂ 38.4
* The waist measure of item 2 is omitted from the mean.

10.3

Garment examination

1. Dirt on right leg.
2. Dirt on fly. Cut elastic strands have run back in waistband.
3. Run-off at waistband attachment.
4. Hole in waistband. Very poor waistband sewing.
- 5, 6. No comment.

10.4

Discussion

As usual, waistbands seem to offer enormous difficulties, increased here by the inferior construction that lets a cut elastane strand retract easily. The elastic strip is undyed, so the coloured ends in it totally fail to stop it looking dingy.

The first four items should have been rejected.

11. Article Number 135, Size 42

11.1 Description

Woman's short sleeve circular vest in white interlock.
Drawstring neck (7.25.01/604), picot neck edge
(6.05.01/427 = 427-OSf-1) and bound sleeves (3.03.04/406).
Folded overlock hem.

11.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
1/2 bust	37	37	36	37 ¹ / ₂	36 ¹ / ₂	36	36.7
Back length	64 ¹ / ₂	65 ¹ / ₂	66	66	65	65 ¹ / ₂	65.4

11.3 Garment examination

1. Poor and dirty hem. Dirty neck.
- 2,3. No comment.
4. Messy back neck. Marks on hem and left sleeve. wrong label.
5. Poor hem and right sleeve attachment. Cut at neck.
6. Wavy hem. Poor left sleeve attachment. Messy picot edge. Marks front and back.

11.4 Discussion

This is a very stodgy, old fashioned garment which shows off the ever-present finishing creases because of its length.

Items 1, 4, 5 and 6 should have been rejected.

12. Article Number 187, Size 7

12.1 Description

Girl's printed interlock panties with white leg bindings and turn-over waist.

12.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	7
Colour	Red	Green	Green	Green	Green	Blue	Red
$1/2$ waist	21	23	23	$23\frac{1}{2}$	21	$21\frac{1}{2}$	21
$1/2$ hips	28	30	$28\frac{1}{2}$	$30\frac{1}{2}$	$28\frac{1}{2}$	$30\frac{1}{2}$	$29\frac{1}{2}$
Depth	$29\frac{1}{2}$	$30\frac{1}{2}$	$30\frac{1}{2}$	31	30	30	31
Side seam	17	$16\frac{1}{2}$	16	$17\frac{1}{2}$	$15\frac{1}{2}$	$15\frac{1}{2}$	17

Sample No.	8	9	10	11	12	Means
Colour	Turquoise Blue		Red	Green	Green	-
$1/2$ waist	22	21	$21\frac{1}{2}$	$20\frac{1}{2}$	$23\frac{1}{2}$	21.9
$1/2$ hips	$31\frac{1}{2}$	$29\frac{1}{2}$	30	31	30	29.8
Depth	31	$29\frac{1}{2}$	$31\frac{1}{2}$	$30\frac{1}{2}$	31	30.5
Side seam	$17\frac{1}{2}$	$16\frac{1}{2}$	$17\frac{1}{2}$	$16\frac{1}{2}$	17	16.6

12.3 Garment examination

4,9,11. Print fault front and back.

12. Print fault on back.

Others No comment.

12.4 Discussion

Although the garment is, of course, much too deep, this is the first set to be good enough to sell in the E.E.C. The print is heavy enough to disguise the ever-present finishing creases, and even the waistbands are acceptable.

Two (numbers 4 and 11) had (probably by accident) crotch patches with the correct plain side showing.

Items 4, 9, 11 and 12 should have been rejected.

13. Article Number 171, Size 38

13.1 Description

Man's long white interlock pants, with folded cuffs and welt knit elastic waistband.

13.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
$1/2$ waist	$21\frac{1}{2}$	21	$21\frac{1}{2}$	24	$21\frac{1}{2}$	$22\frac{1}{2}$	22.0
$1/2$ seat	$48\frac{1}{2}$	47	$47\frac{1}{2}$	46	48	48	47.5
Side seam	$91\frac{1}{2}$	$94\frac{1}{2}$	$94\frac{1}{2}$	93	94	93	93.4
Body	$29\frac{1}{2}$	32	$29\frac{1}{2}$	32	$28\frac{1}{2}$	$28\frac{1}{2}$	30.0

13.3 Garment examination

No comment on any garment.

13.4 Discussion

Another unusually well-made garment. For criticism of the waistband, see section 1 of this Appendix.

14. Article Number 426, Size 42

14.1 Description

Woman's white interlock panties, made as in section 12 of this Appendix.

14.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
1/2 waist	26	26	24	26	25	25 ¹ / ₂	25.4
1/2 hips	31 ¹ / ₂	33	34	33 ¹ / ₂	32 ¹ / ₂	33	32.9
Depth	32 ¹ / ₂	31 ¹ / ₂	31 ¹ / ₂	33 ¹ / ₂	33	34	32.7
Side seam	16 ¹ / ₂	16 ¹ / ₂	16	17 ¹ / ₂	17	16	16.6

14.3 Garment examination

3. Knitting fault on front and back. Mark on front.
Rest no comment.

14.4 Discussion

Another adequately made garment, with reasonable waist sewing.
Item 3 should have been rejected.

