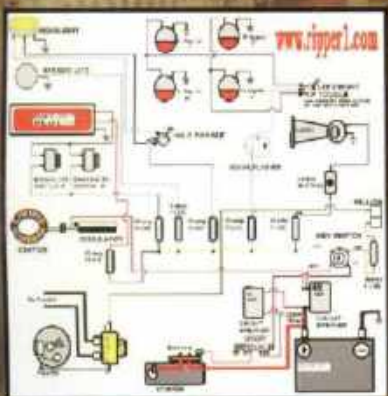


BASIC TRAINING

ATC PROGRAMME



METAL, ELECTRICAL and AUTO TRADES

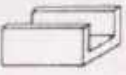
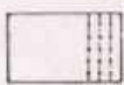

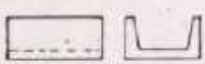

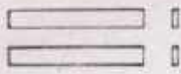
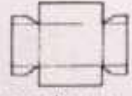
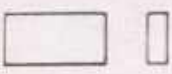








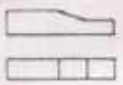

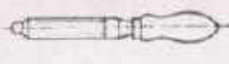
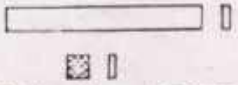
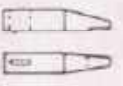
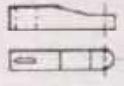
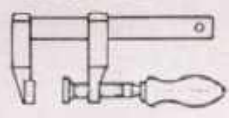
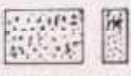

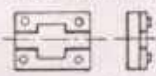
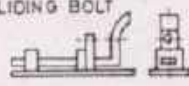



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GOVERNMENT OF THE PUNJAB
TECHNICAL EDUCATION & VOCATIONAL TRAINING AUTHORITY
TRADE TESTING CELL, LAHORE.



Price Rs. 40/-

<p>FILING EXERCISE I</p>  <p>Flat filing.</p> <p>1 → 4</p>	<p>MARKING EXERCISE</p>  <p>Flat filing, marking & centre punching</p> <p>2 → 5</p>	<p>STRETCHING EXERCISE</p>  <p>Filing, marking & hammering</p> <p>3</p>	<p>FILING EXERCISE II</p>  <p>Flat and square filing</p> <p>1 → 4 → 26</p>
<p>SAWING EXERCISE</p>  <p>Sawing, square filing.</p> <p>2 → 5 → 10</p>	<p>FOR INSIDE CALIPER</p>  <p>Special filing operations</p> <p>6 → 15</p>	<p>FOR SHEET-METAL BOX</p>  <p>Marking, shearing, filing.</p> <p>7 → 16</p>	<p>FOR DRILLING EXERCISE</p>  <p>Smooth filing acc. to given dimensions.</p> <p>8 → 13</p>
<p>FOR RIVETING EXERCISE</p>  <p>Filing.</p> <p>9 → 14</p>	<p>CHIPPING EXERCISE</p>  <p>Cross and flat chiselling.</p> <p>5 → 10 → 12</p>	<p>FIXED JAW</p>  <p>Marking, chiselling, radius filing.</p> <p>11 → 21</p>	<p>CHIPPING EXERCISE</p>  <p>Groove chiselling, chisel regrinding.</p> <p>10 → 12</p>
<p>DRILLING EXERCISE</p>  <p>Marking, drilling, drill regrinding.</p> <p>8 → 13 → 18</p>	<p>RIVETING EXERCISE</p>  <p>Marking, drilling, riveting.</p> <p>9 → 14</p>	<p>INSIDE CALIPER</p>  <p>Filing acc. to marking lines, assembling.</p> <p>6 → 15</p>	<p>SHEET-METAL BOX</p>  <p>Sheet-metal bending and folding.</p> <p>7 → 16</p>
<p>MOVEABLE JAW</p>  <p>Filing.</p> <p>17 → 22</p>	<p>DRILLING EXERCISE</p>  <p>Counter-boring, reaming, thread cutting.</p> <p>13 → 18</p>	<p>SPINDLE</p>  <p>External thread cutting, form filing.</p> <p>19 → 23</p>	<p>SLIDING BAR</p>  <p>Radius filing, stamping, notch filing.</p> <p>20 → 23</p>
<p>FIXED JAW</p>  <p>Slot filing.</p> <p>11 → 21 → 23</p>	<p>MOVEABLE JAW</p>  <p>Filing.</p> <p>17 → 22 → 23</p>	<p>SCREW CLAMP</p>  <p>Assembling.</p> <p>19, 20 → 23 → 22, 21</p>	<p>SCRAPING EXERCISE</p>  <p>Flat, square and parallel scraping.</p> <p>24 → 26</p>
<p>MARKING GAUGE</p>  <p>Assembling.</p> <p>25</p>	<p>FITTING EXERCISE</p>  <p>Fitting.</p> <p>4, 24 → 26</p>	<p>SLIDING BOLT</p>  <p>Assembling.</p> <p>27 → 27, 1</p>	<p>PARALLEL CLAMP</p>  <p>TEST</p>

BASIC TRAINING

LAY OUT

No. 1.0.1

BASIC FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME

MATERIAL REQUIRED

Basic Training

Fitting No. 1.0.1	Exercise No. (Length given in millimeter)													Test	Length per trainee	Total length for a batch of 16 trainees		
	1	2	3	6	7	8	9	11	17	19	20	24	25				27	
M/S Channel 75 x 38 mm (3" x 1 1/2")	100																100 mm	1,7 meter
M/S Flat 60 x 15 mm (2 1/2" x 5/8")		95				82						82	42	45			360 mm	5,8 meter
M/S Flat 50 x 5 mm (2" x 3/16")							410						162	152			750 mm	12 meter
M/S Flat 25 x 6 mm (1" x 1/4")										250				175			425 mm	7 meter
M/S Square 20 mm (3/4")										103	103						395 mm	6,5 meter
M/S Sheet 2,5 mm (S.W.G. 12)			25 x 173	25 x 173													25 x 510 mm	1/4 meter ²
M/S Sheet 1,0 mm (S.W.G. 19)						132 x 162											132 x 162 mm	1/2 meter ²
M/S Round 12 mm (1/2")										190							400 mm	6,5 meter



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME

MATERIAL REQUIRED

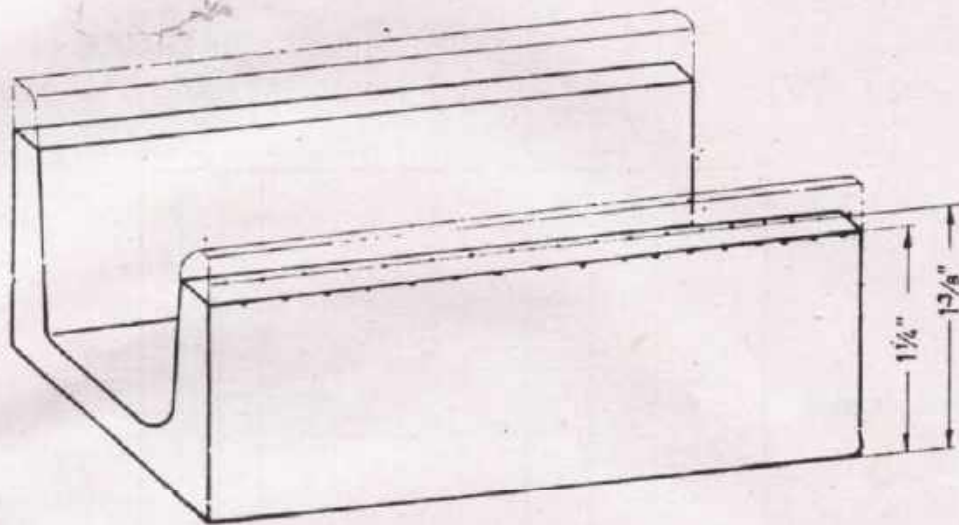
Basic Training

Fitting No. 1.0.1	Exercise No. (Quantity given in Numbers)											Test	Total Nos. per trainee	Total numbers for a batch of 15 trainees		
	14	15	16	19	23	25	26	26	26	26	26					
M/S Rivet (Round head) ϕ 5 x 21mm (3/16 x 7/8)	8														8	144
M/S Rivet (Round head) ϕ 5 x 19 mm (3/16 x 3/4)	2														2	40
M/S Rivet with Shank (Caliper) ϕ 6 x 12 x ϕ 19 mm	1														1	20
M/S Washer ϕ 19 x 2 mm (bore 5 mm)	1														1	20
M/S Rivet (Round head) ϕ 3 x 7 mm (1/8 x 1/4)		4													4	80
M/S Pins ϕ 3 x 20 mm				1	2										3	50
Hard wooden handle 4 inch (std. size)				1											1	20
M/S Cheese head screw M 4 x 10 mm (std. size)					2										2	40
M/S Rivet (Round head) ϕ 5 x 12.5 mm					1										1	20
M/S Wingnut with washer M 10 (std. size)										1					1	18
M/S Cheese head screw M 10 x 26 mm (std. size)										1					1	18
M/S Cheese head screw M 5 x 12 mm (std. size)											4				4	80
M/S Pins ϕ 4 x 20 mm												4			4	80
M/S Pins ϕ 4 x 40 mm														2	2	36



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME



SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1		FLAT FILE 300 x 1 STRAIGHT BAR	FLAT FILING UPTO 1st MARKING LINE
2		FLAT FILE 300 x 1 STRAIGHT BAR	FLAT FILING UPTO 2nd MARKING LINE
3		FLAT FILE 300 x 1 STRAIGHT BAR	FLAT FILING OF BASE SURFACE

SCALE 1:1

MAT.: ST. 37-1

FILING EXERCISE

NO:- 1.0.1/01

BASIC/FITTING

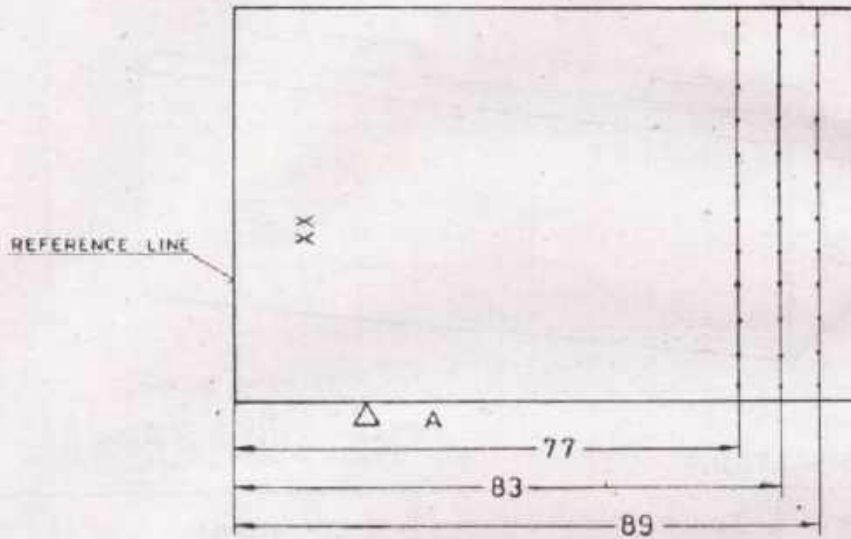


DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING


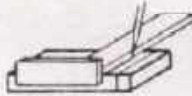
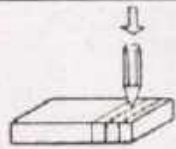
FAK-GERMAN TECHNICAL TRAINING PROGRAMME

TOLERANCE +1

~ (▽)



SEQUENCE OF OPERATIONS

NO	Symbol	Tools	Descriptions
1		FLAT FILE 250 x 1 STRAIGHT BAR	FLAT FILING OF SURFACE 'A'
2		BACK SQUARE SCRIBER STEEL RULE	MARKING OF 'REFERENCE LINE' MARKING OF 'DISTANCE LINES'
3		CENTRE PUNCH HAND HAMMER 250 g	CENTRE PUNCHING OF DISTANCE LINES

