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PHOTOGRAPHIC
INTERPRETATION
REPORT

NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER

PODOLSK/ROMANTSEVO DF RADIO COMMUNICATIONS COMPLEX USSR

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INSTALLATION OR ACTIVITY NAME					COUNTRY
Podolsk/Romantsevo DF Radio Communications Complex					UR
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETB NO.
NA	55-17-11N 037-33-11E*	See below	See below	See below	See below

MAP REFERENCE

ACIC. US Air Target Chart, Series 200, Sheet 0167-5, scale 1:200,000

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	NEGATION DATE (If required)
	NA

Podolsk Installation

DF Radio Communications Station Romantsevo*
HF Communications Facility Romantsevo
Probable Direction Finding Facility
Ionospheric Station Romantsevo

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ABSTRACT

1. The Podolsk/Romantsevo DF Radio Communications Complex consists of four facilities and a headquarters and support area. The Podolsk DF Radio Communications Station Romantsevo is an operational transmitting station. Antennas include four pairs of double day/night rhombics, 13 double rhombics, four single rhombics, nine fishbones, and five horizontal dipoles. The Podolsk HF Communications Facility Romantsevo is an operational receiving station. Antennas consist of 34 fishbones, one double rhombic, and three single rhombics. The Podolsk Probable Direction Finding Facility is a probable operational station. The Podolsk Ionospheric Station Romantsevo is an operational station. This report includes a description of the antennas. Annotated photographs and tables containing mensuration, azimuth, and reference data are included in support of the analysis.

INTRODUCTION

2. The Podolsk/Romantsevo Radio Communications Complex is in the central part of European USSR, 8 nautical miles (nm) south of the city of Podolsk and 30 nm south of the center of Moscow. It is situated in a wooded area, surrounded by farmland and towns. Its elevation is approximately 184 meters (600 feet).

3. This communications complex was first reported from KEYHOLE photography of June 1963.

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BASIC DESCRIPTION

4. The Podolsk/Romantsevo Radio Communications Complex includes a major transmitting and a major receiving station. The transmitting station contains four pairs of double day/night rhombic (two pair nested), 13 double rhombic, four single rhombic, nine fishbone, and five horizontal dipole antennas (Figure 1 and Table 1). A control building is in the center of the antenna arrays. Two support buildings lie to the south of the control building. The receiving station contains 34 fishbone, one double rhombic, and three single rhombic antennas (Figure 2 and Table 2a). Thirty of the fishbone antennas are arranged in a complete circular pattern around a large control building and a secondary control building. Other facilities in this complex are the Podolsk Probable Direction Finding Facility and the Podolsk Ionospheric Station Romantsevo (Figure 2). The probable

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headquarters and support area for the complex is immediately north of these facilities. This area contains 14 large buildings, 29 small buildings, and numerous smaller structures (Figure 3 and Table 3). No microwave facilities were identified at any of the installations.

Podolsk DF Radio Communications Station Romantsevo

5. This facility, 8.5 nm south of Podolsk at 55-17-11N 037-33-11E, is a major transmitting station. The antenna arrays are arranged in an inner and an outer ring. The inner ring consists of seven fishbone (2-2-2-2 or BS-2) receiving antennas (Figure 1 and Table 1, items 1 through 7) and five horizontal dipole antennas (items 10 through 14). The predominant azimuths of the fishbone antennas face the northern and southern quadrants. The outer ring consists of two pairs of double day/night rhombic arrays (items 28, 29, 34, and 35), two pairs of nested double day/night rhombics (items 16, 17, 20, and 21), 13 double rhombics (items 15, 18, 19, 22, 24-26, 30-33, 37, and 39), four single rhombics (items 23, 27, 36, and 38), and two fishbone (2-2-2-2-2-2-2 or 3BS-2) receiving antennas (items 8 and 9). The predominant azimuths of the rhombics cover the eastern and western quadrants. Based on the extreme difference in heights of side poles and end poles, eight of the double rhombics are probably double bent rhombics. A side pole is missing that would normally be common to a double rhombic (item 15) and two nested double rhombics (items 16 and 17); therefore, these antennas are assumed to be inoperative, and no frequency range is given for them in Table 1.

6. The control building lies in the center of the antenna field. Two other buildings, probably for operational support, lie to the south between the inner and outer rings. The probable administration and housing area for this activity is 1.8 nm to the northeast.

