PLASTIC NOVELTY ITEMS

An Infrequent Newsletter From IPMS / CHICAGO SPRUE STRETCHERS

BUZZ OFF

by Jim Griffiths

Background

In June, 1944, a week after the Normandy landings, the Germans attacked England with a new weapon-a flying bomb. The Germans had hoped to bring this weapon into use during the previous autumn with the intent of bombarding London with upwards of as many as 3000 missiles a week until the destruction of the city had reached acceptable proportions. While the timetable had been thrown off, the intention remained: flying bombs would rise from secret installations built in a great arc throughout northern France to rain down on the enemy's cities.

In attacking large targets by remote means, the V-1 was unrivaled for economy and simplicity, despite the great number of modifications. More than 50 V-1 bombs could be had for the cost of a single V-2 rocket, and more than 300 V-1's for the expense of a single bomber. Moreover, each flying bomb delivered as much explosive as a V-2 or a bomber.

While inexpensive, simple and sufficient for the range, the V-1's pulsejet had shortcomings: low altitude and insufficient speed. Also a fault in the fuel-starved pulsejet caused it to cut out during the bomb's dive. This act provided warning to those below and also minimized penetration.

Although Americans called the V-1 by the name "Buzz Bomb", the English called it the "Doodlebug"(originated in No. 486 Tempest Squadron) or Chuff-Bomb"(originated by No. 69 Mosquito Squad.). The Germans called it V-1("Vergeltungswaffe Eins": Retaliation Weapon No. 1), though sharp-witted Berliners were thought to have deduced another explanation of V-1: Versager Eins(Flop No. 1).

The Fi-103 was the first operational weapon to be driven by y form of jet propulsion. It was a pilotless mid-wing monop without ailerons, but it incorporated a conventional tailplane with elevators, set forward from a fin and rudder. The propulsion and guidance systems depended on a continuous supply of two sources of power:compressed air and electricity. The air was stored in two spherical air bottles; the electricity was provided by a 42-cell electric dry battery.

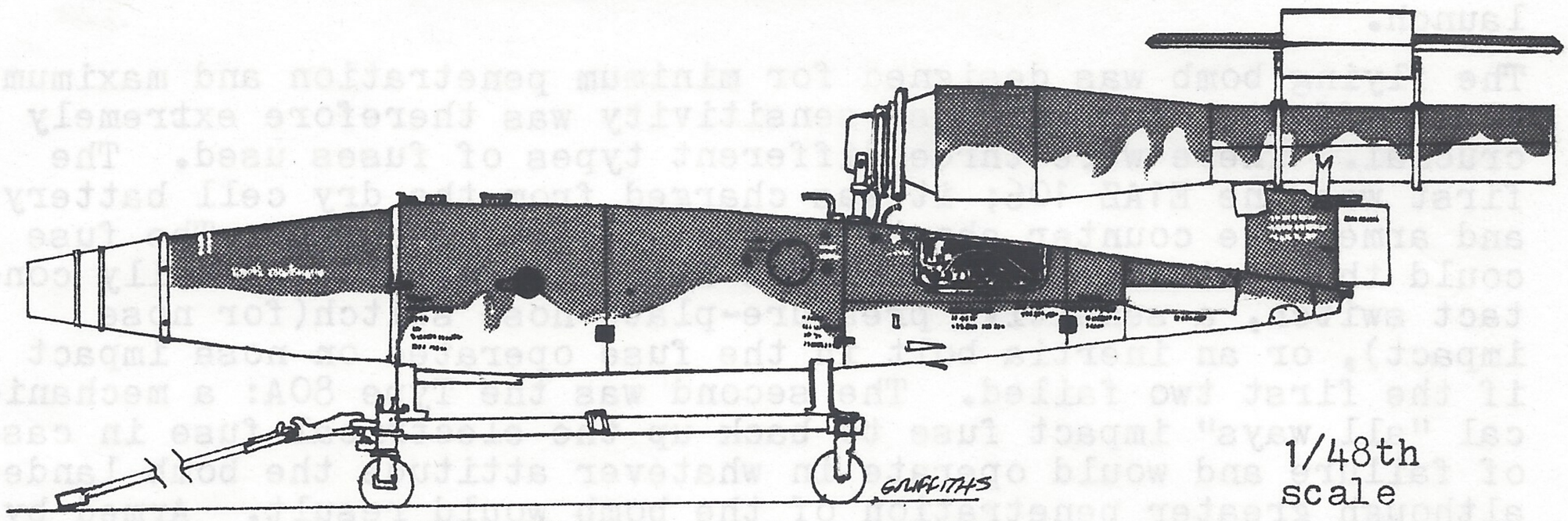
The V-1 could be launched in two ways: from a ground-based ramp or from an aircraft. In the former, the bomb climbed at an angle equal to that of the launching ramp until it reached a pre-determined altitude when it levelled off and turned on a pre-determined heading. It then flew straight and level until it had covered the required distance as recorded by the air-log on a mechanical counter. At this point, the bomb dived.