SCALE 1 : 1

MAT : ST. 37-1

MARKING EXERCISE

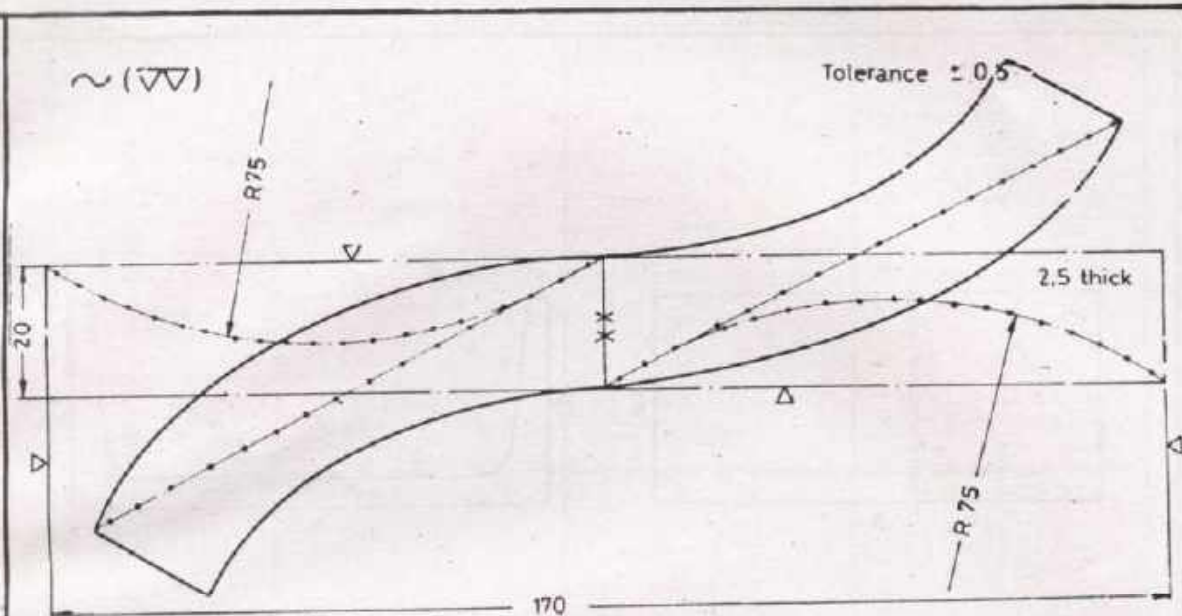
NO :- 1.01/02

BASIC/FITTING









DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME



SEQUENCE OF OPERATIONS

No.	Symbol	Tools	Descriptions
1		FLAT FILE 300 x 1 STRAIGHT BAR	FLAT FILING OF 1st LONGITUDINAL SIDE
2		BACK SQUARE STRAIGHT BAR SCRIBER STEEL RULE	MARKING OF OUTER DIMENSIONS
3		FLAT FILE 300 x 1; 150 x 1	FILING OF OUTER SURFACES ACC. TO MARKING LINES
4		SCRIBER BACK SQUARE DIVIDER WOODEN BOARD	MARKING OF MIDDLE LINE AND RADII
5		CENTRE PUNCH HAND HAMMER 250 g	CENTRE PUNCHING OF RADII
6		HAND HAMMER STRAIGHTENING PLATE STRAIGHT BAR	CURVING OF THE MATERIAL
7		REPEAT OPERATION 6 ON THE 2nd HALF OF THE WORKPIECE. DON'T USE FILES FOR CORRECTION AFTER HAMMERING!	

SCALE 1:1

MAT. MILD STEEL

STRETCHING EXERCISE

No. 1.0.1/03

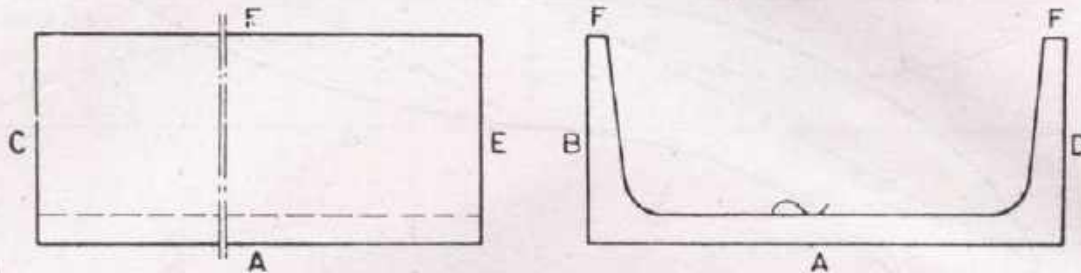
BASIC FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME

▽(≈)



SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1		FLAT FILE 300x1; 250x1 TRY SQUARE	FLAT- AND SQUARE FILING OF 1st FLANGE 'B'. BASE SURFACE 'A' = REFERENCE SURFACE.
2		FLAT FILE 250x1; 200x1 TRY SQUARE WOODEN BLOCK VICE CLAMPS	FLAT- AND SQUARE FILING OF 1st FACE 'C'. REFERENCE SURFACE = A & B.
3		FLAT FILE 300x1; 250x1 TRY SQUARE VICE CLAMPS	FLAT- AND SQUARE FILING OF 2nd FLANGE 'D'.
4		FLAT FILE 250x1; 200x1 TRY SQUARE WOODEN BLOCK VICE CLAMPS	FLAT- AND SQUARE FILING OF 2nd FACE 'E'.
5		FLAT FILE 300x1; 250x1 TRY SQUARE VICE CLAMPS	FLAT- AND SQUARE FILING OF FLANGES 'F'

SCALE 1:1

MAT of Ex 01

FILING EXERCISE II

NO:-10104

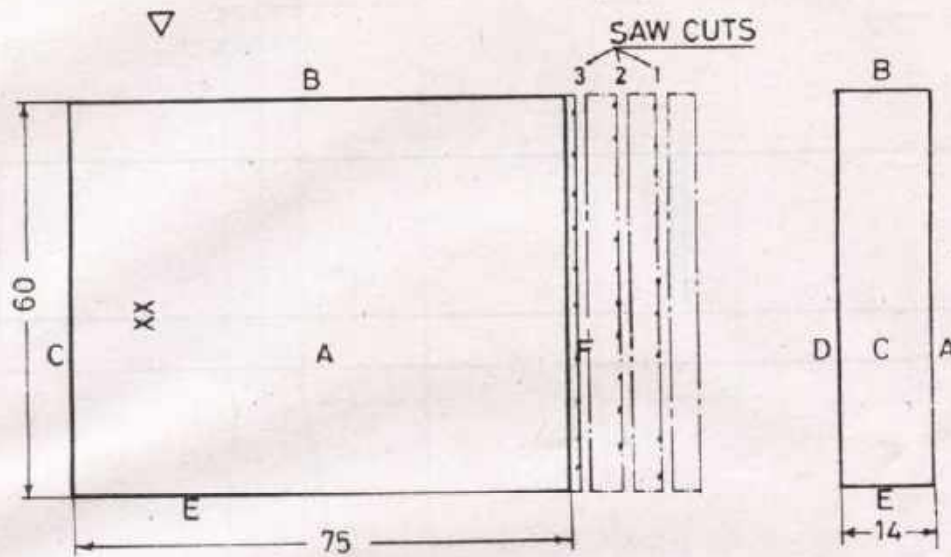
BASIC / FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME

TOLERANCE ± 1



SEQUENCE OF OPERATIONS

NO	Symbol	Tools	Descriptions
1		THREE SQUARE FILE 150 x 1 HAND HACK SAW	NOTCH ENDS OF MARKING LINES WITH THREE SQUARE FILE. SAWING OF 1st AND 2nd CUT AS SHOWN
2		THREE SQUARE FILE 150x1 HAND HACKSAW	SAWING OF 3rd CUT BY CLAMPING THE WORKPIECE IN HORIZONTAL POSITION
3		FLAT FILES 300x1 ; 200x1 TRY SQUARE	FLAT FILING OF SURFACE 'A'
4		FLAT FILES 300x1 ; 200x1 TRY SQUARE	FLAT AND SQUARE FILING OF SURFACE 'B'
5		FLAT FILES 300x1 ; 200x1 TRY SQUARE VICE CLAMPS	FLAT AND SQUARE FILING OF SURFACE 'C'
6	REPEAT OPERATION 3,4 & 5 FOR SURFACE D,E & F. DON'T CHECK WITH TRY SQUARE AND STEEL RULE, WHEN MATERIAL IS CLAMPED IN THE VICE. CHECK DIMENSION WITH OUTSIDE CALIPER AND STEEL RULE.		

SCALE 1:1

SAWING EXERCISE

NO: - 1.0.1/05

MAT. of Ex. 02

BASIC / FITTING

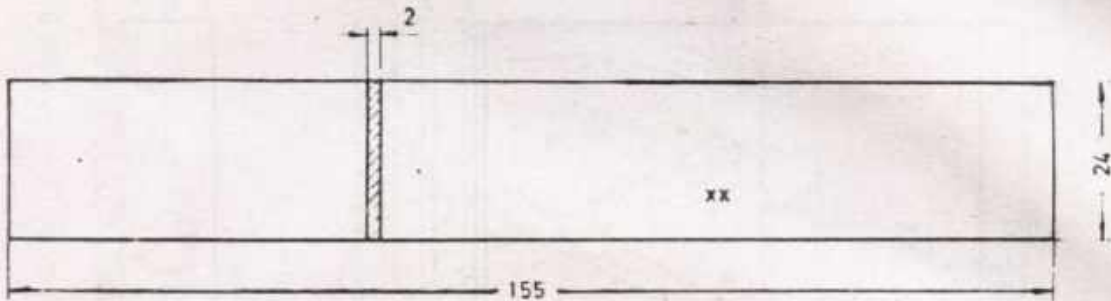


DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK GERMAN TECHNICAL TRAINING PROGRAMME



TOLERANCE: 0.3



Two pieces

SEQUENCE OF OPERATIONS

No	Symbol	Tools	Descriptions
1		SMOOTH-CUT FILE	SMOOTHING OPERATIONS. MATERIAL ALLOWANCE FOR SMOOTH FILING 0.1 TO 0.2 MM.
2		FLAT FILES 300x1; 250x3 TRY SQUARE VERNIER CALIPER WOODEN PIECE, NAILS	FLAT FILING OF 1st BROAD SURFACE. HOLD THE WORK ON A WOODEN PIECE.
3		FLAT FILES 300x1; 200x1; 250x3 TRY SQUARE VERNIER CALIPER	FLAT AND SQUARE FILING OF 1st LONGITUDINAL SIDE.
4		COMPLETE THE WORK IN A SEQUENCE OF OPERATIONS AS DONE IN PREVIOUS EXERCISES. MIND SMOOTHING ALLOWANCE. USE VICE CLAMPS.	

SCALE 1:1

MAT ST.37-1

INSIDE CALIPER 1

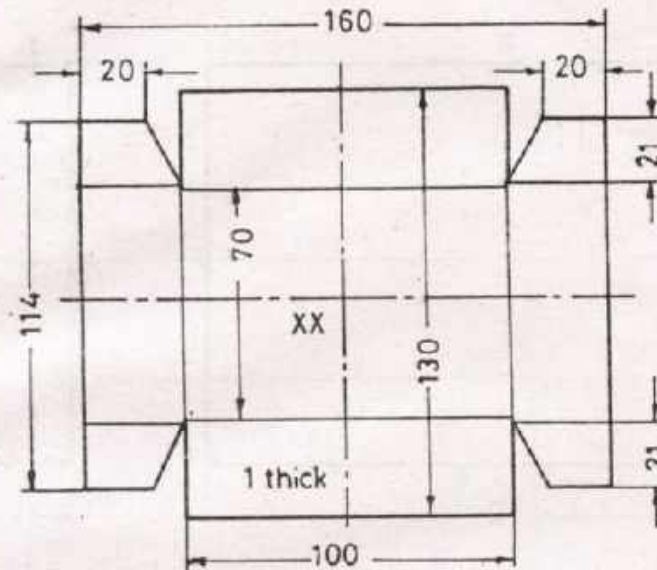
NQ-101/05

BASIC/FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

WAK GERMAN TECHNICAL TRAINING PROGRAMME

TOLERANCE ± 0.3 

SEQUENCE OF OPERATIONS

No.	Symbol	Tools	Descriptions
1		FILE FLAT 200x3 TRY SQ. STEEL RULE HANDVICE	FILING OF SIDES 'A' & 'B' IN RIGHT ANGLE.
2		MARKING TOOLS	LENGTH & WIDTH MARKING MARKING OF THE SHAPE OF THE WORK.
3		LEVER SHEARING	SHEARING OF LENGTH AND WIDTH. SHEARING OF SHAP OF THE WORK ACCO- DING TO MARKING LINES.
4		TRY SQ., STEEL RULE, HAND VICE FILE 200x3 KEY FILE SET.	COMPLETING THE WORK ACCORDING TO GIVEN DIMENSIONS.
5		WHEN NUMBER PUNCHING USE LIGHT BLOWS. DEBURR THE WORK PROPERLY.	

