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CENTRAL INTELLIGENCE AGENCY

# INFORMATION REPORT

REPORT

CD NO. 25X1

COUNTRY USSR (Sverdlovsk Oblast)/East Germany

DATE DISTR.

SUBJECT Uaz Light Metal Forging and Pressing Plant in Kamensk-Uralskiy

NO. OF PAGES 28

PLACE ACQUIRED

DATE OF INFO.

NO. OF ENCLS. (LISTED BELOW) 25X1

REFERENCES

SUPPLEMENT TO REPORT NO. 25X1



25X1

THIS IS UNEVALUATED INFORMATION

25X1

Attached are the pertinent legends forwarded as received.

Comments: 25X1

1. Uaz Light Metal Forging and Pressing Plant No. 268, also listed as Aircraft Parts Plant No. 268, and the nearby Uaz Aluminum Plant are components of the Kamensk-Uralskiy light metal industry, which includes a third factory in Uaz, No. 286, in the Sinarskaya section.

2. Uas should read Uaz throughout the report. Kamensk-Uralsk should read Kamensk-Uralskiy. 25X1

3. Nos. 31 and 32 in the legend to annex 1 are not located on the plan. They are probably the two small squares in the area semi-enclosed by No. 30.

4. No. 13 in the legend to annex 2 is omitted on the plan.

5. Siemag in No. 14 in the legend to annex 2 is probably the cable address of Siemans AG.

6. On sketch 13 b in annex 11, the numbers indicating the dimensions in which the original plates were to be forged are underlined rather than executed in blue as stated in the legend.

S-E-C-R-E-T

CLASSIFICATION

| | | | | | | DISTRIBUTION | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATE | x | NAVY | x | NSRB | | | | | | | | |
| ARMY | x | AIR | x | FBI | | | | | | | | |

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Annex 1



25X1

Location Sketch of the Uas Light Metal Pressing and Forging Plant in Kamensk Uralsk.

The sketch was prepared on the basis of a city plant of Kamensk Uralsk, probable scale 1 to 25,000. It was believed that various scales were used when the city plan was prepared, because the area and the buildings of the aluminum works and the power plant appear to be twice or more as large as it is remembered.

[redacted]

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Legend.

1 Uas Light Metal Forging and Pressing Plant, Post Box 4, Kamensk Uralsk. For details, see Annexes 2 to 4.

1a Open area for plant enlargement. In November 1953 a large light metal foundry was under construction there.

2 Area with apartment houses for plant personnel. Brick buildings, many of them single-story.

2a Area with wooden houses of plant personnel. According to rumors, the bj buildings 2 and 2a were to be torn down because the wind constantly blew red dust from the aluminum plant to this area.

3 Plant administration outside of the plant area

4 Fire department

5 Metallurgical laboratory under construction

6 New administration building under construction, previously planned as technical school.

7 Temporary apartment houses

8 Military guard detail

9 Thermal power plant, located farther to the south than indicated by the city map which gives the location that had previously been planned. Excavations and some concreting work indicated that construction work had been started.

10 Previously planned location of power plant

11 Water works, probably for drinking water

12 Municipal repair plant for water works (small shed)

13 Aluminum works

13a Coal dump

13b Lumber dump

13c Two smokestacks, 80 to 100 m high, at night illuminated by red lamps at 3/4 of their height.

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13d Administration of aluminum works

13e Probably electrolytic shop, scale 1 to 25,000, about 80 m long

14 Apartment houses

15 Fire department

The other buildings of the aluminum works were not identified on the city plan. The plant was constructed about 1939 and was in a poor condition. In the town it was said that working at the plant was not healthy and that, therefore, salaries and bonuses were comparatively high. Even young workers did not stay for more than two years before going back to a collective farm to recover in fresh air. The plant was allegedly the largest aluminum works in the USSR. No information was obtained on the output and the workforce.

16 Approximate location of a freight station in the area marked by the hatched line, 6 to 8 tracks and a building with an inscription "Uas". A settlement in this area was not remembered.

17 Railroad line with connection to the plant. The line primarily served agricultural purposes.

18 From this place people were taken to the woods by the train to collect berries and mushrooms.

19 Previous location of demolished bridge. A connection to the main line was probably located more in the north. Cars were still being loaded at the quarry and left from there.

20 Quarry

21 Railroad line with heavy passsenger and freight traffic. The route of this line was seen only in the vicinity of the bridge. The fish-bellied new bridge, a welded steel tube construction was guarded by soldiers.

22 Railroad line with heavy traffic as concluded from steam and smoke seen in this direction.

23 Area with a factory and many apartment houses, probably a section of Sinarskaya.

24 Approximate location of Sinarskaya railroad station.

25 Branchroad from Kamensk Uralsk - Uas highway leading to Sinarskaya railroad station and to the tube plant probably located in this area.

26 New tube plant, allegedly in operation since 1952.

27 Building complex. Location on city map is correct, temporary buildings appear too large on the sketch. They have probably been dismantled, because new modern houses were to be constructed there connecting Kamensk Uralsk and Uas.

[redacted]

28 Temporary wooden houses, were probably torn down.

29 Large modern blocks of 4 - 5 story apartment houses with courtyards

30 Area with 3 - 4 story houses. [redacted] The buildings had central heating and hot water. Even in winter they were warm enough to sit in shirt sleeves. Soviets frequently wore pyjamas. 25X1

31 School

32 Hospital

33 Stadium

34 Luxurious motion picture theater, brick building

35 Theater park

36 UNIVERMAG, restaurant, school, kindergarten, insulation station of hospital, motion picture theater, club of construction workers, and individual 2- and 3-story wooden apartment houses.

37 Rynok and bazaar [redacted]

38 Stadium

39 Two villas of the directors of the aluminum works

40 School

41 Garden

42 Culture park with pavillions and "summer motion picture theater"

43 Sauna

44 Hospital

45 Rural settlements

46 Cable ferries

47 Sanatorium

48 "Dachas", simple country houses with three rooms, kitchen, bathroom and large lobby, for the summer vacations of higher plant personnel starting with the nachalnik (chief)

49 Militia office of Uas

50 Kamensk district militia office

51 Wooden road bridge was probably replaced by a steel and stone structure bridge.

Extrusion Plant and Sheet Rolling Plant of the Uas Light Metal Forging and Pressing Plant.

Legend.

Zeche 1 - extrusion shop

Zeche 2 - sheet metal rolling plant

1 Roller grinding machine

2 Sheet metal packing machine

3 Plate milling machine

4 Packing press for shavings, (part of 3)

5 Slab trimming saw

6 Slab heating furnace

7 Hot rolling stand (United manufacture)

8 Transformers

9 Furnaces for intermediate annealing

10 Gold rolling works

11 Space for electric generators driving the rolls

12 Repair shop

13 Sheet metal straightening and cutting machine

14 Cold rolling stand (Siemag manufacture), obviously dismantled in Austria

15 Lathe to work on roll bodies

16 Adjusting unit for sheet metal including tempering installation

17 Packing and dispatching department

Except for 14 and 15 all machines were of American origin made by the United Firm.

Zeche 3 - Extrusion Plant

1 Plant for pressing water

2 Cooling installation

3 Repair shop and material store

4 3,500-ton tube and extrusion press with heating furnace

5 Transformer station

6 1,500-ton (?) extrusion press with furnace

7 750-ton extrusion press with furnace

8 500-ton extrusion press with furnace

9 Adjusting and tempering plant

10 Packing station

11 Technical office

12 [illegible]

12 Die store

Old Forge (Zeche 4) of the Uas Light Metal Forging and Pressing Plant.

Legend.

1 Showers and dressing room

2 Transformer station

3 Shop for pressing water

4 Electrical workshop (Zeche 15)

5 Pickling plant

6 Material store

7 Repair shop

8 Toilets

9 Tube and extrusion press, 3,500-tons with furnace, same model as the one in Zeche 3

10 Disk saws to cut raw material

11 Transformer station

12 Preheating furnaces

13 Forging machines

14 Furnace (Junker type with plate conveyer)

15 Preheating furnace of 10,000-ton press

16 Forging roll

17 10,000-ton forging press

18 Die heating furnace, (BBC manufacture) cupola furnace (Schachtofen) from Bitterfeld

19 Junker type double-deck furnace from Bitterfeld

20 5,000-ton extrusion press, [redacted]

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21 Heating furnace

22 2,200-ton forging press

23 Heating furnace

24 3,300-ton forging press

25 1,250-ton friction press made by Maschinenfabrik Weingarten

26 Two-chamber furnace

27 5,000-ton forging press

25X1



28 Furnace

29 Trimming press (Maschinenfabrik Weingarten manufacture, dismantled in Bitterfeld)

30 Tempering unit

31 Band saws with straightening machines (adjustment)

32 Packing plant

New Forge (Zeche 6) at the Uas Light Metal Pressing and Forging Plant.

Legend.

1 Offices

2 Electric switching station

3 Cooling plant

4 Machine shop for the production of pressing water

5 Air compressing station

6 Store and workshop

7 30,000-ton forging press with pressure transmissions and furnaces

8 Tempering furnace and quenching bath

9 15,000-ton forging press with furnace

10 12,000-ton extrusion press with furnace

11 Homogenizing furnaces

12 Ingot dump

13 5,000-ton extrusion press

14 Special horizontal and vertical press 25X1

15 Three-chamber furnace

16 Forging roller

17 Tool making shop, die shop

18 Annealing furnace

19 Pickling plant

Unfinished Compressor Wheels.

Legend.

Sketch 1:

Laufraeder - rotor wheels with about 29 blades. The shape of the unfinished product permitted machining either of right or left turning rotors (see black and blue lines). Similar parts, 550 and about 600 mm in diameter, were produced in the pressing plant with a monthly output of 3,000 units. The parts were produced by the 5,000-ton press, the 10,000-ton press or by the 15,000-ton press. The customer for these products was unknown.

