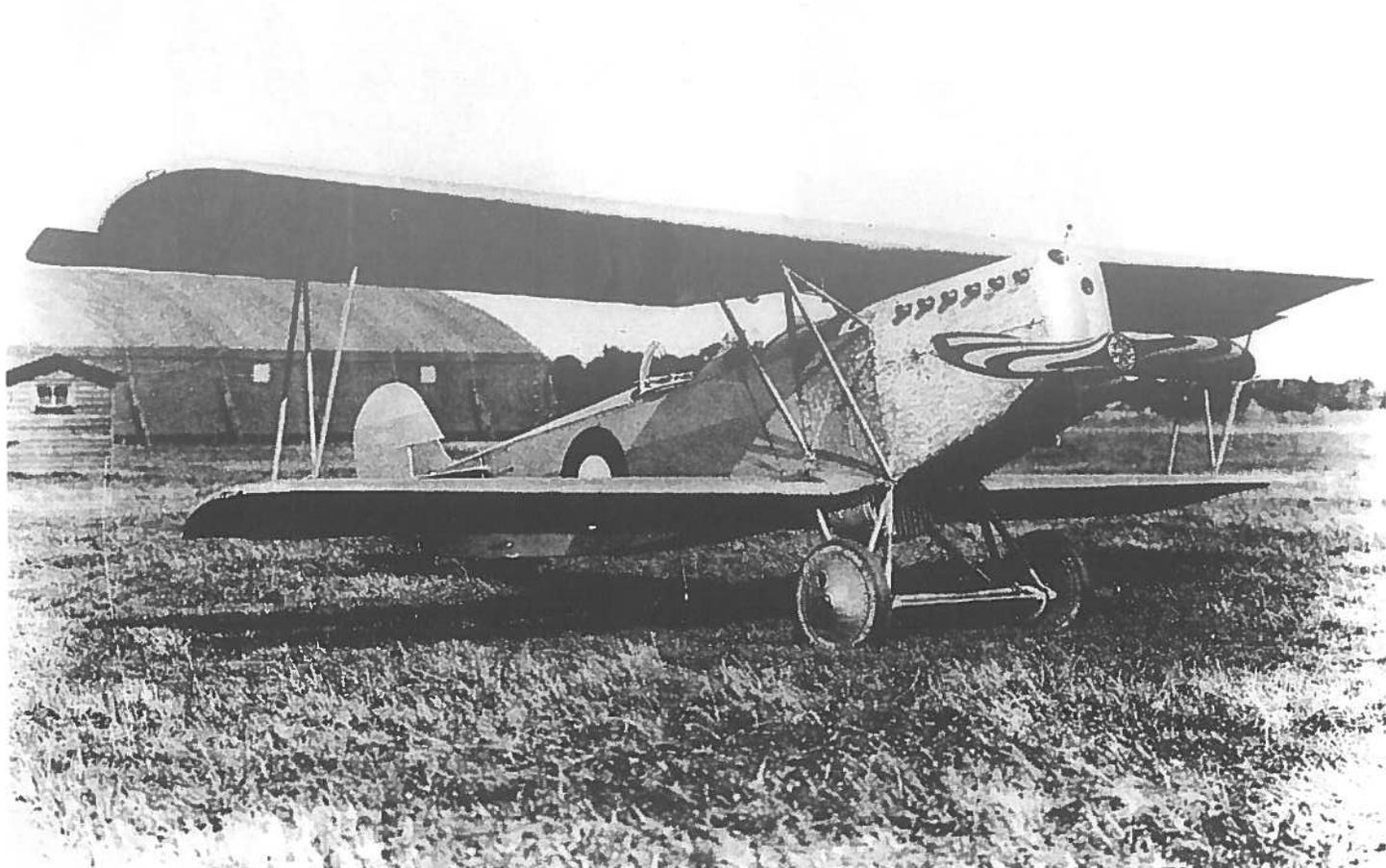


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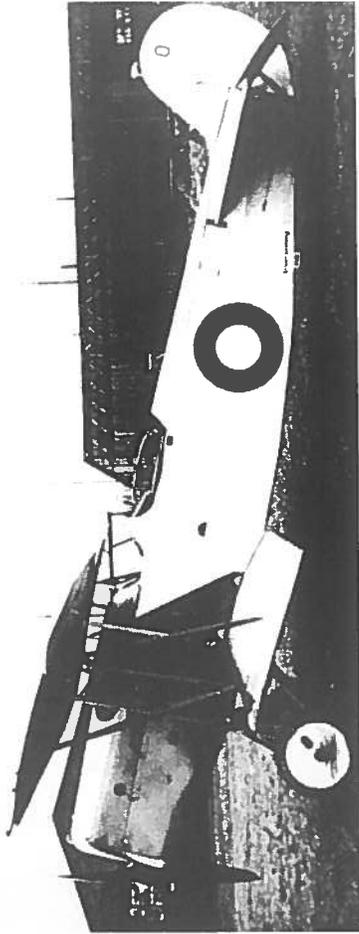
The Hellenic PZL P.24 Fighters - Part 1
Danish Army Air Service 1911-1940
Spanish Civil War Bf 109 Losses
Early Bf 109 V Models

vol. 30 no. 1 (117)

July 2006

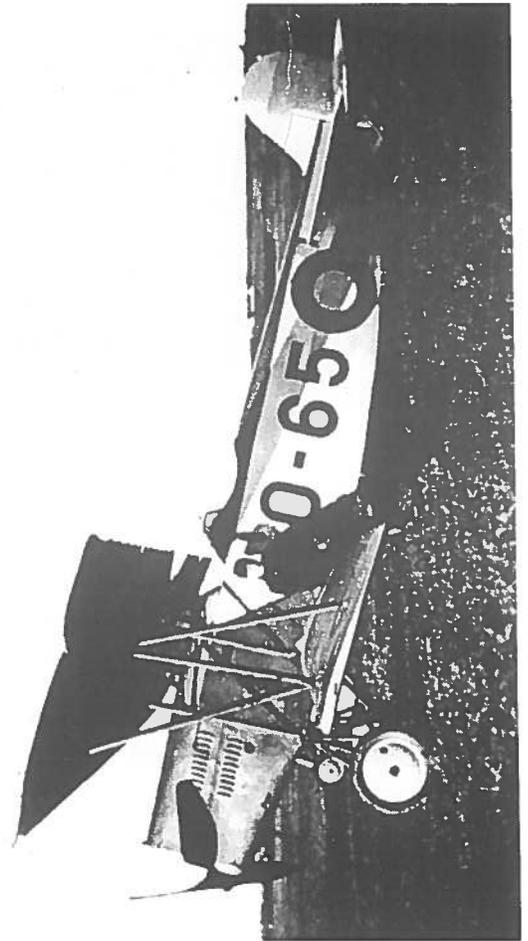


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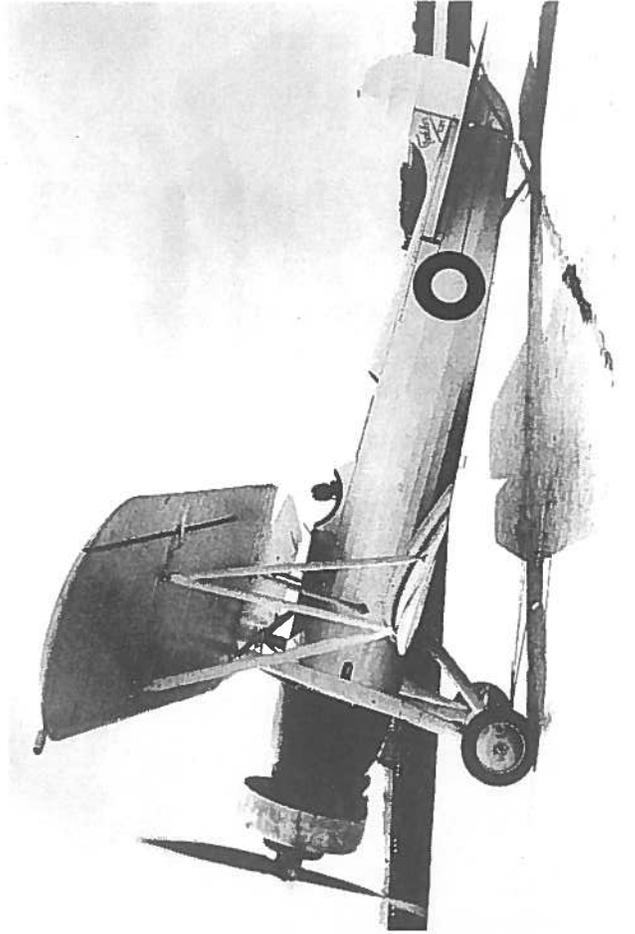


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SMALL AIR FORCES OBSERVER

The Journal of the Small Air Forces Clearing House

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CONTENTS

Abstracts	4
Greek PZL P-24: Part I (Napier)	7
Danish Army Air Service (Dildy & Willadsen)	21
Early Bf 109 V Models (Whelan)	26
Spanish Civil War Bf 109 Loses (Matyás))	29
Books (Thunderbolts in Brazil; Hercules Production List)	33
Letters (Jarrells; Voaden; Andersson; McvGarry; Sanders; Wenko)	34

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SAFCH WEB SITE: See SAFO photos in color and chat with members at www.bartoli.com/saf

COVER PHOTO: Fokker C.I, known in Danish service as "Type 10". The family resemblance to the very successful D.VII fighter is readily apparent in the shape of the wing, strutting and fuselage. Danish IOs were powered by a 220hp BMW engine and had a top speed of 124mph (200km/hr). Some 15 were built by the Royal Arsenal Workshops. This appears to be the prototype due to its "spot (or spun) polished" aluminum cowling and the decorative alternating wood shades propeller. (Thijs Postma Collection)

An article on the Danish Army Air Service begins on page 21.

Les Ailes Françaises: 1939-1945

TMA SARL, 75 rue Claude Decaen, 75012 Paris, France. Email: airmagazine@wanadoo.fr. One year (4 issues) 55€ France; 70€ Europe; 90€ Rest of World

Les Ailes Françaises: 1939-1945 #2: La 'Drôle de Guerre' (3 septembre 1939 – 9 mai 1940). 95 A-4 size pages.