Air launching of V-1's from Heinkel He-111 "carrier" or "parent" bombers was, for the most part, carried out against London. But no matter what the intended target, the big problem for the attackers was to put the "carrier" into the correct position and on the correct bearing to release the bomb at a precisely calculated moment. A semi-automatic timing devise installed

in the "carrier" ensured the highest degree of accuracy at launch.

The flying bomb was designed for minimum penetration and maximum blast effect. Warhead fuse sensitivity was therefore extremely crucial. There were three different types of fuses used. The first was the E1AZ 106; it was charged from the dry cell battery and armed the counter about 38 miles after launching. The fuse could then detonate by one of the following methods: a belly contact switch, a sensitive pressure-plate nose switch(for nose impact), or an inertia bolt in the fuse operated on nose impact if the first two failed. The second was the Type 80A: a mechanical "all ways" impact fuse to back up the electrical fuse in case of failure and would operate in whatever attitude the bomb landed, although greater penetration of the bomb would result. Armed by a clockwork mechanism within the fuse, it was started by the removal of a pin on launching. It was armed within 8 minutes(max.) following the launch. The third and last fuse was the Type 17B. It was armed electrically on launching, following the withdrawal of a pin causing a clockwork delay mechanism to start. Max. Delay was 2 hours from point of arming.