SCALE 1:2.5

MAT: ST 10

SHEET METAL BOX 1

NO. - 1.01/07

BASIC / FITTING

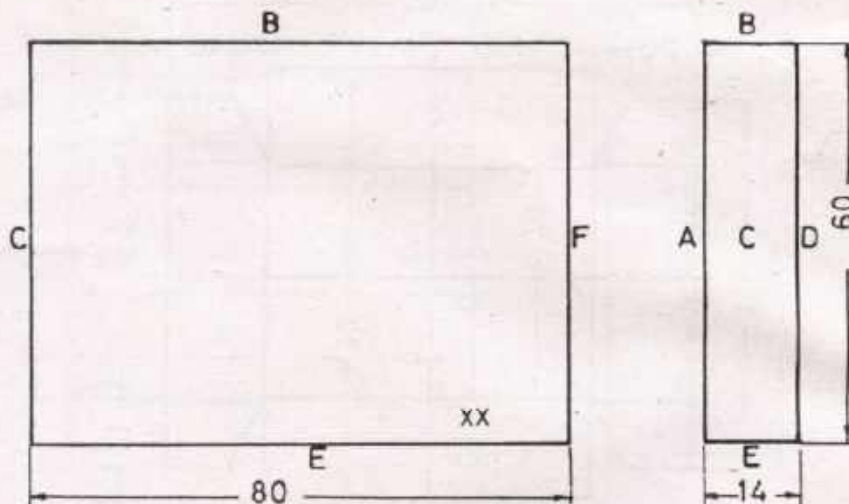


DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME



TOLERANCE ± 0.2



SEQUENCE OF OPERATIONS

No.	Symbol	Tools	Descriptions
1	 	FLAT FILES 300x1 200x1 TRY SQ. V. CALPER VICE CLAMPS.	FILING OF THE WORK ALL AROUND IN RIGHT ANGLES. MIND SMOOTHING ALLOWANCE.
2	 	FLAT FILES 250x3; 150x3 TRY SQ. V. CALIPER VICE CLAMPS	FINISHING OF SURFACE 'A' WITH SMOOTH FILES. USE CHALK FOR FINISHING.
3	 	FLAT FILES 250x3 150x3 TRY SQ. V. CALI. V. CLM.	FINISHING OF SURFACE 'B' IN RIGHT ANGLE TO SURFACE 'A'
4	 	F. FILES 250x3 150x3 TRY SQ. V. CALI. V. CLM.	FINISHING OF SURFACE 'C' IN RIGHT ANGLE TO SURFACE 'A' & 'B'
5		COMPLETE ALL OTHER SURF. CHECK THE DIMENSIONS. WITH THE VERNIER CALIPER. DEBURR THE WORK PROPERLY.	

SCALE 1:1

MAT : ST 37_1

DRILLING EXERCISE 1

NO:- 1.01/08

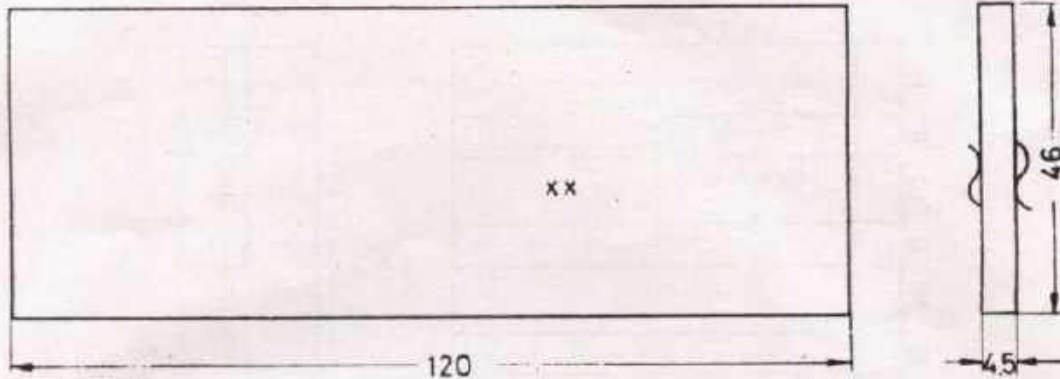
BASIC / FITTING



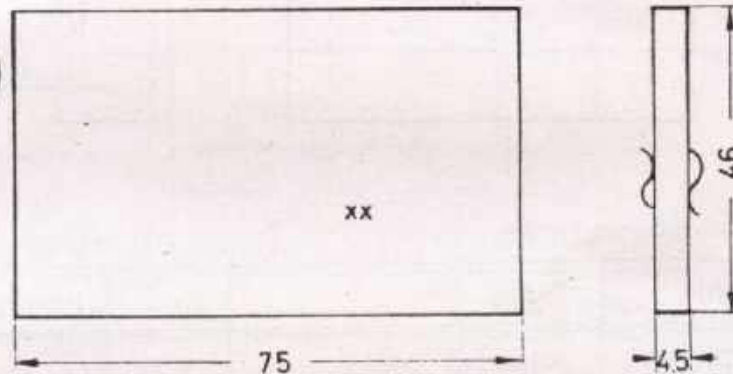
DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK. GERMAN TECHNICAL TRAINING PROGRAMME

TOLERANCE ± 0.2

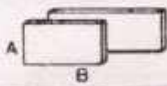
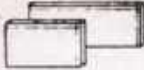



1, 2 $\nabla(\sim)$



Two pieces each.

SEQUENCE OF OPERATIONS

Nc	Symbol	Tools	Descriptions
1		FLAT FILES 300x1, 200x1, 250x3, 150x3 TRY SQ., V.-CALIPER	FILING OF SURFACES 'A' & 'B' IN RIGHT ANGLE.
2		MARKING TOOLS	LENGTH AND WIDTH MARKING. USE SURFACES 'A' & 'B' AS REFERENCE SURF.
3		FLAT FILES TRY SQUARE VERNIER CALIPER	FILING OF ALL PIECES ACCORDING TO MARKING LINES.
4	PUNCH BENCH NUMBERS.		

SCALE 1:1

MAT: ST 37-1

RIVETING EXERCISE 1

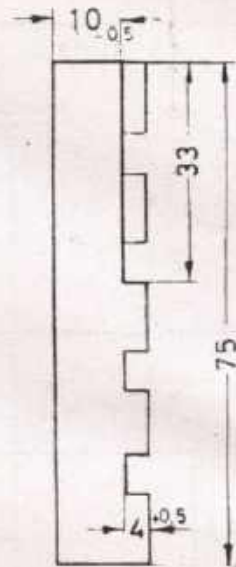
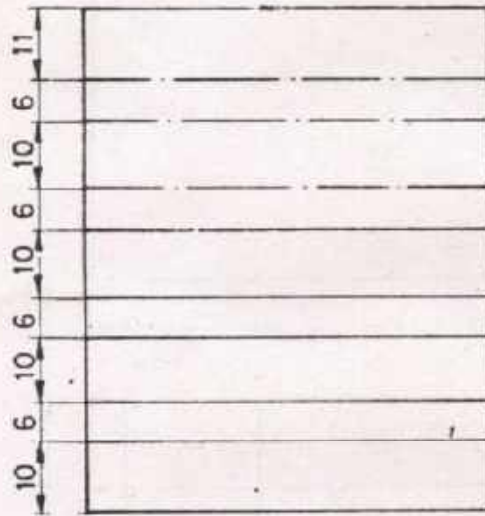
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BASIC: FITTING


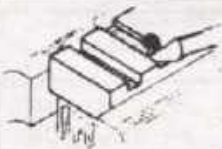
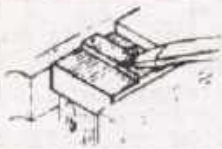


DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME



SEQUENCE OF OPERATIONS

No.	Symbol	Tools	Descriptions
1		MARKING TOOLS	MARKING OF NOTCHES
2		CROSS-CUT CHISEL HAND HAMMER 600 g STEEL RULE WOODEN BLOCK	CHIPPING OF NOTCHES
3		FLAT CHISEL HAND HAMMER 600 g STEEL RULE WOODEN BLOCK	CHIPPING OFF TWO RIBS
4		LOOK AT THE CUTTING POINT WHILE CHISELLING. USE SAFETY SHIELD. USE PACKING BLOCK OF WOOD.	

SCALE 1 : 1

MAT. of Ex. 05

CHIPPING EXERCISE

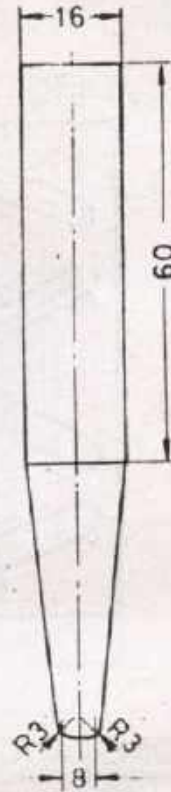
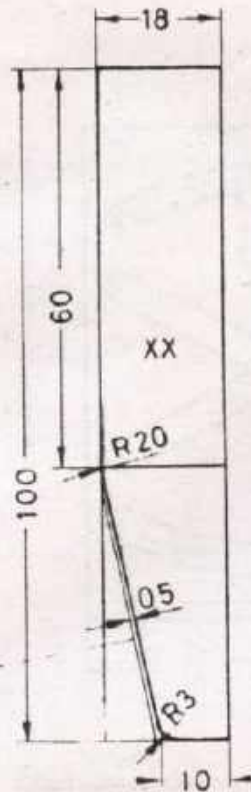
NO :- 101/10

BASIC / FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME



TOLERANCE ± 0.2

No	Symbol	Tool	Descriptions
1		ROUGH FILES, TRY SQUARE, VERNIER CALIPER	SQUARE FILING. MIND FINISHING ALLOWANCE.
2		MARKING TOOLS	MARKING WORK
3		FLAT CHISEL HAND HAMMER	CHIPPING OF INCLINA- TION UP TO MARKING LINE
4		SMOOTH FILES, VICE CLAMPS, TRY SQUARE, VERNIER CALIPER	SMOOTH AND SQUARE FILING
5		SMOOTH FILES VICE CLAMPS RADIUS GAUGE	RADII FILING
6	NUMBER FINCHING DEBURRING ETC. FINAL WORK.		

SCALE 1:1

MAT. ST. 37-1

FIXED JAW
for SCREW CLAMP

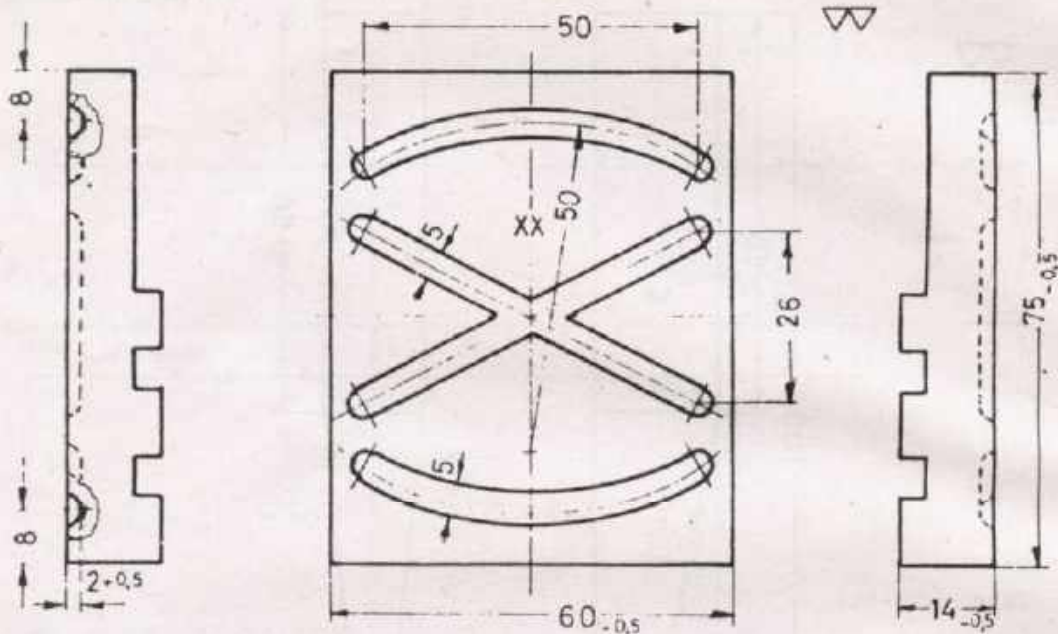
NO :- 1 01 / 11

BASIC / FITTING


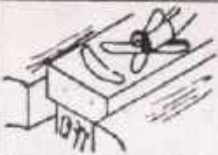




DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAR GERMAN TECHNICAL TRAINING PROGRAMME



SEQUENCE OF OPERATIONS

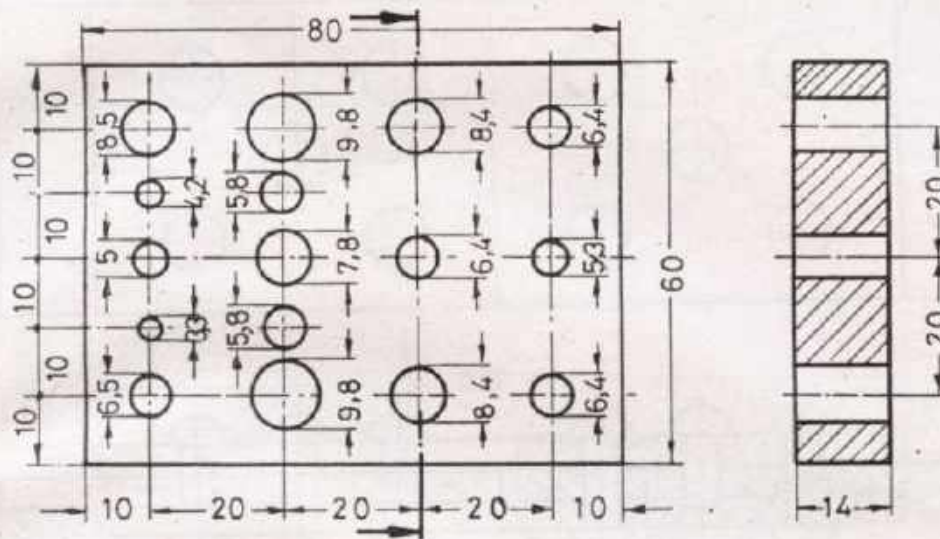
No.	Symbol	Tools	Descriptions
1		MARKING TOOLS	MARKING OF GROOVES.
2		GROOVE CUT CHISEL HAND HAMMER 600g STEEL RULE WOODEN BLOCK	CHIPPING OF CROSSED GROOVES.
3		GROOVE CUT CHISEL HAND HAMMER 600g. STEEL RULE WOODEN BLOCK	CHIPPING OF CURVED GROOVES.
4		SMOOTH FILES VERNIER CALIPER TRY SQUARE VICE CLAMPS	SMOOTH AND SQUARE FILING AND AROUND FINAL WORK.