While the Armée de l'Air in 1939/40 was definitely not a small air force, it has always captivated me because of several reasons: (1) It used a large number of aircraft types that were decidedly weird. (2) Thanks first to Heller and now Azur, a number of these weird types are available as models in 1/72-scale. And, (3) it has received little attention (relative to the Luftwaffe, RAF, & USAF) in non-French circles. When was the last time you saw a French aircraft at a model show? Therefore, it is with a clear conscience that I review this second in TMA's series Ailes Françaises 1939-1945.

This volume covers the period between the declaration of war on 3 September 1939 and the eve of the German assault on 10 May 1940 – a period known in the West as the Phony War. [Editor's note: There was nothing "phony" about this war for the Polish people.]

Let's begin with a rundown of the chapter titles, both to give you some idea of the contents and, hopefully, dispel any fear you may have of the French language. (1) Une aviation à deux vitesses; (2) L'aviation transport militaire; (3) Les Groupes d'Infanterie de l'Air; (4) Écoles de pilotage et appareils d'entraînement; (5) La RAF débarque en France; (6) Tchèque et Polonais dans l'armée de l'Air; (7) Soutenir la Finlande, une nouvelle cause nationale (novembre 1939 – mars 1940); (8) Les combats aériens; (9) Avions étrangers: livraisons

tardives et commandes de dernière minute; (10) Les incroyables projets de bombardement des industries pétrolières soviétique et allemande (janvier-mai 1940); (11) Les pertes de l'armée de l'Air pendant la 'Drôle de Guerre'; (12) Ordre de bataille de l'Aéronautique navale au 3 septembre 1939; and (13) Les efforts ininterrompus de la Marine pour se préparer à la guerre moderne.

The Fiches Monographiques section provides data and scale 3-view drawings of four aircraft: Bloch 210 (1/144), Blériot-Spad 510 (1/72), Bloch 131 (1/144), Amiot 143 (1/144), & Curtiss H-75A (1/72).

This seems to be quite a bit to fit into such a tiny book. But TMA carries it out beautifully. Each chapter contains, beside the French text, many rare and never-before-published photos excellently reproduced on high-quality glossy paper as well as beautiful color side-view drawings. Let's use the color drawings to illustrate the depth of coverage. Chapter 1: Farman 222 (2), LeO 451, Dewoitine 510 (2), Blériot-Spad 510 (2), Potez 390 (2), Breguet 691, Dewoitine 520 (2), & Amiot 351 (2). Chapter 2: Potez 62. Chapter 3: Potez 650. Chapter 4: Amiot 153, Loire 46, & NA-57 (2). Chapter 6: MS-406 (2), Potez 63-11, & Caudron-Renault 714. Chapter 7: MS-406 (Finnish). Chapter 8: MS 406 (6), Curtiss H-75A (6), Potez 631 (2), Potez 637 (2), Potez 63-11 (2), Bloch 210 (3), Bloch 200 (3), Amiot 143 (2), Bloch 131, Potez 542, LeO 451, Mureaux 115 (2), Dewoitine 501, & Bf 109 (3). Chapter 9: Douglas DB-7 & Martin 167. Chapter

13: Potez 540, Vought 156, Dewoitine 510, Potez 631, LeO H-43, & LeO C.30. Don't bother to count, this totals to 70 color side-view drawings.

The chapter on Les combats aériens receives the most coverage: 27 pages including 52 photos and 38 color side-view drawings. The chapter on the Aeronavale is also very interesting because it illustrates some little-known aircraft. However, it is unfair to single out these chapters; every chapter in this book is a gem.

Two chapters, in particular, caused me to think anew about the politics of the Phony War. One was on the eagerness of the French to help the Finns fight against the Soviets. The other was the chapter on the abortive plan to bomb the Soviet oil refineries at Baku, on the Caspian Sea. Is it possible that the French were more interested in annoying the Russian bear than they were in confronting the Nazis.

The second volume of Les Ailes Françaises: 1939-1945 is an excellent history of the Phony War. It is profusely illustrated with rare photos and colorful color side-view drawings. It will make a great addition to any collection of books on the aerial warfare of WWII. It is also highly recommended to the modeler looking to use the Heller and Azure kits to build up a collection of models of the aircraft used by the Armée de l'Air in the period 1939-1940.

Review copy provided by Jose Fernandez of TMA.

AUSTRALIA

AUSTRALIAN PLASTIC MODELLERS ASSOCIATION (APMA, PO Box 51, Strathfield, NSW 2135; 4 issues airmail A\$40. International payment is best handled via Paypal at iansharyn@bigpond.com.au).

1-06 (32 pages) Cover photo: Indonesian C-47. "Flash Daks" 3 pages including 4 side-view drawings of Qantas Dakotas. "Charlene the R4D: An Antarctic Air Taxi" 3 pages on Dakota with the wings removed serving as a "ground" taxi; includes one photo and a 3-view drawing. "Cuban Invasion Arranged Pt. 1: The Congo in the 1960s" The first of a series on CIA involvement in conflicts around the world; 3 pages including 8 side-view drawings [T-28C (2), AT-6D (2), B-26B, C-47, Vertol H-21B (2)]. "RAAF CH-47C Chinook Interior" 2 pages with 4 photos. "Hurricane IIC in Stripes (Pt 2)" 1/2-page with side-view drawing. This issue also contains the following non-aeronautical articles: "Modeling my own Ford Focus", "Polish Leopard II Markings", "A Kiwi Hummer", "River Monitors Pt 1", "Carros De Combate (Pt 2)" "Improve your British military models with colour (Pt 1)", and "Automitrailleuse Citroen 2CV".

AUSTRIA

OFH NACHRICHTEN (Oesterrichische Fluggzug Historiker, Pfenninggeldf 18/2/14, A-1160 Wien. Write for free sample.)

1/06 (40 pages) "18 Jahre Saab J 35OE Draken in Osterreich" 11 pages including 3 color photos, 17 b&w photos, a table on individual a/c histories, and 3 color side-view drawings of commemorative Draken. "Erfinder und Flugzeugbauer Ing. Anton Fiala: Teil 1" 6 pages including one photo. "Brandenburger in Polen" 4 pages including 10 photos and a narrative history of the individual a/c.

BELGIUM

KIT (IPMS Belgium, c/o Michel Willot, dreve de Champagne 14, B-1190 Bruxelles; French & Flemish. International Postal Money Order for \$30 for 4 issues.

#137 1/2005 (52 pages) "ES-3A" 8 pages on converting the Hasegawa S-3 into the CAG version including 9 photos of the model at various stages of construction. "Avia S-199" 4 pages on building the 1/48-scale Academy kit including 8 photos of the completed model and the real thing in Czechoslovak markings. "Sabena A330-301" 7 pages on building the 1/144-scale Revell kit including 22 photos of the model and the real thing. "Sabena Airbus A330 Walk Around" 5 pages with 28 photos. Three pages with 34 color photos of models at a recent model meet.

#138 2/2005 (52 pages) "Schreck FBA/H" 6 pages 1/72-scale Vami kit including 19 photos of the model and the real thing. "Schreck FBA Walk Around" 4 pages with 43 photos of the FBA in the Brussels Air Museum. "Spitfire Mk. XVIe" 2-page review of the 1/48-scale Italeri kit including 3 photos. "Grandes Surfaces s'Eau pour Dioramas 1/72" 7 pages on building water dioramas for aircraft including 9 photos. "Fokker D.VII: 10° Esc/Smd" 4 pages including 10 photos of model and the real thing in Belgian markings. Three pages with 39 color photos of models at a recent model meet.

#139 3.2005 (52 pages) "Les Fokker D-VII Belges en leur Robe Civile" 17 pages on D-VII in Belgian civil marking including 20 photos, a color side-view drawing, and reviews of D.VII kits. "Le Pembroke de la Force Aerienne Belge" 6 pages including 8 photos of the 1/72-scale Special Hobby kit under

construction and 3 side-view drawings of the Pembroke in Belgian Air Force markings. "Percival Pembroke: 15 Wing - 21 Squadron" one page with 7 photos and a side-view drawing. Three pages with 25 color photos of models at a recent model meet.

#140 4/2005 (52 pages) "Le Pembroke de la Force Aerienne Belge" 6 pages including 9 photos of the completed 1/72-scale Special Hobby kit and two 3-view drawings of the Pembroke in Belgian Air Force markings. "Percival Pembroke: 15 Wing - 21 Squadron" 2 pages with 18 photos. "Percival Pembroke Walk Around" 8 pages with 76 photos of the Pembroke at the Brussels Air Museum. "OTOZAG - RM-7: one page with 6 photos of the Pembroke at the 15 Wing Dakota Museum. "Lockheed C-130E Hercules: IAF" 5 pages on building the 1/72-scale ESCI kit with Sky Decals including 12 photos of the completed model and the real thing. Three pages with 38 color photos of models at a recent model meet.

CANADA

RANDOM THOUGHTS (IPMS Canada, Box 626, Stn. B, Ottawa, Ontario K1P 5R7; 6 issues for US \$24.00 in US \$26.00 elsewhere).

29/6 (24 pages) "Building the 1/48 Hobbycraft CT-114" 9 pages including 12 photos (2 in color). "CT-114 Tutor Reference Photographs" 6 pages with 12 photos,

ENGLAND

MUSHROOM MODEL MAGAZINE (Roger Wallsgrove, 36 Ver Road, Redbourn, Herts AL3 7PE, UK. [Editor's note: This is the penultimate issue of MMM. Issue 10/4 will be their last. I hope to attract some of their authors over to the SAFO camp.]

10/3 (28 pages) "Yellow & Black - Target Tugs" 4 pages on building models of the Miles M.25 Martinet TT Mk1 & a Westland Lysander Target Tug, including 16 photos of the model and the real things. "Dewoitine D.510 in China" one page on history and modeling including 2 photos of the finished model. "Kits and KitKat" 1/2 page on using the foil from the KitKat candy bar for natural-metal finishes on 1/72-scale models. "Forty-Eight Firebrands" 4 pages including 16 photos of the models during construction and the completed models. "Culver Continued" one page with 6 color photos of museum examples of the Culver PQ-14 "Hot off the Workbench" 8 pages of kit and decal reviews including CMR's Westland Wapiti & Fokker C.V, Octopus' Ro-43, and Azur's Hispano-Nieuport NiD.52. "Book Reviews" 2 pages with reviews including "Colors and Markings of the Israeli Air Force" and "Romanian Aeronautics 1941-1945".

SWEDISH AIRFORCE SIG (Harold Rowell, 80 Cambridge Ave., Marton, Middlesbrough, Cleveland, TS7 8EG, England. E-mail: pauline.rowell@ntlworld.com. Subscription £5.00 UK, £6.00 Europe, £9.00 USA.