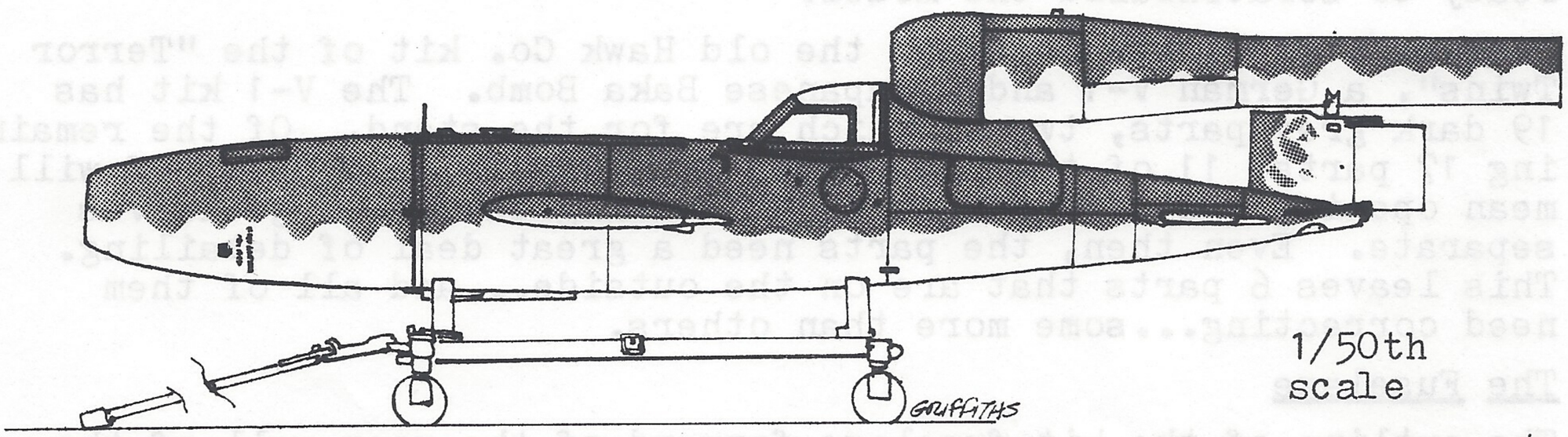
DANNENBERG DUO



1/48th scale

Fi-103 A-1, werk no. 478 180,
Dannenberg, Germany, April 25, 1945

When advancing troops of the U.S. Army's 29th Inf. Div. took the vast complex of Dannenberg, this V-1 was found. Appearing to have Color 82 uppersurfaces and Color 76 undersurfaces, an unusual feature is the camouflaging of the inner warhead in 82/76. A shipping container covers the electrical impact fuses. The horizontal stabilizer is in its shipping container attached to the pulsejet exhaust tube with wire bands; the container itself is made of wood. This V-1 has the pulsejet intake cover and pylon fairing missing, as well as the access panel to fuel pump, filter, & counter mechanism. Another unusual feature is the coloring of the fin and rudder: the fin appears in 82 with the rudder in 76. Note how camouflage pattern varies from section to section: this is due to prefabrication & painting of parts in different locations w/ assembly at a later time.



1/50th scale

Fi-103 A-1/Re 4, wk. no. unknown
Dannenberg, Germany, April 25, 1945

This piloted version of the V-1 differed from the A-1 version in that its length was longer, the wingspan & chord were longer, the rudder was longer(w/ control linkages on p&s sides), the warhead cover was made of plywood, the forward pylon fairing's shape was different, and of course, it had a cockpit & canopy. Colors appear to be 81 uppersurfaces w/ 76 undersurfaces; there appears to be a slight mottling on the fin. V-1's surface is shiny, probably from a coating of wax. Note that the impact fuse hasn't been attached to the plywood nose cone.

PNI Foldout No. 4

WEIGHTS AND PERFORMANCE STATISTICS*

Type		Fi 103 A-1	Fi 103 A-1/Re 1	Fi 103 A-1/Re 3	Fi 103 A-1/Re 4
Role Seating		Missile —	Extd. Range Missile —	Missile Trainer 2	Piloted Missile 1
Engine		Argus 109-014	Argus 109-014	Argus 109-014	Argus 109-014
Thrust	km-km/h-kp (lb) km-km/h-kp km-km/h-kp	0-0-366 (807) 0-600-325 (716) 3-600-254 (560)	0-0-366 (807) 0-600-325 (716) 3-600-254 (560)	0-0-366 (807) 0-600-325 (716) 3-600-254 (560)	0-0-366 (807) 0-600-325 (716) 3-600-254 (560)
Fuel	Liter (US gal.)	665(176)75 octane	680 (180) VK2	680 (180)	680 (180)
Engine weight Empty weight Fuel weight Crew weight Warhead weight Equipped weight	kg (lb) kg (lb) kg (lb) kg (lb) kg (lb) kg (lb)	153 (337) 839 (1,864) 500 (1,102) — 830 (1,830) 2,152 (4,796)	153 (337) 1,204 (2,675) 513 (1,131) — 450 (1,000) 2,163 (4,806)	153 (337) 202 (448) — 	153 (337) 101 (224) 810 (1,800)
Fuel consumption Optimum range Service ceiling Optimum cruise speed Maximum speed Rate of climb Speed at launch	L-kp (gal-lbst) km (mi) m (ft) km/h (mph) km/h (mph) m-min (ft-min) km/h (mph)	2.59-272 (.68-605) 238 (149) 2.625 (8,840) 580 (360) 644 (400) 400 (248)	2.59-272 (.68-605) 375 (233) 628 (390) 773 (480) 400 (248)	2.59-272 (.68-605) — —	2.59-272 (.68-605) — —
Launch time Duration of flight Warhead	sec min	1 25 Amatol-39 (CODE Nr. 52A)	1 40 Amatol-39 (CODE Nr. 52A)	 —	

