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Chief, St/PR

7 March, 1955

Chief, D/I

D/I Contributions to Project 30.667

1. Attached are the D/I Branch comments on the photographs 25X1A from [REDACTED]

2. When no comment is made on a photograph, it may be assumed that the Branches either are not responsible for the commodity represented or do not have adequate information to make an accurate evaluation.

25X1A
[REDACTED]

25X1A

ORR/D/I

[REDACTED] /jg
7 March, 1955

Distribution:

1 - D/I

Enclosure

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Approved For Release 2000/08/07 : CIA-RDP79T01049A001100180005-5

1. The Photographs of electronic equipment are evaluated as follows:
 - 25X1A a. [REDACTED] Signal generators are made in many different sizes and shapes by various firms; so it is difficult to say whether or not this is a copy. It does not look like a copy of a US type because of the connector (lower-right-hand corner) and the pilot light (right-hand side). It appears to have two sets of handles, which is unusual (long vertical handles at each side and handles at ends).
 - 25X1A b. [REDACTED] This appears to be a copy of the DuMont 208 5-inch oscilloscope which was a common type in the World War II period.
 - 25X1A c. [REDACTED] "Riga" radio receiver with 21 tubes and automatic record changer is a complete new Soviet design using known principles.
 - 25X1A d. [REDACTED] Radios appear to be sets of original Russian design. The cabinets are not unique but appear to be similar to German prewar sets. Speakers appear to be electro-dynamic... not preferred by present practice in high quality sets.
 - 25X1A e. [REDACTED] Soviet adaptation of US practice (Admiral and Motorola) using miniature tubes and American circuit. Soviet designed set.
 - 25X1A f. [REDACTED] Soviet adaptation of German People's TV receiver of 1939 design. Not a Chinese copy, but includes Soviet innovations.
 - 25X1A g. [REDACTED] Soviet design based on German and American technology. Basic principle copied, but set is Soviet.
 - 25X1A h. [REDACTED] Soviet design based on German and American technology. Basic principle copied, but set is Soviet.
 - 25X1A i. [REDACTED] Set has typical western look but is original Soviet design. Better features of Hungarian and East German designs probably used as standards.
 - 25X1A j. [REDACTED] Set appears to be similar to East and West German tape recorders, but may be original design.
 - 25X1A k. [REDACTED] Automatic telephone station is not exactly a duplicate of US equipment but appears typical. Rack mounting and cable entrance similar to this can be found in US installations. Equipment on racks does not appear to duplicate US equipment.
 1. [REDACTED] Harvest Radio set not a copy of US equipment.
 - 25X1A m. [REDACTED] Cathode TV Transmitter probably RCA equipment or a copy.
 - 25X1A n. [REDACTED] Not believed to be a copy of US equipment.
 - 25X1A o. [REDACTED] Ignitron sets look very similar to US equipment, but detail is not clear enough to judge if copied or original US.
 - 25X1A p. [REDACTED] Electron microscope is somewhat similar to Western types but probably not a "Chinese" copy of any western type. The console (with dials) is a different shape and the top enclosure for the electron gun is a different shape from those of RCA or Siemens and Halske AG.
 - q. [REDACTED] Look like copies of Westinghouse ignitrons.
 - 25X1A

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2. Photo [redacted] This is a photograph of the Soviet helicopter known in the West as the Hound (Type 36). The Soviet designation is the MI-4. This aircraft resembles the U.S. helicopter HPS-1 made by Sikorsky for the Navy. This photo indicates that Soviet designers no doubt were strongly influenced by this U.S. design, however, there is no evidence of direct copying.

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3. Photo [redacted] This is a photograph of a jet training model probably for the Soviet engine models RD-45, RD-500 and VK-1. The RD-45 jet engine was a direct copy of the British Nene, and the RD-500 and VK-1 are later engine designs which have improvements over the basic design (British Nene). Pratt and Whitney purchased design rights on the British Nene from which they developed the J42 series of jet engines (J42-P-4 and P-6). Therefore, the USSR RD-45 resembles the U.S. J42 to a considerable degree.

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4. An examination of the photographs listed below reveals no instance of Soviet adaptation of a U.S. model. The optical equipment, surgical equipment and seismograph appear to be of German design. [redacted]

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5. The machine tools and metal-forming equipment [redacted] are not U.S. adaptations. In one case [redacted] there is no equivalent U.S. machine being produced.

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6. The miscellaneous equipment [redacted] has not been studied by the Branch in sufficient detail to make a firm judgement. However, a preliminary guess by the analyst is that the equipment does not resemble U.S. items.