#55 (12 pages) "Swedish volunteer pilots in the RAF during WWII" 3 pages with 4 short biographies.

FINLAND

IPMS-MALLARI (IPMS Finland, PL 798, 00101 Helsinki 10; 6 issues \$20.00, no check accepted due to the high redemption costs). Text in Finnish.

#161 1/2006 (32 pages) "DC-1-2-4 seitsemalla vuosikymmmrlls" 4 pages with 34 b&w and 2 color. Plus lots of color photos of models at the 2005 IPMS Helsinki Open.

SUOMEN ILMAILUHISTORIALLINEN

LEHTI (Peritti Manninen, Jakomaentie 8 b C 300, 00770 Helsinki. Subscription: Europe 26 euro, elsewhere 32 euro or 38 USD. Payment by International Postal Order or in cash notes; no cheques accepted because of high redemption rates). Each issue includes a 2-page English summary.

1/2006 (24 pages) "DH 100 and DH 110 Vampire in Finland: Part 1" 7 pages including one photo. "A Detailed View of Field Flight Depot I in Action 1941-1944" 3 pages including 2 photos (Bf 109 & G.50). "The Official History of KLe.V 1" 2 pages including one photo (Buffalo). "Soviet Pilots Defecting to Finland in 1943-1944" 4 pages including 3 photos (I-16, Yak-7B, & Yak-9D). "Ideas about Organization and Equipment of Finnish Air Force by the late Risto Pajari, Chief of Staff Finnish Air Force 1940-45" 2 pages including one photo (Curtiss H-75A).

FRANCE

AIR MAGAZINE, TMA, 75 rue Claude Decaen, 75012 Paris, France. Six issues a year. 35 euros in France, 41 euros in Europe, and 50 euros for the rest of the world. Payment by Visa, Eurocard, Mastercard. E-mail: airmagazine@wanadoo.fr.

N° 30 Fev./Mars 2006 (72 pages) "Le gyroptere de Papin et Rouilly" 9 pages including many photos and sketches of a very peculiar vehicle. [Ed: Darn if I can figure out how it was supposed to fly.] "Le Bloch 131" 30 pages including 48 photos, 12 color side-view drawings, three color 3-view drawings, a 4-page 1/72-scale multi-view drawing, and 6 sketches of interior detail. "Le chasseurs Avia BH-33" 17 pages including 34 photos, four 3-view color drawings (Czechoslovakia, Greece, Yugoslavia, & Croatia), and a page of 1.72-scale multi-view drawings. "Actualite Maquettes & Livres" 4 pages with reviews of 15 kits and 17 books.

No 31 April/Mai 2006 (72 pages) "Un Sud-Américain a Paris" 6 pages on the carrier of early-bird Jose Luis Sanchez Besa; includes 16 photos. "La production du Bloch 131 a l'usine SNCASO" 3 pages including 7 photos. "Le Macchi MC.200 Sietta" 38 pages including 44 photos, a 2-page cutaway drawing, 2 pages of scale drawings, one color 3-view drawing, 42 color side-view drawings (all in Italian markings except for one each in RAF, USAAF, and Co-Belligerent colors). "Les chasseurs Avia BH-33 dans la force aerienne polonaise" 9 pages including 13 photos, 2 color 3-view drawings (Polish & Spanish), 6 color side-view drawings [Polish (3), Czechoslovak (2), & Yugoslav (1)]., and a page of 1/72-scale drawings. "Marquette: Hispano-Nieuport Delage NiD-52" 2 pages on modeling the 1/72-scale Azur kit including 5 photos of the completed model. "Actualite Maquettes & Livres" 3 pages with reviews of 22 kits [including 1/72-scale kits: MPM Northrop A-33 (Iraqi & Norwegian); Special Hobby Fw 58 (Swedish); and RS Models He 112 (Spanish), Nakajima Ki-27 (Thai), & Manshu Ki-79 (Communist Chinese and Indonesian)] and 13 books [Polish PWS.10/Avia BH.33/PZL P.7 (17, 17, & 20 color profiles respectively) and Polish Hurricane (50 color profiles)].

AVIONS: Toute l'Aeronautique et son Histoire (Lela Presse, 29 rue Paul Bert, 62230 Outreau, France. 50 euro for 6 issues).

#150 Mars/Avril 2006 (72 pages) "Les as francais de 14-18: Paul Montange et la Spa 155" 16 pages including 47 photos, color cover painting, 4 color side-view drawings (Nieuport 24bis & 27), and a color 3-view drawings (Nieuport 27). "Le chasse

terrestre de la Marine Imperiale Japonaise (10): Tatsumaki et Kamikazi" 11 pages including 24 photos and 10 color side-view drawings [J2M3 Raiden (4), J6M5 (4), and J1N1 (2)]. "Un pilote son avion I: Jean Tariel et le MS 406" 3 pages including 4 photos and a color side-view drawing. "Eurasia: Des vols pionniers dans un pays dangereux" 8 pages including 16 photos (Ju 52/3m & Fw 200) and route map. "Rogozarski IK-3" 9 pages including 6 photos, 4 color side-view drawings, one color 3-view drawing, and 3 pages of multi-view scale drawings. "14-18: Quand la France inventait le tir a traverses l'helice..." 11 pages with lots of photos and sketches. "Pionniers: Le Voisin 'de course' de Bielovucic" 2 pages including 2 photos. "Un aerodrome Liegeois: Ans" 6 pages with 15 photos and maps. "Info maquettes et livres..." 2 pages with reviews of 7 books and 6 kits.

#151 **Mai/Juin 2006** (72 pages) "Pierre Clostermann" a 44-page celebration of the life of the recently-deceased ace, including 108 photos, a color cover painting, and 12 color side-view drawings of the planes he flew (Spitfires and Typhoons). "Le Breguet 14 en Thaïlande" 6 pages including 20 photos. "Clash' Claesen: Le premier at le dernier" 5 pages including 16 photos. "Gardien de la BA 126: L'ultimime carriere du Vautour II, N n° 370" 7 pages including 22 photos. "Les matricules militaires portes par les avions Bloch 151 et 152" 7 pages including 11 photos, a color 3-view drawing, and 8 color side-view drawings.

GERMANY

MITTEILUNGEN (IPMS Germany, Bergengruenstrass 5-7, D-1000 Berlin 38; 12 issues DM 60.00 Europe, DM 65.00 USA, DM 70.00 Japan, DM 75.00 Australia).

1/2006 (44 pages) Nothing of small-air-force interest - except for kit reviews of Toga's 1/72-scale injection-molded Zlin Z-42M and CMR's 1/72-scale resin VE Irbitis I-16.

ITALY

AERO FAN Storia di Italiane. English summary. (Giorgio Apostolo Editore, Via Ampere 49, 20131 Milano, Italy.) 4 issues €52.00. Payment by eurocheque, credit card (Visa/Mastercard), or Bank remittance (in latter case add €3.00). Each issue contains a multi-page English translation, #96 **Geb, Mar. 2006** (68 pages) "Italian Wings over Iraq (1937-1941)" 22 pages including 44 photos (Iraqi S.79B Breda 65, Fiat CR.42, & Gladiator) and 2 color side-view drawings (SIAI S.79B & Breda 65). "Brescia, August 1915" 7 pages on the bombing of the Italian munitions plant at Brescia by an Austro-Hungarian Lohner B.VII and the reaction

of the defending Italian fighters; includes 8 photos (Lohner B.VII, Farman 1912, Farman 1914, & SAML Aviatik). "Piaggio's Blackburn Aircraft" 7 pages including 11 photos of the P.11 (2-seat version of the Blackburn Lincock) and the Piaggio P.12 (license-built twin-engine Blackburn Seagrave). "A Bomb Launcher for the 'Chirri'" 5 pages on post-Spanish Civil War use of the CR.32 including 4 photos and drawings of bomb launcher. "Linate Sixty Years Ago" 6 pages including 13 photos (Fiat G.12, Baltimore MkV, & SM.82).

JP-4 Mensile di Aeronautica (JP-4, Via XX Settembre 60, 50129 Firenze; L 27.000 Europe, L 30.000 elsewhere).

Marzo 2006 (98 pages) Color photo: Gambia Su-25. "La FSB di Heart" 6 pages on Italian and Spanish helicopters in Afghanistan including 13 photos. "LIMA 2005" 4 pages with 11 photos (Malaya C-130H, Caravan, Mig-29, Mi-17, Cn-235, & F/A-18; Brazil RJ 145; South Korea KT-1). "Gli Xavante dell'Esquadrao Pacau" 4 pages with 11 photos of Brazilian Xavantes. "Incidenti: Militari" 2 pages including 8 photos (Pakistan Mirage, Serbia Montenegro Gazelle, & Guatemala Cessna A-37).

Aprile 2006 (100 pages) "Marina Militare la Componente Aerea" 6 pages including 20 photos of Italy's naval aviation in action. "Bush Flight n Beliz" 4 pages including 9 photos, "Incidenti: Militar" 1½ pages including 7 photos (Philippine OV-10, Spanish SRF-5B, & Argentine Lerjey 35 'T-21').

Maggio 2006 (100 pages) Color photos: Japanese Mitsubishi F-1 '267', Polish F-16 '4040', and Hungarian Gripen '42' & '31'. "Eurofighter Spagnoli" 6 pages including 16 photos. "Eracle e Pantera in Afghanistan" 4 pages including 8 photos of Italian helicopters in Afghanistan. "FIDAE 2006" 6 pages on the International Air Fair in Chile including 17 photos. (Chilean F-16, Mirage Pantera, & PC-7 and Brazilian C-130, AMX, & Tucano). "Incidenti: Militari" 1½ pages including 4 photos (Canadian CH-124A '438' and Pakistani F-7P).

POLAND

LOTNICTWO (Krzysztof Zalewski, ul Grochowska 306/310, pok. 206, 03-840 Warszawa. E-mail: kz@magnum-x.pl.)

12/05 (68 pages) "Eurocopter Tiger/Tigre" 8 pages including 11 photos and a color 3-view drawing (RAAF). "Jastrzab nie zdazyt" 8 pages including 5 photos, 4 color side-view drawings [PZL-38 Wilk, PZL-48 Lampert, PZL-39, & PZL-45], a color painting of the PZL-50 Jastrzab in squadron insignia, and a scale multi-view drawing of the PZL-50. "Regia Aeronautica kontra RAF I SAAF w

Afryce Wachodniej VI 1940-XI 1941 (cz.III)" 4 pages including 7 photos and 2 color side-view drawings (CR.32 & CR.42).