SPECIFICATIONS*

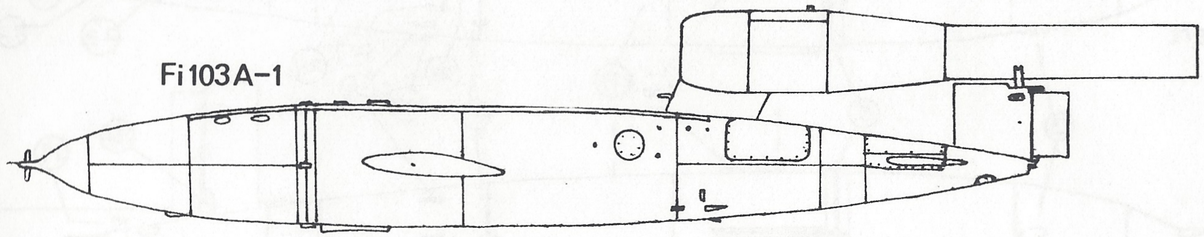
Type		Fi 103 A-1	Fi 103 A-1/Re 1	Fi 103 A-1/Re 3	Fi 103 A-1/Re 4
Wing span	mm (ft-in)	5370 (17-6 1/4)[1]	5370 (17-6 1/4)	5720 (18-9)	5720 (18-9)
Length overall	mm (ft-in)	8325 (27-3 3/4)	8509 (27-11)	8929 (29-9)[2]	8380 (27-2)
Height	mm (ft-in)	1423 (4-8)	1423 (4-8)	1423 (4-8)	1423 (4-8)
Stabilizer span	mm (ft-in)	2055 (6-8 7/8)	2055 (6-8 7/8)	2055 (6-8 7/8)	2055 (6-8 7/8)
Fuselage length	mm (ft-in)	7405 (24-3 3/8)	7772 (25-6)	8323 (27-8)[2]	7780 (25-2)
Maximum fuselage diameter	mm (ft-in)	840 (2-9)	840 (2-9)	840 (2-9)	840 (2-9)
Engine length	mm (ft-in)	3660 (12-0 1/8)	3660 (12-0 1/8)	3660 (12-0 1/8)	3660 (12-0 1/8)
Maximum engine diameter	mm (ft-in)	565 (1-10 1/4)	565 (1-10 1/4)	565 (1-10 1/4)	565 (1-10 1/4)
Engine orifice diameter	mm (ft-in)	390 (1-3 3/8)	390 (1-3 3/8)	390 (1-3 3/8)	390 (1-3 3/8)
Wing chord	mm (ft-in)	1050 (3-5 1/4)	1050 (3-5 1/4)	1296 (4-3)	1296 (4-3)
Wing area	m^2 (ft^2)				