SCALE 1:1	CHIPPING EXERCISE	NO.— 10/12
MAT. of Ex. 10		BASIC / FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

FOR GERMAN TECHNICAL TRAINING PROGRAMME



SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1		MARKING TOOLS	MARKING OF ALL CENTRE POINTS AND CONTROL CIRCLES
2		MACHINE VICE PARALLEL PIECES	PROPER CLAMPING INTO THE MACHINE VICE
3		TWIST DRILLING ACCORDING TO GIVEN DIMENSION	DRILLING OF HOLES. MIND THE R.P.M. AND FEED $R. P. M. = \frac{V \times 1000}{D \times \pi}$
4		COUNTERSINK DRILL 90°	DEBURRING OF ALL HOLES FROM BOTH SIDES.

SCALE 1:1

MAT. of Ex. 08

DRILLING EXERCISE 2

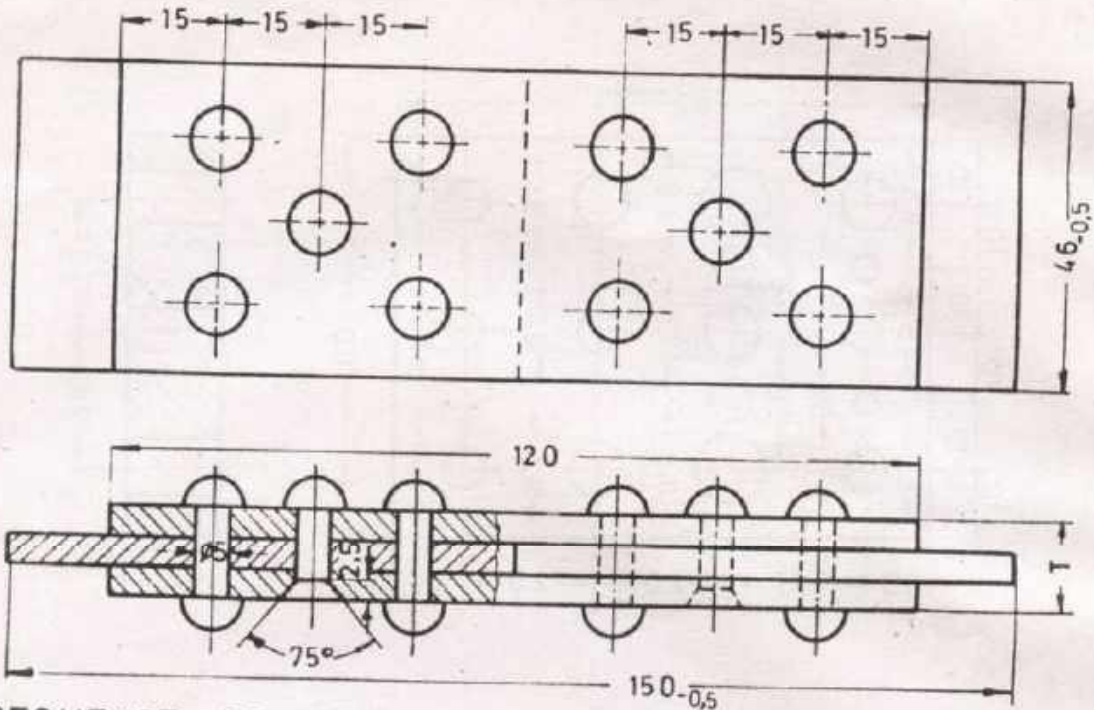
NO:- 101/13

BASIC / FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME



SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1		MARKING TOOLS 2 HAND VICES	MARKIN OF CENTRE POINTS CLAMPING TOGETHER OF ALL PARTS
2		TWIST DRILL 5.2 MM. C/SINK DRILL 90° C/SINK DRILL 75°	DRILLING COUNTER- SINKING AND DEBURRING OF THE HOLES
3		RIVET SETTING TOOLS 5 HAND HAMMER 600g M.M	SETTING OF RIVETS
4		HAND HAMMER 250g. RIVET TOOL	PREFORMING OF RIVET HEAD
5		RIVET FORMING TOOL HAND HAMMER 600g.	FORMING OF RIVET HEAD
6		HAND HAMMER 600g. RIVET TOOL	SETTING OF COUNTERSINK RIVET
7	REPEAT RIVETING OPERATIONS FOR ALL RIVET JOINTS SHOWN IN THE DRAWING. RIVET LENGTH FOR ROUND HEAD 'L' = T + 1.5d. RIVET LENGTH FOR COUNTER SINK 'L' = T x 1 d.		

SCALE 1:1

MAT. of Ex.09

RIVETING EXERCISE

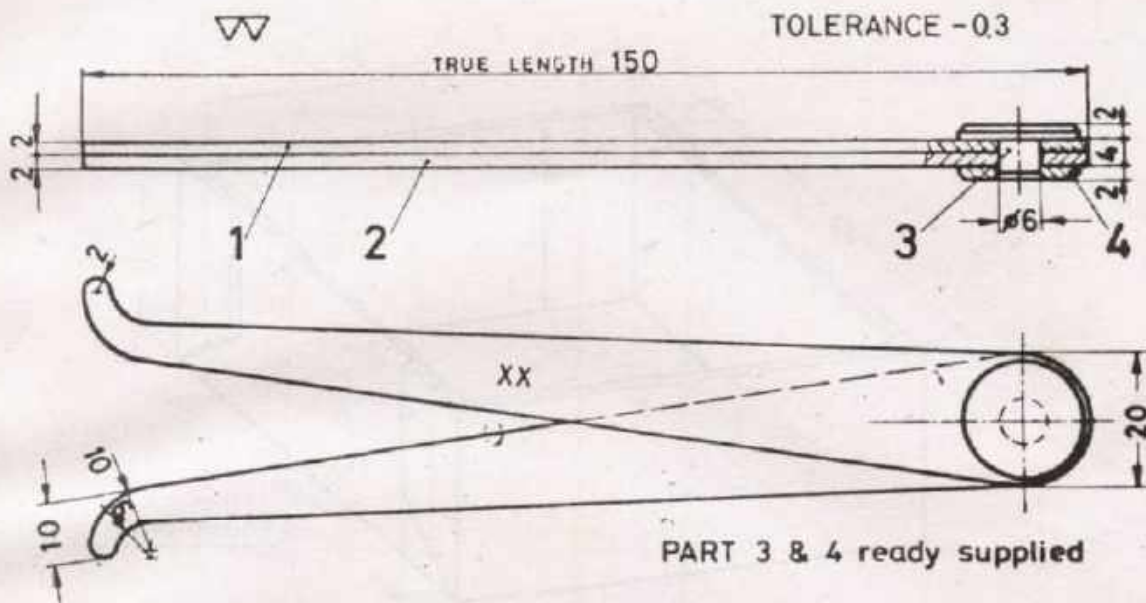
NO:— 10.1 / 14

BASIC / FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK GERMAN TECHNICAL TRAINING PROGRAMME



SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1			MARKING OF PART 1 AND 2 ACCORDING TO GIVEN DIMENSIONS.
2		FILES VICE CLAMPS	FILING OF PART 1 & 2 ACCORDING TO MARKING LINES.
3		TWIST DRILL 6MM HAND VICE	DRILLING WITH PART 1 AND 2 CLAMPED TOGETHER.
4		HAND HAMMER 250 g	RIVETING TOGETHER OF PART 1 AND 2.
5			FINAL WORK DEBURRING, NUMBER PUNCHING.

SCALE 1 : 1

MAT of Ex. 06

INSIDE CALIPER

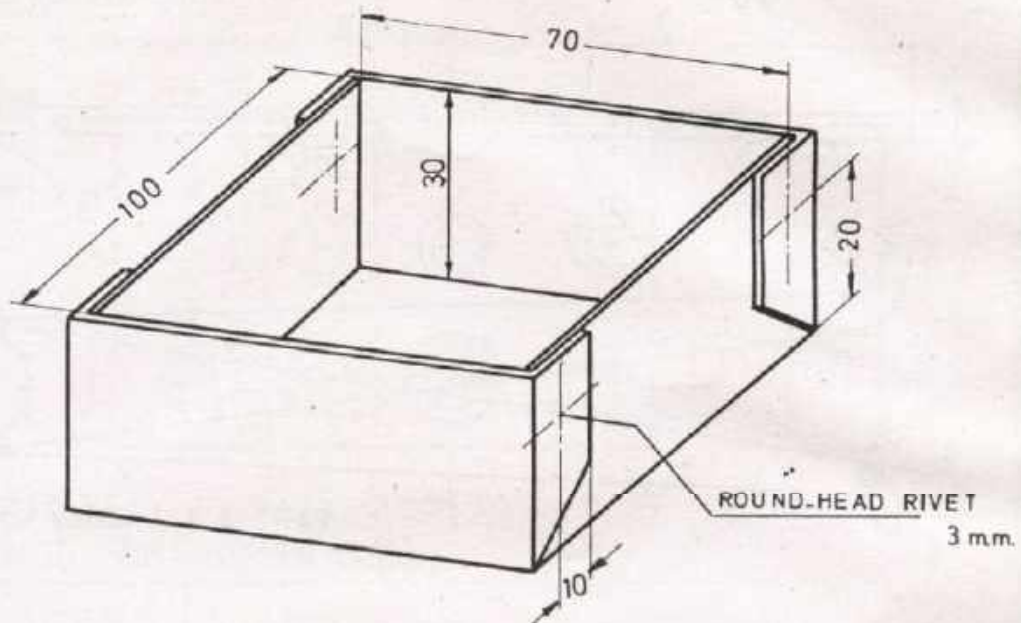
NO :- 1.0.1/15

BASIC/FITTING





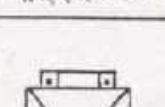


DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME



SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1		HAND HAMMER 250g TWO ANGLE IRON	BENDING OF THE 4 FLANGES
2		HAND HAMMER 250g TWO ANGLE IRON	BENDING OF THE SIDES 100MM LENGTH (WITHOUT FLANGES)
3		HAND HAMMER 250g SHIM	COMPLETION OF BENDING WORK
4		MARKING TOOLS TWIST DRILL 3,2 MM HAND VICE	DRILLING, DEBURRING, RIVETING
5		FILES MEASURING AND CHECKING TOOL	FILING, DEBURRING, FINAL CHECKING

SCALE 1:1

MAT. of Ex. 07

SHEET METAL BOX

NO:— 10.1 / 16

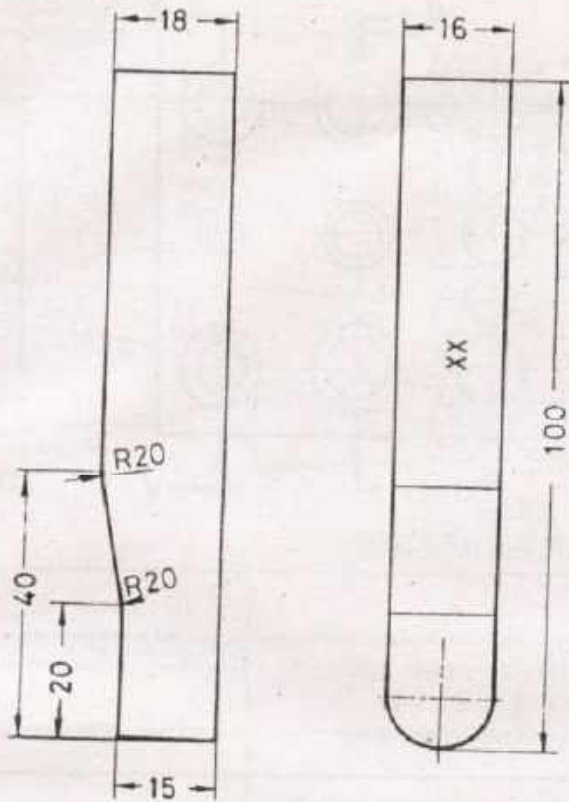
BASIC FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

FAK GERMAN TECHNICAL TRAINING PROGRAMME

2 ∇



TOLERANCE ± 0.1

FOR THE COMPLETION OF THIS EXERCISE, A LIMIT OF TIME IS GIVEN.