1/06 (68 pages) Color photo: Greek F-16. "Dubai: International Aerospace Exhibition 2005" 4 pages including 15 photos (South Korea T-50, Pakistan K-8, & UAR F-16). "Sily Powietrzne Armii Republiki Czeskiej w roku 2005" 4 pages including 11 photos (JAS-39 Gripen, L-159, MiG-21UM, Mi-24, Mi-17, W-3A Sokol, L-410, & Tu-154). "Mitsubishi A6M3 Hamp (cz.I)" 6 pages including 9 photos, 2 color side-view drawings, and a scale multi-view drawing. "Niepotrzebna bron (cz.I)" 6 pages including 8 photos and 3 color side-view drawings (PZL-37 Los 'SP-BNK', Bristol Blenheim (Greece), and PZL-43 (Bulgaria)). "Samoloty Instytutu Lotnictwa" 4 pages including 15 photos and 2 color side-view drawings (Jak-17W & Jak-23).

2/06 (68 pages) "Zmiany w lotnictwie greckim" 6 pages including 17 photos (Greek Eurocopter NH-90, P-3B Orion, S-70, F-16C, F-4, A-7E, Mirage 2000, Pilatus PC-9, T-2 Buckeye, C-130B, C-27J Spartan, AH-64 Apache, Super Puma, & PZL M18). "Agusta Westland EH 101" 10 pages including 17 photos [Canada (2), Portugal, & Japan], a cutaway drawing, and a color 3-view drawing (Polish). "Mitsubishi A6M3 Hamp (cz II)" 6 pages including 9 photos, a cutaway drawing, and a scale 4-view drawing. "Niepotrzebna bron (cz II)" 6 pages including 8 photos [US RWD-13, Romania P-24 (2), Bulgaria P-43, Brazil RWD-13], 3 color side-view drawings PZL-46 Sum, Palestine RWD-15, & Turkey PZL P-24], and a table of all Polish aircraft and other aviation material either delivered or on order before September 1939. "Jak Chipmunk z poplotow" 4 pages including 6 magnificent color photos of Portuguese Chipmunks.

3 06 (68 pages) Color photos: Bulgarian Mi-8 & Venezuelan M28 Skytruck. "Sepecat Jaguar (cz.1)" 8 pages including 9 photos and multi-view scale drawing. "Blackburn Buccaneer" 4 pages including 10 photos. "Samoloty i smiglowce Instytutu Lotnictwa" 4 pages including 12 photos (Il-10, MD-12, BZ-4, Mi-1, & Ogar). "Bell P-39A-D Airacobra (cz.1)" 6 pages including 10 photos.

4 06 (68 pages) Color photos: Mitsubishi T-2 & F-1. "Pierwszy polski F-16 w powietrzu" 3 pages with 7 photos. "Sepecat Jaguar (cz.II)" 7 pages including 11 photos (India, Oman, Ecuador, & Nigeria) and 2 color side-view drawings (Oman & Nigeria). "Bell P-39A-D Airacobra (cz.II)" 8 pages including 14 photos, a scale 6-view drawings, and 4 color side-view drawings [USAAF (3) & RAF (1)].

AirMag Hors Serie

TMA, 75 Rue Claude Decaen, Paris 75012, France. E-Mail: airmagazine@wanadoo.fr. 4 issues per year. Europe: 60 €. Rest of World: 70€.

Kharkov, Mai 1942: AirMag Hors Serie #3. 76 pages, A-4 size, soft bound. (Mars/Avril/Mai 2006) €12 plus €3/€5/€8 postage (France/Europe/Rest of World).

Jose Fernandez and TMA continue to expand their series of aviation publications. This is the third in the Hors Serie (the first two were *Les Bf 109 Roumains* and *Okinawa: La bataille des Kamikaze*), and although it does not have anything of interest for the enthusiast of the small air forces, it is an excellent publication that deserves the consideration of all students of WWII especially those interested in the Eastern Front.

This volume covers the epic conflict between the Luftwaffe and the Soviet Air Force during the battle for Kharkov from 12 May to 30 May 1942. It consists of 76 A-4 size pages of French text, well-reproduced photos, and beautiful color drawings.

Chapter titles are: Les plans des belligerents pour 1942, Les forces en presence, 12 mai - debut de l'offensive, Les allemandes contre-attaquent, L'encercllement: 23 au 17 mai, and La victoire allemande.

The color drawings are outstanding and include the following side- and multi-view drawings: Bf 109 (5 including a top and bottom view), Hs 123 (3 including a top and bottom view),

Bf 110 (1), Fw 189 (2), Fi 156 (1), He 111 (1), Hs 129 (3), Ju 88 (3), and Ju 87 (2). I-16 (1 including a top and bottom view), S-2 (3 including a top and bottom view), Yak-1 (1), LaGG-3 (1), and MiG-3 (3).

Avions Japonais sur Sous-Marins, AirMag Hours Serie #4. 84 pages, A-4 size, soft bound. €14 plus €3/€5/€8 postage (France/Europe/Rest of World).

This issue contains nothing of interest to the student of the small air forces, but it will appeal to anyone interested in the little known aircraft of the period between the two world wars, particularly those fond of things on floats. Seven aircraft

designed to be carried by Japanese submarines are describes in text, photos, 3-view scale drawings, and color multi-view illustrations: Yokosho 1-Go, Yokosuka E6Y1, Watanabe E9W1 (Slim), Kugisho E14Y1 (Glen), Aichi M6A Seiran/Nanzan, and Kugisho Ohka Model 43 KO. Some of these aircraft are well-known such as the Glen which was the only aircraft to drop bombs on the continental USA, and the Seirna, the first submarine borne aircraft designed specifically for offensive missions. An attack on the Panama Canal was planned but was cancelled by the end of the war. The Nanzan was a landplane version of the Seirna. Neither of these aircraft received an Allied reporting name since their existence was not known to US intelligence until after the war.

The three between-the-wars aircraft were all twin-float biplanes. One Yokosho 1-Go, a near-copy of the Casper U-1, was completed in 1927. With a wingspan of 7.20 m (23 ft 7 in), this single-seat biplane was the smallest aircraft airplane in Japan. The Yokosuka E6Y1 was a development of to 1-Go. It was slightly larger than the 1-Go with a wingspan of 8.0 m and 18 were built between 1932-34. The best known of this trio, but probably still known to only a minority of SAFO readers, is the

Watanabe E9W1 which received the Allied reporting name Slim even though it was obsolete by the beginning of the Pacific war. It was the last biplane to serve aboard Japanese submarines, being replaced by the Kugisho E14Y1 Glen.

Each of these aircraft receives it fair share of coverage in *Avions Japonais sur Sous-Marins*. (1) The Yokosho 1-Go is covered in 3 pages including one photo, a 1/72-scale 5-view drawing (with cross sections), and a full-page color 2-view drawings (side and top views). The Yokosuka E6Y1, receives 5 pages including 4 photos, a 1/72-scale 5-view drawings of both the prototype 2-Go and the production version, and a full-page color 2-view drawings (side & top views). The coverage of the Watanabe E9W1 Slim is four pages including 4 photos, a 1/72-scale 4-view drawing, and full-page color side-view drawing. Because the Kugisho E14Y1 Glen saw considerable service in WWII, it receives 19 pages including 17 photos, 9 sketches of details, 2-pages of 1/72-scale 5-view drawings of both the prototype and production Glen, three color 3-view drawings, and three color side-view drawings. The The 31 pages on the Aichi M6A Seiran/Nanzan includes 18 b&w photos, 55 color photos of details of the Seiran in the National Air &

Space Museum, a 2-page cutaway drawing of the Seiran, 2-pages of 1/72-scale 4-view drawings of both the Seiran and Nanzan, two color 3-views drawings of the Seiran, and two color 3-view drawings of the Nanzan. The final aircraft (?) described is the Kugisho Ohka Model 43 KO, a rocket powered manned flying bomb – 2 pages including 2 photos, a 1/72-scale 3-view drawing, and 2 color side-view drawings.

The closing 4 pages describe all the Japanese aircraft-carrying submarines including 13 photos.

TMA's *Hors Serie #4, Avions Japonais sur Sous-Marins*, is an exciting publication that should be of interest to all students of the Pacific War. Modelers, in particular, will be inspired by the color schemes of the Glen and Seiran. The pre-war aircraft are very attractive in their color scheme of pearl gray wings and fuselage with red horizontal and vertical tail surfaces and red-striped floats. All three of these would make a great scratch-building project. These tiny models would be a show stoppers at any model display or contest.

Review copy provided by Jose Fernandez of TMA

Ciel de Guerre

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La Chasse de Nuit Allemande: 2e Partie. Ciel de Guerre #07

Several of the earlier issues of this series were favorably reviewed in SAFO. This issue continues the fine quality of its predecessors with 84 A-4 size pages of French text, well-reproduced photos, and beautiful color drawings. The chapter titles are: *Retour au monoplace, Face au Mosquito, Mosquito, Le tueur de Mosquito, Kommano Welter: Hirondelle nocturne, Fleche fourmilier, and Projets & ideas.*

Color drawings are: Bf 109 (6 including a 3-view drawing), Bf 110 (3), Fw 190 (4), Fw 189 (1), Ju 188 (4), Ju 388 (1), Ta 154 (3), He 219 (9), Me 262 (3 including a 3-view drawing), Ar 23 (1), Me 410 (1), Do 335 (1), and Ar 234 (a 3-view drawing).

The final chapter presents 3-view drawings of the following projects: Arado Projekt I & II, BV P.215, Dornier P.252, Fw Entwurf, Gotha P.60A, Heinkel P.1079A & B, Horton Ho 9B-1, Junkers EF 128, and Me 262B-2. These wild designs should give the "What If" modelers some ideas for scratch-built projects.

If the Luftwaffe is your "thing" then *La Chasse de Nuit Allemande: 2e Partie* will be of great interest to you.

La Chasse au Combat: Mai-Juin 1940 (1^{ère} partie). Ciel de Guerre #08. 84 pages, A-4 size, soft bound. (Mars/Avril/Mai 2006) €14 plus €3/€5/€8 postage (France/Europe/Rest of World).

