

# Operation Sequence and Production Technologies in Intimate Apparels

Aiswarya V Mohan, S Praveena

M-Tech Apparel Technology, Department of Fashion Technology, Kumaraguru College of Technology, Saravanampatti

**Abstract:-** To meet the growing needs of intimate apparels, understanding the operation sequence starting from raw material procurement and innovative production technologies grounds the major role. Even fiber, yarn and fabric properties are cross checked before fitting it into the appropriate intimate apparel category. Perfectly chosen raw material completes the first phase followed by the second phase of engineering innovative production technology based on design type, quality and quantity. Basic intimate apparels includes brief, lingerie, vest and their operation sequence, production technology are included with this paper.

**Keywords:-** Intimate Apparels, Innovative, Operation Sequence, Production Technology, Brief, Lingerie, Vest.

## I. INTRODUCTION

Knit is a very generic term that covers a wide range of products for a wider array of applications. A world without knits will be a very dull and less comfortable world. Intimate apparels are produced from either the warp knitted or weft knitted fabrics. Intimate apparels are the ones which are worn next to skin or under the clothing. Since it has a direct contact with human skin, it is known as second skin. The manufacturing of intimate apparels stands in the

highest position in overall apparel industry. For meeting the needs of customer's expectation about intimate apparels, keen concentration should be given from the raw material selection, operation sequence and production technology. Basics for the production of intimate apparels namely, Men's brief, Lingerie, Men's Vest are mentioned in this paper.

## II. FABRIC REQUIREMENTS FOR INTIMATE APPAREL

The intimate apparel industries have seen a lot of innovations in terms of fabric. Initially for the production of under garments, cotton was preferably used. However with the advancements and innovated technologies polyester, nylon, modal, rayon, silk, bamboo etc were brought into application.

In weft knitting purl and interlock fabrics leads the intimate apparel production because of its extremely stable with no tendency to curl structure. It's elastic and extended form counts to the properties of intimate apparels. The ones knitted in soft cotton yarns is widely used in men's under wear and leisure wear. Weight and areal density are the major fabric requirement for intimate apparels. The GSM of selected fabric normally range between 150 and 200.

Type	Structure	GSM	Shrinkage Allowance	Yarn Count
Vest(sleeveless)	Interlock(min 36 courses/inch)	145 and above	10% to 15%	40s 100% combed cotton yarn
Vest(half sleeve)	Interlock(min 36 courses/inch)	145 and above	10% to 15%	40s 100% combed cotton yarn
Brief(full)	(a)Single Jersey Knit (b) Interlock(min 36 courses/inch)	125 and above	10% to 15%	40s 100% combed cotton yarn
Brief (half)	(a)Single Jersey Knit (b) Interlock(min 36 courses/inch) (c)Double Ribbed	125 and above	10% to 15%	40s 100% combed cotton yarn
Lingerie	(a)Interlock (b)Single Jersey	140 for light weight 200 for medium weight knit and 285 for supportive bra cups.	10% to 15%	Depends on the enduse

Table 1:- Fabric Requirements of Intimate Apparels

### III. OPERATION SEQUENCE AND PRODUCTION TECHNIQUES

➤ *Men's Brief:*

These are type of short, snug underwear having different styles with the waist band attached to fabric.

• *Types of Briefs:*

- ✓ Boxers-under wear for more breathability
- ✓ Boxer brief - combination of boxers and briefs
- ✓ Trunks – A kind of Men's undergarment
- ✓ Brief – best underwear for men