Sketch 2:

Forged unfinished rotor wheel to be machined as indicated by the dotted line. The unusual height of the blades effected wrinkling and recrystallization during the forging process which was to be eliminated by increasing the working allowance. The parts were forged on the 3,000-ton press or on the 5,000-ton press in pre- and final dieing processes. The monthly output was about 800 units. The customer was unknown.

Sketch 3

Spars Produced at the Uas Light Metal Forging and Pressing Plant.

Legend.

The products were called "lonsherons" ([illegible]) at the plant [redacted] 25X1
[redacted] The two types forged on different dies included one right and 25X1
one left version. Of each type two different versions could be machined. The parts were forged by the 10,000-ton press at a monthly output of 3,000-units. The receiver of these products was unknown. A record had to be prepared on each spar produced.

Sketch 4

So-Called Collectors Produced at the Uas Plant.

Legend.

The purpose of these unfinished parts was unknown. They were forged in two processes:

1 The ingot, 2,000 mm in diameter, was preforged on the 2,200-ton press. The neck was drawn.

2 Final forging on the 5,000-ton press.

The monthly output was about 2,500 units. The products were sent to the Kirov Plant in Leningrad.

Similar forgings were being developed in late 1953.

Sketch 5

Rotor Wheel Forged at the Uas Plant.

The wheels were produced on the 10,000-ton press and later on the 15,000-ton press until its second cylinder casing broke. The output of these forgings was 3,000 to 4,000 units per month. The customer was unknown. The production was started in October 1949. The 29 blades of the model reproduced on sketch were exactly radial.
In early 1952, a person arrived probably from Novosibirsk, at least from the Asiatic part of the USSR and ordered such forged wheels with similar dimensions but bent blades. After this order had at first been turned down by the Uas Plant, the experiments failed that were made by order of the Ministry of Aviation Industry. Before October 1949, similar unfinished compressor wheels had been produced with the same output.

Sketch 6.

Unfinished Guide Vanes

The two versions produced were 650 and 800 mm in diameter. The monthly output was 800 units. A finished guide vane machined from such a ring was seen once. The customer for these products was unknown.

Sketch 7

Frame Members

The production of these frame members was started in 1952 with a monthly output of 100 units which was gradually increased to 1,500 to 2,000 units per month. They were forged by the 10,000-ton, the 15,000-ton press and on the 10,000-ton stage of the 30,000-ton press. The purpose and the customer of these frame parts were unknown. It was believed that they had to meet very high requirements because samples for tensile tests (fuer Probestaebe) were forged to each unit. A special record had to be prepared on each unit.

Unfinished Compressor Wheels Produced at the Uas Plant.

Sketch 8 and 8a

The unfinished parts forged were designed so 12 to 14 different finished parts could be machined. The small number of parts produced indicated that an experimental series was involved, for which it would not have paid to built all the tools, i.e. one for each of the 14 different finished parts. From sketches of the final products it was concluded that guide vanes or compressor discs respectively for axial-flow compressors were to be machined. The first order for the production of these parts was received in 1951. The number of forgings ordered were to be rated for about 10 axial-flow compressors. A second order for the same number of unfinished parts was received several months later.
The dimensions of the unfinished parts indicated that finished parts of sizes as used for 012 type power units could be machined. It was unknown, however, whether the Soviets had started to produce these component parts of light metal and not of steel sheets as it had been done at plant No 2 in Upraflencheskiy.
The unfinished parts were forged on the 30,000-ton press and occasionally also on the 10,000-ton press.

Sketch 9

Reinforced Plate Type Frame Number

This unsymmetrical part was a plate reinforced by ribs and had an aperture (canal) in the center and annexes at the small sides. The plane rear side was reinforced by some ribs. The thickness of the ribs around the aperture in the center was big enough to leave enough material after the machining. It was noticed that the walls of the aperture were not orthogonal to the plate but had an incline. The angle of this incline was not remembered. On sketches of the finished part the aperture in the center was designated "canal".

The first experimental plates hand forged at the Uas Plant were solid and were probably milled to their final shape at the aircraft plant. Subsequently it was ordered that the tools for die forging were manufactured. The first plates die forged on the 30,000-ton press were seen shortly before November 1953.

Propeller Blades Forged at the Uas Plant.

Sketch 10:

Propeller blade, 4,000 mm long including an annex about 300-mm long for tensile tests.

Sketch 10a: Ingot from which the unfinished propeller blade was forged.

Sketch 10b: Schematic reproduction of the rolling system of the ingot after the shaft had been attached by the 30,000-ton press.

Sketch 10c: Pressing of shaft.

Conical Spar Forged at Bitterfeld.

Sketch 11: Section of conical spar.

Sketch 11a: Detailed sketch showing forged conical part and covering (Beplankung)

Sketch 12: Die forging of spar.

a. Two spars were forged in one die from one preforged part, see sketch 12a for top view of preforged part extending over both dies.

b. Section of die with two conical spars.

1 Large section

2 Section of smallest part

Experimental Wing Members

Sketch 13 a: Schematic reproduction of photographic copy of a sketch 25X1

Sketch 13 b: Experimental plate forged for the candidate by the Uas plant. The blue numbers indicate the dimensions in which the original plates were to be forged. This was possible only in a step-by-step forging process. With a pressure of 2,000 kg being needed for 1 $cm^2$, a total pressure of 120,000 tons would be required for the pressing of a plate 1 x 6 m. In 1952, 50 such plates were completed.
The results were satisfactory.
The side view of plate. On the final version the connecting pieces were to be attached to the part marked by the circle.

Sketch 13 c: Schematic reproduction of the step-by-step forging process of the rib plate.

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Annex 1

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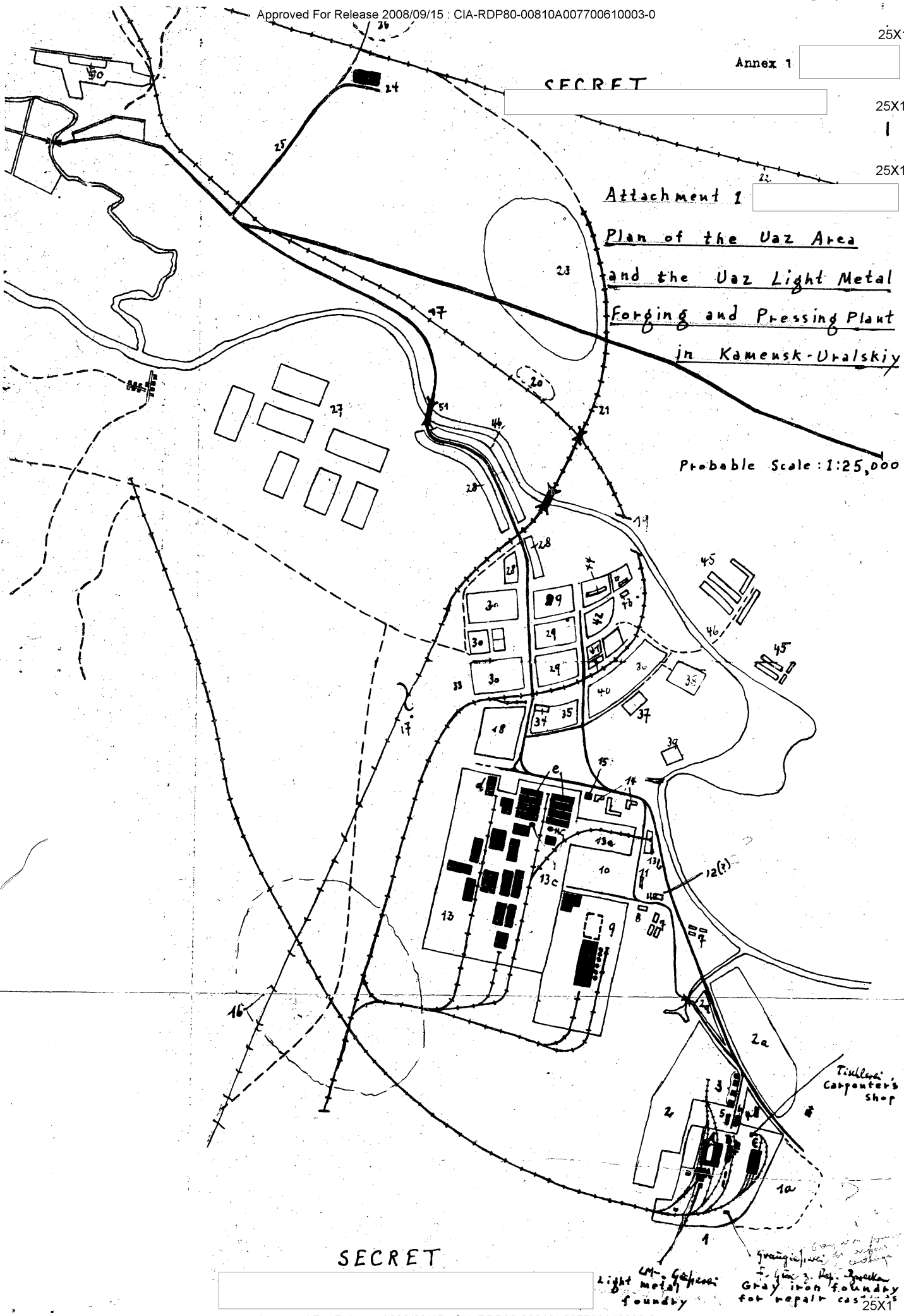
# Attachment 1