The cover of this, the eighth in TMA's *Ciel de Guerre* series, with its action painting of a Dutch Fokker D.21 and a Northrop 8A-3N tangling with a Luftwaffe Bf 109, is the first in this series to be a "must" for the enthusiast of the small air forces.. The text is divided into four sections: (1) *Nederlandse Militaire Luchtvaart en Mai 1940*; (2) *L'Aeronautique Militaire Belge durant la Campagne de Mai-Juin 1940*; (3) *L'Armee de l'Air durant la Campagne de 1940*; and (4) *Jagdwaflfen France*.

The 12-page section on the Dutch resistance, while covering much the same ground as the recent series of articles in SAFO, provides many new

photos, 31 photos in all. The photos of the pre-10 May Dutch aircraft (11) are mostly familiar, but the remaining 20 photos of damaged and destroyed Dutch and German aircraft are less familiar with many coming from German sources. The 9 color side-view drawings are of Fokker D.21(4), G.1A (1), and G.1B (1). It's a pity that these color side-views were not extended to include some of the lesser known Dutch aircraft, such as the Northrop and Fokker C.V & T.V. There is one map, but it is of not much use since it tries to do too much..

The 17 pages section on the Belgian Air Force is a real gem. Included in the 29 photos are Belgian Fairey Battles & Foxes, Hawker Hurricanes, Gloster Gladiators, Renard R.31's, and Fiat CR.42's. There are fewer photos of destroyed aircraft that in the Dutch section, only 10 this time. There is a color 3-view drawing of a Hurricane, and color side-view drawings of a CR.42, Gladiator, another Hurricane, and five Foxes (with top and bottom views of one of the latter). The one map is very good showing the German line of advance as of the evening of 11 May. There are two tables, one showing the Belgian Order of Battle on 10 May including the number and type of aircraft with each unit. The other table lists the 15 victories (6 Bf 109, 3 Do 17, 1 Ju 52, 1 He 111, 3 unknown bombers, and one unknown reconnaissance aircraft) claimed by the Belgian Air Force by date, pilot, unit, and type claimed. Unfortunately, the type of aircraft flown by the Belgian victor is not identified.

The 24-page section on the *Armee de l'Air* covers familiar ground, but with 54 most rare photos. The 8 color side-view drawings cover the Bloch 152 (4), Curtiss H-75A (2) and Dewoitine C.520 (2). Once again, one wishes the color drawings could have included some of the lesser-known aircraft. The map presents the German line of advance as of 14 June. The gem in this section is the table on French victories and losses by date including number and type of aircraft lost. Tables also list the French Order of Battle at the beginning and end of the campaign.

The final 10 pages cover the Luftwaffe fighter units during the campaign. There are 40 photos, a

color 3-view drawings of a Bf 109E, and 4 color side-view drawings [Bf 109E (3) & Bf 110G (1)]. Tables provide the Order of Battle for Luftflotte 2 and 3, as well as victory claims and losses by date. At first, I was somewhat perplexed by the victories claimed by the Germans and losses admitted by the French. For example, on 14 May the Germans claimed 170 victories for the loss of 17 fighters, while for the same date the French claimed 46 victories for the loss of 28 fighters. Then I realized that the French and German victory claims included all types of including fighters, bomber, and reconnaissance aircraft, while the losses admitted by both sides included only fighter aircraft.

La Chasse au Combat Mai-Juin 1940 (1^{ère} partie) is recommended to all enthusiasts interested in WWII aerial combat, and is highly recommended to anyone interested in the Dutch and Belgian air forces. I wonder what will be covered in the 2^{ème} partie?

Review copy provided by Jose Fernandez of TMA



The Hellenic PZL P.24 Fighters - Part 1

Sid Napier

For the Italian invasion of Greece on October 28, 1940, the *Comando Aeronautica Albania* (CAA) of the Regia Aeronautica had at its disposal on newly built airfields at Tirana, Berat, Vlore (Valona), Gjirokaster (Argirokastro), Korçe (Koritsa) and Drenove, three fighter, six bomber and three reconnaissance squadrigle. This force was reinforced by another six fighter and two bomber squadrigle between November 1 and 5 to bring overall strength in Albania up to 187 operational aircraft: 24 Savoia S.81 and 31 Savoia S.79 bombers, 25 IMAM Ro 37 army cooperation aircraft and, to establish air superiority, 93 Fiat CR 42 and G.50 fighters, plus 14 obsolete Fiat CR 32s.

From November 3 the CAA was backed by the *Comando 4a Zona Aerea Territoriale* (4a ZAT, redesignated *4a Squadra Aerea* on January 1, 1941) with headquarters in Bari, southeast Italy, which would operate over Greece a 140-aircraft force comprising 60 CANT Z1007 (both *monoderiva* and *bis*), 19 Fiat Br 20's, 18 Savoia S.81's, 20 Junkers Ju 87B's, 23 CANT Z.506B reconnaissance/bomber floatplanes, 35 Fiat G.50's, nine Fiat CR 32's and 12 Macchi C.200's.

Further backing was provided by the *Aeronautica dell' Egeo* (AdE) with 82 aircraft including Savoia S.81 and S.79 bombers, CANT Z.501 flying boats, CANT Z.506B's, IMAM Ro 43 reconnaissance floatplanes, Fiat CR 32's and CR 42's, and IMAM Ro 44 floatplane fighters.

The *Elliniki Vassiliki Aeroporia* (EVA = Hellenic Royal Air Force) was hopelessly outnumbered. To attack Italian ground forces and airfields it had only 31, 32 and 33 Mire with 29 serviceable bombers: eight Potez 633B2's, 11 Bristol Blenheim Mk IV's and 10 Fairey Battle Mk II's; and for ground support missions, 1, 2, 3 and 4 Mire with about 10 serviceable Bréguet Bré 19A2/B2's, 15 Henschel Hs 126K-6's and some Potez 25A2's. The naval cooperation Mire 11, 12 and 13 had nine obsolete Fairey IIIF's, 12 Dornier Do 22Kg's and nine Avro Anson Mk I's. The EVA fighter command comprised 21, 22, 23 and 24 Mire with only 41 fighters on strength, not all of which were serviceable. 24 Mira, based at Elefsis with six more or less serviceable Bloch MB 151 C1's and two Avia B.534/II fighter/trainers, was under the control of Anti-Aircraft Command and charged with the defence of Athens.

Thus only 21, 22 and 23 Mire equipped with Polish-built PZL P.24F and P.24G fighters were available to defend Greek airspace, land forces and cities other than Athens.

PZL's Pulawski fighters

The P.24, built by the *Panstwowe Zaklady Lotnicze* (PZL or National Aircraft Works), was the last production version of the "Pulawski wing" line of fighters and the last to see front-line combat, both in Greece and, in service with the Romanian air force, on the Eastern (Odessa) front. For a short period in the mid-1930's, it had been the world's fastest and most heavily armed fighter.

Like its predecessors, the P.24 had a high-strength, lightweight strut-braced gull wing that afforded unobstructed forward and upward vision, "scissors" main landing gear with shock absorbers housed in the fuselage to minimize drag, and all-metal duralumin construction featuring smooth leading edge and fuselage panels combined with corrugated-panel wing, fin, tailplane and control surfaces skinning. All this at a time when

many major air forces' fighters still had metal tube, wood and fabric airframes.

Zygmunt Pulawski's innovative all-metal, gull wing and scissors gear first found application in his P.1/I-II and P.8/I-II prototypes powered by in-line engines. But in autumn 1929 the *Departament Aeronautyki Ministerstwa Spraw Wojskowych* (DAMSW or Aviation Department, Ministry of Army Affairs) ordered a radial-powered fighter and, at the end of the year, selected the Bristol Jupiter and its derivatives to be license-built and used to power all Polish fighter aircraft. The radial engine, it was felt, was not only lighter, easier to build and offered weight distribution contributing to manoeuvrability, but was also more resistant to combat damage.

Pulawski's response was the P.6, a practically new design with an 'O'-to-oval cross-section, semi-monocoque fuselage, plus improved P.1 wings, control surfaces and landing gear. Powered by a 450 hp engine, it weighed 235 kg less than the P.1. After test pilot Boleslaw Orlinski had demonstrated the P.6 at the Paris Salon on December 22, 1930,

international aviation experts were rating it the world's best fighter.

Then Orlinski firmly established Pulawski's and PZL's reputations by competing with the P.6 in the National Air Races at Cleveland, Ohio, in August 1931 against world famous aerobatic pilots including Germany's Udet, the USA's Williams and Britain's Atcherley. As a result, the Pulawski wing ultimately influenced the design of more than 4,200 biplane fighters including the Polikarpov I-15 and I-153, almost 1500 flying boats including the Martin PBM-5 Mariner, and some 2000 gliders.

Orlinski first flew the next prototype, the P.7 powered by a 520 hp engine, in October 1931 and attained a top speed of 317 km/h (197 mph). Following intensive testing of two prototypes and some modifications, the DAMSW ordered 150 P.7a's. The first were taken on strength in autumn 1932, the last in November 1933, making the Polish air force the world's first to operate an all-metal fighter.

Meanwhile, the DAMSW ordered a P.6 adapted to take the 600 hp Bristol Mercury which had become available in 1930. Pulawski having been killed in a flying accident, ongoing work on the P.7 and the design of the new Mercury powered P.11 were entrusted to his deputy, Wsiewolod Jakimiuk (who, after World War 2, would design the DHC Chipmunk and Beaver, the DH 112 Venom and the SE Baroudeur).

Orlinski flew the first P.11 prototype in August 1931, after which the design was modified to incorporate advances made in the P.7 and two further prototypes were built and tested. A fourth prototype, the P.11/IV powered by a 550 hp Gnôme-Rhône K9 radial, was displayed at the December 1932 Paris Salon. Early in 1933 the DAMSW ordered 50 P.11a fighters and in April Romania contracted for 50 P.11b's powered by the K9 engine. The Romanian order was given priority and 49 P.11b's were delivered early in 1934 together with plans for a license-built P.11f, 95 of which were manufactured in 1937-38. PZL then built 150 P.11c's for the Polish air force between autumn 1934 and summer 1936.

The final Pulawski wing fighter designed for the Polish air force was the P.11g *Kobuz* powered by an 800 hp Bristol

Mercury VIII. The prototype had been tested and production scheduled for autumn 1939, but on September 1, 1939, German forces invaded Poland.

For export only

The P.24 was designed solely in response to foreign interest in the Pulawski wing line of fighters and after Gnôme-Rhône formally proposed, in spring 1932, that their engines be used. Thus no longer bound by the license-manufacturing contract which prohibited the production of Bristol radials for export, PLZ had Wsiewolod Jakimiuk design a prototype, the P.24, to be powered by the 760 hp 14-cylinder Gnôme-Rhône 14 Kds.

