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EXPLOITATION REPORT

FRAGMENT, METAL, RECOVERED IN THE REPUBLIC OF THE CONGO,
CREW BELIEVED TO BE AN UNIDENTIFIED FLYING OBJECT
(COUNTRY UNIDENTIFIED) (U)
RKN-25500

SECTION I. (C) Purpose (U)

1. (C) The purpose of this report is to present the results of the exploitation of a metallic fragment recovered near the town of Kerebere in the Republic of the Congo. The recovery was the result of a ground-level search which was conducted after an unidentified flying object exploded and fell to earth in the area. The sighting and recovery took place sometime between 10 and 15 October 1965. Other than a reported east-to-west direction of flight for the UFO, specific observation and recovery details are lacking.

SECTION II. (C) Description (U)

2. (C) Details concerning the exact location and characteristics of impact are unknown. However, the appearance of the fragment indicated exposure to high temperatures prior to impact (melting). The impact of the specimen had little or no effect on its final condition or appearance. The fragment weighed 26.1g, had an indefinite density of approximately iron and measured 2.25 x 1.75 x 1.0 inches. The top and side views of the specimen were rounded and appeared to have been shaped by heating and melting. This is illustrated in Figures 1 and 2. The top shaped groove, visible in Figure 1, is the outline of an inset of steel that differs significantly from the rest of the specimen. Figure 3 shows the side view of the specimen.

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and was composed of six machined or formed V-shaped fins extending along the major axis of the fragment.

SECTION III. (C) Conclusions

3. (C) The fragment was originally produced as an electrical component and could be identified as a motor stator, generator structure, or associated electrical regulator or control device.

4. (C) The fragment was manufactured as a 10-inch thick silicon steel laminate stacked on a central mild steel core or shaft.

5. (C) Materials, processes, dimensions, etc., as such, prevent determination of exact origin (country).

6. (C) Surface appearance and microstructure of the specimen indicates exposure to temperatures in excess of 2500° F.

SECTION IV. (C) Explosive Test (G)

7. (C) The recovered specimen weighed 41 grams and had a density closely approximating that of iron. The specimen was found to be heavily oxidized and had been exposed to temperatures in excess of 2500° F. While there are no indications of impact, the deformed metal, as shown in Figures 4 and 7, would substantiate the conclusion that the iron was moving at a high velocity when it was destroyed.

8. (C) Fabrication of the iron was accomplished utilizing more or less standard procedures for fabricating electric motor armatures.

Armature laminates were stamped (punched) from approximately .012-inch sheet steel, copper-laminated, and assembled on a mild steel shaft approximately .635 inches in diameter. Following assembly, the laminates were joined by solid-state or diffusion-bonding of the copper-

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placing. This can be accomplished by tightly compacting the laminate assembly and heating in a furnace. Temperature required for bonding of the copper depends upon the degree compacted on or pressure; the higher pressures requiring proportionately lower temperatures.

9. (C) A cross-section (transverse to length of the specimen) is shown in Figure 5. The light-colored, vertical lines are the edges of individual laminates, caused by cutting at an angle to, instead of parallel to, the laminates. These vertical lines or petals are "T" shaped. This shape is used to help hold winding wire in place and is found on high RPM motors. The melted condition of some of the "T's" is indicative of the high heating conditions experienced. The outer surface of the armature shaft is serrated to prevent axial slippage of the laminates.

10. (C) The lamination or stacking of individual laminates is clearly illustrated in Figure 6. The space between laminates on the fin at the top of the photograph is due to the melting and slumping of the copper during the high temperature exposure of the specimen. Some of the copper has been seen at the fin at the bottom of the photograph. A cross-section of the armature is shown in Figures 7 and 8.

11. (C) Another result of furnace heating was the increased grain size of the steel laminates. The microstructure of the laminates shown in Figures 5 and 10 illustrates grain sizes that are comparable to Category 2 of ASTM A 213.

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intense heat and then cooled at a comparatively slow rate.

12. (C) The light material between the striations in Figure 9 is plated copper that melted and flowed between the laminations when the entire specimen was hot. A photomicrograph of this is shown in Figure 11.