ALL SKILLS AND OPERATIONS NEEDED FOR THIS EXERCISE HAVE BEEN DONE PREVIOUSLY.

THEREFORE, NO ASSISTANCE OR SUPERVISION IS NECESSARY BY THE INSTRUCTOR.

PRORATED TIME	STARTED		COMPLETED		TIME USED
	DATE	TIME	DATE	TIME	
10 HRS.					

TIME MARKS . - _____

SCALE 1:1

MAT. ST 37-1

MOVABLE JAW
for SCREW CLAMP

NO :- 1.0.1/17

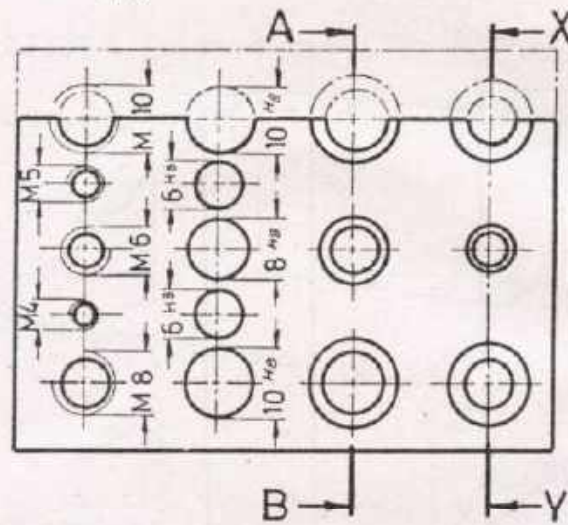
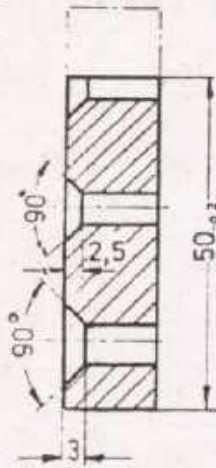
BASIC / FITTING



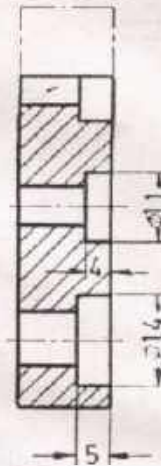
DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME

SECTION X-Y



SECTION A-B



SEQUENCE OF OPERATIONS

NO.	Symbols	Tools	Descriptions
1		CENTER BORE DRILL 6,4x11 8,4x14 MACHINE VICE	COUNTER BORING
2		COUNTER SINK DRILL 90° MACHINE VICE	COUNTER-SINKING
3		THREAD TAPS M4, M5, M6, M8, M10 TAP HANDLE	INSIDE-THREAD CUTTING
4		HAND REAMER 6 ^{1/8} 8 ^{1/8} 10 ^{1/8} HANDLE	REAMING
5		COUNTER SINK DRILL MACHINE VICE	DEBURRING & RETAPPING IF NECESSARY
6		MARKING TOOL HAND HACKSAW FILES MEASURING TOOLS	MARKING, FILING, FINAL WORK

SCALE 1:1

MAT. of Ex.13

DRILLIG EXERCISE

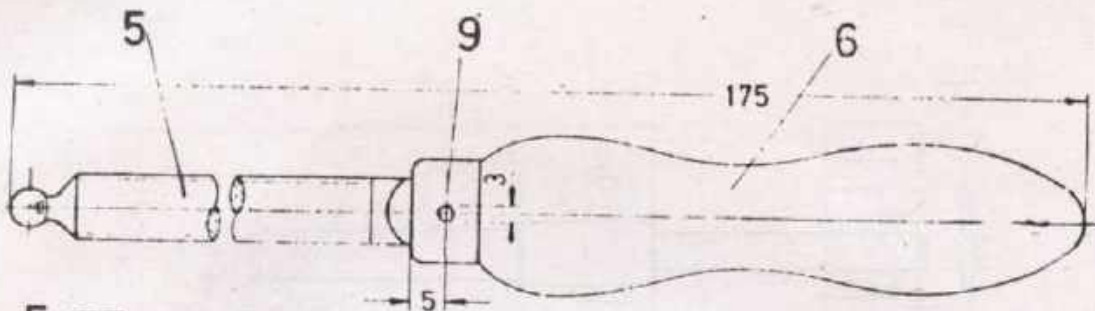
NO:— 10.1 / 18

BASIC / FITTING

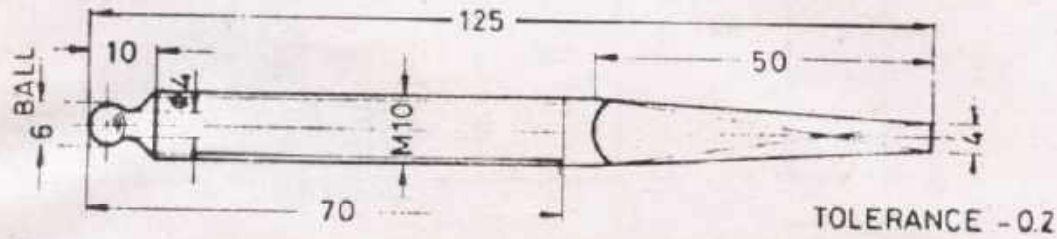


DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

FOR THE MATRI TECHNICAL TRAINING PROGRAMME

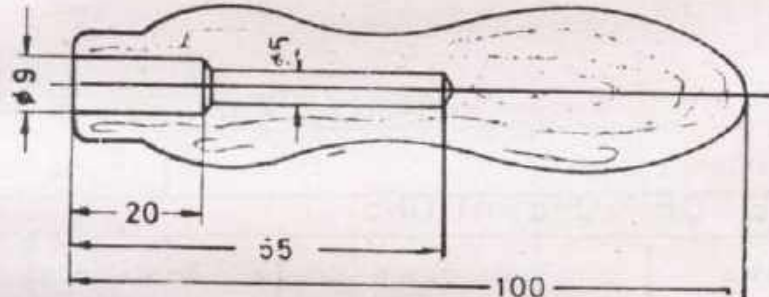


5 ▽



TOLERANCE -0.2

6 ▽



SEQUENCE OF OPERATIONS

NO	Symbol	Tools	Descriptions
1		FILES MEASURING AND CHECKING TOOLS	COMPLETE FILING WORK
2		DIE 'M 10'	CUTTING OUTSIDE THREAD
3		TWIST DRILLS	DRILLING OF PART 6 JOINING PART 5 AND 6 SETTING OF PIN 3 MM

SCALE 1 : 1
MAT. ST. 37-1
HARD WOOD

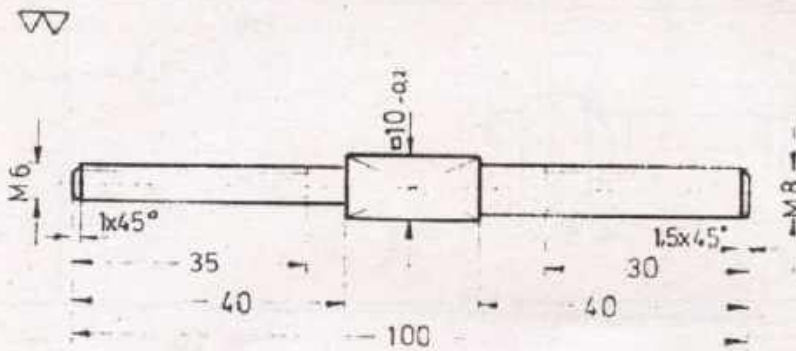
THREAD BOLT
for SCREW CLAMP

NO:- 1.01/19
BASIC / FITTING



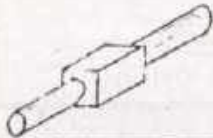
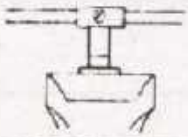

DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME



THE MATERIAL WILL BE SUPPLIED BY THE TURNER SECTION.

SEQUENCE OF OPERATIONS

NS	Symbol	Tools	Descriptions
1		FILES MEASURING AND CHUCKED TOOLS	FILING OF SQUARING 10 MM
2		DIE M6	CUTTING OF OUTSIDE THREAD M6
3		DIE M8	CUTTING OF OUTSIDE THREAD M8

SCALE 1:1

MAT ST 37.1

THREAD BOLT
FOR ELECTRICIAN ONLY

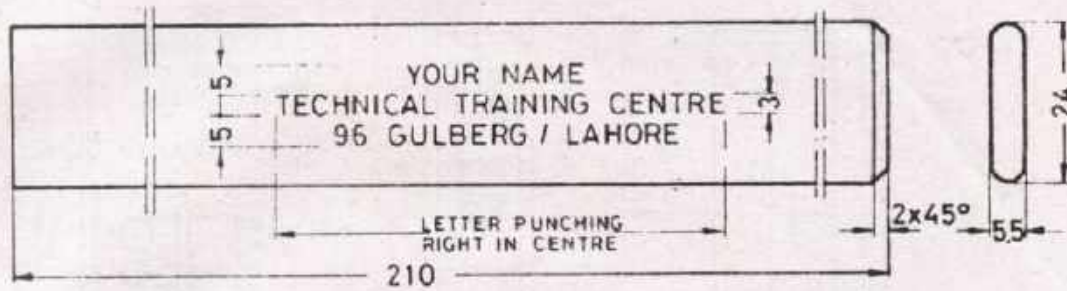
NO — 1.01/19E

BASIC / FITTING

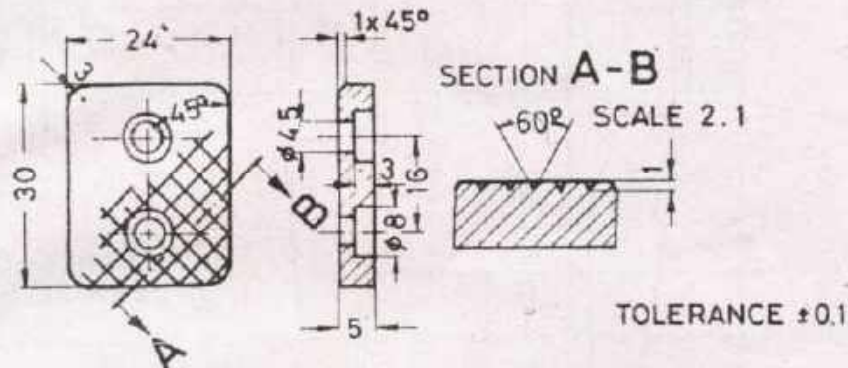


DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

3 ∇



4 ∇



SEQUENCE OF OPERATIONS

NO	Symbol	Tools	Descriptions
1		FILES MEASURING AND CHECKING TOOLS RADIUS GAUGE	FLAT AND RADIUS FILING
2		MARKING TOOLS LETTER PUNCHES 3 MM HAND HAMMER 250 g	STAMPING
3		FILES MEASURING AND MARKING TOOLS RADIUS GAUGE	DRILL THE HOLES FLAT AND RADIUS FILING NOTCH FILING
4	REMOVE ALWAYS THE BURRS FROM STAMPING WORK. MIND THE SURFACE QUALITY.		