Jakimiuk utilized a number of P.7a parts, either taken straight from the production line or adapted, e.g. the wings, rear fuselage, tailplanes and elevators, fin and rudder. The front part of the fuselage was lengthened by inserting a 450 mm spacer between the wing attachment points and the cockpit. The open cockpit was redesigned and the pilot's seat raised 50 mm. Adapted P.1 flaperons were fitted, and the fin enlarged to cope with the more powerful engine and longer fuselage. The height of the landing gear was increased and the tailskid fitted with a rubber shock absorber.

The P.24/I made its maiden flight at Mokotow in May 1933 painted khaki and wearing national insignia, thus giving rise to the myth that the Polish air force operated P.24's. Due to Orlinski's excessive use of full throttle with the supercharger running, the wooden propeller broke and all but one engine bearer failed. Following repairs and further trials, cooling slits were cut in the fuselage behind the engine, an underwing pitot tube was added, and wheel fairings were fitted. Flight testing was concluded in February 1934.

The P.24/II was powered by a Gnôme-Rhône 930 hp 14 Kfs driving a Gnôme-Rhône three-blade metal propeller that replaced a two-blade Szomanski propeller initially fitted. Piloted by Orlinski, the P.24/II set a new FAI world speed record of 404 km/h (251 mph) on June 28, 1934. A little later an oil cooler was fitted on the starboard fuselage side, two 7.9 mm Vickers machine guns were mounted in front of the cockpit and a 20 mm Oerlikon in a fairing under each wing. Shown at the December 1934 Paris Salon, the P.24/II attracted considerable attention, particularly that of Hungary, Romania and Turkey. The aircraft was subsequently displayed in Warsaw on September 14/15, 1935, while the Gordon Bennett International Balloon Races were in progress.

In January 1936 flight demonstrations were staged for the military attachés of Bulgaria, Estonia, Greece, Romania, Turkey and Yugoslavia, the P.24/II wearing olive green over light blue camouflage and the civil registration SP-ATO. Later in the month, and in February 1936, Orlinski gave sales promotion demonstrations in Bulgaria, Greece, Hungary and Turkey. A jammed Oerlikon that exploded at Etimesgut, Turkey, without damaging the wing spars reportedly helped to promote confidence in the P.24's design.

Meanwhile, in 1935, production of the P.7a having been terminated, PZL initiated construction of a third prototype, the P.24/III, that would be the master pattern for production aircraft. The P.11c parts used instead of P.7a components included the slightly longer wings and tail section. The large fairings covering the strut-to-fuselage attachment points were eliminated and the engine cowling and wheel fairings redesigned. The open cockpit was redesigned and fitted with a hinged canopy that folded over to starboard to lie flat on the fuselage side. The engine was mounted on new welded-tube bearers, the oil cooler

moved to port, and the tailskid fitted with an oleo shock absorber. The new overall dimensions were wingspan 10.71 metres, length 7.50 metres, height 2.69 metres, with a normal take-off weight of 1870 kg.

The P.24/III made its maiden flight in spring 1936 at Warsaw's Okecie airport, probably powered by the P.24/II's 930 hp Gnôme-Rhône 14 Kfs and three-blade propeller. In November the aircraft, now designated the P.24 Super, was displayed at the Paris Salon wearing Polish air force camouflage and the civil registration SP-BFL. Two versions were offered, each with four underwing racks for 12.5 kg bombs: a P.24A armed with two machine-guns and two cannon, and a P.24B with four machine-guns. Both versions afforded a maximum speed of 410 km/h (256 mph) at 4250 metres.

On April 9, 1936, Bulgaria ordered 12 P.24B's to be delivered by November 15, 1936. However, the aircraft were shipped by rail because of Spanish Civil War hazards at sea and only arrived in spring 1937. (In 1944 most of the surviving P.24B's were destroyed by U.S. bombers at Marno-Pole airfield near Karlovo.)

Turkey followed on April 24, 1936, placing an order that included 14 P.24A's and 26 P.24C's armed with four machine guns and underwing racks for two 50 kg bombs, a manufacturing licence, sub-assemblies, materials and assistance in initiating production. In all, six P.24A's, 11 P.24C's and four P.24G's (with aft-sliding, not hinged, canopies) were eventually built under licence by the Kayserie Tayyar Fabrikasi (KTH).

In July 1936 the Spanish (Republican) government inquired concerning the purchase of 15 P.11's or P.24's, and in autumn that year the Nationalists sought to acquire 12 P.24's. PZL declined to accept either order, presumably at the behest of the Polish government.

Romania contracted on November 19, 1936, to purchase five P.24's and a manufacturing licence for more, all these P.24E's to be powered by the license-built, 870 hp IAR 14K IIc32 (Gnôme-Rhône 14K radial) and equipped with four machine guns and Swiatecki racks for two 50 kg bombs. After trials with a Chauviere three-blade propeller, a wide, two-blade wooden propeller designed by Jerzy Bukowski of the Szomanski factory, was fitted to shorten the take-off run. It gave a good rate of climb, but reduced maximum speed to 408 km/h (253 mph). By February 1939 a total of 25 P.24E's had been built by IAR at Brasov, the last 19 being powered by the 970 hp IAR 14K IIIc36 radial. The experience gained and technology acquired were by then being utilized to design the successful IAR 80/81 fighters with fuselages derived from that of the P.24, almost unmodified P.24 tail surfaces, a cantilever low wing and retractable landing gear.

The EVA P.24's

Greece contracted to purchase 30 P.24A's, six P.24B's and 22 spare Gnôme-Rhône engines on November 16, 1936. The first five P.24A's were delivered in spring 1937, augmenting a fighter force comprising a few Gloster Mars VI Nighthawks purchased in 1923, four Avia BH-33E-SHS's acquired from Yugoslavia in 1935 and two Avia B.524/II's donated in August 1936 by businessman G. Koutarellis. Shortly after delivery the EVA decided that their P.24's, including the five P.24A's already delivered, should be powered by the more powerful new Gnôme-Rhône 14N-07 radial and changed their specifications accordingly. Fitting the new engine and a spinner increased overall length to 7.81 metres, and normal take-off weight to 1915 kg.. The original order ratio of 30-to-6 was left unchanged.

The Gnôme-Rhône 14N-07 powered P.24's would now be designated P.24F's and P.24G's both by PZL and internationally. In the Greek records that survived World War 2 both versions continued to be referred to as P.24A's and P.24B's!

The Gnôme-Rhône 14N-07, with supercharger, reduction gear and nominal and maximum ratings of 950 hp and 970 hp at 4,600 metres, drove a 2.60 metre metal, three-blade Gnôme-Rhône propeller and offered a fuel consumption average of 150 litres/hour (39.6 U.S. gph). In addition to the new engine, a second, 24-rib oil cooler was mounted behind the 32-rib oil cooler on the port side of the fuselage, overall fuel capacity of the jettisonable main tank and port wing gravity tank was increased to 360 litres (95 U.S. gallons), and both electric and hand-pumped compressed air starters were fitted. Each P.24 was also equipped with a Polish-made Phillips N1L/L or RC-2 transceiver, a Gourdou-Lesseure oxygen supply system, a 35 mm armour glass windshield, and 7.0 mm armour plate behind the pilot's seat and headrest.

With the 14N-07 engine, the P.24F/G offered a maximum speed of 430 km/h (267 mph) at 4250 metres, a cruising speed of 310 km/h (194 mph), a diving speed of 650 km/h (406 mph), a climb rate of 11.1 m/s (36.4 ft/sec), a service ceiling of 10,500 metres (34,450 ft) and a range of 700 km (435 miles).

Work was also undertaken, for the EVA, on a P.24H powered by the Gnôme-Rhône 14N-07. A prototype was first flown in June 1935, then tested by the ITL (*Instytut Techniczny Lotnictwa* or Aeronautical Technical Institute) in Warsaw from June 26 to July 10, 1937. Following modifications, it underwent final testing by the ITL from August 24 through October 30, 1937, attaining a maximum speed of 435 km/h (272 mph) at 4000 metres (13,120 ft). Development was then terminated and the P.24H shipped to Greece in lieu of a P.24G.

The Greeks, like the Bulgarians, also planned to purchase P.24J's, the former 24, the latter 12. This version was to have the Gnôme-Rhône 14N-01, the most powerful of the 14N series of radials. The engine had been tested on the PZL P.43A and afforded nominal and maximum ratings of 950 to 980-1020 hp. Construction of a prototype P.24J was apparently started in 1939, but in September Okęcie airfield was bombed. The Germans photographed a (damaged?) P.24 wearing Bulgarian markings, but whether this was the P.24J prototype or a P.24B being overhauled is unknown.

PZL's production rate, not counting sub-assemblies and parts for Turkey, averaged 28 to 35 P.24's per annum, thus amendment of the specifications and Gnôme-Rhône's halting delivery to PZL of the 14N-07 engines, cowlings, propellers and spinners, delayed delivery and the last P.24s only arrived in Greece in spring 1938. There they were assembled by PZL employees at the *Kratikon Ergostasion Aeroplanon* (KEA or National Aircraft Factory) at Faliron near Athens. The assembled aircraft were test flown at Tatoi (aka Dekelia, near Menidi), at first by Boleslaw Orlinski and later by Jerzy Widawski.

Production of the P.24's had also been delayed by four months while the EVA reconsidered the type of armament to be fitted, finally deciding to amend the order to 12 P.24F's and 24 P.24G's, the former to be armed with two underwing cannon and two wing mounted machine guns, the latter with four wing mounted machine guns.

The cannon selected was the 20 mm Oerlikon FF that, together with a 45-round magazine, weighed 50 kg. Some

sources say the first P.24's delivered had 7.92 mm Czechoslovak Skoda machine guns, others claim 7.92 mm Polish PWU wz. 33's were fitted. In the end, however, all the P.24's were apparently armed with 7.92 mm Colt Browning MG 40's, each together with 300 rounds weighing 25 kg. Armament weight on the P.24F thus totalled 150 kg but only 100 kg on the P.24G.