* THESE TABLES TAKEN FROM MONOGRAPH CLOSE UP No 4, BUZZ BOMB, by ANTONY L. KAY

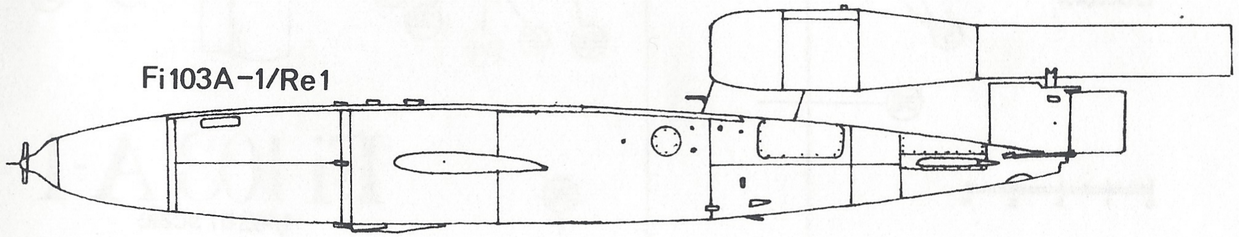
Variants

1/50th scale

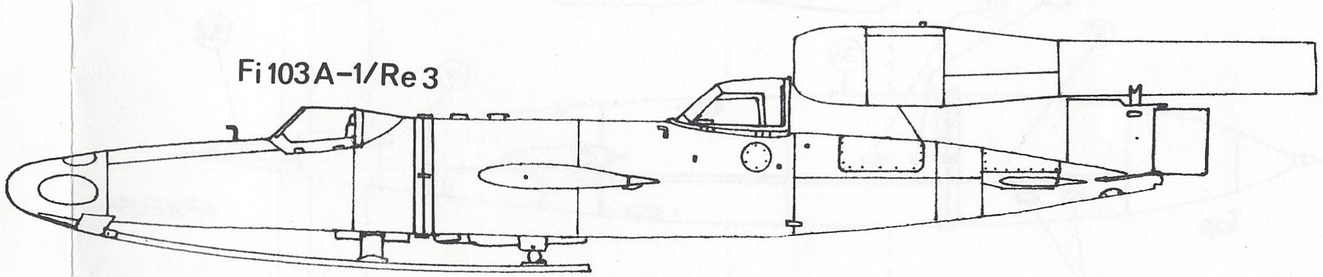
Fi 103A-1



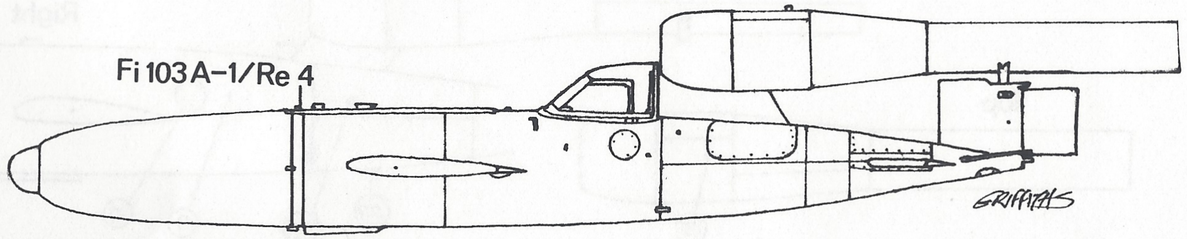
Fi 103A-1/Re 1

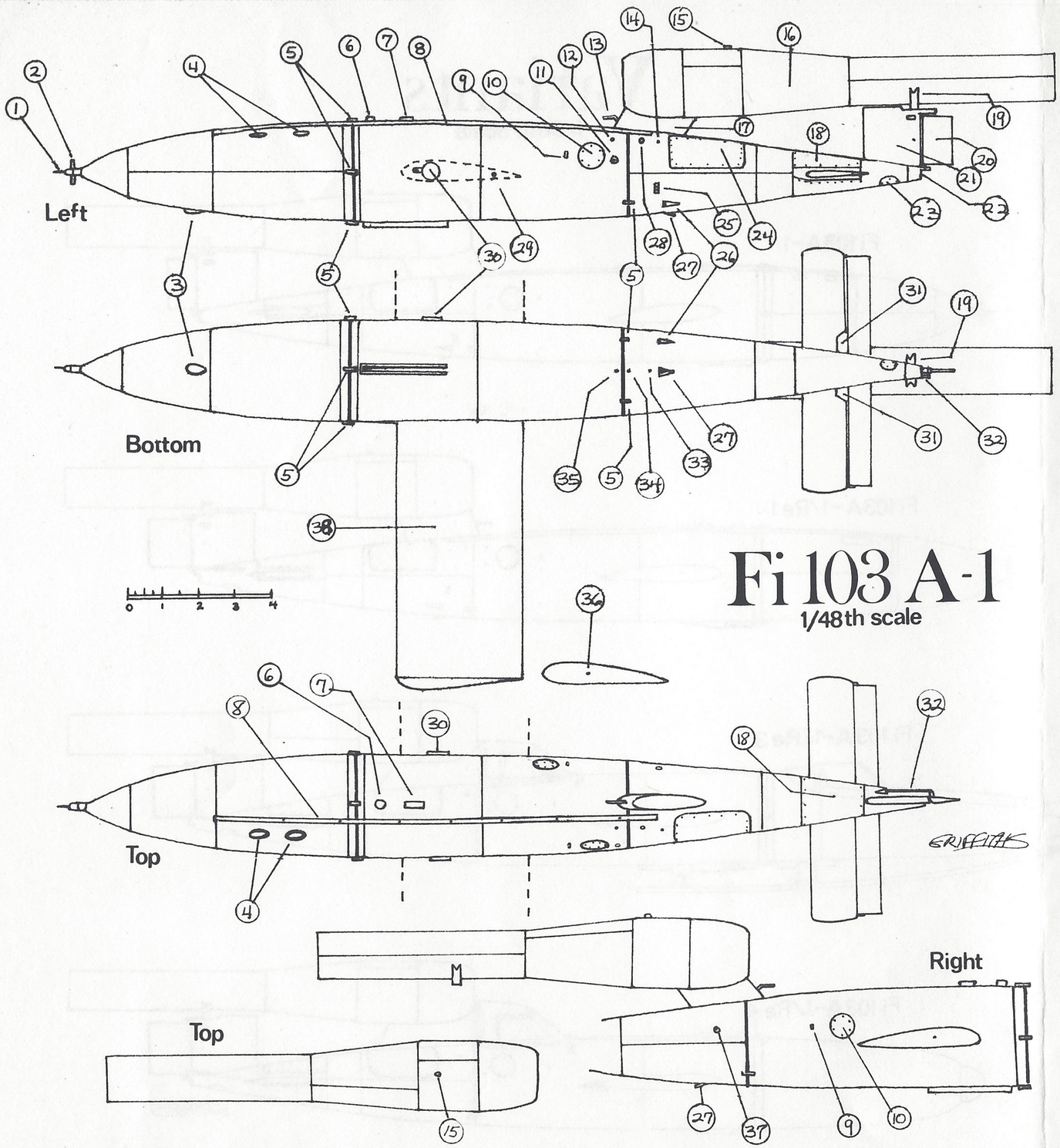


Fi 103A-1/Re 3



Fi 103A-1/Re 4

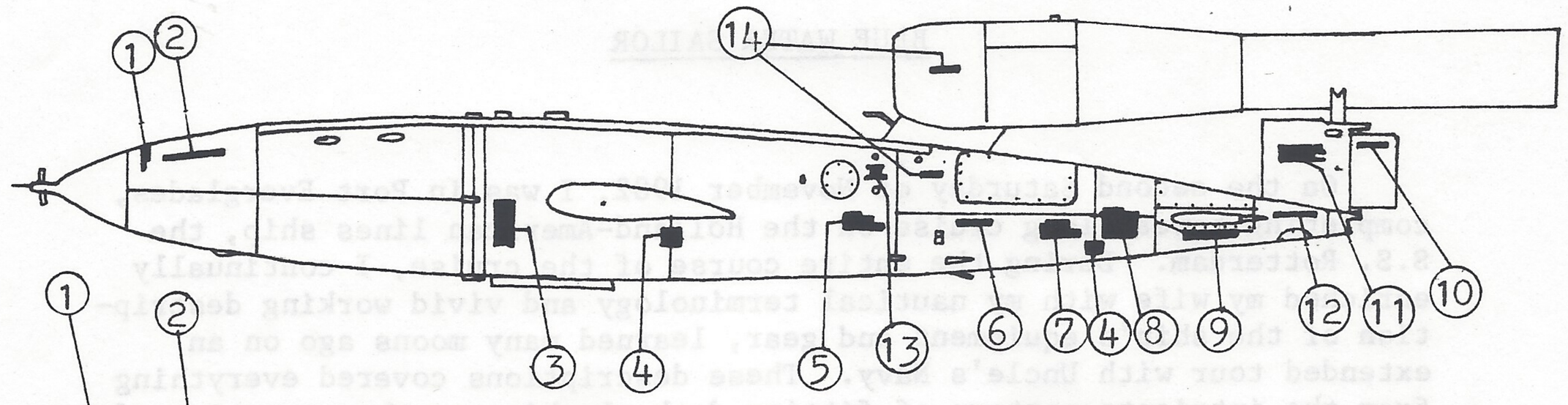


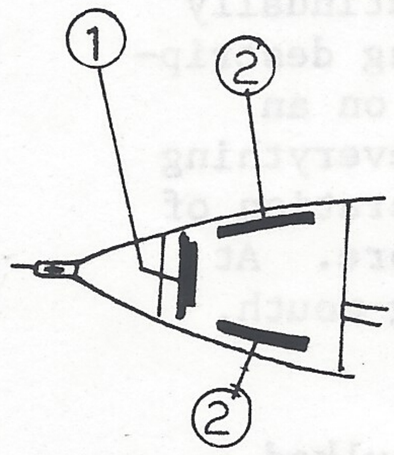


Fi 103 A-1

1/48th scale

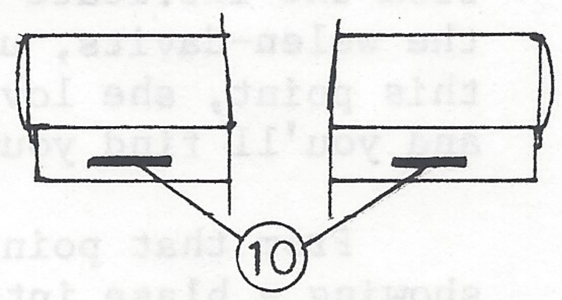
1. Impact switch to fuses
2. Windmill for range control
3. Belly landing fuse switch
4. Warhead fuse pockets
5. Attachment bolts
6. Fuel tank filler cap
7. Lifting lug
8. Electrical conduit
9. Hoisting eye(one of two)
10. Access plate to compressed air container
11. Air filling valve
12. Air pressure reducing valve
13. Pitot head
14. Push-rod actuating fuel shut-off valve
15. Sparking plug
16. ARGUS As 109-014 pulsejet
17. Pylon fairing cover
18. Access panel to control servo mechanisms