## Plan of the Uaz Area and the Uaz Light Metal Forging and Pressing Plant in Kamensk-Uralskiy

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Attachment 2

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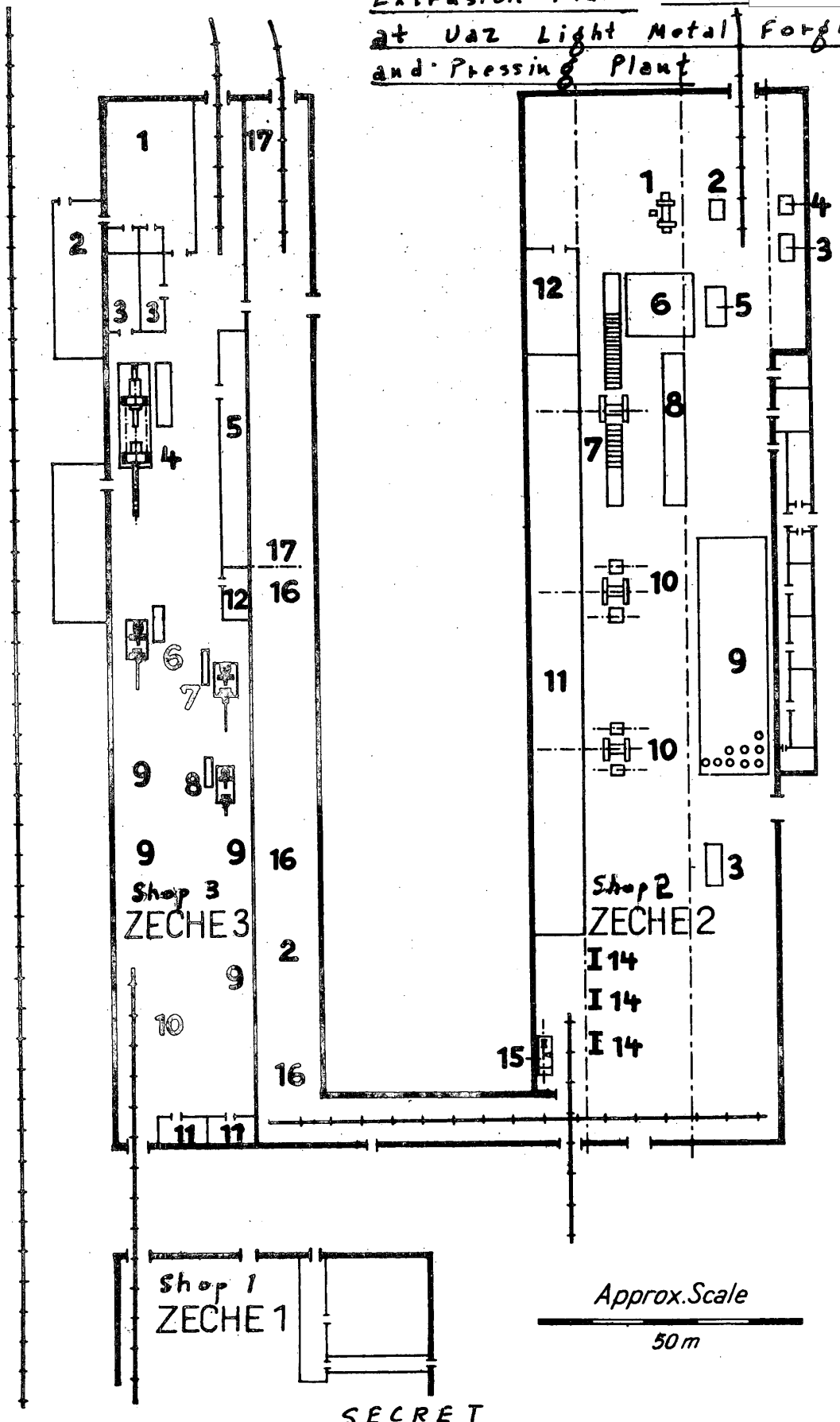
Plan of Sheet Rolling Plant and Extrusion Plant Annex 2 at Uaz Light Metal Forging and Pressing Plant

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Attachment 3
Annex 3

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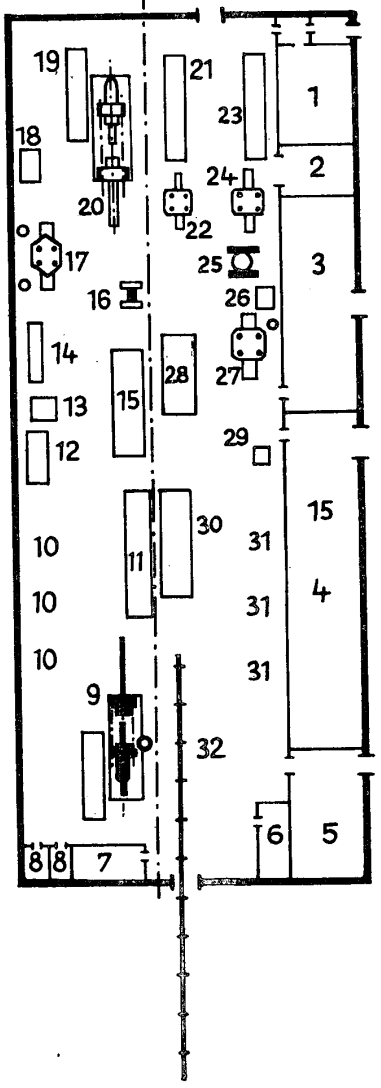
# Plan of Old Forge at Uaz Light Metal Forging and Pressing Plant

ZECHE 4
Shop 4




Approx. Scale
50m

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[redacted]

Attachment 4
Annex 4 to [redacted]

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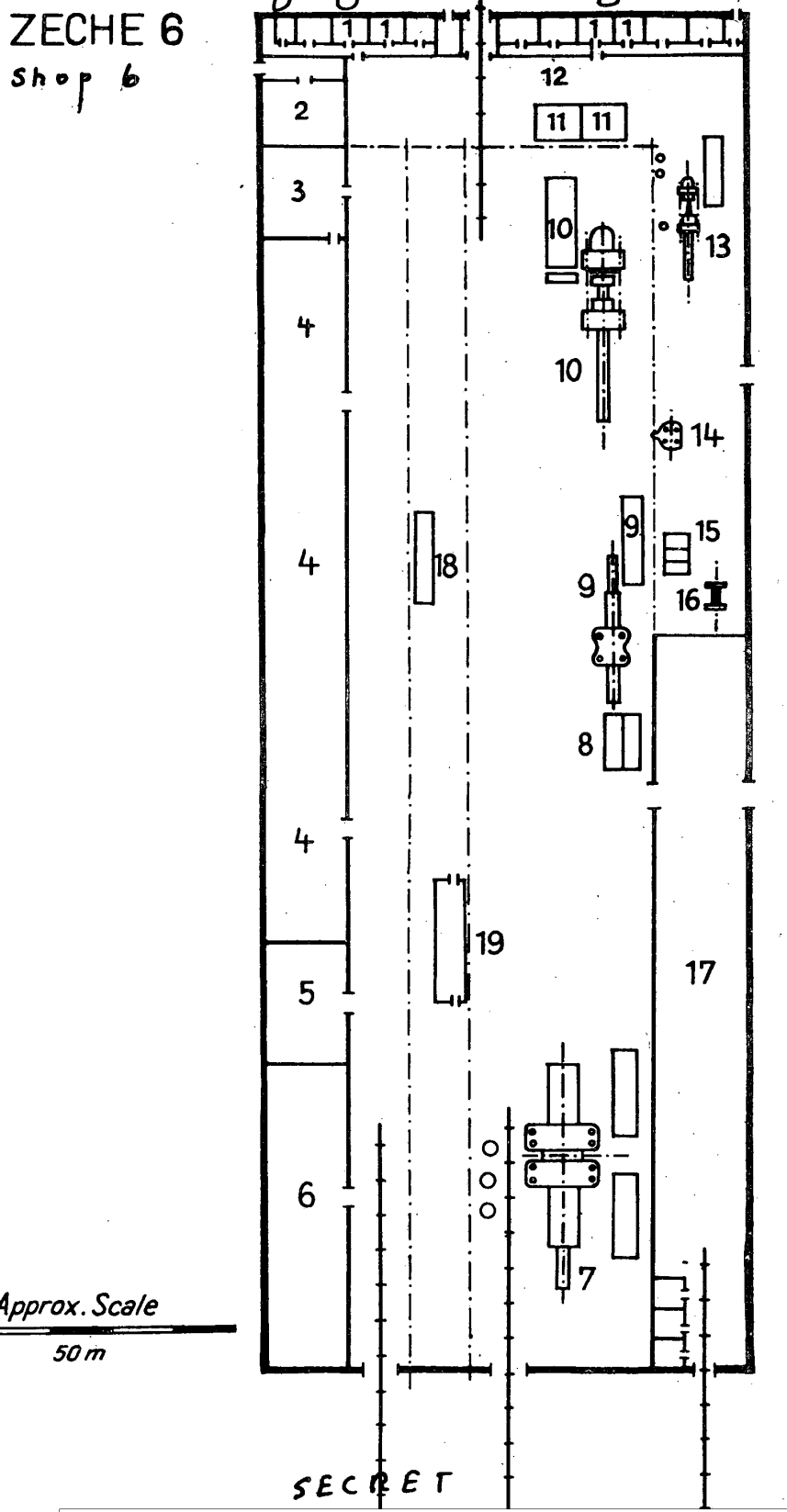
# Plan of New Forge at Uaz Light Metal Forging and Pressing Plant