Glass and Skulski both suggest that all P.24F's were converted to the P.24G armament fit in 1940 because negotiations failed to ensure a supply of Oerlikon spare parts and 20 mm ammunition from Germany. Other sources suggest that machine guns were substituted for the cannon because the weight of the latter had been found to impair the P.24F's manoeuvrability compared to that of the P.24G. Either or both factors combined would seem to explain the amended order for only 12 P.24F's and not 30, and it is true that some P.24F's were retrofitted with four machine guns. A photo of one of the five P.24A's as initially delivered and wearing EVA markings, shows it armed with cannon. But a photo of Delta 103, which must have been one of the five upgraded P.24A's, camouflaged and in a line-up with other P.24's, shows it armed solely with machine guns.

However, Beldecos states that "Prior to the outbreak of war ... The Squadron (23 Mira) employed 11 P.Z.L.s, each equipped with two Herlikon (sic) and two Scoda (sic) machine guns". Proof that some P.24F's still had cannon is confirmed by a photo of camouflaged Delta 129 taken in autumn (October?) 1940, and by a photo of another P.24F obviously taken in wartime.

Glass makes no reference to bomb racks fitted on any EVA P.24's or P.24G's, neither does any photo of an EVA P.24 show bomb racks, nor is there any mention in the literature to EVA P.24's ever being used in the fighter-bomber role.

As delivered, all the EVA's P.24's apparently had wheel fairings (spats), but a peace time photo of a line-up including Delta 103 shows these fitted only on every other machine. Wheel fairings were generally dispensed with when operating from muddy landing grounds, but some machines, e.g. Delta 117, apparently had them fitted in wartime when an airfield was reasonably dry.

Following flight testing, the P.24F's and P.24G's were assigned the codes Delta 101 through Delta 136 and taken on charge by the newly formed *Mire dioxeos* (fighter squadrons) Nos. 21, 22 and 23 based respectively at Vassiliki (aka Voevoda, between Kalambaka and Trikala), Sédes (Thessaloniki) and Ambelon (aka Kazaklar, NNW of Larissa). Very probably, each Mira was first formed on a handful of P.24's, then brought up to 12-aircraft strength as further machines were delivered. The P.24's made their first public appearance during the Independence Day ceremonies of March 25, 1938.

In May 1940, 24 Mira was formed on nine secondhand Marcel Bloch MB 151 C1 fighters (and two Avia B.534/II's) delivered in part fulfilment of an order for 25 new machines. (The 16 MB 151 C1's never delivered were some of the 107 combat aircraft ordered for the EVA but withheld by Britain and France after World War 2 broke out.)

Combat, phase 1

On October 28, 1940, all three P.24-equipped Mire were at the disposal of the *Diikisi Aeroporias Dioxeos* (Fighter Command) headed by *Asmhos* Emmanouil Kelaidis, while 24 Mira was at that of the *Diikisi Aeraminas* (Anti-Aircraft Command).

According to Flt Lt G. Beldecos, 21 Mira (CO *Sgos* Ioannis Kellas) was based on the auxiliary airfield at Vassiliki with 10

P.24's, nine officer and five NCO pilots, and 150 ground personnel; 22 Mira (CO *Sgos* Andreas Antoniou), which had relocated to (Megali) Mikra in August 1940, had nine "inadequately equipped" P.24's, six officer and six NCO pilots, 100 ground personnel, and was tasked with the defence of Thessaloniki; 23 Mira (CO *Epgos* G. Theodoropoulos) was at the auxiliary airfield at Ambelon with 11 P.24's, 16 officer and NCO pilots, 26 officer and NCO specialists, and 120 other ranks, and had been tasked with the defence of Larissa and Volos while also supporting the army in western Macedonia. Beldecos remarks that "The aircraft assigned to the Squadron (23 Mira) were inadequate to support fully the squadron's assigned role; according to squadron reports a minimum of 15 aircraft would (have been) necessary to adequately carry out its mission". 24 Mira, with six serviceable Bloch MB 151's and two serviceable Avia B.534/II's, was at Elefsis (aka Thriassio).

Beldecos states that 24 of the 30 P.24's on strength were serviceable but does not give a figure for each Mira or indicate the condition of the unserviceable machines. However, since one P.24 is known to have been destroyed when Anthsgos G. Skhina crashed and was killed at Larissa on May 8, 1939, it would seem that five were still available either for cannibalisation or for repair if parts should become available from combat-damaged aircraft. Some sources claim each Mira had nine P.24's on strength when war broke out, but their resulting total of 27 probably includes three aircraft that were airworthy but not operationally serviceable while excluding three that were not even flyable.

Like all the other units, 21, 22 and 23 Mire, later joined by 24 Mira, had to operate from seven "new aerodromes", 22 auxiliary airfields and 25 landing grounds. But even the newly completed air base at Elefsis and the airfield at Tatoi lacked hard runways, and both were far from the front. Thus in the severe Balkan winter of 1940/41 nearly all the EVA's aircraft usually were based on airfields that Beldecos states were "mostly bare fields among woods or forests, often far from towns," and that "were covered with clover and would become soggy (water-logged) and non-operational in wet weather". As such airfields or landing grounds lacked hangars, aircraft maintenance and repairs had to be carried out in the open.

A further problem in the coming months would be the relatively high maximum speeds of Italian bombers other than the Savoia S.81, a factor William Green mentions with specific reference to the CANT Z.1007 *Alcione*: "The *Alcione* possessed no defence from head-on attack, but Greek fighter pilots were to be rarely able to take advantage of this fact as their obsolescent PZL P.24s – soon to be augmented by equally obsolescent Gloster Gladiators – were inferior in performance to the Italian bomber. Unless their interception coincided with the bombing run of the intruding *Alcioni*, when their bombardiers' footwells were extended and evasive action was impractical, the Greek pilots were often limited to a single diving pass."

Comparative maximum speeds

Aircraft	km/h	mph
Fiat G.50	469	293
Z.1007bis	447	278
Fiat CR 42	438	271
PZL P.24G	430	267
Savoia S.79	430	267
Bloch MB 151 C1	415*	260*
Gladiator	413	257
Fiat BR 20	408	255

Junkers Ju 87B 381 238

Savoia S.81 314 196

*Theoretical. The engines needed replacing and performance was poor.

Although the Regia Aeronautica had fast bombers and better airfields, the severe winter with frequent and heavy snowfall nonetheless often restricted operations. Also, the 12.7 mm Scotti machine guns mounted on some bombers tended to jam at sub-zero temperatures. On one occasion the pilot of a Z.1007bis on the way back to base alone, suddenly found a P.24 on his tail. "The dorsal turret gunner," he recalls, "the only one who could have fired at the enemy fighter, worked furiously but uselessly on his jammed Scotti. But, incredibly, nothing happened. The P.24 pilot, without doubt out of ammunition, contented himself for long minutes with following this Italian bomber that did not open fire until, close to our lines, he turned back, but not without first saluting by wagging his wings."

Visibility was frequently so bad that both the EVA and the Regia Aeronautica often hesitated to send up aircraft to blunder around among thick cloud and mountain peaks. In fact the Regia Aeronautica's first losses, incurred on October 31, were two Fiat CR 32's of 394a Squadriglia which, as Christopher Shores notes, "became lost in bad weather and gathering dusk, and both pilots were obliged to bale out". Consequently there was no air activity by either side on October 29 and 31 after encounters between Italian fighters and Henschel Hs 126K-6's of 3 Mira on October 28 and 30.

On November 1, seven P.24's of 22 Mira from Sédes (relocated from Migali Mikra?) were the first EVA fighters to intercept enemy aircraft when the docks at Thessaloniki were attacked by 10 Savoia-Marchetti S.79's of 105° Gruppo Autonomo BT from Tirana led by Ten. Col. Galeazzo Ciano, the Italian Foreign Minister and Mussolini's son-in-law. The P.24's were engaged by five Fiat CR 42's of 393a Squadriglia, and one Fiat was damaged. The Fiat pilots claimed one P.24 shot down and a probable; the bombers' gunners, another P.24 shot down and another probable. However, no Greek pilot appears to have been killed or wounded, and whether any P.24 was damaged is unknown.

A second raid, by CANT Z.1007bis of 47° Stormo, one piloted by the CO of 260a Squadriglia, the Duce's eldest son Cap. Bruno Mussolini, was intercepted by P.24's of 21 Mira. The Greeks claimed one bomber shot down north of Ioannina, but actually only damaged a Z.1007bis which struggled back to base at Grottaglie, Italy.

On November 2, with better weather, the Regia Aeronautica stepped up its attacks. In the morning Savoia-Marchetti S.81's of 37° Gruppo, 38° Stormo, based at Vlore raided Doliana in the morning. During a second raid by bombers of 40° Gruppo, 38° Stormo, an S.81 blew up after being hit by anti-aircraft fire and then attacked by a fighter, probably a P.24 of 21 Mira.

Later in the day S.81's of 37° Stormo and Junkers Ju 87B dive bombers from Lecce, escorted by CANT Z.506B floatplanes of 35° Stormo BM, bombed Kérkira airfield (Corfu), five Ju 87R's attacked Ioannina, as did 10 Z.1007bis of 47° Stormo, and Fiat BR 20's of 37° Stormo bombed Larissa and Patras. Three P.24's of 21 Mira on detachment at Ioannina, the main base for Greek counter attacks, were scrambled after the attack on Larissa. Led by *Ipsgos* Ioannis Sakellariou, the P.24's intercepted bombers near Ioannina but (after shooting down four?) were engaged by escorting Fiat CR 42's of 365a Squadriglia led by Cap. Giorgio Graffer. Sakellariou was shot

down and killed, as was *Smias* Hristos Papadopoulos, who crashed in flames. *Anthsgos* Ioannis Katsaros managed to escape and return to base. Cap. Graffer was credited with three P.24's shot down.

In the early afternoon, 10 Z.1007 of 50° Gruppo Autonomo BT, 47° Stormo BT, from Brindisi heading for Thessaloniki were intercepted by P.24's of 22 Mira, forced to jettison their bombs and turn back. Having used up his ammunition on one bomber, *Ipsgos* Marinos Mitralaxis rammed the tail of '210-7', smashing its rudder and wrecking the propeller of his Delta 130. The damaged Z.1007 *monoderiva* (MM22381) crashed near Langadas, killing the pilot, Sottoten. Beniamino Pasqualotto. Mitralaxis force-landed nearby and, aided by local villagers, took prisoner the four crew members who had baled out. He was awarded the 1940 Cross of Valour and became a national hero.