15. Article Number 4000, Size 116

15.1 Description

A child's T-shirt in coloured interlock, with bound neck and sleeves and turn-in hem (6.02.07/406)

15.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6
Colour	Pink	Pink	Dark blue	Dark blue	Green	Green
1/2 chest	27	26	27 ¹ / ₂	26	27 ¹ / ₂	27
Back length	51	52	51	51	50	48 ¹ / ₂

Sample No.	7	8	9	10	Means
Colour	Light blue	Light blue	Yellow	Yellow	-
1/2 chest	27	26 ¹ / ₂	26 ¹ / ₂	26 ¹ / ₂	26.8
Back length	50	49	51	48 ¹ / ₂	50.2

15.3 Garment examination

- 1,2,4. No comment.
- 3,9,10. Poor left sleeve attachment.
- 5,7,8. Poor hem.
- 6. Damage at neck.
Asymmetric neck.

15.4 Discussion

This box was intended for export to the D.D.R., and so the garments had been individually wrapped.

They are quite attractive shirts in pretty colours, but spoilt as usual by finishing creases and careless sewing. They should have been properly pressed.

Item 6 should have been rejected.

16. Article Number 150, Size 4

16.1 Description

A child's T-shirt and shorts in printed interlock with matching bindings. Turn-over hem and waistband. No side seams on shorts.

16.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
Colour	Pink	Pink	Green	Green	Blue	Blue	-
1/2 chest	25	24 ¹ / ₂	25 ¹ / ₂	27 ¹ / ₂	26	26	25.3
Shirt length	42 ¹ / ₂	43	43	43 ¹ / ₂	41	40	42.2
1/2 waist	19 ¹ / ₂	17	18	19	18	16	17.9
Depth	17	17	18 ¹ / ₂	19	18	18 ¹ / ₂	17.6
Side length	22	22	21	21 ¹ / ₂	22	23	22.0

16.3 Garment examination

4 Stains on back of T-shirt.

Others No comment.

16.4 Discussion

Apart from the usual troubles with creases, hems and waistbands, they are adequate.

Item 4 should have been rejected.

17. Article Number 201, Size 40

17.1 Description

A man's white rib brief. Waistband as article 196 (Section 1).

17.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
1/2 waist	22	22	21 ¹ / ₂	22	22 ¹ / ₂	23	22.2
Depth	29 ¹ / ₂	29 ¹ / ₂	31	29	30 ¹ / ₂	31	30.1
1/2 seat	32	32	33	31 ¹ / ₂	32	31 ¹ / ₂	32.0
Side seam	13	14	14	13 ¹ / ₂	15	13 ¹ / ₂	13.8

17.3 Garment examination

1,4. Fly binding too long.

2,3. One side seam 2cm longer than the other.

5,6. No comment.

17.4 Discussion

Another tiny waistband.

Items 1, 2, 3 and 4 should have been rejected.

18. Article Number 460, Size 5M

18.1 Description

A man's white circular interlock T-shirt, with bound neck and sleeves and a folded overlock hem.

18.2 Dimensions

Sample No.	1	2	3	4	5	6	Means
1/2 chest	37	39 ¹ / ₂	38	38 ¹ / ₂	37 ¹ / ₂	39 ¹ / ₂	38.3
Length	71 ¹ / ₂	72 ¹ / ₂	73	76	72	72	72.8

18.3 Garment examination

1. Red marks on front.
2. No comment.
3. Blue marks on front, dirt on back.
4. Stains inside back. Kintting fault on front.
Poor back hem.
5. Blue marks on front and back. Dirt on collar. Poor hem.
6. Blue marks on front and back.

18.4 Discussion

These items are labelled in German (95°C wash) and are therefore presumably intended for export. They were individually packed in unlabelled bags.

They are of course, very stodgy, old-fashioned garments which would be quite unacceptable in the E.E.C., especially in view of the poor fabric appearance.

Only item 2 should have been passed by the inspectors.

19. Article Number 192, Size 5/M

19.1 Description

A man's white circular sleeveless rib vest.

19.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
1/2 chest	25 ¹ / ₂	27	30	28 ¹ / ₂	31	27	28.2
Length	72	72 ¹ / ₂	73	73	72 ¹ / ₂	73 ¹ / ₂	72.8

19.3 Garment examination

No faults recorded.

19.4 Discussion

The garments were individually bagged for export, they are the only box of examined garments that are of export quality. Even the rather clumsy strap construction is well carried out.

20. Article Number 69, Size 42

20.1 Description

A man's long wool interlock pants. Structure as for article 171 (Section 13 of this Appendix).

20.2 Dimensions (cm)

Sample No.	1	2	3	4	5	6	Means
1/2 waist	29 ¹ / ₂	29	28 ¹ / ₂	26	29	26 ¹ / ₂	28.1
1/2 seat	57 ¹ / ₂	59	54 ¹ / ₂	56 ¹ / ₂	55 ¹ / ₂	56	56.5
Side leg	108 ¹ / ₂	113	113 ¹ / ₂	115	113 ¹ / ₂	111	112.4
Body	43 ¹ / ₂	42	44	42 ¹ / ₂	46	44 ¹ / ₂	43.8

20.3 Garment examination

- 1,4,5. No comment.
- 2. Stain on front.
- 3,6 Dirty waistband.

20.4 Discussion

Items 2, 3, and 6 should have been rejected.