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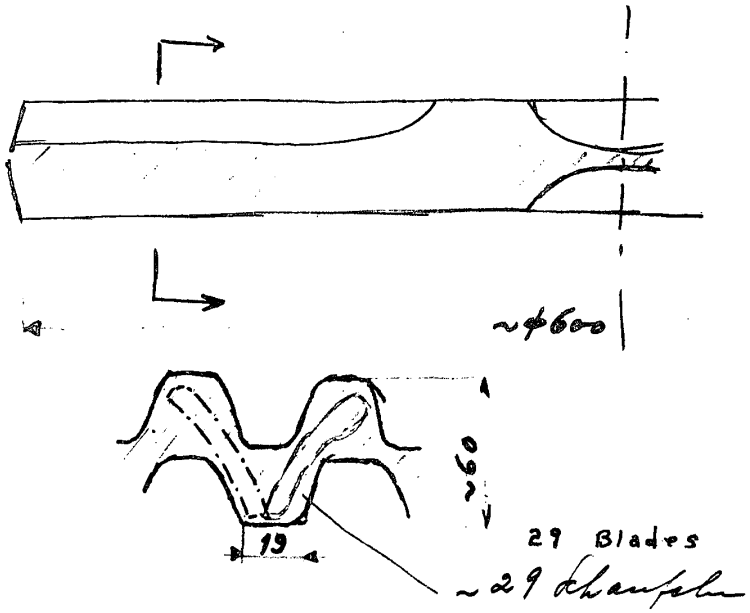
Attachment 5 to [redacted] 25X1

Annex [redacted] 25X1

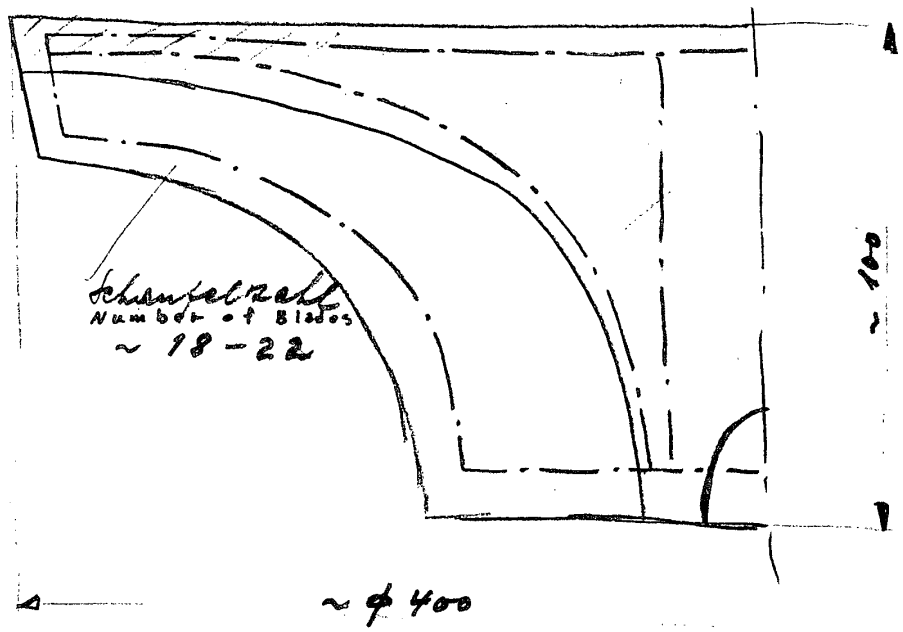
Skizze 1 ( Laufräder)

Sketch 1. Unfinished Compressor Wheels.




Skizze 2 (Laufräder)

Sketch 2. Unfinished Compressor Wheels.

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Attachment 6

Annex 6

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Skizze 3 : Holmgurte ("Lonsherons")

Sketch 3. Spars,

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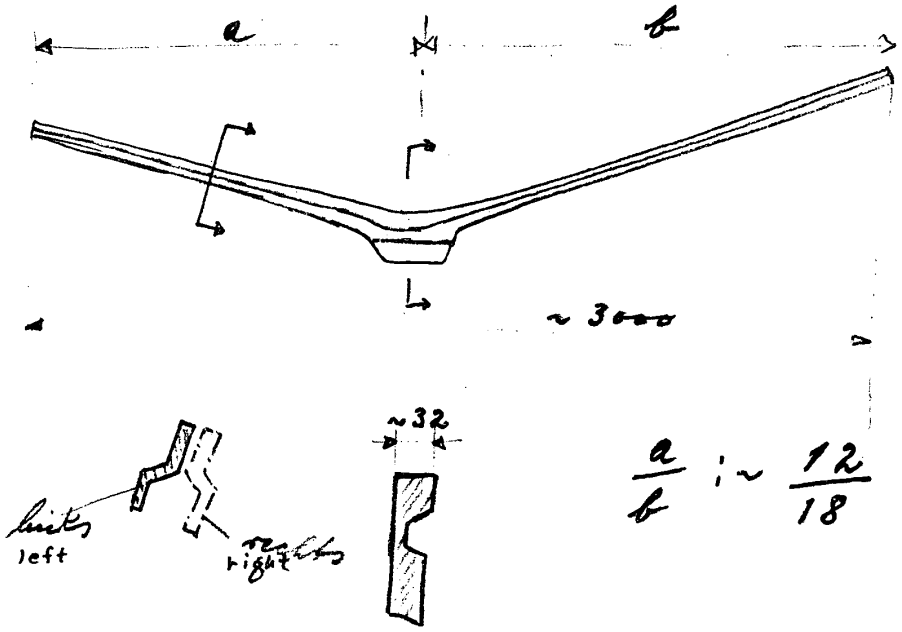
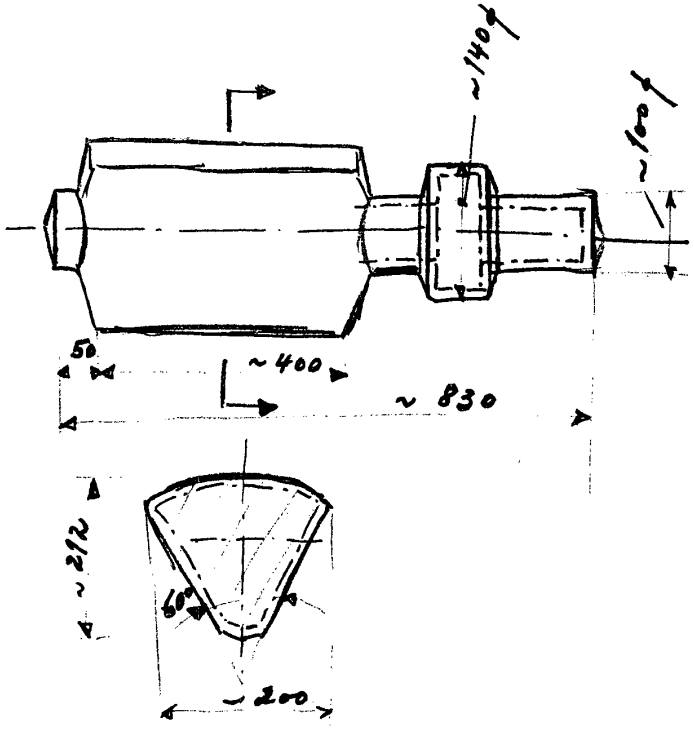



Skizze 4 : Kollektor

Sketch 4: Collectors.

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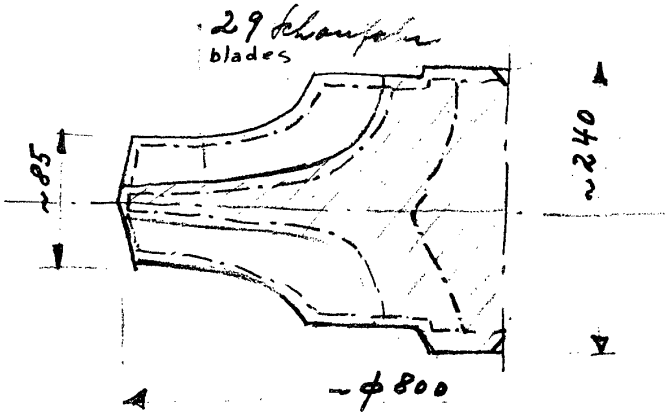
Attachment 7
Annex 7

Skizze 5: Laufrad

Sketch 5. Rotor wheel forged at Uaz Plant.

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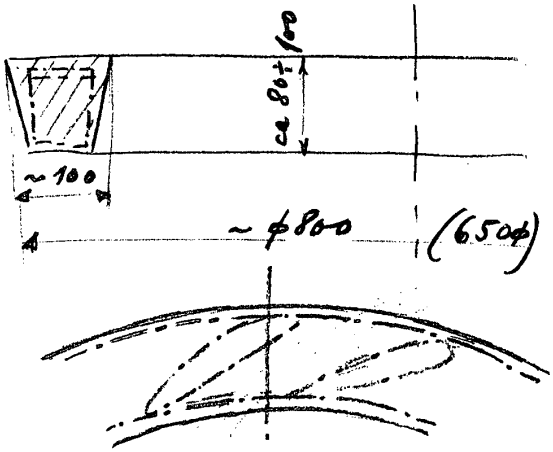
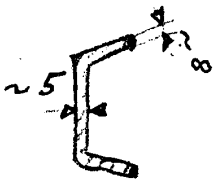
Skizze 6: Ringe