13. (C) Analysis of the unit disclosed as follows:

<u>Element</u>	<u>Percent Present (Weight)</u>
Carbon	
Manganese	
Silicon	
Nickel	less than 0.10
Chromium	0.37
Molybdenum	less than 0.01

14. (C) Chemical composition of the steel laminations was as follows:

<u>Element</u>	<u>Percent Present (Weight)</u>
Manganese	0.25
Silicon	(0.5)
Nickel	less than 0.10
Chromium	
Molybdenum	less than 0.01

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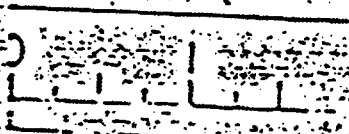


Figure 1: Top View of [unclear] 265-A

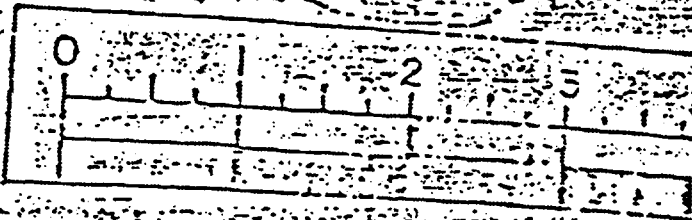


Figure 2: Side View of [unclear] 265-A

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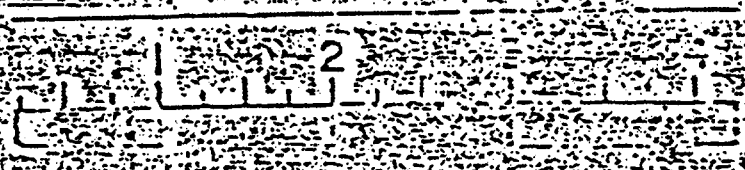


Figure 3. (Opposite View of Fig. 1 (a))

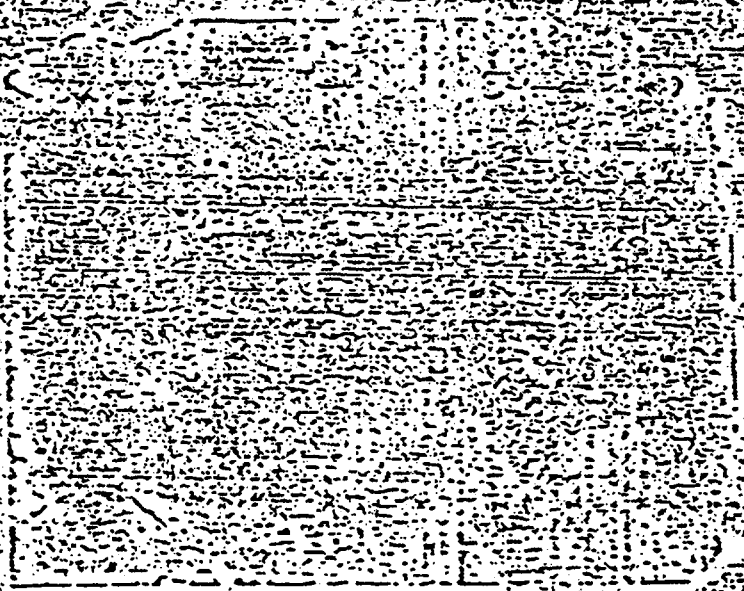
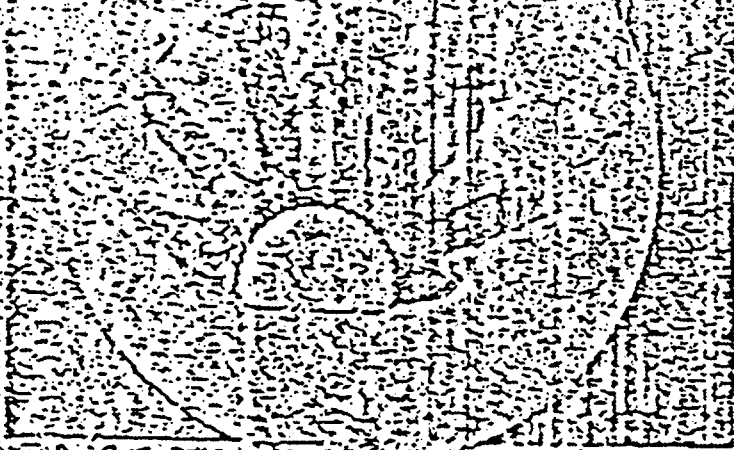


