

- DIMENSIONS WITH UNSPECIFIED TOLERANCES SHOULD BE MAINTAINED:-  
UP TO 100mm WITH ACCURACY  $\pm 1$ mm,  
UP TO 200mm WITH ACCURACY  $\pm 1.5$ mm,  
BEYOND 200mm WITH ACCURACY  $\pm 2$ mm.
- QUALITY OF THE TUBE AT THE PLACE OF BENDING SHOULD NOT EXCEED 1.5 mm.
- LENGTH OF DEVELOPED TUBE  $L \leq 627$  mm.
- DIMENSIONS FOR REFERENCE.

**EXPLANATORY NOTE:**

5. REFERENCE MATERIAL QUOTED.  
STEEL TUBE TOP QUALITY 'B', EXTRENAL DIAMETER 12mm, WALL THICKNESS 0.9 ( $\pm 0.07$ )mm.  
TO GOST 11249-80 AND MANUFACTURED IN ACCORDANCE WITH QUALITY CARBON  
STRUCTURAL STEEL GRADE 10 TO GOST 1050-74.

a) CHEMICAL COMPOSITION.

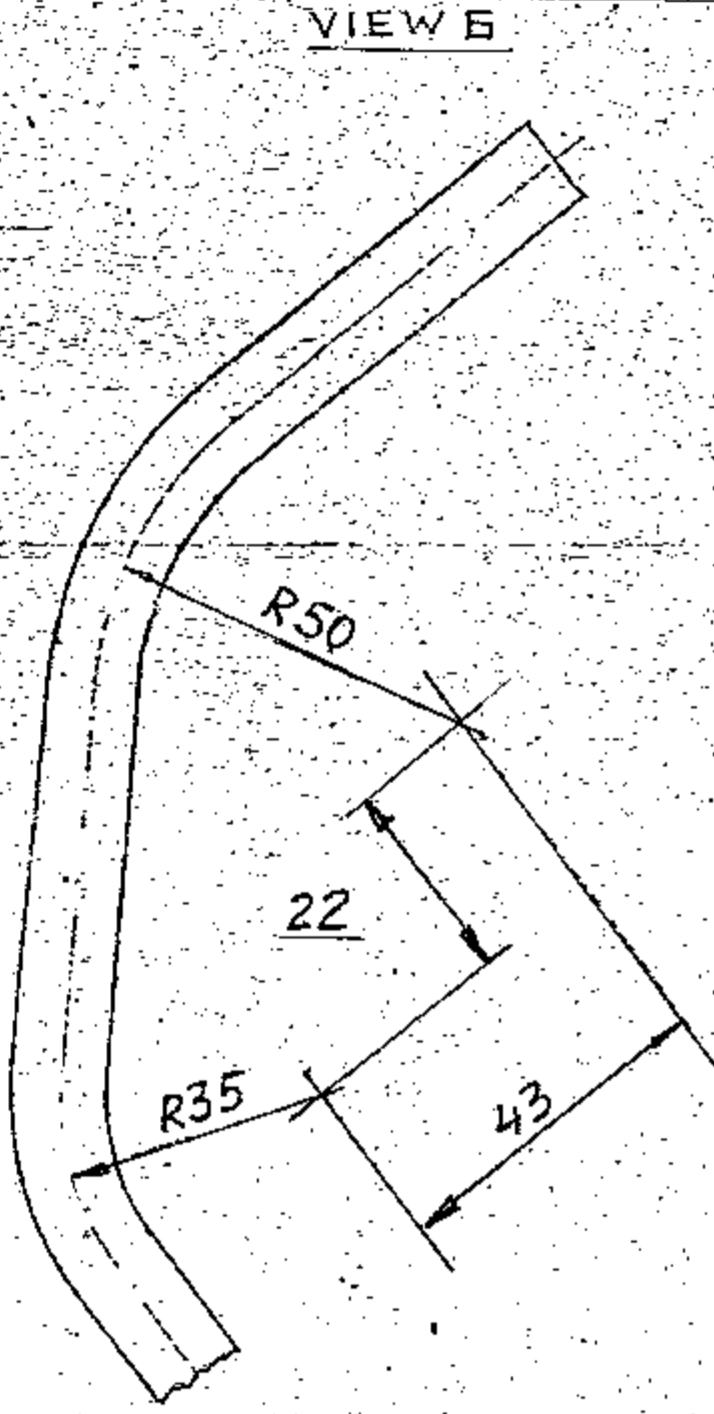
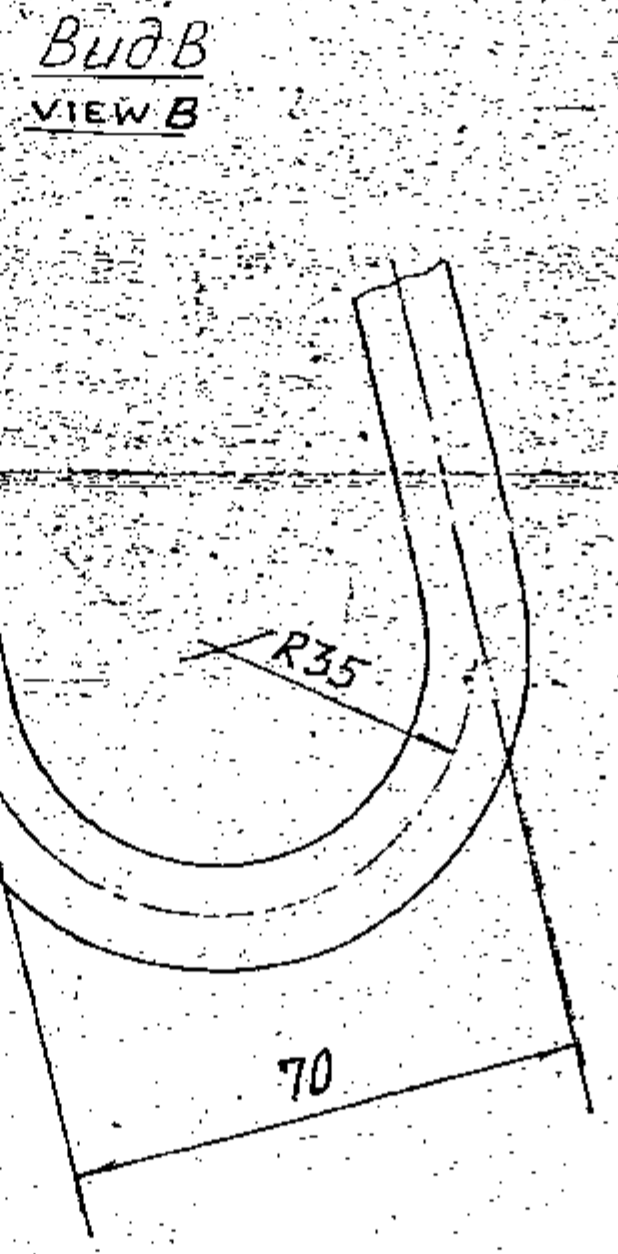
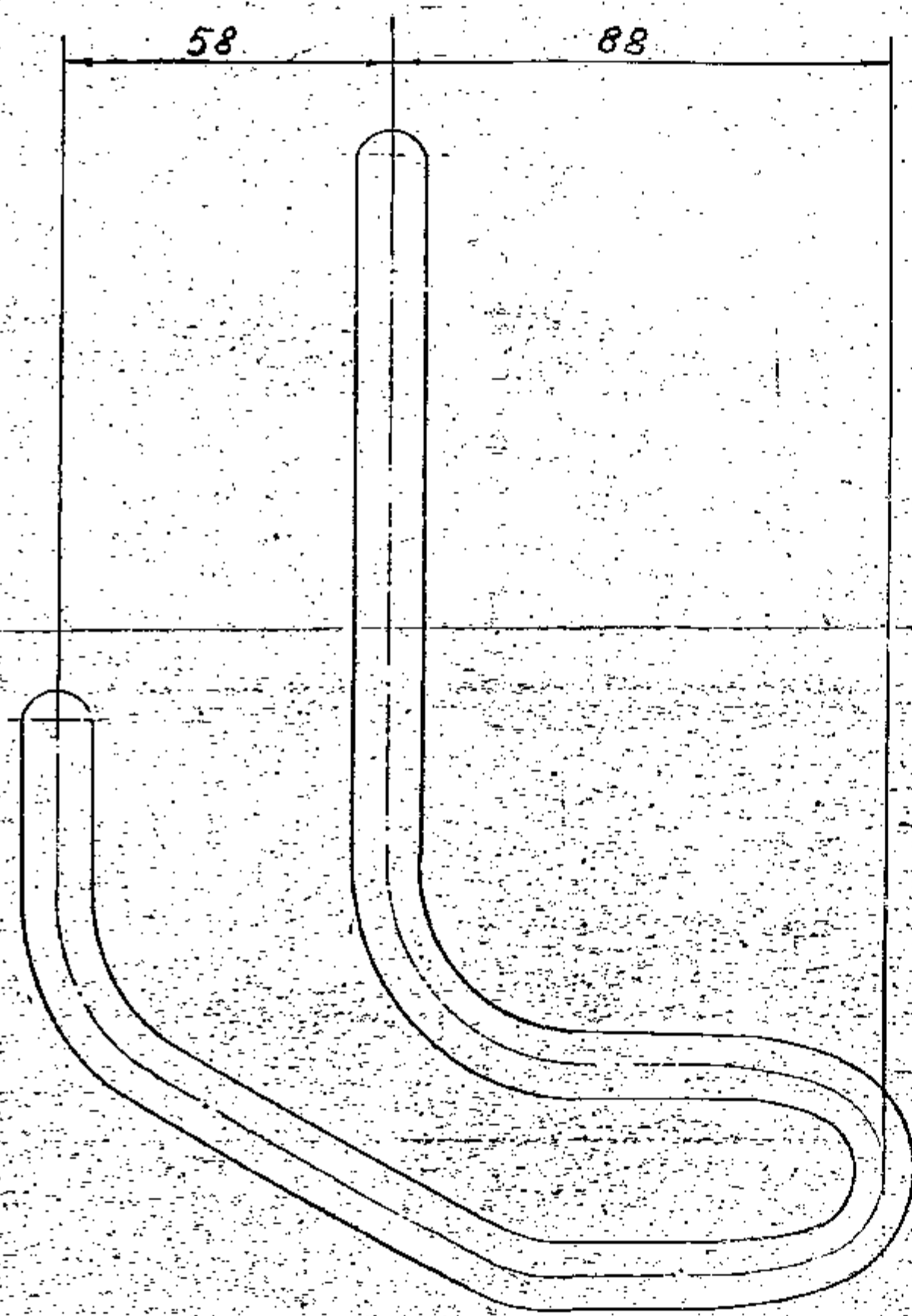
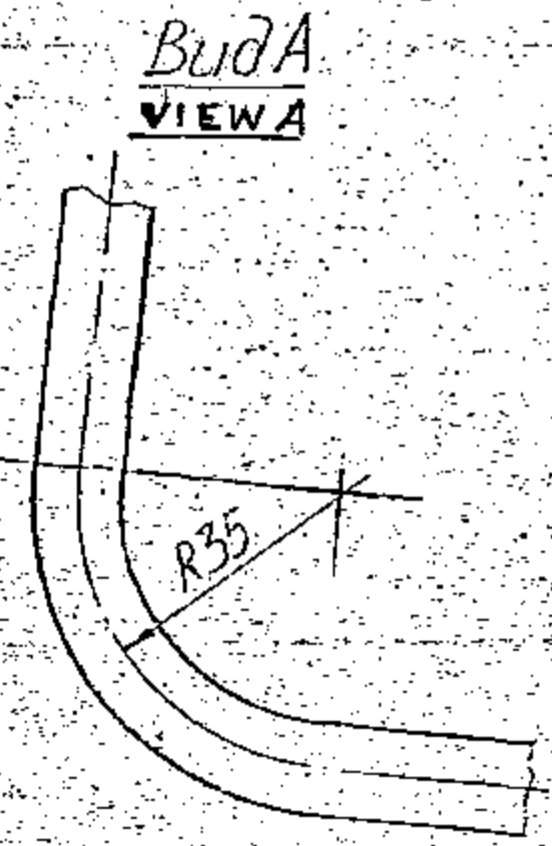
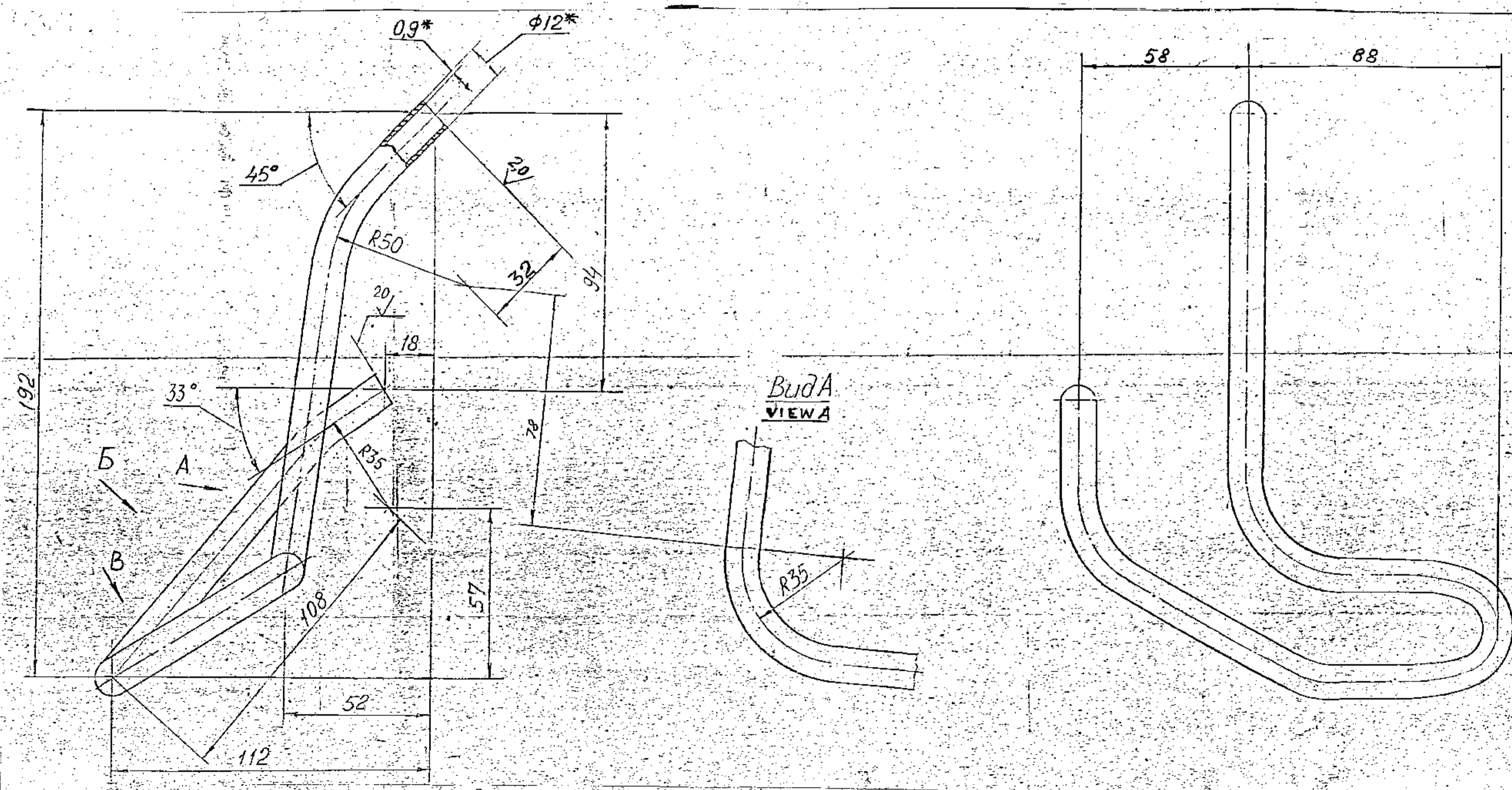
GRADE OF STEEL	CONTENT OF ELEMENTS %					
	C	Si	Mn	Cr	S	P
10	0.07 - 0.14	0.17 - 0.37	0.35 - 0.65	0.15	0.040	0.035
	MAXIMUM					