SCALE: 1:1

MAT. ST 37-1

GUIDE BAR
for SCREW CLAMP

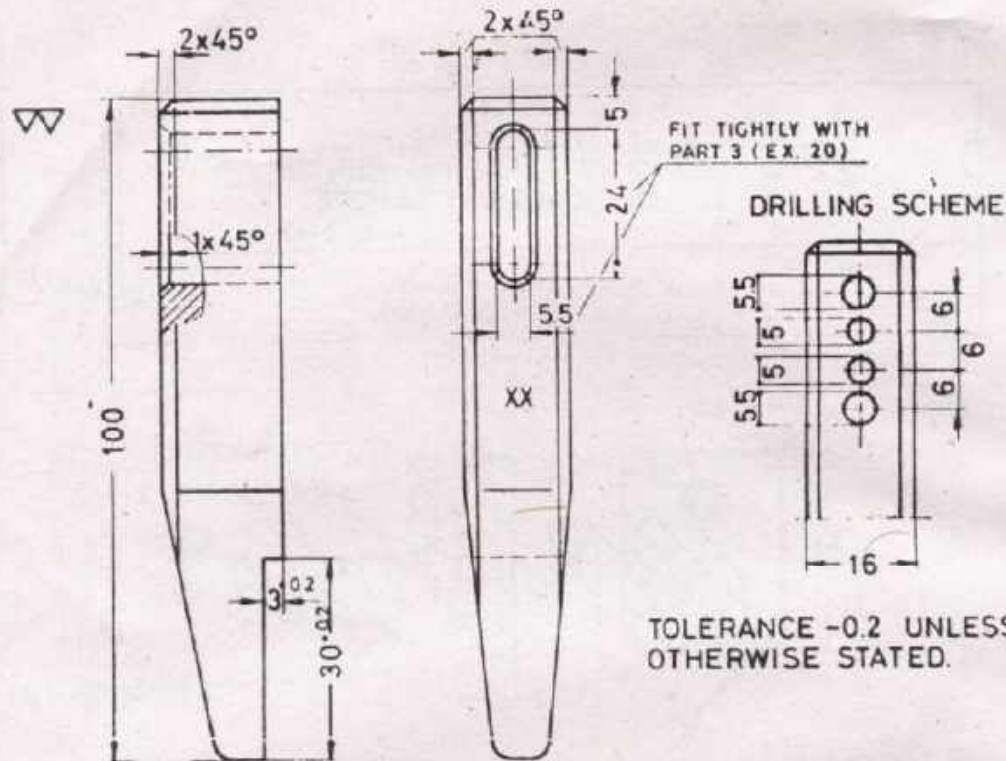
NO :- 101/20

BASIC/FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK GERMAN TECHNICAL TRAINING PROGRAMME

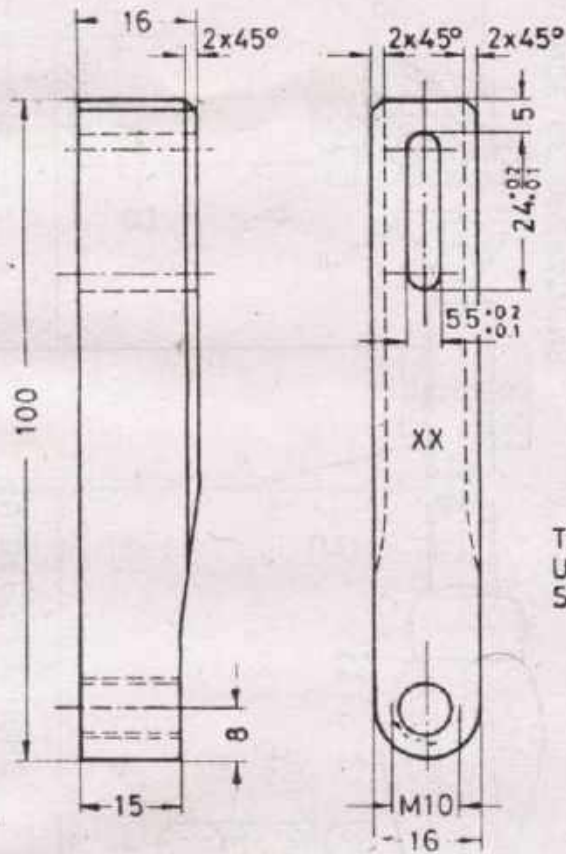


SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1		MARKING TOOLS FILES MEASURING AND CHECKING TOOLS	MARKING OF THE WORK- PIECE COMPLETION OF RECESS
2		DRILLS HEWING CHISEL FILES CHECKING AND MEASURING TOOLS	DRILLING CHIPPING OF THE SLOT FILING OF THE SLOT
3		MARKING TOOLS FILES SQUARE 135° OBLIQUE CLAMP	CHAMFER FILING FINAL WORK

SCALE 1.1	FIXED JAW for SCREW CLAMP	NO :- 1.0.1/21
MAT. of Ex. 11		BASIC / FITTER
DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING		
PAK-GERMAN TECHNICAL TRAINING PROGRAMME		

2 ∇



TOLERANCE -02
UNLESS OTHERWISE
STATED

SEQUENCE OF OPERATIONS

NO.	Descriptions
1	COMPLETE THE SLOT AS DONE IN EXERCISE 21. CLEARANCE FIT WITH PART 3 (GUIDE BAR).
2	FILE CHAMFERS AS DONE IN EXERCISE 21.
3	DRILL THE HOLE FOR M 10 THREAD. CUT THE INSIDE THREAD. CHECK WITH PART NO. 5, EXERCISE 19. DO THE FINAL WORK.

SCALE 1:1

MOVABLE JAW

NO :- 101/22

MAT of Ex.17

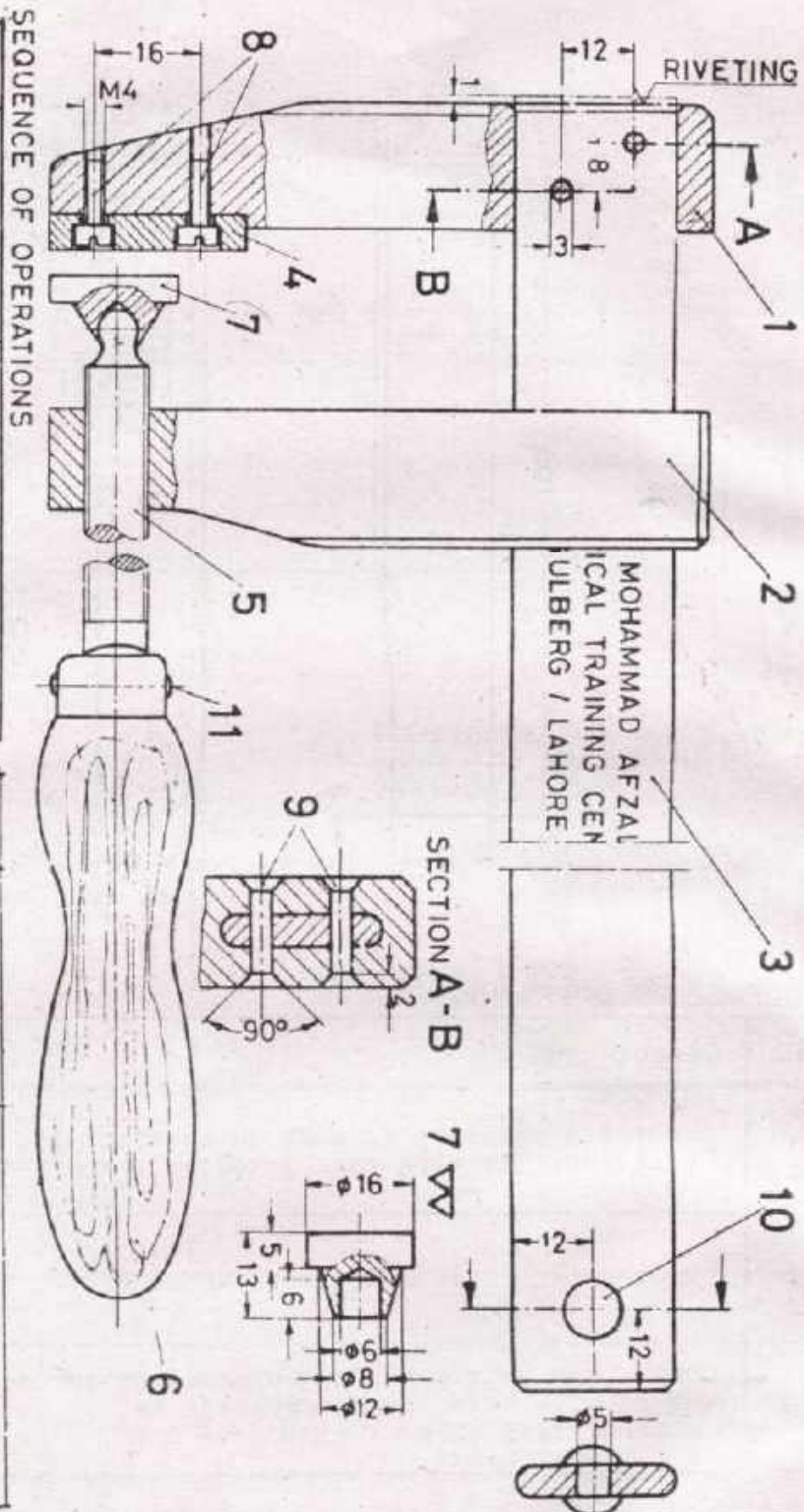
for SCREW CLAMP

BASIC/FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK GERMAN TECHNICAL TRAINING PROGRAMME



MOHAMMAD AFZAL
 ICAL TRAINING CEN
 ULBERG / LAHORE

SEQUENCE OF OPERATIONS

NO	Symbol	Discriptions
1		DRILL HOLES 3.3 MM. CUT INSIDE THREAD M4. JOIN PART 1 & 4 WITH PART 8.
2		JOIN PART 1 & 3 AS SHOWN IN THE DRAWING.
3		SCREW PART 5 INTO PART 2. JOIN PART 7 WITH PART 5.
4		SET ROUND HEAD RIVET ON PART 3 WHEN PART 2 IS MOVED ONTO PART 3.

SCALE 1 : 1

MAT. of Ex. 19, 20
 21, 22

SCREW CLAMP

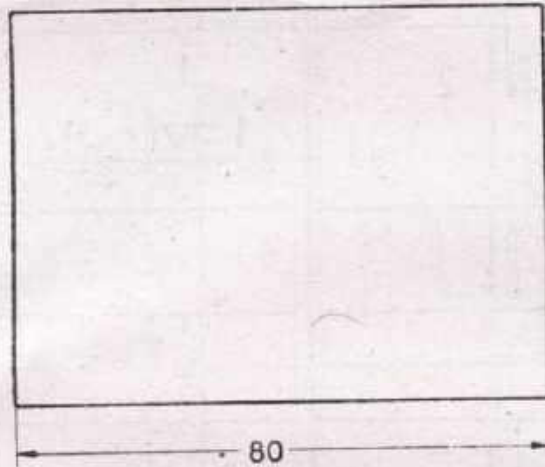
NO :- 1.01/23

BASIC / FITTING

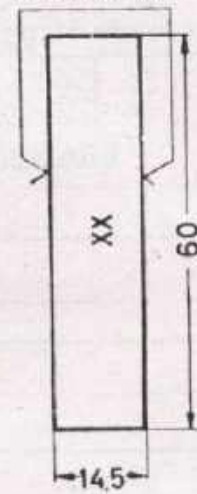
DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING



PAK GERMAN TECHNICAL TRAINING PROGRAMME



SCRAPING



TOLERANCE -0.1

SEQUENCE OF OPERATIONS

NO	Symbol	Tools	Descriptions
1		FILES MEASURING AND CHECKING TOOLS	FINE SMOOTH FILING SCRAPING ALLOWANCE + 0.3 MM
2		SURFACE PLATE PRUSSIAN PAINT	MARKING OF HIGH SPOTS
3		FLAT SCRAPER MEASURING AND CHECKING TOOLS	FLAT SCRAPING REPEAT MARKING AND SCRAPING OPERATIONS
4	AFTER EACH SCRAPING OPERATION, REMOVE THE BURRS PROPERLY. FINE SCRAPING = 10 - 20 HIGH SPOTS / sq. in. DON'T USE TOO MUCH PAINT.		