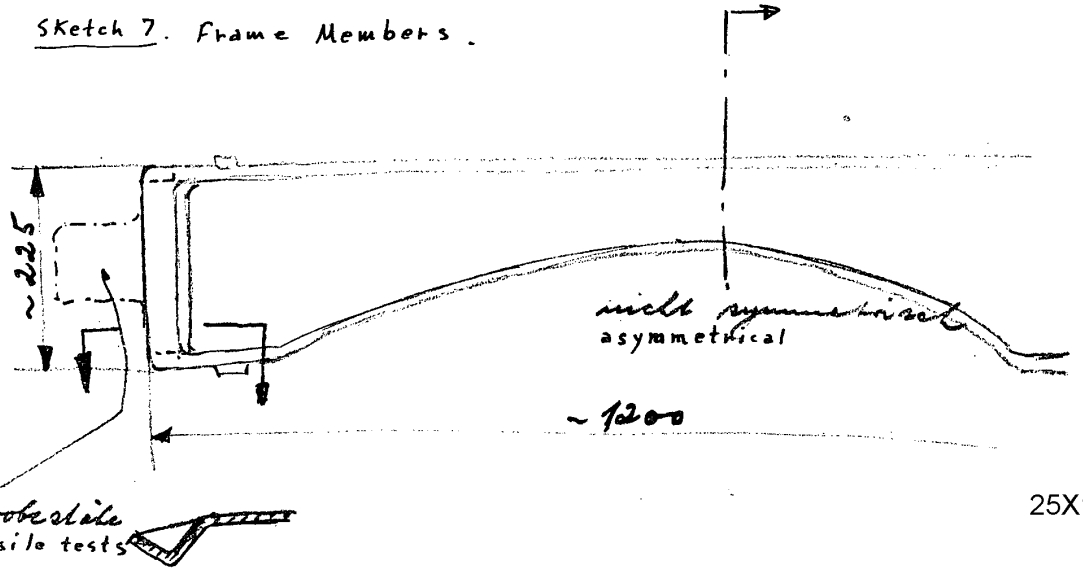
Sketch 6. Unfinished Guide Vanes.




Skizze 7: Rahmen

Sketch 7. Frame Members.

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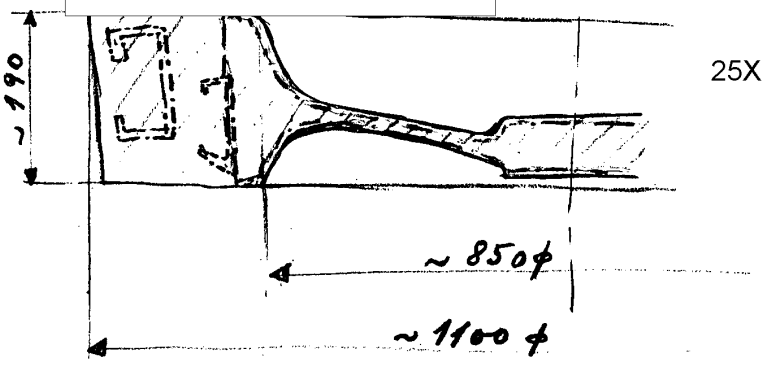
Attachment 8
Annex 8

Skizze 8: Laufräder

Sketch 8. Unfinished Compressor Wheel.

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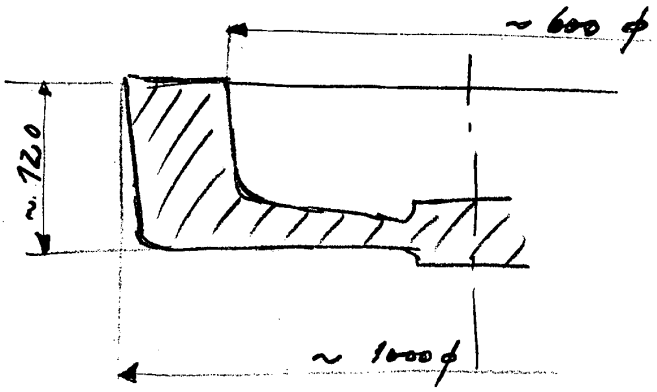
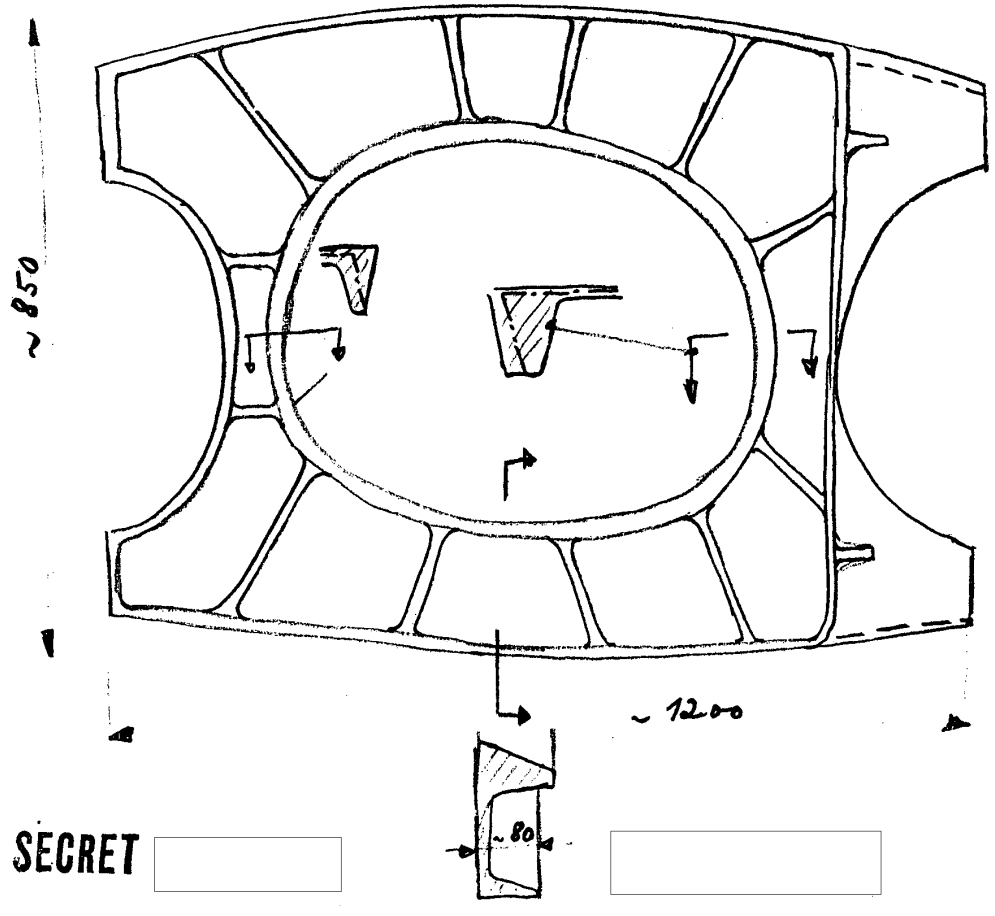
Skizze 8a: Laufräder

Sketch 8a. Unfinished Compressor Wheel.




Sketch 9. Reinforced Plate-Type Frame Member.

Skizze 9: Versteifte Rahmenplatte mit Durchbruch ("Kanal")

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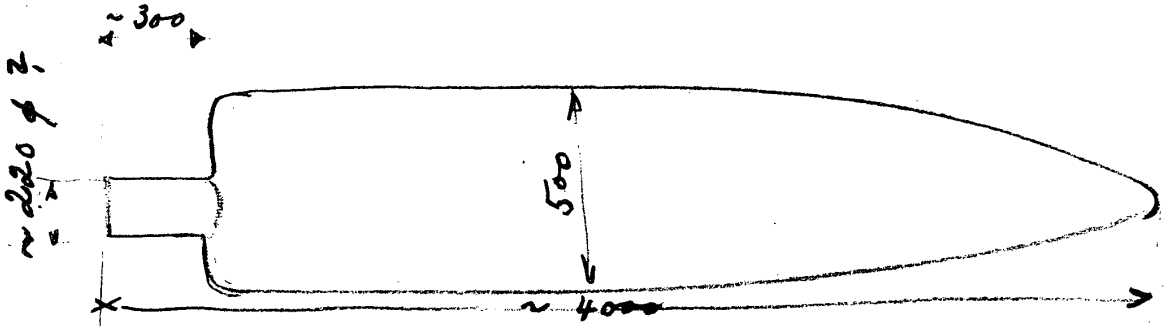
Skizze 1o: Luftschraubenblatt
Sketch 10: Propeller Blade.

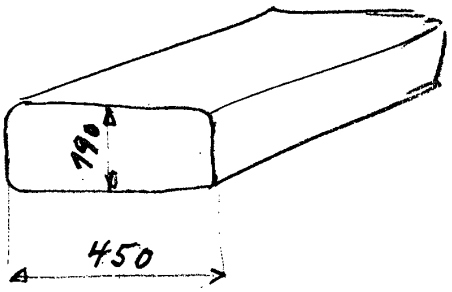
Annex 9
Attachment 9

Das angegebene Maß von 4 ooo mm Länge dieses Blattrohlings schließt an der Spitze des Blattes noch ca. 3oo mm Material-Zugabe für die Entnahme von Probematerial zu Zerreißversuchen ein.