19. Rear pulsejet support band
20. Rudder
21. Fin
22. Hole in rear of fuselage for deployable wire antenna
23. Circular access plate
24. Access plate to fuel pump, filter, and counter mechanism
25. Key operated master switch
26. Starting air quick-release connection
27. Drain from fuel shut-off valve
28. Electrical test socket
29. Swivel housing for wing shear pin
30. Spar housing, locknut and washer
31. Spoilers(NOTE:left underside spoiler is larger than the right one)
32. Rudder control rod
33. Ambient air pressure pipe to altitude control
34. Cradle actuated uncaging switch
35. Cradle aligning hole
36. Hole in wingtip
37. Fuel drain(plug)
38. Main wing





top view:
nose section

top view:
hor. stab.



Fi 103 A-1

Stencilling & Handling Instructions

1. Nasenhaube ist stets mit 6 Schrauben zu befestigen
2. Nicht auftreten
3. Waggon
   fz
   W 76 N
   IT 12 N
   Rollpallung N
   WO
   Abstellpallung A
   Doppelpallung
4.
5. TW 76A N
   Rollpallung lang N
   Zubringerwagen
   (Schlitten)
6. Klebestreifen auf Unterseite vor Inbetriebnahme entfernen
7. TW 76 A
   Doppelpallung
8. Kfz Verladung
   (Pallungsabstand b2)
   Herkules N
   Abstellpallung
9. Abstellbock
10. Nicht anfassen
11. Stutzkeil hier einsetzen
    Transport und bei abgen
    Abdeckblech Vor dem start entfernen
12. Abstellpallung A
    Herkules A
13.
14. 477 000

1. The nose cone is always to be fastened by means of the 6 screws
2. Not to be stepped on
3.
   Trolley N
   Storage cradle A
   Double cradle
4. Black square-no writing
5.
   Long trolley N
   Conveyor trolley
   (Sledge)
6. Remove adhesive strip on underside before use
7.
   Double cradle
8. Transport vehicle
   (cradle spacing b2)
   Storage cradle N
9. Chock
10. Do not touch
11. Insert wedge here
    Remove transit cover-plate & discard before launching
12. Storage cradle A
13. Data plate: 2 white bars w/ 3 lines of writing
14. serial no.; either/or both locations

FLYING BOMB

FZG 76

Vergeltungswaffe - Eins