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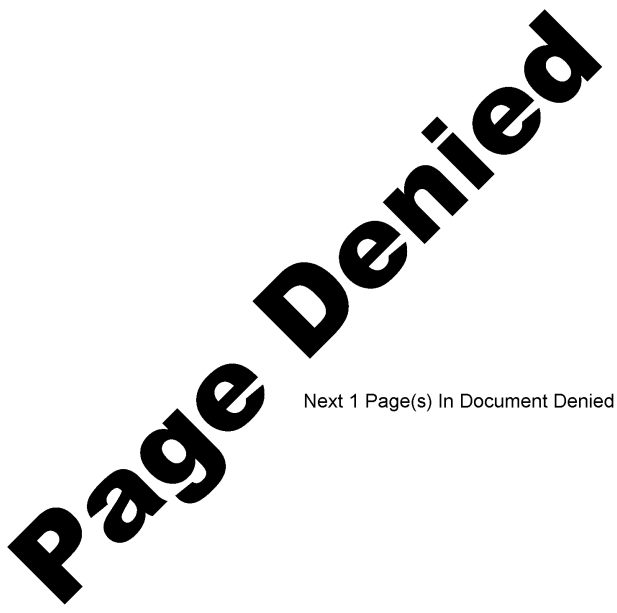

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Table 2a. Antenna Arrays at Podolsk HF Communications Facility Romantsevo (Item numbers are keyed to Figure 2)

Item	Antenna Type	Soviet Designator
1	Fishbone	2BS-2
2	Fishbone	BS-2
3	Fishbone	3BS-2
4	Fishbone	2BS-2
5	Fishbone	3BS-2
6	Fishbone	3BS-2
7	Fishbone	2BS-2
8	Fishbone	2BS-2
9	Fishbone	2BS-2
10	Fishbone	3BS-2
11	Fishbone	3BS-2
12	Fishbone	BS-2
13	Fishbone	BS-2
14	Fishbone	BS-2
15*	Fishbone	BS-2
16	Fishbone	2BS-2
17	Fishbone	BS-2
18	Fishbone	3BS-2
19	Fishbone	2BS-2
20	Fishbone	3BS-2
21	Fishbone	3BS-2
22	Fishbone	2BS-2
23	Fishbone	2BS-2
24	Fishbone	2BS-2
25	Fishbone	3BS-2
26	Fishbone	3BS-2
27	Fishbone	BS-2
28	Fishbone	BS-2
29	Fishbone	BS-2
30	Fishbone	BS-2
31	Double rhombic	RGD$\frac{701.25}{6}$**
32	Single rhombic	RG$\frac{701.25}{6}$**
33	Single rhombic	RG$\frac{701.25}{6}$**
34	Fishbone	BS-2
35	Fishbone	BS-2
36	Fishbone	BS-2
37	Fishbone	BS-2
38	Single rhombic	RG--

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*Masts not discernible.

**Designator approximated by length of leg and width of antenna.

Item 31 - Approximate leg length: 93 meters (305 feet).

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Items 32 and 33 - Approximate leg length 110 meters (361 feet).

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Table 2b. Control and Support Buildings at Podolsk/Romantsevo HF Communications Receiving Station and Probable DF Facility (Item letters are keyed to Figure 2)

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Item	Function
A	Control bldg, prob of fac Section a Section b
B	HF secondary control bldg Section a Section b Section c
C	HF main control bldg
D	Support bldg
E	Support bldg
F	Support bldg

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Table 3. Buildings in the Probable Headquarters and Support Area, Podolsk/Romantsevo DF Radio Communications Complex (Item numbers are keyed to Figure 3)