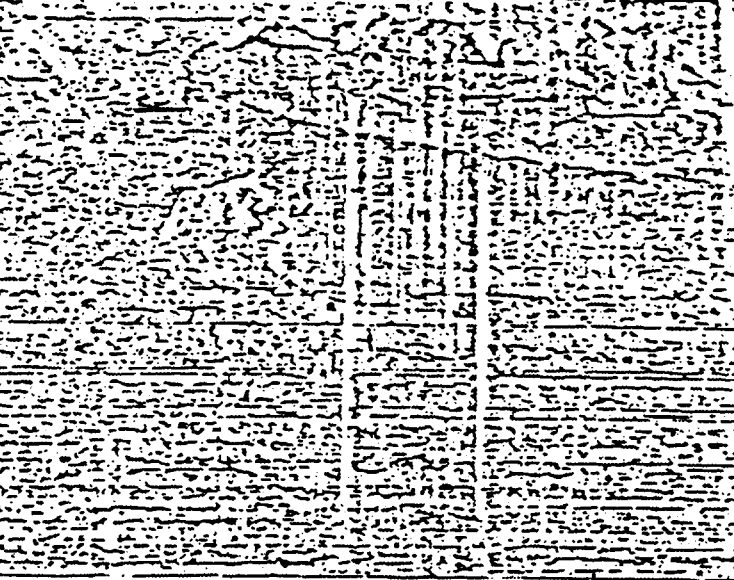
Figure 4. (Opposite View of Fig. 1 (b))

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Figure 7. Micrograph Cross Section of Laminated Area Magnification 75X (U)

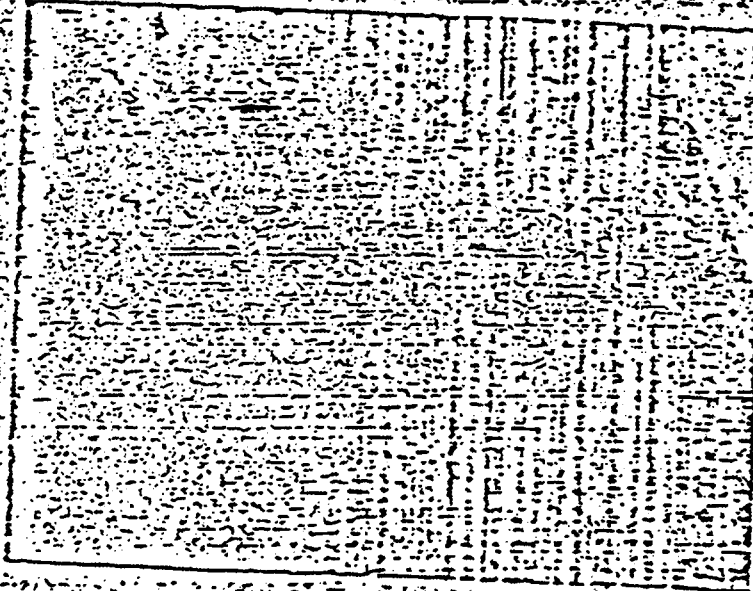


Figure 8. Micrograph Cross Section of Laminated Area Magnification 75X (U)

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Figure 9 (a) Microstructure
Laminated Structure
Magnification 63
(3% Nickel Etc.)

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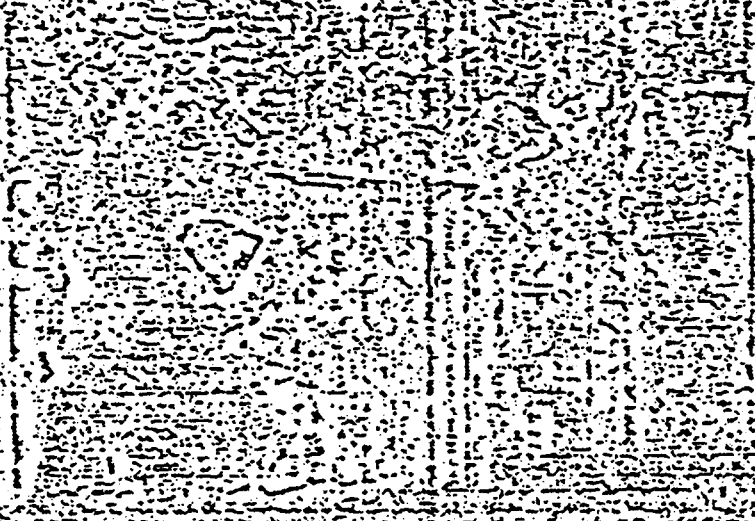


Figure 11. Photograph of the
Material Between the
Identification 7901
Plant Area: (1)

7901