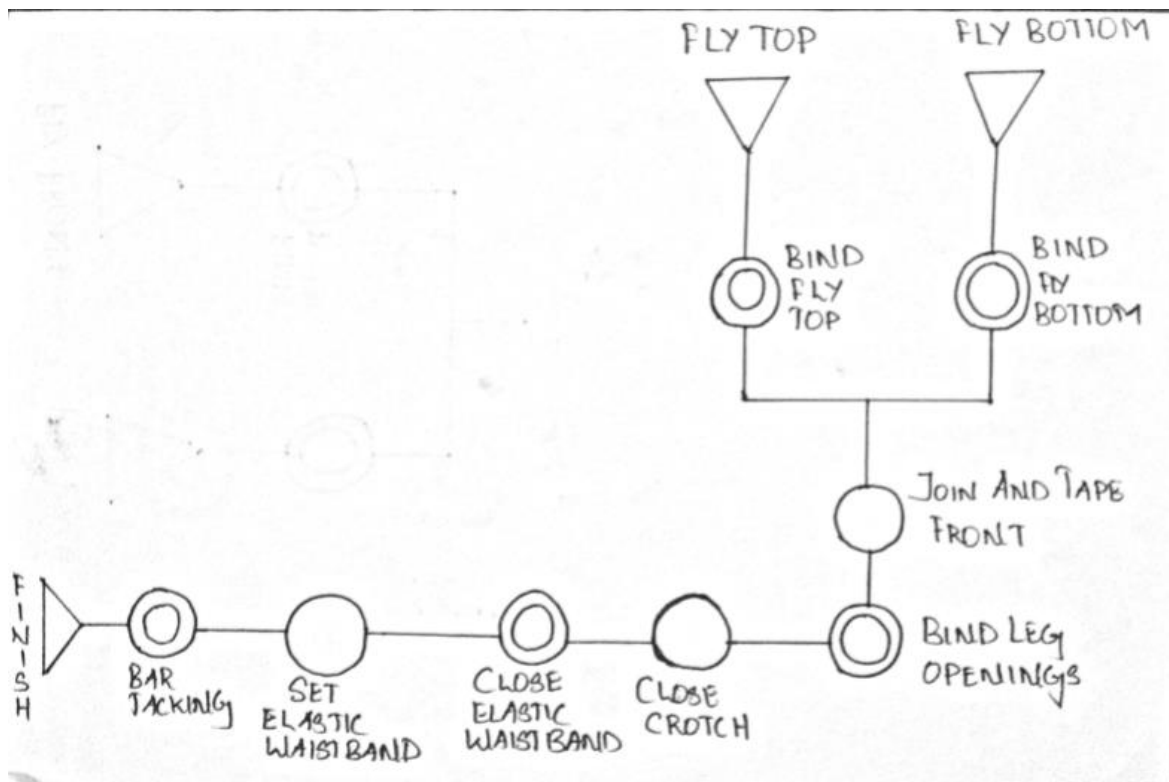


Fig 1:- Operation flow chart for men's brief

OP	Sewing Process	Stitches	Machine
1	Bind Fly Panels	406 cover stitch	4TOL
2	Join & Tape Front	410 cover stitch	4TOL
3	Bind Leg Openings	406 cover stitch	4TOL
4	Close Crotch	607 cover stitch	5TOL
5	Close Elastic Waistband	607 cover stitch	5TOL
6	Set Elastic Waistband	407 cover stitch	4TOL
7	Set Label to WB	301 lock stitch	3TOL
8	Bartack	Bat tack	BARTACKING

Table 2:- Sewing process, Stitches and Machines for men's brief

**Full Name of the Sewing Machine**

- 3TOL: 3thread over lock stitch
- 4TOL: 4thread over lock stitch
- 5TOL: 5thread over lock stitch

Normally, for the manufacturing of men's brief cut and sews method is followed. Reputed brands prefer seamless technology for its production. In cut and sew method, the knitted fabric will be undergone patterning cutting and sewing. Whereas for the later the seamless

machine gives whole garment as output and the additional job to be done is waist band strip fusing.

➤ *Lingerie:*

Lingerie is commonly used under garment for women. It includes night wear and light weight bathing suits. They are basically fancy, light weight and smooth ones made of silk, cotton nylon and polyester based fibers.

• *Types of Lingerie:*

- ✓ Baby Doll – Short loose fitted night gown
- ✓ Basque – tight, form fitting bodice
- ✓ Bloomers – baggy underwear till knee
- ✓ Bodystocking – unitard
- ✓ Bodice – covers body from neck to waist
- ✓ Brassiere – close fitting garment(bra)
- ✓ Bustier - form fitting garment
- ✓ Camisole – It covers top body and they are normally sleeveless ones
- ✓ Chemise – one piece garment