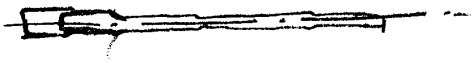
25X1



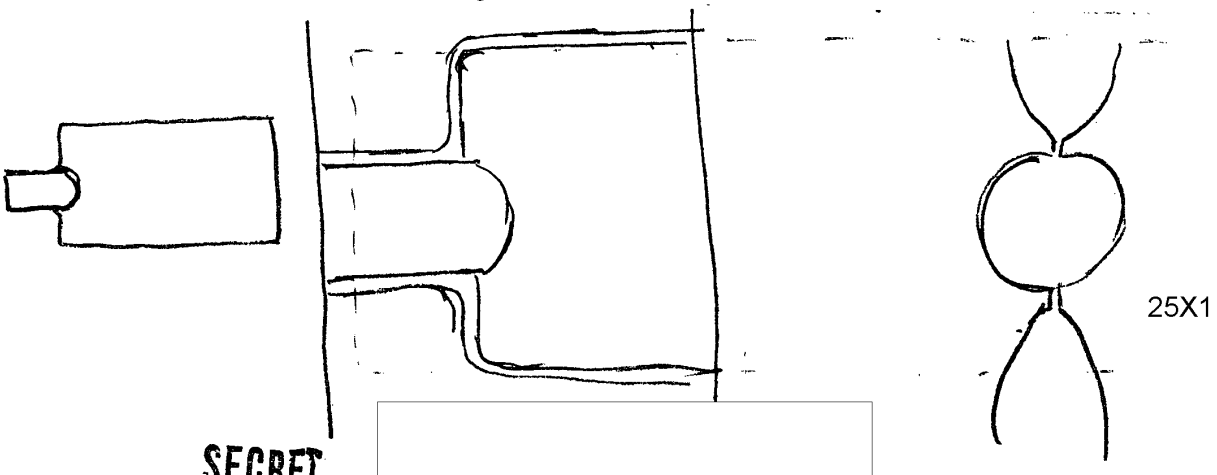

Sketch 10a: Ingot from which Propeller Blade was Forged.
Skizze 1oa: Blockquerschnitt, aus dem Luftschraubenblatt 1o geschmiedet wurde.




Sketch 10b: Rolling System of the Ingot.
Skizze 1o b: Schema nach dem das Blatt aus dem Block auf der Walze gestreckt wurde, nachdem vorher der Schaft auf der 3o ooo-to-Presse angedrückt worden war (Skizze 1o c unten)



Skizze 1o c: Andrücken des Schaftes
Sketch 10c: Pressing of Shaft.



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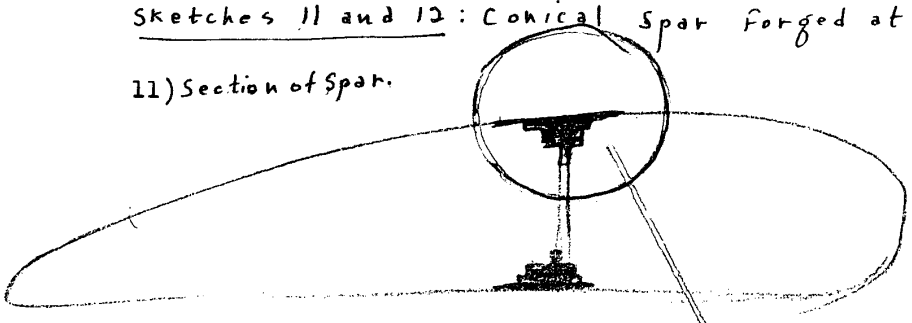
Attachment 10 to
Annex 10

Skizzen 11 und 12 : Konisch geschmiedete Bitterfelder Holmgurte
Sketches 11 and 12 : Conical Spar Forged at Bitterfeld.

11) Section of Spar.



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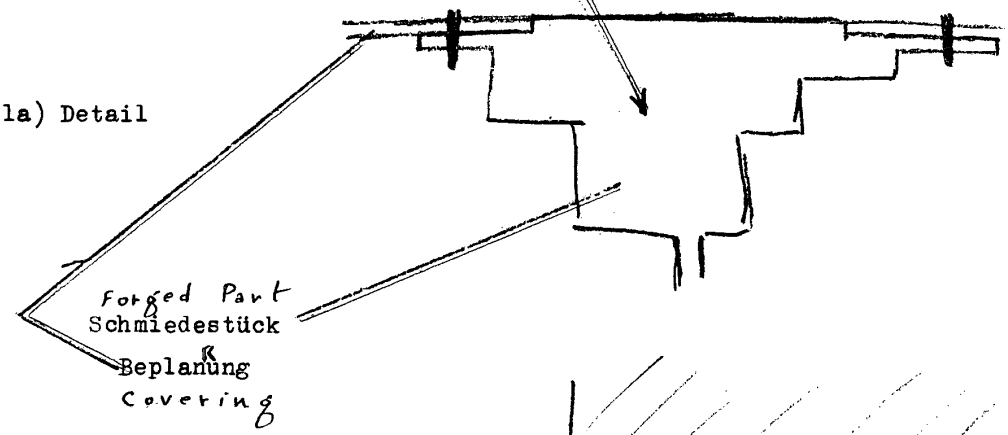
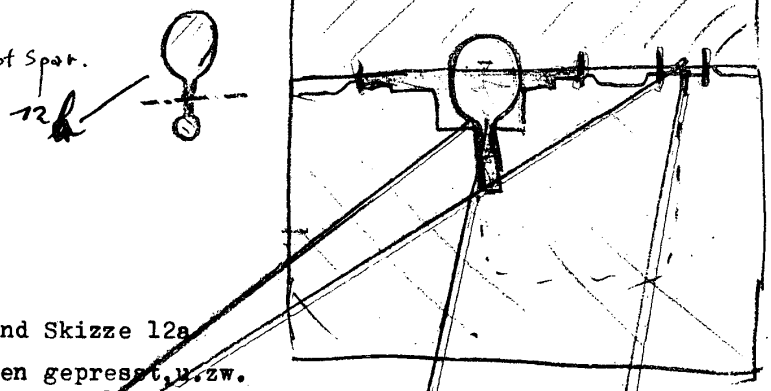
11a) Detail

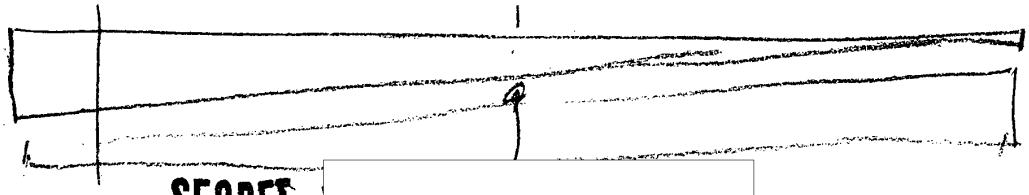



12) Die Forging of Spar.




Holm im Gesenk
Es wurden entsprechend Skizze 12a immer 2 Holmgurte zusammen gepresst, u.zw. aus einem vorgepressten Teil, das sowohl in der Aufsicht wie Skizze 12a) aussah, also beide Gesenke deckte, wie im Querschnitt 12b) und das nach dem blau gezeichneten Umriss in das Gesenk gesetzt wurde.

12a) Top View of Preforged Part Extending over Both Dies.

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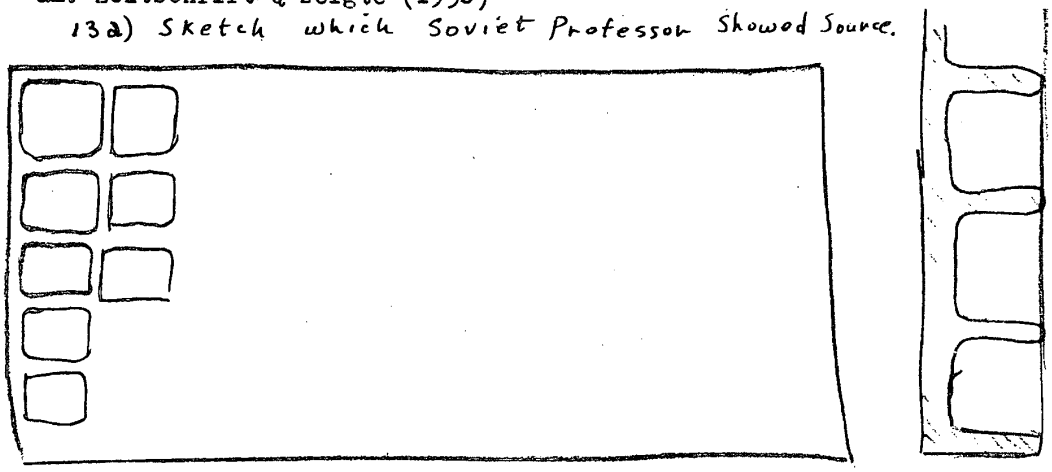
Attachment .11 to
Annex 11
- 1 -

Skizze 13: Versuchs-Rippenplatte (plan)
Sketch 13. Experimental Wing Members. 25X1

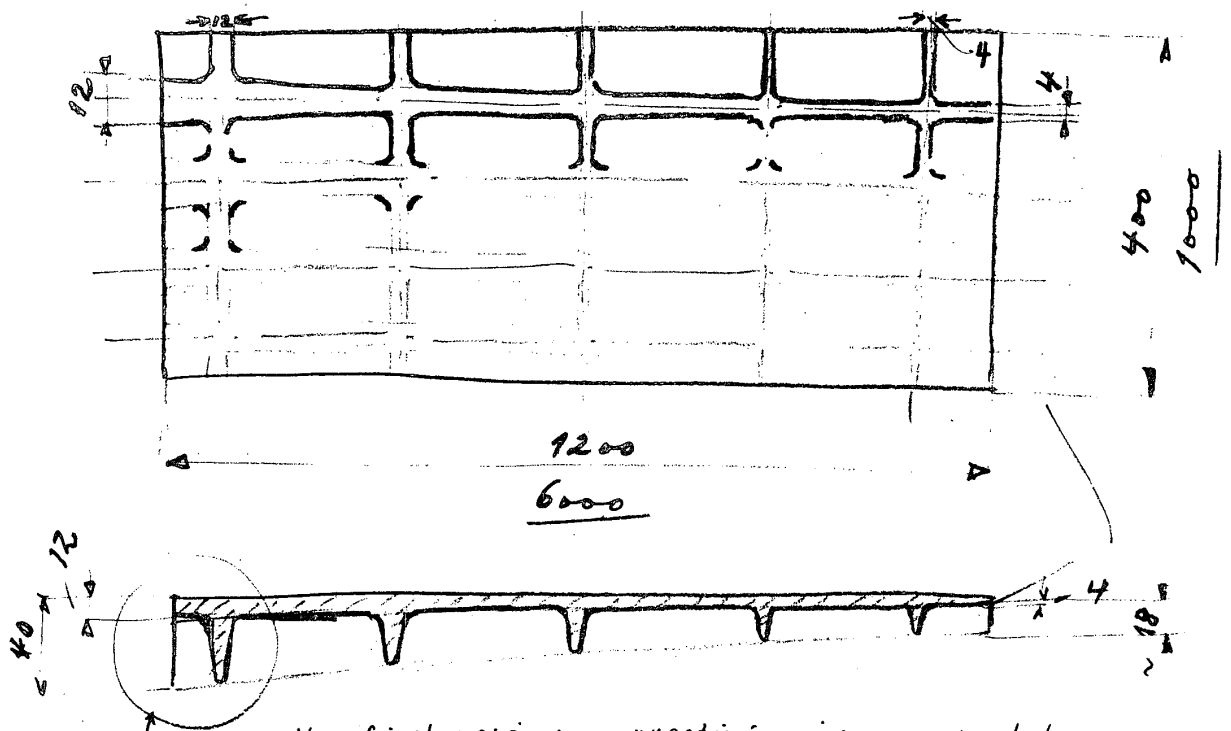
13a) Schema der Platte, die der Prof. aus Moskau als Fotokopie einer am. Zeitschrift Q zeigte (1950)