21. Article Number 60, Size 42

21.1 Description

A man's long-sleeved circular wool interlock T-shirt.

21.2 Dimensions

Sample No.	1	2	3	4	5	6	Means
1/2 chest	48	47 ¹ / ₂	48 ¹ / ₂	48 ¹ / ₂	49	49	48.4
Back length	74	75	75	77	78	77	76.0

21.3 Garment examination

There is a sewing fault on all the right front necks.

1,2,3,4. Otherwise adequate

5. Unsatisfactory front hem.

6. Stain on front.

21.4 Discussion

These garments should all have been rejected for tucks in the neck fabric at the right front of the neck binding.

(continued)

PRODUCTION LINE - STYLE 105 AND 400

Operation sequence	Machine type	Operation	Machine description	No. of machines
E	5	Attach cuff - 105 and 400	As above	2
F	2	Join sleeve seam	As above	5
G	1	Sleeve set	As above	6
H	3	Bottom hem - 105	Overlock, single needle, 2 or 3 thread 3.2mm seam. Fitted with swing out welting folder to permit use as normal overlock	1
H	7	Bottom hem - 400	Twin needle, 3 thread interlock. Differential feed. 4.5mm needle gauge. Fitted with adjustable edge guide. Stitch type 406. Seam type EFa-2 rev.	4

Childrens short sleeve vest

Article 400 - Size 1, 3, 4

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
*1. Left shoulder join and side seams	3 thread overlock	504	1/8"	11	SSa-1	2 x 14 ¹ / ₂ " 1 x 3 ¹ / ₂ "
2. Neck band attach and insert tab	3 thread interlock	406	3/16"	10	BSb-2	14"
3. Attach cuff	3 thread interlock	406	1/8"	11	BSb-2	2 x 3 ¹ / ₂ "
4. Sleeve join	3 thread overlock	504	1/8"	9	SSa-1	
5. Right shoulder join	3 thread overlock	504	1/8"	8	SSa-1	3 ¹ / ₂ "
6. Sleeve set	3 thread overlock	504	1/8"	8	SSa-1	1 x 3 ¹ / ₂ " 1 x 4"
7. Bottom hem	3 thread interlock	406	1/4"	13	EFa-1	20 ¹ / ₂ "

* No side seams on size 4

Childrens short sleeve vest

Article No. 105 - Size 3, 5

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Join left shoulder seam	3 thread overlock	504	1/8"	13	SSa-1	3 ¹ / ₂ "
2. Attach neck band	3 thread interlock	406	1/8"	10	BSb-2	16 ¹ / ₂ "
3. Join right shoulder seam	3 thread overlock	504	1/8"	11	SSa-1	4 ¹ / ₂ "
4. Attach cuff band	3 thread interlock	406	1/8"	10	BSb-2	2 x 9"
5. Join sleeve seam	3 thread overlock	504	1/8"	12	SSa-1	2 x 5 ¹ / ₂ "
6. Set sleeves	3 thread overlock	504	1/8"	10	SSa-1	2 x 13"
7. Bottom hem	3 thread overedge	504	1/8"	10	EFa	29

PRODUCTION LINE - STYLE 3245 AND 401

Garment: Babies nappy (1)
 Babies vest (2)

Production rate: Nappy - 150 per 8 hours
 Vest -- 300 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A1	1	<u>Nappy</u> - overlock 3 edges of separate strips	Overlock, single needle, three thread machine, 3.3mm seam. Stitch type 504. Seam type SSA-1	3
A2		<u>Vest</u> - shoulder join sleeve hem sleeve seam sleeve set edge of bodice ties		
B1	11	<u>Nappy</u> - attach pocket to back	Three needle, five thread interlock machine, 6mm between needles. Differential feed. Stitch type 605. Seam type LSA-3	1
C1	4	<u>Nappy</u> - attach band all round and insert tab	Twin needle, three thread, 4.5mm needle gauge flat bed machine. Differential feed. Seam type Bsb-2. Stitch type 406. Fitted with strap cutting device and appropriate folder.	1
D1 B2	17	<u>Nappy</u> - bartack end of band) <u>Vest</u> - attach ties)	Bartack machine	1
C2	19	<u>Vest</u> - buttonhole tie slot	Buttonhole machine	1

Nappy

Article 3245

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Overlock 3 edges of separate strip	3 thread overlock	504	1/8"	12	SSa-1	31"
2. Attach pocket to back	4 thread	514	3/16"	10		5 ³ / ₄ " x 2
3. Attach band all round and insert tab	3 thread interlock	406	3/16"	15	BSb-2	71"
4. Bar tack end of band	Bar tack					1/2"x1/16"

Mothercare had a similar garment for holding nappies but it was plastic

Babies vest

Article 401 - Size 1, 2

Size 2

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Shoulder join	3 thread overlock	504	1/8"	10	SSa-1	2 x 2 ¹ / ₂ "
2. Overlock sleeve hem	3 thread overlock	504	1/8"	16	EFd	2 x 5 ¹ / ₂ "
3. Join sleeve seam	3 thread overlock	504	1/8"	13	SSa-1	2 x 6 ³ / ₄ "
4. Sleeve set	3 thread overlock	504	1/8"	11	SSa-1	2 x 10"
5. Overlock edge of bodice all round and insert tab	3 thread overlock	504	1/8"	9	EFd	64 ¹ / ₂ "
6. Bar tack tie slot	Bar tack		3/4"x1/16"			
7. Overlock ties	3 thread overlock	504	3/16"	10	SSa-1	1 x 10 ¹ / ₂ " 1 x 12"
8. Attach ties	Lockstitch	301		11		