SCALE 1:1

MAT of C1-25
ST 37-1

SCRAPING EXERCISE

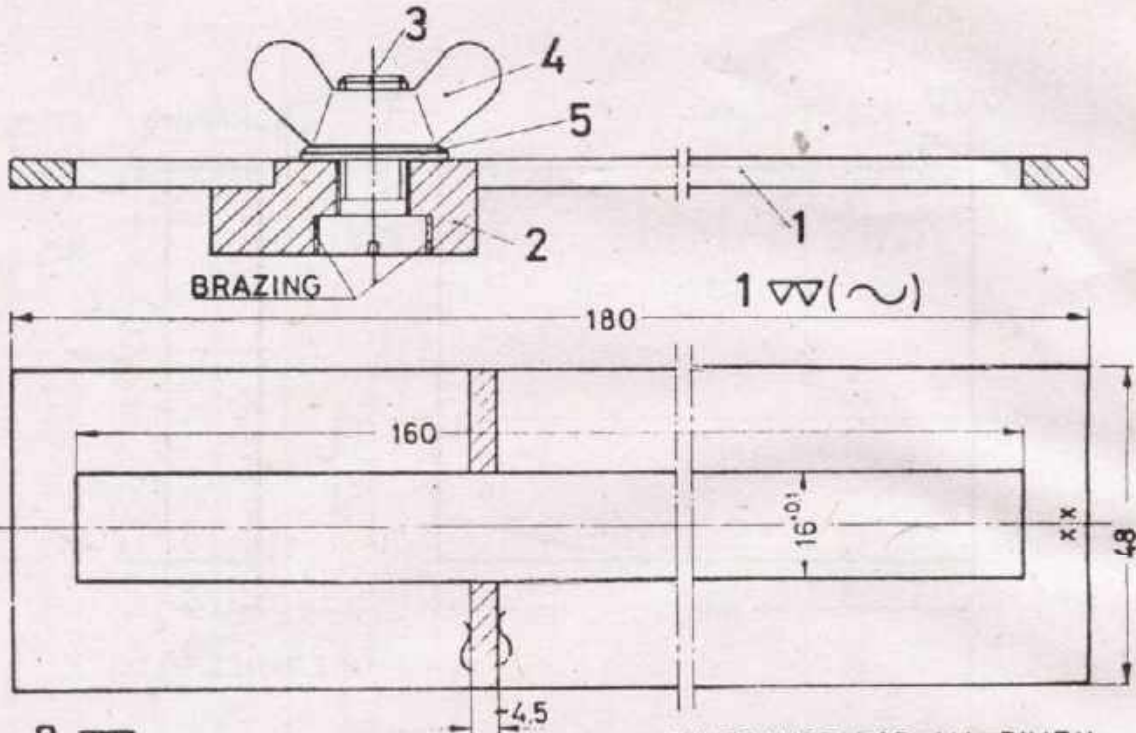
NO :- 10J/24

BASIC / FITTING

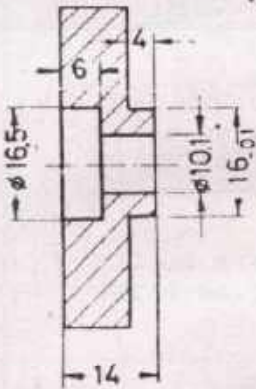
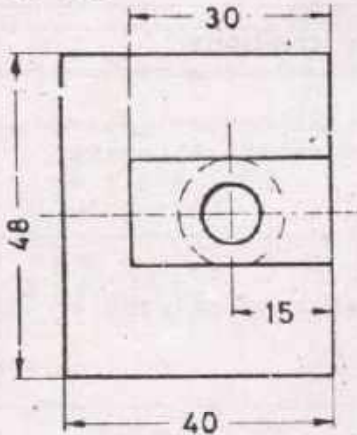


DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

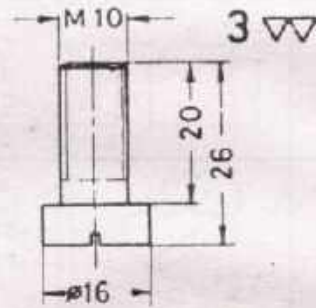
PAK-GERMAN TECHNICAL TRAINING PROGRAMME



2 ∇



TOLERANCE FOR ALL DIMENSIONS ± 0.1 UNLESS OTHERWISE STATED.



SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1	SLIGHTLY FIT	AS REQUIRED	COMPLETING OF PART 1 AND 2
2		BRAZING EQUIPMENT	ASSEMBLING OF ALL PARTS CHECKING OF FUNCTION FINAL WORK

SCALE 1:1

MAT. ST. 37-1

MARKING GAUGE

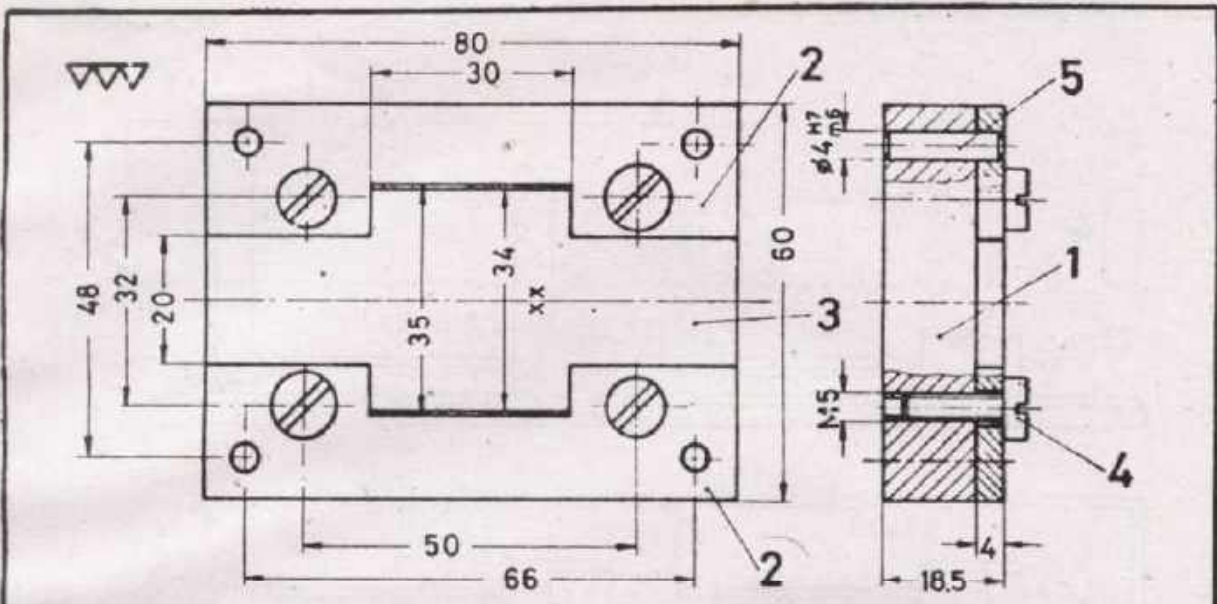
NO :- 1.0.1/25

EASIC / FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK GERMAN TECHNICAL TRAINING PROGRAMME



TOLERANCE ± 0.1

SEQUENCE OF OPERATIONS

NO.	Symbol	Tools	Descriptions
1		FILES MEASURING TOOLS MARKING TOOLS	FILING OF PART 3
2		FILES MEASURING TOOLS MARKING TOOLS	FILING AND FITTING OF PART 2. MARKING THE CENTRE OF HOLES.
3		TWIST DRILLS 4.2 AND 5.5 MM	DRILLING TOGETHER OF PARTS 1 & 2 WITH 4.2 MM DRILL. REDRILLING OF PART 2 WITH 5.5MM DRILL
4		THREAD TAPS M 5 COUNTER SINK DRILL 90°	TAPPING OF PART 1 DEBURRING OF PARTS 1 AND 2
5		TWIST DRILLS THREAD TAPS M 5	SETTING OF PARTS 1, 2, 3 AND 4. DRILLING AS DONE IN OPERATION NO. 4.
6		TWIST DRILL 3.8 MM HAND REAMER 4 ^{H7}	SETTING OF PARTS 1, 2, 3 AND 4. DRILLING OF PIN HOLES. REAMING OF PIN HOLES.

SCALE 1:1

MAT. of Ex 4, 24

FITTING EXERCISE

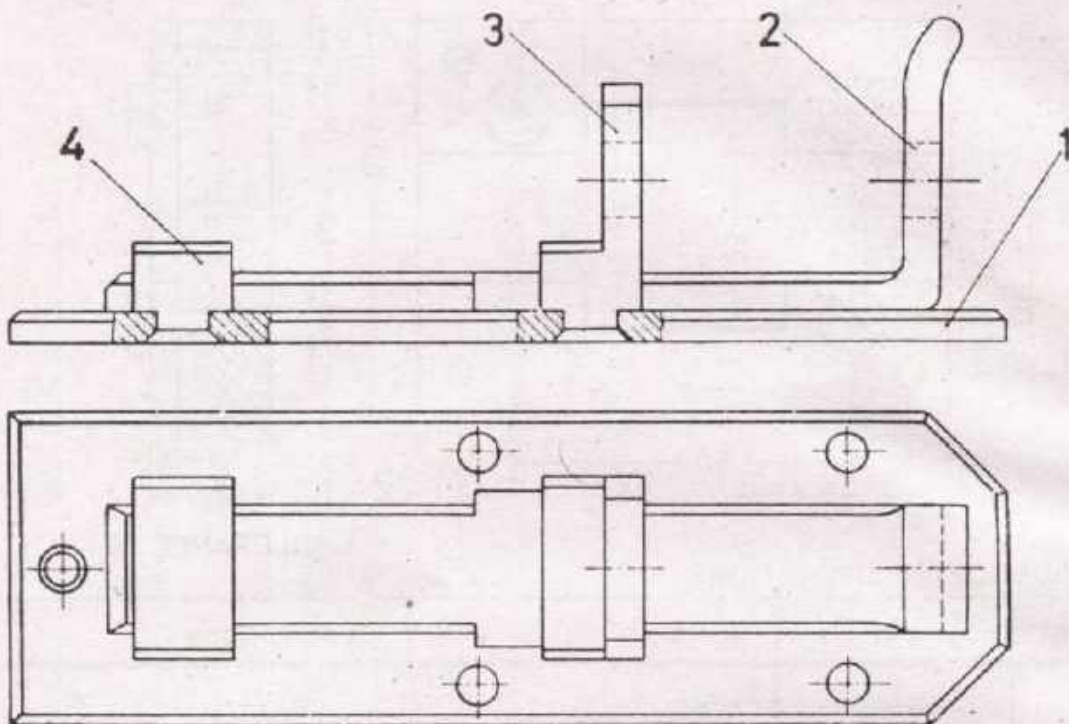
NO:- 1.01 / 26

BASIC / FITTING

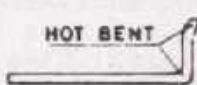
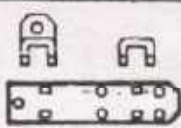