RESIDUAL CONTENT OF COPPER AND NICKEL SHOULD NOT EXCEED 0.25 % EACH.

b) MECHANICAL PROPERTIES AS PER GOST 11249-80.

- i) ULTIMATE TENSILE STRENGTH ----- 30  $\text{Kgf/mm}^2$  (Min)
- TUBES MUST WITHSTAND THE FOLLOWING TESTS.
- ii) HYDRAULIC PRESSURE (Min) ----- 350  $\text{Kgf/cm}^2$
- iii) EXPANSION OF EXTERNAL DIA ----- 20 %
- iv) BENDING OVER MANDREL RADI EQUAL TO --- 3 TIMES O/D
- v) FLATTENING TEST OVER RADIUS ----- 6 TIMES NOMINAL WALL THICKNESS.

PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.		DRN	DATE	MATERIAL	USED ON
EST. MASS	TO BE STAMPED OR MARKED WHERE INDICATED THUS # LETTERS)	CHD	25/12	PIPE B 12 X 0.9-10	CG 3335 07 19
0.154 Kg		TCD		GOST 11249-80	
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.		APPD		CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI	
		DATE		TITLE:- PIPE	
		SCALE	1:1	D S CAT NUMBER	
		DIMENSIONS IN mm.		DRAWING NUMBER	
		TOLERANCE ON DIMNS UNLESS OTHERWISE STATED.		3327 114 4	
		ALL THREADS CONFORM TO			
ISSUE	DATE	NATURE OF AMENDMENTS			



1. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSION  
UPTO 100mm ± 1.5 mm & UPTO 200mm ± 2mm
2. TOLERANCE FOR QUALITY AT PLACES OF PIPE BENDING  
IS 0.75mm AND NOT EXCEEDING (HALF DIFFERENCE  
OF DIAMETERS)
3. LENGTH OF DEVELOPED PIPE L ≈ 530mm
4. DIMENSIONS FOR REFERENCE