PRODUCTION LINE - STYLE 635, 426 AND 1425 (425)

Garment: Womens slip pants and short pants

Production rate: 6600 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	12	Attach gusset - 635 and 426	Three needle, five thread interlock machine, 5mm between outer needles. Differential feed. Stitch type 605. Seam type LSA-3	3
B	18	Picot elastic - 426	Special ornamental stitch machine	5
C	5	Attach elastic - 426 Attach leg bands - 635	Twin needle, three thread, 3.5mm needle gauge flat bed machine. Differential feed. Fitted with collarette cutting device and appropriate folder. Stitch type 406.	5
D	2	Join 1st side seam and insert tab - 635 and 426	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504. Seam type SSA-1 Attachment for fastening down beginning of seam.	4
E	6	Hem waist and insert elastic - 635 and 426	Twin needle, three thread interlock, elastic inserting machine. 4.5mm gauge. Stitch type 406. Seam type EFA-1 rev elas. Fitted with hemming folder	4
F	2	Join 2nd side seam	As above	4

Ladies panties

Article 426 - Size 46, 52

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach gusset	4 thread interlock	602	3/16"	9		1 x 10" 1 x 8 ¹ / ₄ "
2. Picot elastic	Cahin-stitch modified		3/16"	6 ¹ / ₂ zig zags		2 x 18 ¹ / ₂ "
3. Attach elastic to legs	4 thread intelock	602	1/8"	11	BSb-2	2 x 18 ¹ / ₂ "
4. Join left side seam and insert tab	3 thread overlock	504	1/8"	11	SSa-1	11"
5. Hem waist and insert elastic	Double locked stitch	401		11	EFf	37"
6. Join right side seam	3 thread overlock	504	1/8"	11	SSa-1	9 ³ / ₄ "

Size 52 waist is stitched with 406 BSb-2

Ladies patterned panties

Article 635 - Size 52, 46

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach gusset	4 thread interlock	602	1/8"	10		1 x 7 ¹ / ₂ " 1 x 9"
2. Attach leg band	3 thread interlock	406	1/8"	13	BSb-2	2 x 19"
3. Join left side seam and insert tab	3 thread overlock	504	1/8"	15	SSa-1	9 ¹ / ₂ "
4. Hem waist and attach elastic	Double lock stitch	401		12	Eft	34"
5. Join right side seam	3 thread overlock	406	1/8"	14	SSa-1	9"

PRODUCTION LINE - STYLE 185

Garment: Childrens slip pants

Production rate: 10,800 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	12	Gusset attach	Three needle, 5 thread interlock. Differential feed. 5mm between outer needles. Stitch type 605. Seam type LSA-3	4
B	5	Leg bands attach	Twin needle, three thread, 3.5mm needle gauge. Flat bed interlock machine. Differential feed. Stitch type 406. Seam type BSB-2. Complete with folder.	7
C	2	1st side seam, insert tab	Overlock, single straight needle, 3 thread machine, 3.3mm seam. Stitch type 504. Seam type SSA-1. With attachment for fastening down beginning of seam	4
D	14	Elasticate and hem waist	Twin needle, 3 thread cylinder bed interlock machine without top cover. Differential feed. 4.5mm needle gauge. Stitch type 406. Seam type EFA-2 rev.elas.	10
E	2	2nd side seam	As above	5
F	17	Bartack waist hem at 2nd side seam.	Bartack machine	3

Childrens knickers

Article 185 - Size 1, 3

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach gusset	3 thread interlock	406	1/8"	11		1 x 4 ¹ / ₄ " 1 x 6 ¹ / ₄ "
2. Attach leg bands	3 thread interlock	406	1/8"	11	BSb-2	2 x 12 ¹ / ₂ "
3. Join side seams and insert tab	3 thread overlock	504	1/8"	8	SSa-1	2 x 7 ¹ / ₄ "
4. Join elastic	Internal?					
5. Hem waist and insert elastic	3 thread interlock	406	3/16"	12	EFb-2	20"

Childrens patterned knickers

Article 187 - Size 1, 3

Size 3

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
*1. Attach gusset	4 thread interlock	602	1/8"	10		1 x 5 ³ / ₄ " 1 x 4 ³ / ₄ "
2. Attach leg bands	3 thread interlock	406	1/8"	11	BSb-2	2 x 13"
3. Join left side seam and insert tab	3 thread overlock	504	1/8"	10	SSa-1	7"
4. Hem and elasticate waist	Double lockstitch	401		13	FFt-2	21"
5. Join right side seam	3 thread overlock	504	1/8"	10	SSa-1	7 ¹ / ₂ "