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME

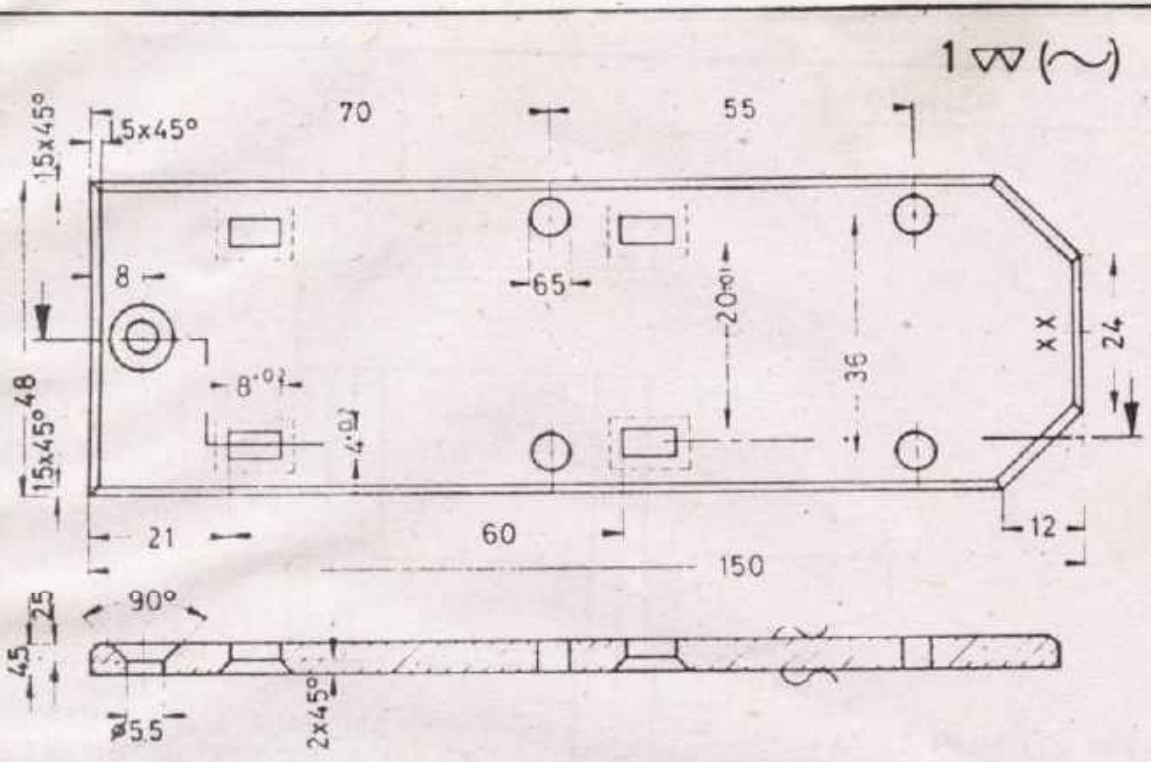


SEQUENCE OF OPERATIONS

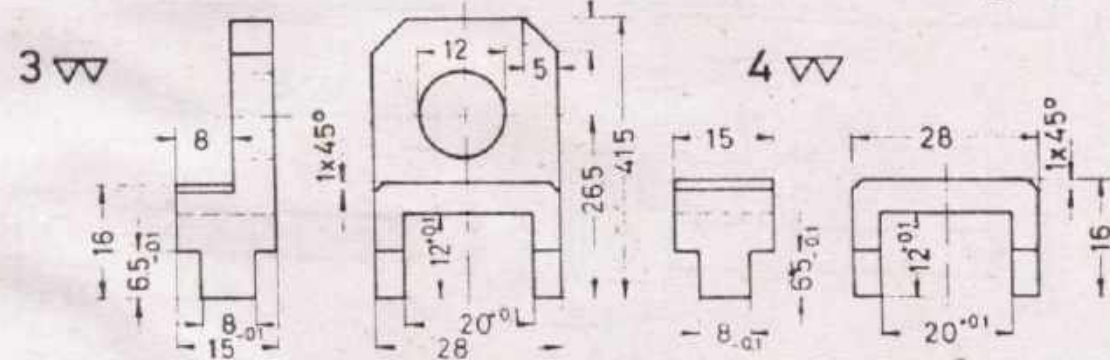
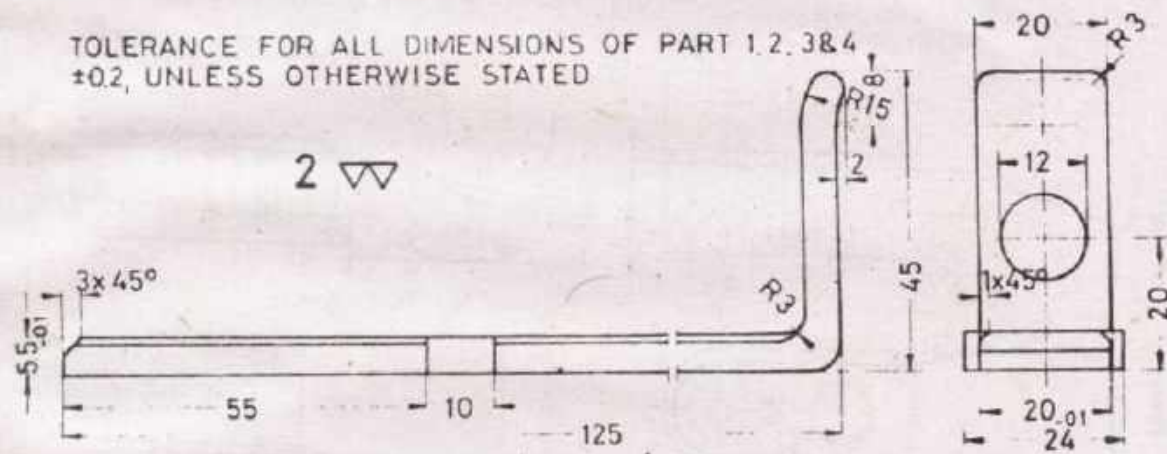
No.	Symbol	Tools	Descriptions
1		WELDING TORCH, FILES, MEASURING AND MARKING TOOLS, DRILLS, ETC.	BENDING OF PART 2. COMPLETING OF PART 2.
2		FILES, MEASURING AND MARKING TOOLS, DRILLS, ETC.	COMPLETING OF PARTS 1, 3 AND 4.
3		FILES HAMMER ETC.	SETTING OF ALL PARTS. CHECKING OF FUNCTION. RIVETING AND FINAL WORK.


4	1	BOLT GUIDE	ST 37-1 / REST of PART No.3
3	1	LOCKING GUIDE	ST 37-1 / 5/8" x 2 1/2"
2	1	BOLT	ST 37-1 / 1/4" x 1"
1	1	BASE PLATE	ST 37-1 / 3/16" x 2"
P No	Qty	Denomination	Remarks

SCALE 1 1	SLIDING BOLT	NO:- 1.0.1/27
MAT.		BASIC / FITTING

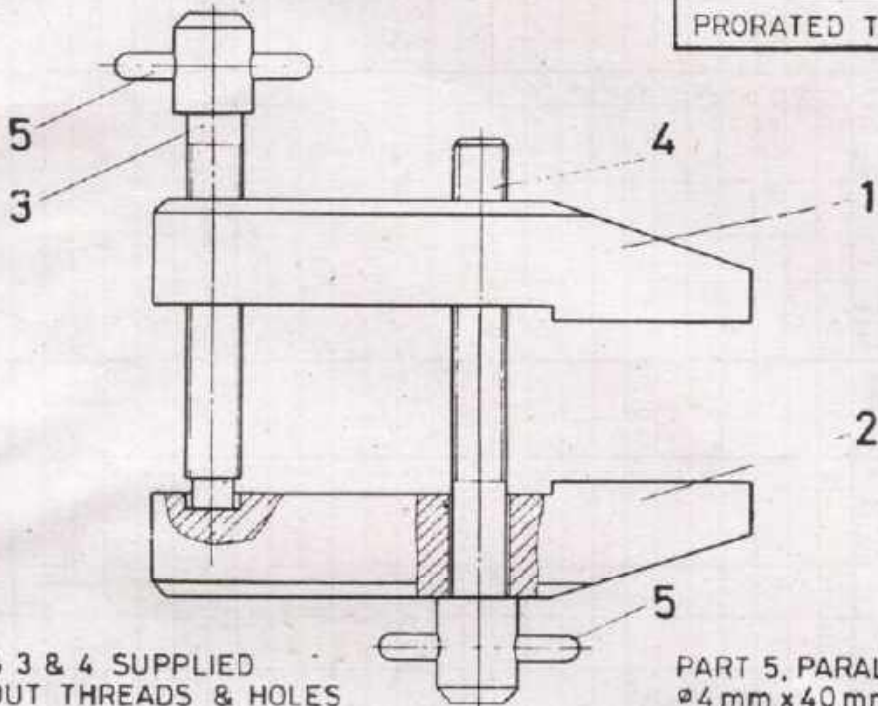


TOLERANCE FOR ALL DIMENSIONS OF PART 1, 2, 3 & 4
 ± 0.2 , UNLESS OTHERWISE STATED



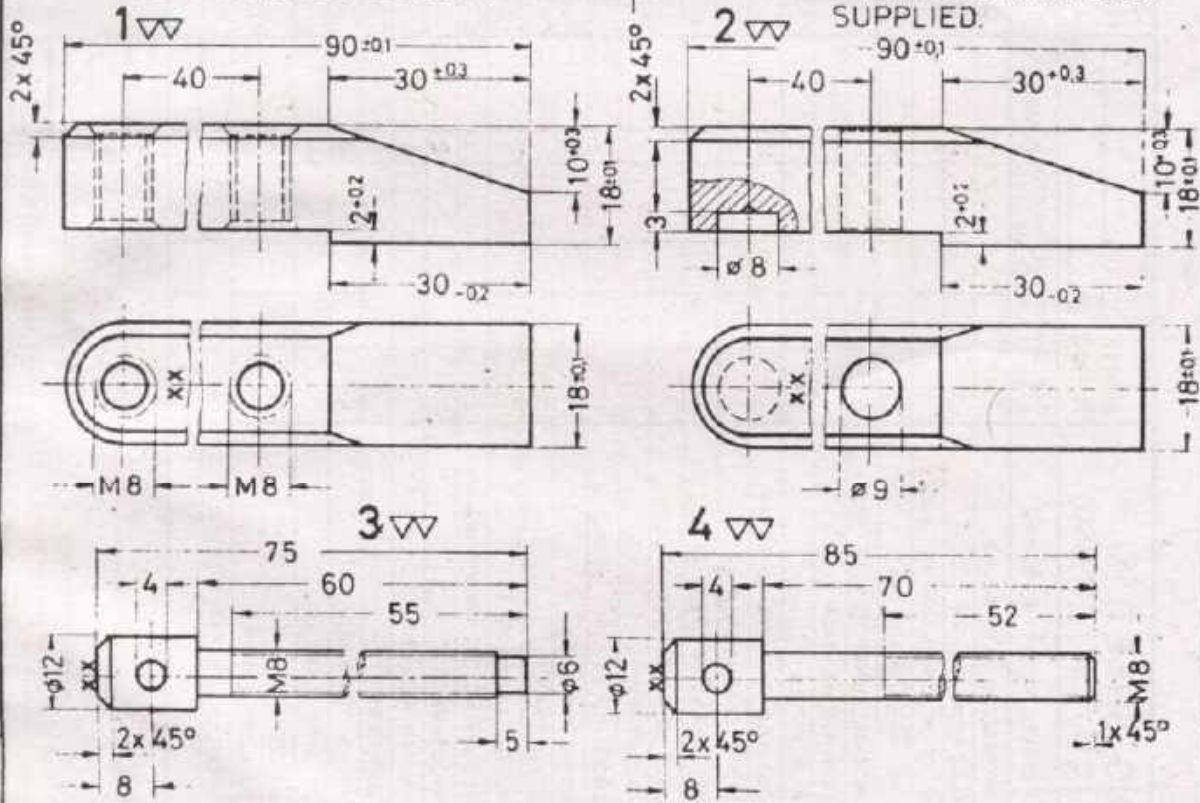
SCALE 1 : 1	SLIDING BOLT	NO :- 1.01 / 271
MAT		BASIC / FITTING
 DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING PAK-GERMAN TECHNICAL TRAINING PROGRAMME		33

PRORATED TIME 12 hrs



PARTS 3 & 4 SUPPLIED WITHOUT THREADS & HOLES

PART 5, PARALLEL PIN $\phi 4$ mm x 40 mm READY SUPPLIED.



SCALE 1:1

MAT. ST. 37-1

PARALLEL CLAMP

NO :- 1.01/TEST

BASIC/FITTING



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK-GERMAN TECHNICAL TRAINING PROGRAMME

MARKING SHEET for
Exercise 101/TEST-FITTING

S-No	P-No	Points to be checked	NAME R-NO				NAME R-NO				NAME R-NO					
			actual size	control I	control II	averg marks	X MARKS	actual size	control I	control II	averg marks	X MARKS	actual size	control I	control II	averg marks
1	1-5	IMPRESSION ALL-AROUND	X			5	X			5	X				5	
2	1-5	FUNCTION	X			5	X			5	X				5	
3	1	OUTSIDE DIMENSION 90 ±0.1				1				1					1	
4	1	THICKNESS 18 ±0.1 (2x)				2				2					2	
5	1	OUTSIDE DIMENSION 30 -0.2				2				2					2	
6	1	DEPTH DIMENSION 2 ±0.2				2				2					2	
7	1	RADIUS R9	X			3	X			3	X				3	
8	2	OUTSIDE DIMENSION 90 ±0.1				1				1					1	
9	2	DEPTH DIMENSION 2 ±0.2				2				2					2	
10	2	THICKNESS 18 ±0.1 (2x)				2				2					2	
11	2	OUTSIDE DIMENSION 30 -0.2				2				2					2	
12	2	RADIUS R5	X			3	X			3	X				3	
13	1	SMOOTHNESS	X			2	X			2	X				2	
14	1	PROPER ANGLES	X			3	X			3	X				3	
15	1	CHAMFERS	X			2	X			2	X				2	
16	1	INSIDE THREADS	X			2	X			2	X				2	
17	1	DEBURRING, NO-PUNCHING etc	X			2	X			2	X				2	
18	2	SMOOTHNESS	X			2	X			2	X				2	
19	2	PROPER ANGLES	X			3	X			3	X				3	
20	2	CHAMFERS	X			2	X			2	X				2	
21	2	HOLES, DEBURRING etc	X			2	X			2	X				2	
22	3	OUTSIDE THREAD	X			4	X			4	X				4	
23	3	SMOOTHNESS ALL-AROUND	X			2	X			2	X				2	
24	4	OUTSIDE THREAD	X			4	X			4	X				4	
25	4	SMOOTHNESS ALL AROUND	X			2	X			2	X				2	
26																

TOTAL MARKS =
TOTAL MARKS * 0.9 =
6.2

TIME MARKS =
FINAL MARKS =

TOTAL MARKS =
TOTAL MARKS * 0.9 =
6.2

TIME MARKS =
FINAL MARKS =

CONTROLLER I _____
CONTROLLER II _____
DATE _____



DEVELOPMENT CELL FOR SKILLED LABOUR TRAINING

PAK GERMAN TECHNICAL TRAINING PROGRAMME