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Machines Which Are Patterned After U.S. Prototypes
in Part or Totally 30.667

1. GAZ H-20 Pobeda passenger automobile [REDACTED] 25X1A
- a. Body hardware is patterned after Chevrolet.
 - b. Suspension, front seat adjustment and dash are almost identical with Chevrolet, but are actually patterned after the German Opel Kapitän, which was and is built by General Motors' subsidiary in Germany and which has access to GM designs.
 - c. Design of frameless body structure is a copy of Opel Kapitän and differs from any U.S. model.
 - d. Engine is four cylinder GAZ-M20 which has parts in common with six cylinder GAZ-51 engine. These engines are orthodox designs developed for Soviet conditions from standard U.S. engineering practice. They are not exactly like any particular U.S. engine but copy many parts and components. The basic design is said by D. B. Shinkin* to be copied from the U.S. Continental engine, but it has undergone a number of mutations.
 - e. Transmission and rear axle are not Opel designs, but are probably descended from the Ford Model A.

2. Moskvich passenger automobile [REDACTED] 25X1A

(foreground).

This vehicle resembles no U.S. passenger car and is copied from the Adam Opel A.G.'s "Kadet".

* D. B. Shinkin, Ph.D., The Motor Vehicle Industry of the USSR, 1947.

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3. ZIS-110 passenger car [redacted] 25X1A

This vehicle is a copy with only very slight modifications of the 1942 Packard '180', chassis Model 2008. It is produced predominantly as a closed limousine but a few units have been equipped as open limousines and ambulances.

4. GAZ-67B, a jeep [redacted] 25X1A

a. This vehicle was inspired by the U.S. Jeeps sent to the USSR on Lend-Lease.

b. It is not a carbon copy of the U.S. jeep. It has mostly Ford Model A chassis parts (including the engine) which were standard for the GAZ-A passenger car and the GAZ-AA and MM trucks.

c. The GAZ-67B is no longer in production, having been replaced by the GAZ-69, a heavier type of passenger-cargo vehicle.

5. GAZ-69, a 3/4 ton, 4x4, cargo and passenger vehicle [redacted] 25X1A
(there is another body style.)

a. This vehicle was inspired by the U.S. military Dodge (weapons carrier and command-reconnaissance body styles), 3/4 ton, 4x4 trucks.

b. It has the M-30 engine (identical to the Packard engine) and other interchangeable GAZ chassis parts. It has no direct copies of Dodge parts except for the general appearance of the sheet metal.

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c. It has recently been placed in production and will replace the GAZ-67B for military and agricultural use. The greatest part of the output of this vehicle is probably received by agriculture.

6. Amphibious automobiles [REDACTED] 25X1Ayyyyyyyyyy

a. These are U.S. Army amphibious trucks, [REDACTED], sent to the Russians under lend-lease. They are not Soviet vehicles.

7. ZIS-154 bus [REDACTED] 25X1A

a. This is a direct reproduction of the GMC-TD 3600 type bus with the Soviet copy of the GMC Series 71 diesel engine which Russians designate as YaAZ-204.

b. The Russians have not copied the hydraulic torque converter used in the GMC bus and have substituted an electric drive in place of it.

c. The bus is now out of production because in Russian practice the diesel creates a smoke nuisance in the large cities. Only the ZIS-155, a smaller gasoline engine powered bus is now made by ZIS. Experiments with converting the Yaaz-204 engine to burn compressed gas were made in an effort to adapt the bus to city conditions, but the gas version has not been placed in production.

8. ZIS-505 dump truck [REDACTED] 25X1A

a. The cab and hood sheet metal has been inspired by the International Harvester trucks received on lend-lease.

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b. The engine is quite similar to the Hercules II models but with belt driven water pump and generator instead of gear driven as in the Hercules. However, it has evolved from an earlier Hercules engine (W10) which was adopted for the earlier H1B-5 truck.

c. Clutch, transmission, axles and steering gear are orthodox U.S. types.

d. Air brake equipment including compressor is copied from Bendix-Westinghouse equipment.

9. IAZ-200 Chassis (with frame E-51 driven by power take off from truck transmission) [REDACTED] 25X1A

a. No information on crane is available but the truck is patterned after U.S. designs.

b. Engine is Yala-204, a direct copy of the GHS 4-71 diesel engine.

c. Suspension is Mack type with spring ends mounted in rubber blocks.

d. Clutch is a type used in Mack vehicles and rear axle is a conventional double reduction type used in many heavy U.S. trucks.

10. Motorcycle M-72 [REDACTED] 25X1A

a. Copy of German BMW-350.

11. Motorcycle "Moskvich" [REDACTED] (foreground). 25X1A

a. Appears to be a copy of the East German IFA RT-125 motorcycle made at Chemnitz.

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12. GAZ-51 truck [REDACTED]

a. This truck has cab sheet metal inspired by the Studebaker trucks received by Russia on lend-lease.

b. D.B. Shinkin says the chassis and engine were copied from the U.S. Brockway Model 78 which had a Continental engine. At any rate all components are of orthodox U.S. designs.