* Size 3 - 3 thread interlock FSI 406

PRODUCTION LINE - STYLE 481

Garment: Mens short pants

Production rate: 4,800 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	5	Attach leg bands	Twin needle, 3 thread, 3.5mm needle gauge, flat bed machine. Differential feed. Fitted with collarette cutting device and appropriate folder. Stitch type 406	4
B	16	Hem fly	Lockstitch	6
C	1	Insert gusset)	Overlock, straight single needle, 3 thread, 3.3mm seam. Seam type SSa-1. Stitch type 504	8
C	2)	As No.1 with attachment for fastening down beginning of seam	5
D	16	Join fly	Lockstitch	6
E	8	Attach waist elastic	Three needle, four thread interlock machine for attaching elastic. Differential feed. 6.0mm between outer needles. Stitch type 407. Seam type LSA-3. Tape cutting device	3
F	2	Complete back seam	As above	4

Mens shorts

Article 480,481 - Size 38

Operation	Stitch type	FST	Gauge bite	SPI	Seam type	Seam length
1. Attach leg bands	3 thread interlock	406	3/16"	13	BSb-2	2 x 18
2. Hem fly	Lockstitch	301		18	FFa	2 x 10 ¹ / ₂ "
3. Insert gusset; part join back seam and insert tab	3 thread overlock	504	1/8"	12	SSa-1	30"
4. Join fly	Lockstitch	301		10		13 ¹ / ₂ "
5. Attach waist elastic	3 thread interlock	406	1/4"	13	LSa-2	25"
6. Complete back seam	3 thread overlock	504	1/9"	11	SSa-1	4"

PRODUCTION LINE - STYLE 484

Garment: Mens short pants

Production rate: 1050 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	5	Attach leg bands	Twin needle, 3 thread flat bed machine, 3.5mm needle gauge. Differential feed. Stitch type 406. Fitted with collarette cutting device and appropriate folder	2
B	1	Overlock under fly. Join top to right front.	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504. Seam type SSa-1	3
C	13	Attach binding to fly	Twin needle, four thread, double locked chain stitch. 12mm needle gauge. Without differential feed. Stitch type 401. Seam type LSd-2. Fitted with tensioning device and folder.	2
D		Close down top fly at waist	Lockstitch	1
E	2	Attach flys to back and join inside leg	Overlock, straight single needle, 3 thread 3.3mm seam, stitch type 504. Seam type SSa-1. Attachment for fastening down beginning of seam	3
F	15	Attach waist elastic	Twin needle, three chain stitch	2

Mens shorts

Article 484 - Size 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach leg bands	3 thread interlock	406	1/8"	11	BSb-2	2 x 16"
2. Overlock under fly	3 thread overlock	504	1/8"	9	EFd	8 ³ / ₄ "
3. Join top fly to right front	3 thread overlock	504	1/8"	13	SSa-1	8"
4. Attach binding over seam 3	Double lockstitch	401		10	SSag	8"
5. Attach binding to top fly	Double lockstitch	401		11	BSc	8"
6. Close down top fly at waist	Lockstitch	301		11		4"
7. Attach flys to back and join inside leg up to fly	3 thread overlock	504	1/8"	16	SSa-1	26"
8. Attach waist elastic	4 thread interlock	602	1/4"	13	LSa-2	34"

PRODUCTION LINE - STYLE 432

Garment: Womens short pants

Production rate: 2,400 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	6	Hem legs and insert elastic	Twin needle, three thread interlock, elastic inserting machine. 4.5mm needle gauge. Stitch type 406. Seam type EFa-1 rev. elas. Fitted with hemming folder.	3
B	2	Insert gusset, join inside) leg, back seam and insert) tab))))	Overlock, straight single needle, three thread. 3.3mm seam. Attachment for fastening down beginning of seam. Stitch type 504. Seam type SSa-1.	4
B	1)))	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504. Seam type SSa-1.	2
C	6	Hem waist and insert elastic	As above	2
D	2	Join front seam	As above	1

Ladies knickers

Article 432 - Size 46

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Hem leg and insert elastic	Double lockstitch	401		14	EFB-1	2 x 21
2. Attach gusset, join front seam, join back seam to 4" from waist and insert tab	3 thread overlock	504	1/8"	14	SSa-1	46"
3. Hem waist and insert elastic	3 thread interlock	406	1/8"	14	BSb-2	37"
4. Complete back seam to waist	3 thread overlock	504	1/8"	14	SSa-1	
5. Lockstitch reinforce backseam at waist	Lockstitch	301		12	SSa-1	

Waist could be sewn on round which would eliminate operations 4 and 5.
Elastic would have to be lockstitched joined first.

Ladies knickers

Article 432 - Size 52

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Hem legs and insert elastic	3 thread interlock	406	1/8"	12	EFa-2	
2. Insert gusset, join inside leg, back seam and insert tab	3 thread overlock	504	1/8"	10	SSa-1	
3. Hem waist and insert elastic	3 thread interlock	406	1/8"	12	FFa-2	
4. Join front seam	3 thread overlock	504	1/8"	14	SSa-1	

Mens shorts

Article 432 - Size 46 - only measures 42" round hip - size tab 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach leg bands	3 thread interlock	406	1/8"	13	BSb-2	2 x 19"
2. Insert gusset, join inside leg and back seam and insert tab	3 thread overlock	504	1/8"	12	SSa-1	34"
3. Hem and make fly	Lockstitch	301		9		2 x 12" 13"
4. Insert elastic and hem waist	3 thread interlock	406	3/16"	18	EFa-1	36"
5. Join waist elastic	inside					