13a) Sketch which Soviet Professor Showed Source.



13b) Experimental Plate Forged at Uaz Plant.

Skizze der Versuchsplatte, die der Kandidat aus Moskau schmieden lassen sollte unddie auch geschmiedet wurde. Die blauen Maß-Zahlen geben die Abmessungen, indenen die Platten später in Orig-Größe hergestellt werden sollten. Das ist, wie angedeutet, nur möglich bei schrittweisem Schmieden, da bei einer Platte von 6 x 1 m der erforderliche Pressdruck (Pro qcm sind 2000 kg erforderlich) 120 000 to betragen würde. 1952 wurden 50 Stück dieser ebenen Versuchsplatten hergestellt. Die Ergebnisse waren gut.




Here on the final version connecting pieces were tobe attached.
Hier im endgültigen Teil Befestigungsstücken

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Skizze 13 c : Schematische Andeutung des schrittweisen Schmiedens der Rippenplatte

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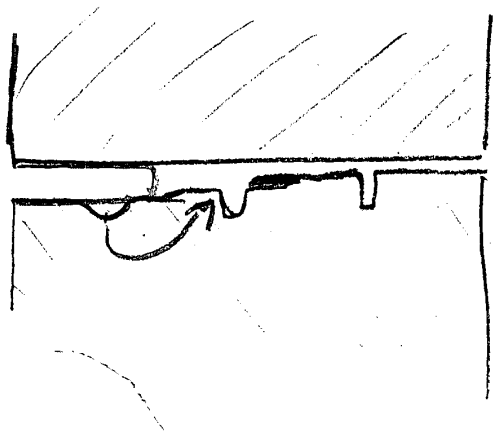
Sketch 13c. Forging Process of Rib Plate.



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CLASSIFICATION S-E-C-R-E-T

CENTRAL INTELLIGENCE AGENCY REPORT

# INFORMATION REPORT

CD NO. 25X1

COUNTRY USSR (Sverdlovsk Oblast)/East Germany

DATE DISTR.

SUBJECT Uaz Light Metal Forging and Pressing Plant in Kamensk-Uralskiy

NO. OF PAGES 28

PLACE ACQUIRED

NO. OF ENCLS. (LISTED BELOW) 25X1

REFERENCES

DATE OF INFO.

SUPPLEMENT TO REPORT NO. 25X1



THIS IS UNEVALUATED INFORMATION 25X1

Attached are pertinent legends forwarded as received. 25X1

Comments: 25X1

1. Uaz Light Metal Forging and Pressing Plant No. 268, also listed as Aircraft Parts Plant No. 268, and the nearby Uaz Aluminum Plant are components of the Kamensk-Uralskiy light metal industry, which includes a third factory in Uaz, No. 286, in the Sinarskaya section.

2. Uas should read Uaz throughout the report. Kamensk Uralsk should read Kamensk-Uralskiy.

3. Nos. 31 and 32 in the legend to annex 1 are not located on the plan. They are probably the two small squares in the area semi-enclosed by No. 30.

4. No. 13 in the legend to annex 2 is omitted on the plan.

5. Siemag in No. 14 in the legend to annex 2 is probably the cable address of Siemans AG.

6. On sketch 13 b in annex 11, the numbers indicating the dimensions in which the original plates were to be forged are underlined rather than executed in blue as stated in the legend.

25X1

S-E-C-R-E-T

CLASSIFICATION

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATE | X | NAVY | X | NSRB | | DISTRIBUTION | | | | | | | |
| ARMY | X | AIR | X | FBI | | | | | | | | | |

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Location Sketch of the Uas Light Metal Pressing and Forging Plant in Kamensk Uralsk.

The sketch was prepared on the basis of a city plan of Kamensk Uralsk, probable scale 1 to 25,000. It was believed that various scales were used when the city plan was prepared, because the area and the buildings of the aluminum works and the power plant appear to be twice or more as large as is remembered.

25X1

Legend.

1 Uas Light Metal Forging and Pressing Plant, Post Box 4, Kamensk Uralsk. For details, see Annexes 2 to 4.

1a Open area for plant enlargement. In November 1953 a large light metal foundry was under construction there.

2 Area with apartment houses for plant personnel. Brick buildings, many of them single-story.

2a Area with wooden houses of plant personnel. According to rumors, the buildings 2 and 2a were to be torn down because the wind constantly blew red dust from the aluminum plant to this area.

3 Plant administration outside of the plant area

4 Fire department

5 Metallurgical laboratory under construction

6 New administration building under construction, previously planned as technical school.

7 Temporary apartment houses

8 Military guard detail

9 Thermal power plant, located farther to the south than indicated by the city map which gives the location that had previously been planned. Excavations and some concreting work indicated that construction work had been started.

10 Previously planned location of power plant

11 Water works, probably for drinking water

12 Municipal repair plant for water works (small shed)

13 Aluminum works

13a Coal dump

13b Lumber dump

13c Two smokestacks, 80 to 100 m high, at night illuminated by red lamps at 3/4 of their height.

13d Administration of aluminum works

13e Probably electrolytic vessels, scale 1 to 25,000, about 80 m long

14 Apartment houses

15 Fire department

The other buildings of the aluminum works were not identified on the city plan. The plant was constructed about 1939 and was in a poor condition. In the town it was said that working at the plant was not healthy and that, therefore, salaries and bonuses were comparatively high. Even young workers did not stay for more than two years before going back to a collective farm to recover in fresh air. The plant was allegedly the largest aluminum works in the USSR. No information was obtained on the output and the workforce.

16 Approximate location of a freight station in the area marked by the hatched line, 6 to 8 tracks and a building with an inscription "Uas". A settlement in this area was not remembered.

17 Railroad line with connection to the plant. The line primarily served agricultural purposes.

18 From this place people were taken to the woods by the train to collect berries and mushrooms.

19 Previous location of demolished bridge. A connection to the main line was probably located more in the north. Cars were still being loaded at the quarry and left from there.

20 Quarry

21 Railroad line with heavy passenger and freight traffic. The route of this line was seen only in the vicinity of the bridge. The fish-bellied new bridge, a welded steel tube construction was guarded by soldiers.

22 Railroad line with heavy traffic as concluded from steam and smoke seen in this direction.

23 Area with a factory and many apartment houses, probably a section of Sinarskaya.

24 Approximate location of Sinarskaya railroad station.

25 Branchroad from Kamensk Uralsk - Uas highway leading to Sinarskaya railroad station and to the tube plant probably located in this area.

26 New tube plant, allegedly in operation since 1952.

27 Building complex. Location on city map is correct, temporary buildings appear too large on the sketch. They have probably been dismantled, because new modern houses were to be constructed there connecting Kamensk Uralsk and Uas.

28-45 Uas

28 Temporary wooden houses, were probably torn down.

25X1



29 Large modern blocks of 4 - 5 story apartment houses with courtyards

30 Area with 3 - 4 story houses. [redacted] The buildings had central heating and hot water. Even in winter they were warm enough to sit in shirt sleeves. Soviets frequently wore pyjamas. 25X1

31 School

32 Hospital

33 Stadium

34 Luxurious motion picture theater, brick building

35 Theater park

36 UNIVERMAG, restaurant, school, kindergarten, insulation station of hospital, motion picture theater, club of construction workers, and individual 2- and 3-story wooden apartment houses.

37 Rynok and bazaar

38 Stadium

39 Two villas of the directors of the aluminum works

40 School

41 Garden

42 Culture park with pavil ions and "summer motion picture theater"

43 Sauna

44 Hospital

45 Rural settlements

46 Cable ferries

47 Sanatorium

48 Dachi , simple country houses with three rooms, kitchen, bathroom and large lobby, for the summer vacations of higher plant personnel starting with the nachalnik (chief)

49 Militia office of Uas

50 Kamensk district militia office

51 Wooden road bridge was probably replaced by a steel and stone structure bridge.

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Annex 2
- 2 -

Extrusion Plant and Sheet Rolling Plant of the Uas Light Metal Forging and Pressing Plant.

Legend.