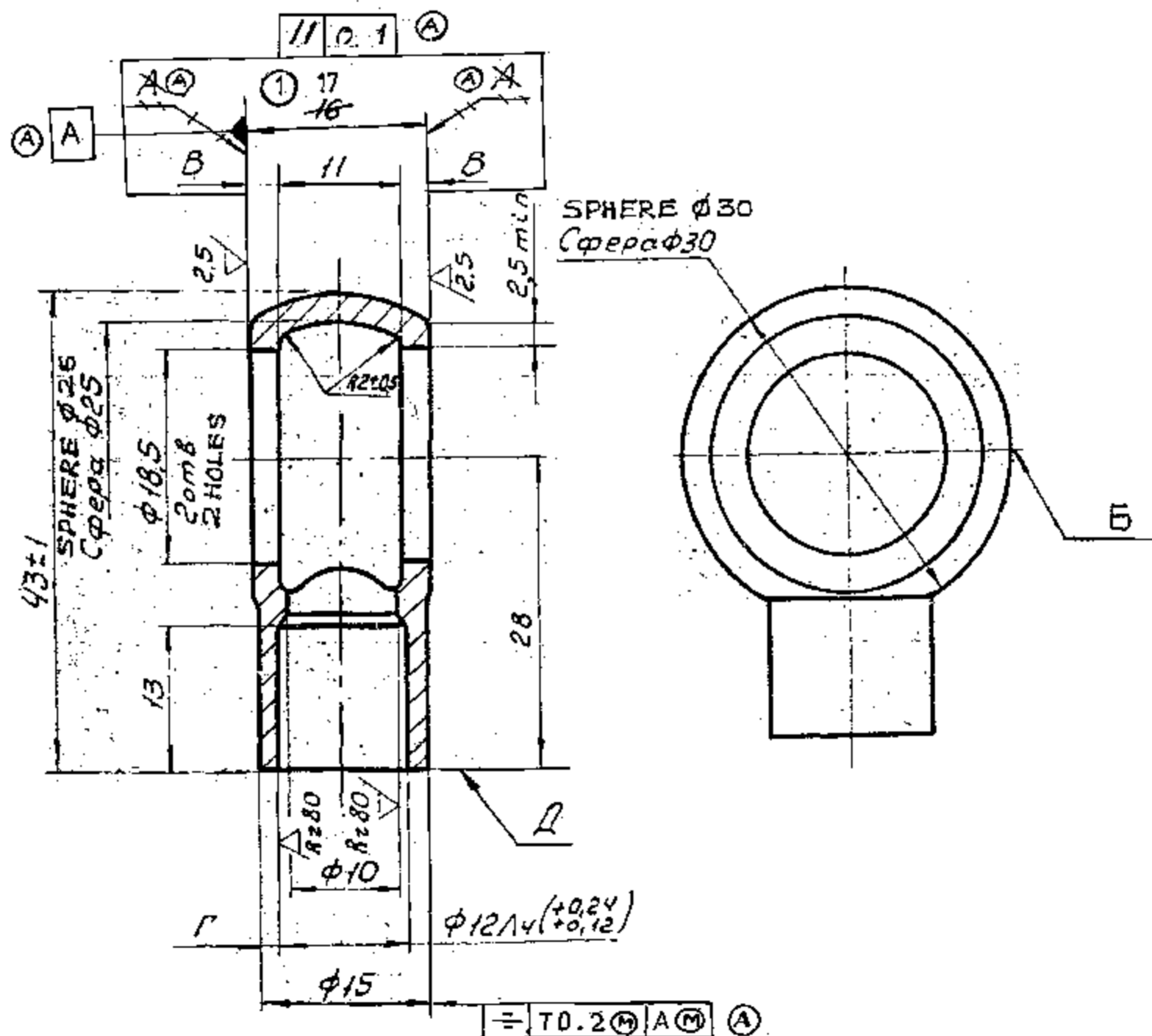
PILOT SAMPLE SHOULD BE APPROVED BY A H.S.P BEFORE  
BULK PRODUCTION.

EST. MASS 0.13 kg TO BE STAMPED OR MARKED WHERE  
INDICATED THUS: II [LETTERS]  
ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS  
OTHERWISE STATED MACHINED CORNERS TO HAVE R OUT-  
SIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE

DRN	CHD	TCO	APPO	DATE	SCALE	DIMENSIONS IN mm	TOLERANCE ON DIMNS UNLESS OTHERWISE STATED IS 2102-69	ALL THREADS TO CONFORM TO	MATERIAL: PIPE B12X0.9-10 GOST 11249-80	USED ON: CB 3335-07-13	CONTROLLERATE OF QUALITY ASSURANCE (NAVY VEHICLES) A V A D I	TITLE <b>FUEL PIPELINE</b>	D S CAT NUMBER	DRAWING NUMBER <b>3335-22-13</b>
				30.9.93	1:1									
ISSUE	DATE	NATURE OF AMENDMENTS												

DRAWING NUMBER  
3335 29

Rz 40 (✓)



**EXPLANATORY NOTE**

11. REFERENCE MATERIAL QUOTED :

QUALITY CARBON STRUCTURAL STEEL GRADE 35 AND REFERENCE NOTE 1 ON  
ALTERNATE MATERIAL QUALITY CARBON STRUCTURAL STEEL GRADE  
30, 40 AND 45 TO GOST 1050-74.

a) CHEMICAL COMPOSITION:

GRADE OF STEEL	CONTENT OF ELEMENTS %						REMARKS
	C	Si	Mn	Cr	S	P	
35	0.32 - 0.40	0.17 - 0.37	0.50 - 0.80	0.25	0.040	0.035	Ref. Matl.
30	0.27 - 0.35	0.17 - 0.37	0.50 - 0.80	0.25	0.040	0.035	Alt. Matl.
40	0.37 - 0.45	0.17 - 0.37	0.50 - 0.80	0.25	0.040	0.035	Alt. Matl.
45	0.42 - 0.50	0.17 - 0.37	0.50 - 0.80	0.25	0.040	0.035	Alt. Matl.

RESIDUAL CONTENT OF COPPER AND NICKEL SHOULD NOT EXCEED 0.25 % EACH.

b) MECHANICAL PROPERTIES UNDER NORMALISED CONDITION.

GRADE OF STEEL	ULTIMATE TENSILE STRENGTH Kgf/mm <sup>2</sup>	YIELD POINT Kgf/mm <sup>2</sup>	ELONGATION %	REDUCTION IN AREA %	IMPACT STRENGTH KJm/cm <sup>2</sup>	REMARKS
35	54	32	20	45	7	Ref. Matl.
30	50	30	21	50	8	Alt. Matl.
40	58	34	19	45	6	Alt. Matl.
45	61	36	16	40	5	Alt. Matl.