Item	Function	Dimensions
1-2	Apartments/quarters	
3	Hqs, admin, opns bldg	
	Section A	
	Section B	
	Section C	
	Section D	
	Section E	
	Section F	
4	Apartments/quarters	
5	Support bldg	
6	Support bldg	
7	Support bldg	
8	Quarters/barracks	
9	Apartments/quarters	
10	Prob gymnasium	
11	Prob operations/support	
12	Support bldg	
	Section A (2-story)	
	Section B (1-story)	
13	Apartments/quarters	
14	Prob heating/power plant	
15	Support bldg	
16	Prob hqs, admin, opns bldg	
	Section A	
	Section B	
	Section C	
	Section D	
	Section E (1-story alcove)	
17	Prob opns support (2-story)	
18	Garage/shed	
19	Garage/shed	
20	Garage/shed	
21	Support bldg	
	OFFICER HOUSING AREA	
22	Officer housing (1-story)	
23-26	Officer housing (1-story)	
27-34	Officer housing	
35	Poss sr officer housing	
36-38	Officer housing (1-story)	
39	Prob school	
40	Prob recreation/school	
	Section A	
	Section B	
	Section C	
41	Prob gym/recreation hall	
	Section A (1-story)	
	Section B (1-story)	
42	Prob bathhouse (adjacent pool)	
	Section A (1-story)	
	Section B (1-story)	
43	Housing support bldg	
	Three one-family dwellings and many out bldgs and sheds also in the officer housing area	

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Podolsk HF Communications Facility Romantsevo

7. This facility is a major high frequency receiving station (Figure 2 and Tables 2a and 2b). It is 1.5 nm northeast of the Podolsk DF Radio Communications Station Romantsevo at 55-18-11N 037-35-11E. The facility contains 38 antennas consisting of 34 fishbone, one double rhombic, and three single rhombic arrays (items 1-38). Approximately 16 small clearings in the trees beyond the fishbone ring may contain additional antennas, but no masts were observed. Feed lines to nearly all the antenna locations were identifiable. The fishbone arrays include ten 2-2-2 or BS-2, ten 2-2-2-2-2 or 2BS-2, ten 2-2-2-2-2-2-2 or 3BS-2, and four 5-3-3-5 or BS-2 antennas. A large control building (item C) is in the center of the installation, and a secondary control building (item B) lies to the north. Three probable support buildings (items D, E, and F) are near the main control building. Thirty fishbone antennas (items 1-30) form a nearly circular pattern around the control area and are covering the full 360 degrees. 25X1

Podolsk Probable Direction Finding Facility

8. This facility, immediately west of Podolsk HF Communications Facility Romantsevo at 55-18-10N 037-33-50E, consists of a central control building with eight radiating feed lines (Figure 2). These feed lines go to eight circular clearings which lie at 45-degree intervals from the control building. The approximate distance between the control building and each clearing is 520 meters (1,700 feet). Small circular clearings roughly 45 meters (150 feet) in diameter are at azimuths of 0, 90, 180, and 270 degrees. Large circular clearings roughly 180 to 210 meters (700 to 800 feet) in diameter are at azimuths of 45, 135, 225, and 315 degrees. Two small masts were observable in the 315-degree clearing, and one each was faintly visible in the 90-, 135-, 180-, and 225-degree clearings. Brush, trees, other vegetation, and shadows precluded further identification of masts. An above-ground cable line runs between the control building (item A, Figure 2) and the Podolsk HF Communications Facility Romantsevo control building (item C) 0.75 nm to the east.

Podolsk Ionospheric Station Romantsevo

9. This facility is immediately north of the probable DF facility and west of the headquarters and support area at 55-18-30N 037-34-15E. It consists of a pair of Type I ionospheric scatter antennas. 25X1
(Figures 2 and 3). This azimuth is toward the Kola Peninsula, the only other 25X1
known location of Type I ionospheric scatter antennas. The antennas on the Kola Peninsula are near Murmansk at 69-01-30N 032-58-00E, and they face Moscow and Podolsk.

Probable Headquarters and Support Facilities

10. The probable headquarters and support facilities for the DF radio communications complex are immediately northeast of the Podolsk Probable Direction Finding Facility at 55-18-40N 037-34-45E (Figure 3 and Table 3). The complex consists of two major areas. One of these areas contains headquarters and operations buildings and enlisted personnel or worker housing. The other area contains officer housing. The headquarters area contains 14 large buildings, seven small buildings, and an athletic field. Two of the major structures (items 3 and 16) are headquarters-, administration-, and operations-type buildings. Housing in the headquarters area includes five multistory apartment-type buildings and one two-story barracks-type building. The officer housing area contains 20 one-story housing units (17 multifamily and three single family), a probable school, a probable combination recreation hall and school, a probable gymnasium and recreation hall, a probable bathhouse and an adjacent swimming pool, an athletic field, and a support building (items 1 through 43, Figure 3 and Table 3).

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MAPS OR CHARTS

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RELATED DOCUMENTS

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REQUIREMENT

NPIC/IEG/WGD/SSB Project 251248

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