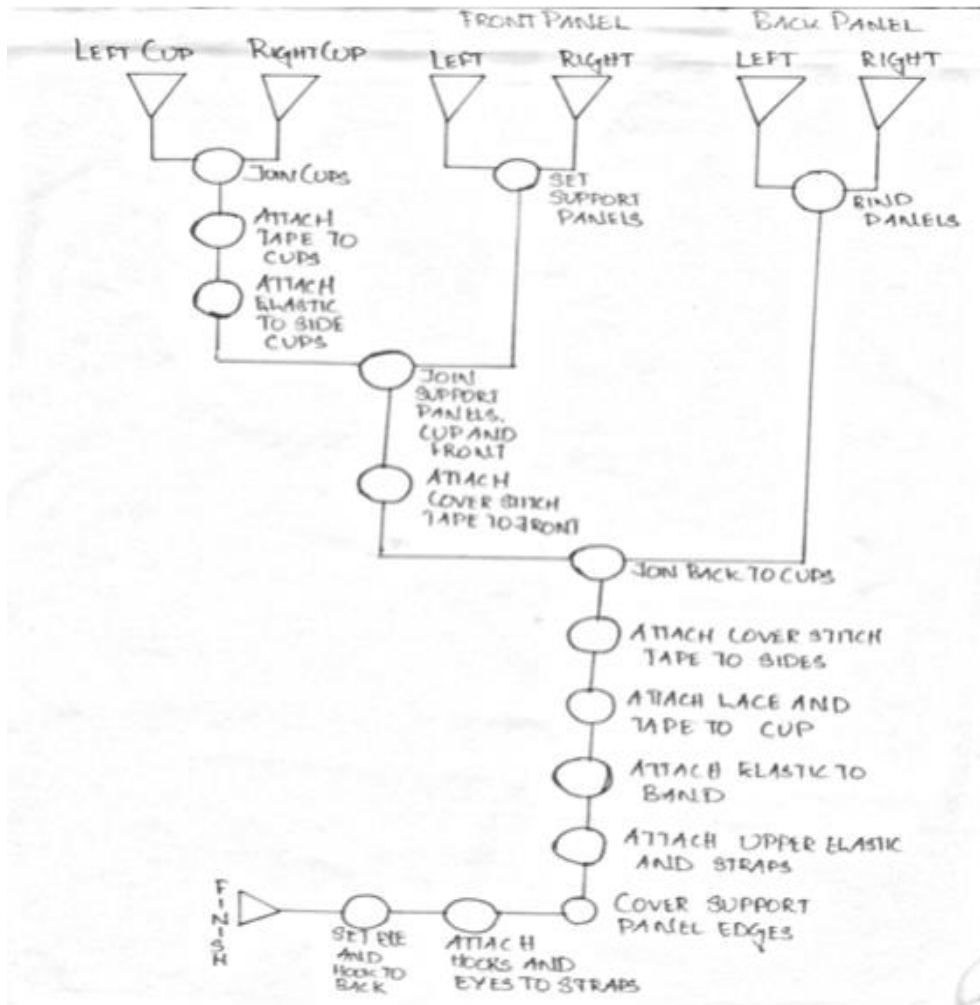


Fig 2:- Operation flow chart for lingerie

OP	SEWING PROCESS	SAM	MACHINE
1	Join Cups	0.57	SNLS
2	Attach Tape to Cups	0.73	DNLS
3	attach Elastic to side cups	0.44	3SZZ
4	Set support Panels	0.39	SNLS
5	Serge support panels	0.62	3TOL
6	Join support panels, cup and front	1.52	SNLS
7	Attach coverstitch tape to front	0.61	DNLS
8	Join backs to cups	0.55	SNLS
9	Attach coverstitch tape to sides	0.47	DNLS
10	Attach lace and tape to cups	0.76	DNLS
11	Attach elastic to band	0.90	ZZ
12	Attach upper elastic & straps	0.91	3SZZ
13	Cover support panels edges	0.54	3TOL

14	Attach hooks and eyes to straps	1.39	SNLS
15	Set eye to back	0.36	ZZ
16	Set hook to back	0.50	SNLS
17	Attach trimming to front	0.25	SNLS
18	Trim thread and inspect	1.00	MAN
	Total SAM	12.51	

Table 3:- Sewing process, Stitches and Machines for lingerie

**Full Name of the Sewing Machine**

- SNLS: Single Needle Lock Stitch machine
- DNLS: Double Needle Lock stitch machine
- 3TOL: 3 thread over lock
- ZZ: Zig -zag sewing machine
- MAN: Manual work

➤ *Recent Developments:*

Invention of ‘Bra Ring Machine’ had made a drastic development in the lingerie production. The production speed ranges from 45 to 90 pieces per min with adjustable feeding length and radius of ring. ‘Bra Wires Bending and Cutting Machine’ easily helps to operate and adjust the arcs and shapes of bra wires. ‘Fabric Bra Cup Molding Machine’ helps in molding different types of fabric bra

cups by the method of thermal pressing using bullet head moulds. A seamless sewing technology is used by ‘Ultrasonic Bra Strap Welding Machine’ to create wireless welding for straps and to smooth the joins.

➤ *Men’s Vest:*

Men’s vest is intimate apparel worn underneath a shirt to protect body from sweat and odour. It may either come in short sleeves or in sleeveless.