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13. MAZ-525, a 25-ton off-highway dump truck [REDACTED]

a. The chassis parts arrangement (shape of frame rails, rubber bushed dump body hinge pins, shape and position of fuel tank, planetary final reduction in rear axle hubs, shape of dump body) are quite similar to the 22-ton Model T (U.S.) Euclid and are probably copied therefrom.

b. The engine is a V8-300 modified Soviet tank diesel of 300 hp and the transmission and clutch assembly incorporates a hydraulic coupling which was not standard on the Model T Euclid.

25X1A

14. E-80 tractor [REDACTED]

a. This is an exact copy of the Caterpillar Tractor Company's Model D-7 except that all parts are made to the nearest metric unit and not quite interchangeable with the D-7.

15. DT-54 tractor [REDACTED]

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This tractor is a diesel modification of the earlier Korean Model SKH ATZ-MATI.

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16. SKh ATZ-NATI Tractor [REDACTED] 25X1A

a. This tractor is different from any other type of tractor, but is patterned after German, British and American types. It is no longer made.

17. S-65 tractor [REDACTED] 25X1A

a. Direct copy of early Caterpillar D-7 tractor. No longer in production. Replaced by the S-80.

18. MTZ-2 tractor [REDACTED] 25X1A

a. Style and design typical of several U.S. types. Uses the D-36 diesel engine which is also in the KD-35 and KDP-35 tractors. Not copied from any single model.

19. KDP-35 tractor [REDACTED] 25X1A

a. High clearance modification of KD-35 tractor. It is designed for cultivating beet crops. The KD-35 bears a strong resemblance to the Caterpillar D-4, but differs in several respects, including the engine.

20. U-4 tractor [REDACTED] 25X1A

a. A special variant of the U-2, this tractor is designed to carry cotton picking equipment. The U-2 is copied from the International Harvester's early Farmall model. U-1, U-2, U-3, and U-4 tractors are still in production at the Vladimir Tractor Plant but even the Soviets consider them to be obsolescent.

- 21. KhSTZ tractor [redacted] 25X1A
 - a. Obsolescent and out of production.
 - b. Copy of an early (1920s) International Harvester (McCormack Deering) model.

- 22. [redacted] - D-114 $\frac{1}{2}$ Autograder, 25X1A

This has the same general lines as the Allis-Chalmers AD-4. However, the scarifier comes as special equipment on the AD-4 whereas it appears to be standard equipment on the D-114 $\frac{1}{2}$.

- 23. [redacted] - 3-wheel roller, 25X1A

Probably a copy of an old Model Galion known as the Galion 3-wheel roller.

- 24. [redacted] 25X1A

Mechanical coal loader - obsolescent.

- 25. Diesel-Electric Locomotive, model TE-1. [redacted] 25X1A

During World War II, the United States furnished two types of diesel electric locomotives to the USSR in connection with lend-lease: type D^A (manufactured by American Locomotive Co., and type D^B (manufactured by Baldwin Locomotive Works. Using the American locomotives as prototypes, the locomotive plant at Kharkov developed the TE-1 and began series production in 1946.

26. Diesel-Electric Locomotive, model TE-2. [redacted] 25X1A

Model TE-2 is a modification of model TE-1 produced at the Kharkov locomotive plant starting in 1948. It uses the same ^{Diesel} engine, has a similar electric drive system and a modified axle arrangement.

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27. The diesel locomotive shown in [redacted] is the first unit of a Hungarian diesel train-set, a number of which have been exported to the USSR since the war. It is not modeled on a US prototype.

28. Steam locomotive, model SU [redacted] 25X1A

Model SU has been built in the USSR since 1925 and is a modification of the pre-revolutionary Russian locomotive, model S.

29. Electric locomotive, models VL-19 [redacted] and VL-22

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[redacted] 25X1A

Model VL-22 freight-passenger locomotive is a modification of model VL-19 freight-passenger locomotive. VL-19 is based on Model SS freight locomotive. The first two models of the SS series were built in the United States prior to 1932; both the SS and the VL-19 were first assembled in the USSR in 1932.

30. Four-axle, 60-ton, freight car [redacted] 25X1A

Freight cars of this general type have been built in the USSR since the middle 1920 's. It is not known whether US prototypes were used as their basis. During World War II, however, 50-ton, 4-axle freight cars manufactured by the Pullman-Standard Car Manufacturing Company were shipped to Russia on lend-lease. The close similarity of post-war Soviet-built flat-cars to this US flatcar suggests that the latter was used as a prototype.

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31. Tank cars [REDACTED] 25X1A

Not modeled on a US prototype so far as is known.

32. Track laying machine, car mounted [REDACTED] 25X1A

Not modeled on US prototype.

33. Dining Car [REDACTED] 25X1A

This interior view suggests that the car was modeled on an European rather than American prototype.

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