PRODUCTION LINE - STYLE 171, 3191, 69 and 2206

Garment: mens long pants

Production rate: 2,500 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	11	Attach ankle bands	Three needle, five thread, interlock. 6mm between outer needles. Differential feed. Stitch type 605. Seam type LSA-3.	3
B	1	Overlock under fly	Overlock, straight single needle, 3 thread 3.3mm seam. Stitch type 504. Seam type SSA-1.	6
C		Hem top fly and make fly	Lockstitch	4
D	2	Attach gusset and join inside legs	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504. Seam type SSA-1. Attachment for fastening down beginning of seam	6
E	14	Hem waist and insert elastic-171.	Twin needle, three thread, cylinder bed interlock machine without top cover. Differential feed. 4.5mm needle gauge. Stitch type 406. Seam type EFa-2 rev.elas. With hem folder and elastic guides.	3
E	15	Attach waist band and insert tab - 391	Twin needle, three thread chain stitch	1
F	17	Bartack elastic at waist	Bartack machine	1

Mens long johns

Article 171 - Size 42, 38

Size 38"

Operation	Stitch type	FST	Guage/ bite	SPI	Seam type	Seam length
1. Attach ankle bands	4 thread	514	3/16"	14	LSb-2	2 x 11"
2. Overlock under fly	3 thread overlock	504	1/8"	9	EFd	12 ¹ / ₄ "
3. Hem top fly and make fly	Lockstitch	301		11	EFa	26 ¹ / ₂ "
4. Attach gusset, join inside leg and back seam	3 thread overlock	504	1/8"	11	SSa-1	81 ¹ / ₂ "
5. Join elastic	inside?					
6. Insert elastic and hem waist	3 thread interlock	406	1/4"	14	EFa-2	45"

Mens cream long johns

Article 3191 - Size 40

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach ankle bands	4 thread	514	1/4"	13	BSb-3	2 x 10 ¹ / ₂ "
2. Overlock under fly	3 thread overlock	504	1/8"	12	EFd	13"
3. Attach gusset and join inside leg	3 thread overlock	504	1/8"	12	SSa-1	74 ¹ / ₂ "
4. Hem top fly and flys	Lockstitch	501		9	22"	
*5. Attach waistband and insert tab	4 thread interlock	602	3/16"	12	39"	

* Possibly O/1 joined first

PRODUCTION LINE - STYLE 460 and 3096

Garment: Mens short sleeve vest

Production rate: 5,800 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	1	Left shoulder join	Overlock, straight single needle, 3 thread, 3.3mm seam. Seam type SSa-1. Stitch type 504.	2
B	4	Attach neck band and insert tab	Twin needle, three thread, 4.5mm needle gauge flat bed machine. Differential feed. Fitted with strap cutting device and appropriate folder	2
C	1	Right shoulder join	As above	2
D	4	Attach sleeve band - 3096	As above	3
D	10	Attach sleeve band - 460	Twin needle, four thread interlock, 4.5mm needle gauge. Differential feed. Collarlette folder and cutting device. Stitch type 602	3
E	2	Sleeve join	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504. Seam type SSa-1. Attachment for fastening down beginning of seam	9
F	1	Sleeve set	As above	8
G	3	Bottom hem	Overlock, single needle, 2 or 3 thread. 3.2mm seam. Fitted with swing out welting folder to permit use as normal overlock	4

Mens short sleeved vest

Article 460 - Size 38, 42

Size 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach neck band and insert tab	3 thread interlock	406	3/16"	14	BSb-2	23 ¹ / ₂ "
2. Attach cuff	4 thread interlock	602	3/16"	16	BSb-2	2 x 11"
3. Sleeve join	3 thread overlock	504	1/8"	11	SSa-1	2 x 8 ¹ / ₂ "
4. Shoulder join	3 thread overlock	504	1/8"	12	SSa-1	2 x 5 ¹ / ₂ "
5. Sleeve set	3 thread overlock	504	1/8"	11	SSa-1	2 x 17"
6. Bottom hem	3 thread overedge	504	1/8"	7	EF1	35

Short sleeve cream vest

Article 3096 - Size 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Left shoulder join	3 thread overlock	504	1/16"	10	SSa-1	5 ³ / ₄ "
2. Attach neck band and insert tab	3 thread interlock	406	3/16"	10	BSb-2	11 ¹ / ₂ "
3. Right shoulder join	3 thread overlock	504	1/8"	14	SSa-1	5 ³ / ₄ "
4. Attach sleeve band	3 thread interlock	406	3/16"	12	BSb-2	2 x 11"
5. Sleeve join	3 thread overlock	504	1/16"	12	SSa-1	2 x 8 ³ / ₄ "
6. Sleeve set	3 thread overlock	504	1/8"	15	SSa-1	2 x 18"
7. Bottom hem	3 thread overlock	504	1/8"	10	EFa	37"