12. REFERENCE NOTE 1 ON ALTERNATE MATERIAL: STEEL CASTING GRADE 20 И 35 И TO GOST 977-75.

a) CHEMICAL COMPOSITION

GRADE OF STEEL	CONTENT OF ELEMENTS %							
	C	Mn	Si	P	S	Cr	Ni	Cu
20 И	0.17 - 0.25	0.35 - 0.90	0.20 - 0.52	0.06	0.05	0.30	0.30	0.30
35 И	0.32 - 0.40	0.40 - 0.90	0.20 - 0.52	0.06	0.05	0.30	0.30	0.30

b) MECHANICAL PROPERTIES UNDER NORMALISED CONDITION.

GRADE OF STEEL	ULTIMATE TENSILE STRENGTH Kgf/mm <sup>2</sup>	YIELD POINT Kgf/mm <sup>2</sup>	ELONGATION %	REDUCTION IN AREA %	IMPACT STRENGTH KJm/cm <sup>2</sup>
20 И	42	22	22	35	5.0
35 И	50	28	15	25	3.5

1. ALTERNATE MATERIAL : STEEL, GRADES 20 И AND 35 И GOST 977-75 AND STEEL 30, 40 AND 45 GOST 1050-74.

2. UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS A.S PER ACCURACY CLASS 7 OST 1010.

① 3. THICKNESS OF WALL "B" SHOULD NOT BE LESS THAN 2.5mm.

4. VARIATION IN THICKNESS OF WALL "Г" SHOULD NOT EXCEED 0.2 mm.

② 5. NON-PARALLELISM OF SURFACES "A" SHOULD NOT EXCEED 0.1 mm.

③ 6. MISALIGNMENT AND SKEWNESS OF SHANK AXIS RELATIVE TO SURFACE "A" SHOULD NOT EXCEED 0.3 mm ON A LENGTH OF THE SHANK.

7. ROUGH CYLINDRICAL SURFACE "Б" UP TO 4 mm. WIDE IS ALLOWED ON TWO SIDES.

8. DELETED.

9. COATING: Cd 9, CHROMAZING A.S PER INSTRUCTIONS  
ццл -10% WITH ELIMINATION OF HYDROGEN EMBRITTLEMENT.

10. THERE MAY BE NO COATING ON THE INTERNAL SURFACES AND AT THE PLACES OF DEFECTS OF CASTING.

④ ALTERNATE MATERIAL : STEEL 080 M40 (EN8) TO BS: 970 Pt-1-1983 OR 35 C4 TO IS: 1570

PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

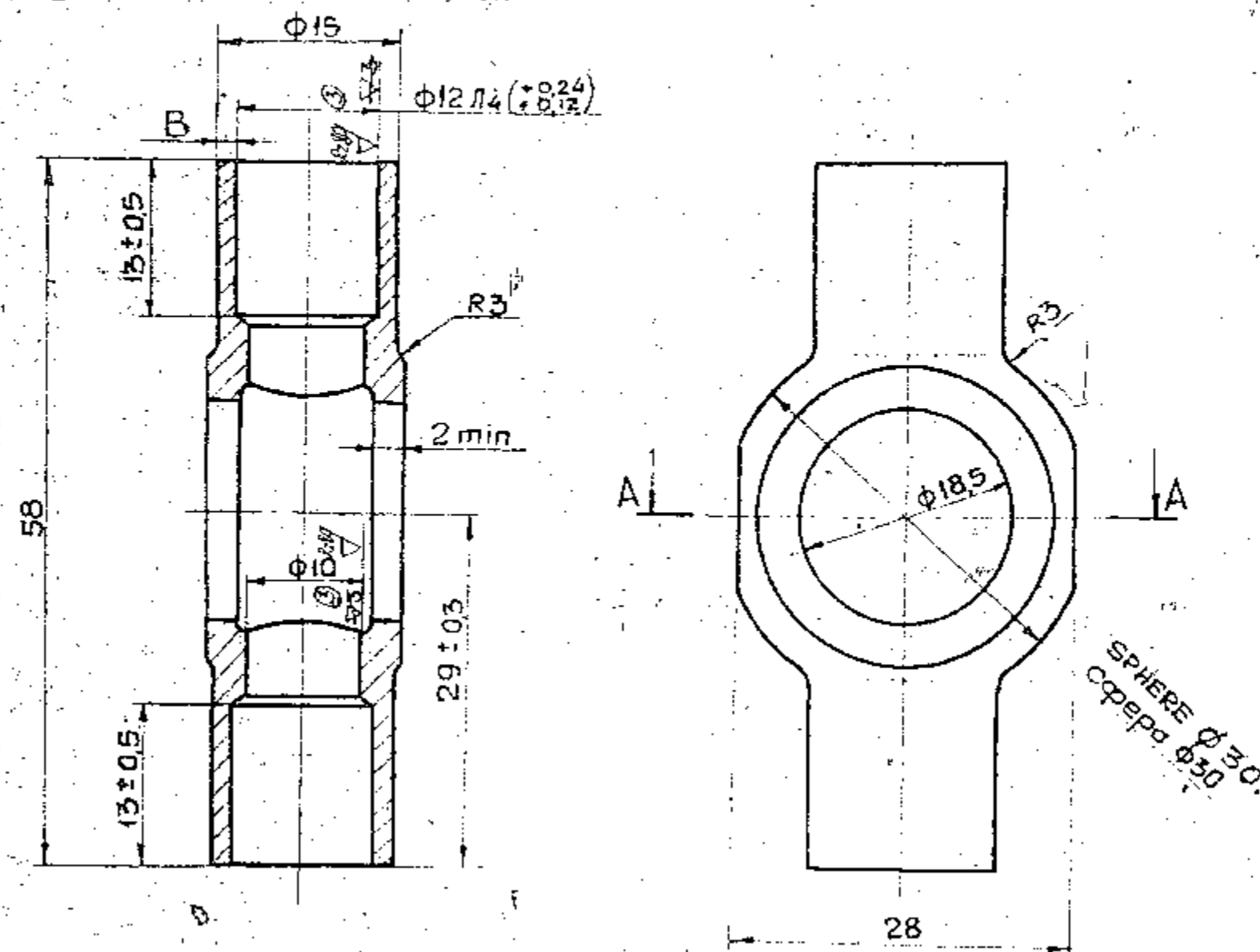
EST. MASS 0.035 Kg TO BE STAMPED OR MARKED WHERE INDICATED THUS # LETTERS)

ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R. INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	CHD	TCD	APPD	DATE	SCALE - 2:1	MATERIAL - STEEL 35 GOST 1050-74	USED ON - 63 3335 07 19
					CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI		
					TITLE: SWIVEL ELBOW		
					D S CAT NUMBER		
					DRAWING NUMBER 3335 29		
1A	11-7-09	3 <sup>rd</sup> ALTERATION COMM. MINUTES POINT 6, DATE 27-2-09					
A	7.2.97	AUTHY NOTN. No. BK 86-240					
ISSUE	DATE	NATURE OF AMENDMENTS					

DRAWING NUMBER  
3335 29 9

Re 40 (✓)



**EXPLANATORY NOTE:**

6. REFERENCE MATERIAL QUOTED:

QUALITY CARBON STRUCTURAL STEEL GRADE 35 TO GOST 1050-74.

a) CHEMICAL COMPOSITION :

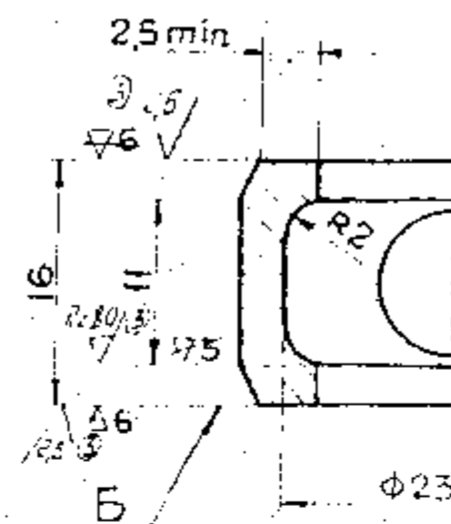
GRADE OF STEEL	CONTENT OF ELEMENTS %						REMARKS
	C	Si	Mn	Cr	S	P	
35	0.32 - 0.40	0.17 - 0.37	0.50 - 0.80	0.25	0.040	0.035	Ref. Mat. L

RESIDUAL CONTENT OF COPPER AND NICKEL SHOULD NOT EXCEED 0.25 % EACH.

b) MECHANICAL PROPERTIES UNDER NORMALISED CONDITION.

GRADE OF STEEL	ULTIMATE TENSILE STRENGTH Kgf/mm <sup>2</sup>	YIELD POINT Kgf/cm <sup>2</sup>	ELONGATION %	REDUCTION IN AREA %	IMPACT STRENGTH Kgm/cm	REMARKS
35	54	32	20	45	7	Ref. Mat. L

A-A



- DELETED.
- UNSPECIFIED LIMIT DEVIATIONS OF DIMENSIONS : FOR FEMALE COMPONENTS - AS PER A 7 FOR MALE COMPONENTS - AS PER B 7
- VARIATIONS IN THICKNESS OF WALL "B" SHOULD NOT EXCEED 0.2 mm.
- SHIFT AND SKEWNESS OF CYLINDRICAL SHANK AXIS RELATIVE TO THE AXIS OF SURFACES 6 SHOULD NOT EXCEED 0.3 mm ON A LENGTH OF CYLINDRICAL PORTION.