• *Types of Men’s Vest:*

- ✓ A-Shirt – athletic shirt
- ✓ T-shirt – short sleeved crew necked collarless shirts

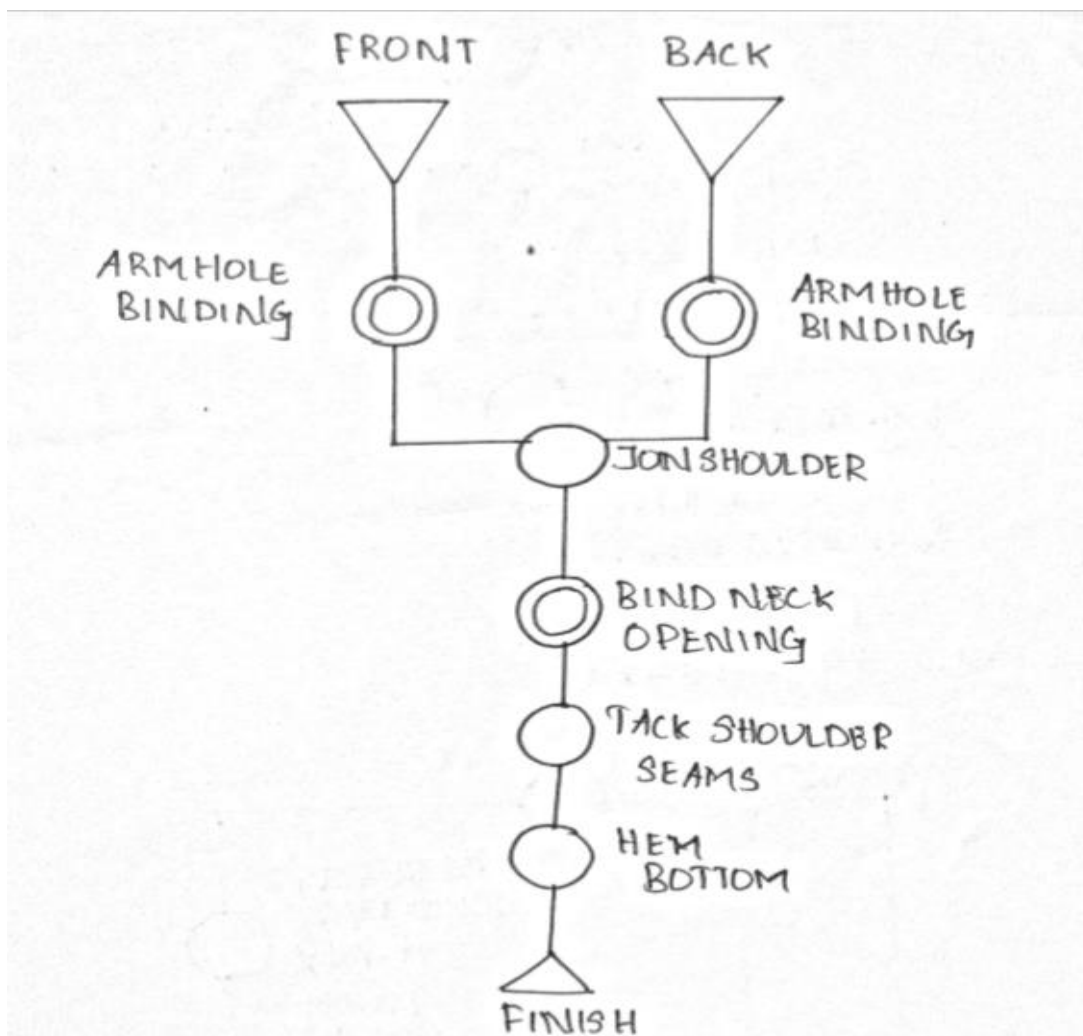


Fig 3:- Operation flow chart for men’s vest

OP	Sewing Process	Stitches	Machine
1	Bind Left Armhole	406 cover stitch	4TOL
2	Join Left Shoulder	504 edge stitch	OES
3	Bind Neck Opening	406 cover stitch	4TOL
4	Bind Right Armhole	406 cover stitch	4TOL
5	Close Right Shoulder	504 edge stitch	OES
6	Tack Shoulder Seams	Bar tack	BARTACKING
7	Hem Bottom	406 cover stitch	4TOL

Table 4:- Sewing process, Stitches and Machines for men's vest

**Full Name of the Sewing Machine**

OES: Over Edge Stitch machine

4TOL: 4thread over lock

**IV. CONCLUSION**

Brief's, lingerie and vest are the top intimate apparels that get produced and sold in the world wide apparel markets. They are available in various styles, attractive colors, price categories under the name of different brands. The selection of technology for each one depends upon the production quantity and buyer needs even though the basic operation sequence remains constant.

**REFERENCES**

- [1]. [www.onlineclothingstudy.com](http://www.onlineclothingstudy.com)
- [2]. Dibyendu B D. 'A REVIEW OF MEN'S UNDERWEAR STYLES AND ITS VARIOUS FABRICS'. Trends in textile and fash design 2(2)-2018.LTFD.MS.ID.000134.
- [3]. Terry Brackenbury, Knitted Clothing Technology.
- [4]. [www.wikipedia.com](http://www.wikipedia.com)