PRODUCTION LINE - STYLE 95, 3095 and 60

Garment: Mens long sleeve vest

Production rate: 1,700 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	1	Left shoulder join	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504. Seam type SSa-1	1/2*
B	4	Attach neck band and insert tab	Twin needle, three thread, 4.5mm needle gauge flat bed machine. Differential feed. Fitted with strap cutting device and appropriate folder	2
C	1	Right shoulder join	As above	1/2*
D	11	Attach wrist band	Three needle, five thread interlock, 6mm between outer needles. Differential feed. Stitch type 605. Seam type LSA-3	2
E	2	Sleeve join	Overlock, straight single needle, 3 thread, 3.3mm seam. Attachment for fastening down beginning of seam. Stitch type 504. Seam type SSa-1	4
F	1	Sleeve set	As above	3
G	3	Bottom hem	Overlock, single needle, 2 or 3 thread, 3.2mm seam. Fitted with swing out welting folder to permit use as normal overlock	2

* Left and right shoulder join done at same machine

Mens white long sleeved vest

Article 94 - Size 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Left shoulder join	3 thread overlock	504	1/8"	11	SSa-1	5 ³ / ₄ "
2. Attach neckband and insert tab	3 thread interlock	406	3/16"	11	BSb-2	20 ¹ / ₂ "
3. Right shoulder join	3 thread overlock	504	1/8"	10	SSa-1	5 ³ / ₄ "
4. Wrist band attach	4 thread	514	1/4"	12	BSb-2	2 x 10"
5. Sleeve join	3 thread overlock	504	1/8"	10	SSa-1	2 x 20 ¹ / ₂ "
6. Sleeve set	3 thread overlock	504	1/8"	11	SSa-1	2 x 17 ¹ / ₂ "
7. Bottom hem	3 thread overlock	504	1/8"	6	EFa	33"

Long sleeve cream vest

Article 3095 - Size 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Left shoulder join	3 thread overlock	504	1/8"	16	SSa-1	6 ¹ / ₂ "
2. Attach neck band and insert tab	3 thread interlock	406	3/16"	11	BSb-2	19"
3. Right shoulder seam	3 thread overlock	504	1/8"	13	SSa-1	6 ¹ / ₂ "
4. Attach sleeve band	4 thread	514	1/4"	16	BSb-3	2 x 9 ¹ / ₂ "
5. Sleeve join	3 thread overlock	504	1/8"	14	SSa-1	2 x 19 ¹ / ₂ "
6. Sleeve set	3 thread overlock	504	1/8"	14	SSa-1	2 x 18"
7. Bottom hem	3 thread overlock	504	1/8"	10	EFa	35"

PRODUCTION LINE - STYLE 196

Garment: Mens slip pants

Production rate: 3,800 per 8 hours

Operation sequence	Machine type	Operation		No. of machines
A	4	Bind fly	Twin needle, three thread, 4.5mm needle gauge flat bed machine. Differential feed. Fitted with strap cutting device and appropriate folder. Stitch type 406	3
B	16	Join fly	Lockstitch	3
C	11	Join back and front at crutch	Three needle, five thread interlock. 6mm between outer needles. Differential feed. Stitch type 605. Seam type LSA-3	2
D	4	Bind legs	As above	3
E	2	Join side seams and insert tab	Overlock, straight single needle, 3 thread, 3.3mm seam. Attachment for fastening down beginning of seam. Stitch type 504. Seam type SSA-1	4
F	1	Attach waist elastic	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504. Seam type SSA-1	2
G	15	Cover stitch elastic	Twin needle. 3 thread chain stitch	7

Mens briefs

Article 196 - Size 38, 42

Size 38"

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Bind fly	Double lock stitch	401		11	BSc-1	2 x 10 ¹ / ₂ "
2. Join fly	Lock stitch	301		10		
3. Join back and front at crutch	4 thread interlock	602	1/8"	10	LSb-2	4"
4. Bind legs	3 thread interlock	406	3/16"	13	BSb-2	6"
5. Join side seam and and insert tab in left	3 thread overlock	504	1/16"	10	SSa-1	2 x 6 ¹ / ₂ "
6. Attach waist elastic	3 thread overlock	504	3/16"	Hidden	SSa-1	35"
7. Coverstitch elastic	4 thread interlock	602	1/4"	16		35"

PRODUCTION LINE - STYLE 4280, 192 and 200

Garment: Mens and womens sleeveless vest

Production rate: 8,200 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	1	Join shoulder seams - 192 and 200	Overlock, straight single needle 3 thread, 3.3mm seam. Stitch type 504. Seam type SSa-1	6
B	4	Attach band to armhole and neck, and insert tab - 200	Twin needle, three thread, 4.5mm needle gauge flat bed machine. Differential feed. Fitted with strap cutting device and appropriate folder. Stitch type 406	2
B	5	Attach band to armhole and neck, and insert tab - 192 and 4280	Twin needle, 3 thread, 3.5mm needle gauge flat bed machine. Differential feed. Fitted with colarette cutting device and appropriate folder. Stitch type 406	13
C	17	Bartack band at neck and underarm joins	Bartack with knife	8
D	3	Bottom hem - 200	Overlock single needle, 2 or 3 thread, for blind stitch welting. 3.2mm seam. Fitted with swing-out welding folder	1
D	7	Bottom hem - 4280 and 192	Twin needle, 3 thread interlock machine Differential feed. 4.5mm needle gauge. Fitted with adjustable edge guide stitch type 406. Seam type EFa-2rev.	4