Zeche 1 - extrusion shop

Zeche 2 - sheet metal rolling plant

1 Roller grinding machine

2 Sheet metal packing machine

3 Plate milling machine

4 Packing press for shavings, (part of 3)

5 Slab trimming saw

6 Slab heating furnace

7 Hot rolling stand (United manufacture)

8 Transformers

9 Furnaces for intermediate annealing

10 Cold rolling works

11 Space for electric generators driving the rolls

12 Repair shop

13 Sheet metal straightening and cutting machine

14 Cold rolling stand (Siemag manufacture), obviously dismantled in Austria

15 Lathe to work on roll bodies

16 Adjusting unit for sheet metal including tempering installation

17 Packing and dispatching department

Except for 14 and 15 all machines

25X1

25X1

Zeche 3 - Extrusion Plant

1 Plant for pressing water

2 Cooling installation

3 Repair shop and material store

4 3,500-ton tube and extrusion press with heating furnace

5 Transformer station

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6 1,500-ton (?) extrusion press with furnace

7 750-ton extrusion press with furnace

8 500-ton extrusion press with furnace

9 Adjusting and tempering plant

10 Packing station

11 Technical office

12 Die store

Old Forge (Zeche 4) of the Gas Light Metal Forging and Pressing Plant

Legend.

1 Showers and dressing room

2 Transformer station

3 Shop for pressing water

4 Electrical workshop (Zeche 15)

5 Pickling plant

6 Material store

7 Repair shop

8 Toilets

9 Tube and extrusion press, 3,500-tons with furnace, same model as the one in Zeche 3

10 Disk saws to cut raw material

11 Transformer station

12 Preheating furnaces

13 Forging machines
14 Furnaces (Junker type with plate conveyor)

15 Preheating furnace of 10,000-ton press

16 Forging roll

17 10,000-ton forging press

18 Die heating furnace, (SSM manufacture) cupola furnace (Schachtofen) from Bitterfeld

19 Junker type double-deck furnace from Bitterfeld

20 3,000-ton extrusion press, [redacted] 25X1

21 Heating furnace

22 2,200-ton forging press

23 Heating furnace

24 3,300-ton forging press

25 1,250-ton friction press made by Maschinenfabrik Weingarten

26 Two-chamber furnace

27 5,000-ton forging press

28 Furnace

29 Trimming press (Maschinenfabrik Weingarten manufacture, dismantled in Bitterfeld)

30 Tempering unit

31 Band saws with straightening machines (adjustment)

32 Packing plant

New Forge (Zeche 6) at the Hag Light Metal Pressing and Forging Plant.

Legend.

1 Offices

2 Electric switching station

3 Cooling plant

4 Machine shop for the production of pressing water

5 Air compressing station

6 Store and workshop

7 30,000-ton forging press with pressure transmissions and furnaces

8 Tempering furnace and quenching bath

9 15,000-ton forging press with furnace

10 12,000-ton extrusion press with furnace

11 Homogenizing furnaces

25X1

12 Ingot dump

13 5,000-ton extrusion press

14 Special horizontal and vertical press

15 Three-chamber furnace

16 Forging roller

17 Tool making shop, die shop

18 Annealing furnace

19 Pickling plant

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Unfinished Compressor Wheels.

Legend.

Sketch 1:

Laufraeder = rotor wheels with about 29 blades. The shape of the unfinished product permitted machining either of right or left turning rotors (see black and blue lines). Similar parts, 550 and about 600 mm in diameter, were produced in the pressing plant with a monthly output of 3,000 units. The parts were produced by the 5,000-ton press, the 10,000-ton press or by the 15,000-ton press. The customer for these products was unknown.

Sketch 2:

Forged unfinished rotor wheel to be machined as indicated by the dotted line. The unusual height of the blades effected wrinkling and recrystallization during the forging process which was to be eliminated by increasing the working allowance. The parts were forged on the 3,000-ton press or on the 5,000-ton press in pre- and final dieing processes. The monthly output was about 800 units. The customer was unknown.

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[redacted]



[redacted] 25X1

Sketch 3

Spars Produced at the Uas Light Metal Forming and Pressing Plant. 25X1

Legend.

The products were called lonsherons [redacted] at the plant [redacted]. The two types forged on different dies included one right and one left version. Of each type two different versions could be machined. The parts were forged by the 10,000-ton press at a monthly output of 3,000-units. The receiver of these products was unknown. A record had to be prepared on each spar produced. 25X1

Sketch 4

So-Called Collectors Produced at the Uas Plant.

Legend.

The purpose of these unfinished parts was unknown. They were forged in two processes:

1 The ingot, 2,000 mm in diameter, was preforged on the 2,200-ton press. The neck was drawn.

2 Final forging on the 5,000-ton press.

The monthly output was about 2,500 units. The products were sent to the Kirov Plant in Leningrad.

Similar forgings were being developed in late 1953.

Sketch 5

Rotor Wheel Forged at the Uas Plant.

The wheels were produced on the 10,000-ton press and later on the 15,000-ton press until its second cylinder casing broke. The output of these forgings was 3,000 to 4,000 units per month. The customer was unknown. The production was started in October 1949. The 29 blades of the model reproduced on sketch were exactly radial.
In early 1952, a person arrived probably from Novosibirsk, at least from the Asiatic part of the USSR and ordered such forged wheels with similar dimensions but bent blades. After this order had at first been turned down by the Uas Plant, the experiments failed that were made by order of the Ministry of Aviation Industry. Before October 1949, similar unfinished compressor wheels had been produced with the same output.

Sketch 6

Unfinished Guide Vanes

The two versions produced were 650 and 800 mm in diameter. The monthly output was 800 units. A finished guide vane machined from such a ring was seen once. The customer for these products was unknown.

Sketch 7

Frame Members

The production of these frame members was started in 1952 with a monthly output of 100 units which was gradually increased to 1,500 to 2,000 units per month. They were forged by the 10,000-ton, the 15,000-ton press and on the 10,000-ton stage of the 30,000-ton press. The purpose and the customer of these frame parts were unknown. It was believed that they had to meet very high requirements because samples for tensile tests (fuer Probestaebe) were forged to each unit. A special record had to be prepared on each unit.

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Unfinished Compressor Wheels Produced at the Uas Plant.

Sketch 8 and 8a

The unfinished parts forged were designed so 12 to 14 different finished parts could be machined. The small number of parts produced indicated that an experimental series was involved, for which it would not have paid to build all the tools, i.e. one for each of the 14 different finished parts. From sketches of the final products it was concluded that guide vanes or compressor discs respectively for axial-flow compressors were to be machined. The first order for the production of these parts was received in 1951. The number of forgings ordered was to be rated for about 10 axial-flow compressors. A second order for the same number of unfinished parts was received several months later.
The dimensions of the unfinished parts indicated that finished parts of sizes as used for 012 type power units could be machined. It was unknown, however, whether the Soviets had started to produce these component parts of light metal and not of steel sheets as it had been done at plant No 2 in Upravlencheskiy.
The unfinished parts were forged on the 30,000-ton press and occasionally also on the 10,000-ton press.

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Sketch 9

Reinforced Plate Type Frame Member

This asymmetrical part was a plate reinforced by ribs and had an aperture (canal) in the center and annexes at the small sides. The plane rear side was reinforced by some ribs. The thickness of the ribs around the aperture in the center was big enough to leave enough material after the machining. It was noticed that the walls of the aperture were not orthogonal to the plate but had an incline. The angle of this incline was not remembered. On sketches of the finished part the aperture in the center was designated "canal".

The first experimental plates hand forged at the Vas Plant were solid and were probably milled to their final shape at the aircraft plant. Subsequently it was ordered that the tools for die forging were manufactured. The first plates die forged on the 30,000-ton press were seen shortly before November 1953.

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Propeller Blades Forged at the Uas Plant.

Sketch 10:

Propeller blade, 4,000 mm long including an annex about 300-mm long for tensile tests.

Sketch 10a: Ingot from which the unfinished propeller blade was forged.

Sketch 10b: Schematic reproduction of the rolling system of the ingot after the shaft had been attached by the 30,000-ton press.

Sketch 10c: Pressing of shaft.

25X1

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Conical Spar Forged at Bitterfeld.

Sketch 11: Section of conical spar.

Sketch 11a: Detailed sketch showing forged conical part and covering (Beplankung)

Sketch 12: Die forging of spar.

a. Two spars were forged in one die from one preforged part, see sketch 12a for top view of preforged part extending over both dies.

b. Section of die with two conical spars.

1 Large section

2 Section of small est part

25X1

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Experimental Wing Members

Sketch 13 a: Schematic reproduction of photographic copy of a sketch

25X1

Sketch 13 b: Experimental plate forged for the candidate by the Ums plant. The blue numbers indicate the dimensions in which the original plates were to be forged. This was possible only in a step-by-step forging process. With a pressure of 2,000 kg being needed for 1 $cm^2$, a total pressure of 120,000 tons would be required for the pressing of a plate 1 x 6 m. In 1952, 50 such plates were completed.
The results were satisfactory.
The side view of plate. On the final version the connecting pieces were to be attached to the part marked by the circle.

Sketch 13 c: Schematic reproduction of the step-by-step forging process of the rib plate.

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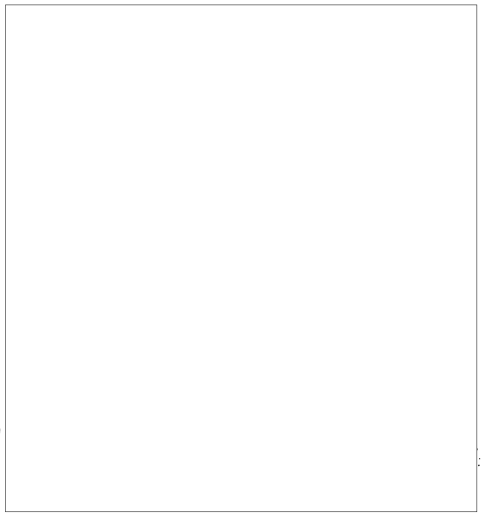

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