1. NON PARALLELISM OF SURFACES 6 SHOULD NOT EXCEED 0.1 mm.

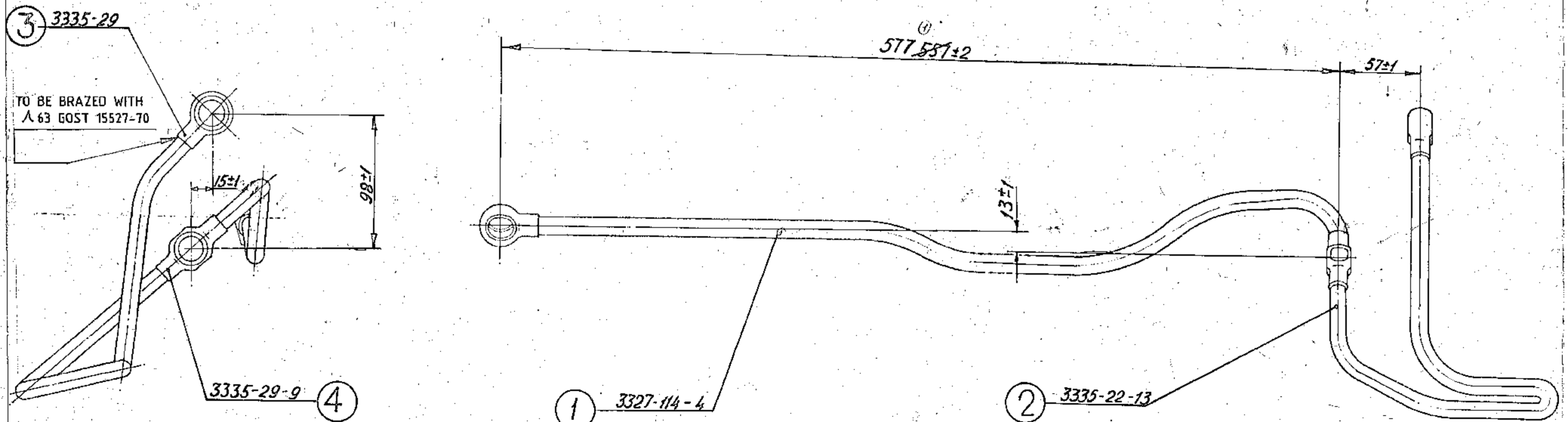
PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

EST. MASS 0.972 Kg TO BE STAMPED OR MARKED WHERE INDICATED THIS \* (LETTERS)

ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	CHD	TCD	APPD	DATE	SCALE	DIMENSIONS	TOLERANCE	ALL THREADS	ISSUE	DATE	NATURE OF AMENDMENTS
					2:1	mm	ON DIMS UNLESS OTHERWISE STATED.	CONFORM TO			
MATERIAL: STEEL 35 GOST 1050-74						USED ON: 06 3335 07 19		CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI			
TITLE: SWIVEL ELBOW						D S CAT NUMBER		DRAWING NUMBER 3335 29 9			

DRAWING NUMBER  
CB 3335 07 19



1. FINAL ADJUSTMENT AND ACCEPTANCE SHOULD BE CARRIED OUT ON ARTICLE.
2. PIPE ENDS SHOULD BE SAFE GUARDED AGAINST CONTAMINATION.
3. PIPE INTERNAL PASSAGE SHOULD BE CLEAN.
4. PIPE SHOULD BE CHECKED FOR CLEANLINESS WITH PETROL (BY RINSING THE PIPE) WITH SUBSEQUENT FILTERING PETROL THROUGH FILTER PAPER. THERE SHOULD BE NO SEDIMENTS, VISIBLE TO THE NAKED EYE ON THE FILTER PAPER. 2% OF UNITS ARE TO BE CHECKED.
5. THE PIPE IS TO BE PRESSURE TESTED IN WATER BY AIR AT A PRESSURE OF 3 TO 5 Kgf/cm<sup>2</sup>. PRESSURE TESTING SHOULD BE CARRIED OUT BEFORE COATING.
6. EXTERNAL COATING GLYPTAL VARNISH / φ-95 GOST 8010-70 AS PER INSTRUCTIONS (GOST-09-73. THERE MAY BE NO COATING ON THE PACKING SURFACES OF SWIVEL ELBOWS. TO BE SUBSEQUENTLY COATED WITH BLACK ENAMEL No. 660.

PILOT SAMPLE SHOULD BE APPROVED BY A H S P BEFORE BULK PRODUCTION.

EST. MASS	TO BE STAMPED OR MARKED WHERE INDICATED THUS * LETTERS)
0.636 Kg	1

ALL SHARP EDGES AND CORNERS TO BE REMOVED UNLESS OTHERWISE STATED MACHINED CORNERS TO HAVE R OUTSIDE R INSIDE EQUIVALENT CHAMFERS ARE PERMISSIBLE.

DRN	<i>Doc</i>	MATERIAL:-	USED ON:-
CHD	<i>Doc's Office</i>		CB 3335 00 24 30
TCD	<i>Norman's buds</i>		
APPD	<i>Doc</i>	CONTROLLERATE OF INSPECTION (HEAVY VEHICLES) AVADI	
DATE	<i>07/06</i>	TITLE:-	
SCALE - 1 : 2		PIPE TO FUEL PUMP	
DIMENSIONS IN mm.		D S CAT NUMBER	DRAWING NUMBER
TOLERANCE ON DIMS UNLESS OTHERWISE STATED.			CB 3335 07 19
ALL THREADS CONFORM TO	ISSUE	DATE	NATURE OF AMENDMENTS

A-2  
SIZE A2