Ladies sleeveless vest

Article 4280 - Size 34, 38, 40

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach band to armhole armhole and neck and insert tab	4 thread interlock	602	3/16"	8	BSb-2	36" 2 x 20"
2. Bartack reinforce band on neck and at under- arm - 3	Bar tack		1/2"x1/16"			
3.* Bottom hem	4 thread	514	1/4"	8	EFa	35"

* Size 38 - bottom hem 3 thread overlock FST504 1/8" bite 6 SPI

Mens sleeveless vests

Article 192 - Size 40, 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Join shoulder seams	3 thread overlock	504	1/8"	10	SSa-1	2 x 1"3/4"
2. Attach band to neck & armholes and insert tab	3 thread interlock	406	3/16"	11	BSb-2	31"
3. Bottom hem	3 thread interlock	406	3/16"	16	EFa-2	27 1/2"
4. Bar tack neck and arm- armhole bands at joins - 3	Bar tack		3/8" x 3/16"			

Mens sleeveless vest

Article 200 - Size 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Shoulder join	3 thread overlock	504	1/8"	13	SSa-1	2 x 13/4"
2. Attach neck and armhole bands	3 thread interlock	406	1/8"	11	BSb-2	1 x 10 ¹ / ₂ " 1 x 11 ¹ / ₂ " 1 x 29"
3. Tack neck and armhole bands -3	Lockstitch	301		12		
4. Bottom hem	3 thread overlock	504	1/8"	10		26 ¹ / ₂ "

PRODUCTION LINE - STYLE 132

Garment: Womens short sleeve vest

Production rate: 720 per 8 hours

Operation sequence	Machine type	Operation	No. of machines
A	10	Attach cuff	1
		Twin needle, four thread interlock 4,5mm needle gauge. Differential feed. Collarette folder and cutting device Stitch type 602	
B	2	Sleeve join	1
		Overlock, straight single needle, 3 thread 3.3mm seam. Attachment for fastening down beginning of seam. Stitch type 504. Seam type SSa-1	
C	1	Shoulder join and sleeve insert	1
		Overlock, straight single needle, 3 thread 3.3mm seam. Stitch type 504. Seam type SSa-1	
D		Buttonhole front neck	1
		Buttonhole machine	
E	7	Hem neck and insert tab	1
		Twin needle, three thread interlock. Differential feed. 4.5mm needle gauge. Fitted with adjustable edge guide. Stitch type 406. Seam type EFa-2 rev.	
F	18	Picot neck edge	1
		Special machine	
G	3	Bottom hem	1
		Overlock, single needle, 2 or 3 thread, 3.2mm seam. Fitted with swing out welting folder to permit use as a normal machine	
		Insert draw string	

Ladies short sleeve, drawstring neck vest

Article 132 - Size 38

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
1. Attach cuff	4 thread interlock	602	3/16"	11	BSb-2	2 x 11"
2. Join sleeve	3 thread overlock	504	1/8"	9	SSa-1	2 x 8"
3. Shoulder join	3 thread overlock	504	1/8"	12	SSa-1	2 x 5 ³ / ₄ "
4. Hem neck and insert tab	4 thread interlock	602	3/16"	11	EFa-2	31"
5. Picot	Chain stitch modified		3/16"	5		31"
6. Insert neck draw string						
7. Hem bottom	3 thread overlock	504	1/8"	9	EFa-1	37"
8. Insert sleeve	3 thread overlock	504	1/8"	14	SSa-1	2 x 16"

PRODUCTION LINE - STYLE 180

Garment: Childrens sleeveless vest

Production rate: 6,100 per 8 hours

Operation sequence	Machine type	Operation	Machine description	No. of machines
A	1	Shoulder join	Overlock, straight single needle, 3 thread, 3.3mm seam. Stitch type 504. Seam type 5Sa-1	4
B	2	Join side seam	Overlock, straight single needle, 3 thread, 3.3mm seam. Attachment for fastening down beginning of seam. Stitch type 504. Seam type 5Sa-1	8
C	9	Attach band to neck and armholes and insert tabs	Twin needle, 4 thread interlock. Differential feed. 3.5mm needle gauge. Collarette folder and cutting device	10
D		Bartack band at neck and underarm joins	Bartack with knife	2
E	3	Bottom hem	Overlock, single needle, 2 or 3 thread. 3.2mm seam. Fitted with swing out welting folder to permit use as normal overlock	3

Childrens sleeveless vest

Article 180 - Size 1, 3, 5, 7

Operation	Stitch type	FST	Gauge/ bite	SPI	Seam type	Seam length
* 1. Join shoulder and side seams	3 thread overlock	504	1/8"	11	SSa-1	2 x 1 1/2"
2. Attach band to neck and armholes and insert tab	3 thread interlock	406	3/16"	11	BSb-2	2 x 16 1/2" 1 x 28"
3. Bottom hem	3 thread interlock	406	3/16"	16	EFa-2	24"
**4a Bar tack neck and armhole bands at joins - 3	Bar tack		3/8"x1/16"			
or **4b Reinforce band joins at shoulder and underarm	Lockstitch	301		9		

* Size 1 not joined at shoulders
Size 5 and 7 no side seams

** Size 3 only lockstitched
Size 5 and 7 only bartacked
Size 1 not reinforced