A second Z.1007 *monoderiva* (MM22152), '210-3', crash-landed near Naoussa, Ten. Onero Matteuzzi and his crew being taken prisoner. A Z.1007bis of 211a Squadriglia was only damaged but one of its gunners fatally wounded, although *Esmias* Epaminondas Dangoulas, who landed near Veria with empty fuel tanks, claimed a third bomber shot down. *Sgos* Ioannis Kiriazis of 22 Mira was wounded and may have force-landed his damaged P.24. *Asmias* Konstantinos Lambropoulos landed his P.24 after the engagement but took off again in a Gloster Gladiator Mk I from the fighter training centre at Mikra, to hunt for any Fiat CR 42's still present over Thessaloniki.

Nine Fiat CR 42's of 363a Squadriglia led by Cap. Mariotti were active over Thessaloniki on November 2. They claimed to have engaged eight P.24's, shooting down four with only two Fiats damaged. Various bombers' gunners claimed six Greek fighters shot down. For the day, Shores says "total claims against PZLs amounted to 13 or 14, whereas actual losses were perhaps three". Andrzej Glass states "six P.24's were lost".

On November 3 nine Z.1007bis of 47° Stormo escorted by Fiat G.50's of 24° Gruppo attacking the Thessaloniki docks were intercepted by 22 Mira. One 262a Squadriglia bomber (MM21673) was shot down, allegedly by AA fire but more probably by *Asmias* Panagiotis Argiropoulos. *Ipsgos* Konstantinos Giannikostas chased another bomber into Yugoslav airspace and claimed to have shot it down. *Esmias* E. Dangoulas claimed a "Macchi" shot down; other 22 Mira pilots, two fighters and two bombers damaged.

One P.24 was lost, *Asmias* K. Lambropoulos being wounded and having to bail out, while *Esmias* Dimitrios Filis, although wounded, managed to land safely at Sédes. The Greek AA claimed three bombers shot down, but Shores opines the aircraft seen crashing were probably a Z.1007bis, a Fiat G.50 and a P.24 lost in combat. Thessaloniki was not raided again in 1940.

On November 4 the Greek ground forces started their first counter-offensive, and Beldecos notes that a reconnaissance mission flown by 21 Mira revealed that the Italians were retreating. Italian fighters strafed Greek troops at the front, four Ju 87R's of 96° Gruppo and the prototype Savoia S.86 dive bomber (flown by test pilot Mar. Elio Scarpini) attacked the lines near Ioannina, and Albania-based S.79's and S.81's flew a number of raids. One S.81 of 38° Gruppo was lost.

Eight 50° Gruppo Z.1007bis bombed Volos harbour, one being hit by AA fire and a crew member mortally wounded. *Anthsgos* Ioannis Katsaros of 21 Mira claimed two bombers shot down, and a 23 Mira pilot a third. Reportedly, one crashed on

the Plain of Thessaly, one on a bridge over the Araithos river, and the third at Kapetista (?).

Given their numerical inferiority, the P.24-equipped Mira had thus done well in the first week of hostilities even though northern Greek cities had experienced repeated air raids and front line troops had been almost without air defence. But losses had been heavy in terms of total aircraft available: at least four P.24's destroyed, two needing major repairs and no replacements to be had. As the war continued, those P.24's left would only be kept operational by the determined efforts of the ground crews, including extensive cannibalisation of unserviceable aircraft and wrecks.

Some RAF fighter support had become available after eight Bristol Blenheim IF's of 30 Squadron had arrived at Elefsis and initiated patrols from November 4. This helped to ensure better protection for Athens but still left the front and the rest of Greece to be defended by the surviving P.24's.

On November 13 five Bloch MB 151's of 24 Mira were moved to Larissa where they remained until December 6 charged with the defence of that city, two being detached to join 23 Mira at Ambelon on November 16.

On November 14 Greek forces launched an offensive along the entire length of the front, from the Prespa lakes to the sea, and all the EVA's bombers were in action. Beldecos says that the fighter Mira were "heavily involved in combat during the first day of the offensive," 42 sorties being flown in the early morning alone.

Patrolling the front, nine P.24's of 23 Mira from Ambelon evaded without loss a surprise attack by two Fiat CR 42's of 393a Squadriglia led by Ten. Enea Atti, but were then engaged by other Fiats of the same squadriglia in the first major dogfight in Greek airspace. Sottoten. Ugo Drago, Sottoten. Romeo Delle Costanze and Ten. Carancini each subsequently claimed to have shot down a P.24 in a first phase of the encounter. After regrouping, the two formations again engaged and Sottoten. Drago, Sottoten. Ernesto Trevisi, Serg. Augusto Manetti and Serg. Vittorio Pirchio jointly claimed three P.24's shot down, plus a probable. Beldecos states that four P.24's were damaged. According to the official History of the Hellenic Air Force (Vol.3, page 219), *Ipsgos* Kornilios Kotronis' Delta 125 was damaged and he had to land at Florina, Delta 105 overturned while landing but the pilot (Kavounis) survived uninjured, *Ipsgos* Nikolaos Skroumbelos' Delta 133 collided with another aircraft on the ground and was slightly damaged, and *Esmias* E. Dangoulas' Delta 115 collided with Delta 106 while landing but was not seriously damaged. *Epgos* G. Theodoropoulos and his 23 Mira pilots claimed eight Fiat CR 42's. In fact, they had shot down Trevisi, who was killed, and Manetti, who baled out behind the Italian lines, and they had wounded Pirchio whose badly damaged Fiat CR 42 overturned when he landed.

Later on November 14, three 23 Mira P.24's led by *Ipsgos* G. Laskaris intercepted an S.79 of 254a Squadriglia over the Korçe-Bilisht area. The Greeks badly damaged the S.79, which force-landed at Korçe with pilot Ten. Calogero Mazza wounded in the leg and radio operator Mar. Attilio Grassini dead. The S.79 gunners claimed to have shot down a P.24.

While Ju 87's of 96° Gruppo from Lecce were attacking Greek artillery positions and a bridge near the Prespa lakes, a single Ju. 87 dive bombed an EVA landing ground north-east of Florina, the crew claiming hits on a bomber and three P.24's with one of the latter destroyed. Four P.24's were scrambled but failed to catch the raider.

At Vassiliki, 21 Mira was joined by 22 Mira which relocated from its base at Sédes (Thessaloniki) to lend added support to the Greek forces under heavy bomber and fighter attack as they advanced on Korçe.

On November 15 four or five P.24's of 22 Mira intercepted five S.79's of 105° Gruppo BT heading for the Greek lines near Bilisht. *Asmias* P. Argiropoulos hit one S.79 which force-landed at Korçe with one crew member dead and another wounded. (This was almost certainly 254-7, the S.79M captured by the Greeks, taken into EVA service as a transport, and destroyed by the Luftwaffe at Larissa in April 1941.) The five Fiat G.50's of 24° Gruppo Aut. CT escorting the bombers and led by Cap. Ettore Foschini, engaged the P.24's and claimed one shot down and one probable. The bombers' gunners claimed two Greek fighters shot down. Michel Ledet notes that "the Greek records make no mention of any 22 Mira pilot killed on this day".

The weather precluded sustained air activity on November 16 and 17, but on the latter day a Z.506B of 86° Gruppo, 35° Stormo BM, was lost to AA fire and two were damaged.

On November 18 better weather enabled the P.24-equipped Mire to fly some 20 sorties over the front lines. In the morning three P.24's of 23 Mira attacked S.79's of 105° Gruppo, 46° Stormo BT, over the "Korciano area" (Korçe area?) and shot down one of 255a Squadriglia. The pilot, Sottoten. Alessandro Caselli, was killed when his parachute failed to open; the surviving crew members claimed to have shot down a P.24. Three other P.24's attacked 18 Z.1007bis of 47° Stormo BT in the Bozigrad-Slinarisa-Ariza (???) area, the bombers' gunners claiming to have shot down one fighter. A little later 23 Mira P.24's intercepted six Z.1007bis of 16° Stormo in the Korçe area, the Greeks claiming three bombers shot down; the bombers' gunners, two P.24's. Shores states that the only aircraft actually lost was a Z.1007bis (of 211a Squadriglia) piloted by Sottoten. Mario Longo, but Michel Ledet remarks that "It would further seem that in the course of this attack, Delta 123 of *caporal-chef* G.Valkanas collided with a Z.1007bis and then crashed" (see below). Beldecos states *Smias* Grigorios Valkanas rammed an enemy fighter and was killed, and *Sgos* I. Kiriazis was severely wounded.

On the same day the Italian fighters of four Gruppi (24°, 150°, 154° and 160°) flew numerous patrols and escort sorties, and a dogfight ensued when Fiat CR 42's of 160° Gruppo encountered P.24's of all three Mire. Serg.-Magg. Arturo Bonato claimed two P.24's shot down while one each was claimed by Ten. Torquato Testorini, Ten. Carancini, Serg. Luca Minella and Serg. Teofilo Biolcati. According to Shores, at least three P.24's were definitely lost: *Ipsgos* K. Giannikostas in Delta 136 of 22 Mira and *Smias* Grigorios Valkanas (see above) of 23 Mira were both killed, while *Ipsgos* Kornilios Kotronis of 22 Mira, although wounded, flew his shot-up aircraft to an emergency landing ground. *Ipsgos* G. Laskaris of 23 Mira (flying Delta 102?) and *Anthsgos* I. Katsaros of 21 Mira each claimed a Fiat CR 42 shot down, but no Italian fighter was actually lost.

Nonetheless, 23 Mira alone was credited with shooting down a total of nine Fiat CR 42's and five bombers between November 14 and 18. The 14 pilots who claimed these victories were *Epgos* G. Theodoropoulos, the *Ipsgos* A. Apladas, P. Bousios, G. Laskaris and N. Skroumbelos, *Anthsgos* K. Tsitsas, *Asmias* K. Kabounis and P. Koutroumbas, and the *Esmias* S. Depounis, J. Kougioumzoglou, G. Nomikos, K. Sioris, N. Stasinopoulos, and (posthumously promoted) G. Valkanas.

Combat, phase 2

On November 18 and 23 respectively, 'B' and 'A' Flights of 80 Squadron, RAF, arrived at Elefsis with some 25 Gloster Gladiator fighters to provide much needed support. Both flights moved to Trikala the day after arrival, 'B' Flight flying a first offensive patrol over the Korçe area on November 19, when they engaged Fiat CR 42's of 160° Gruppo and Fiat G.50's of 24° Gruppo, claiming several shot down.

On November 20, *Sgos* Ioannis Kellas, the CO of 21 Mira, claimed a Z.1007bis shot down.

On December 2, following an appeal to Britain for replacement aircraft for the by now badly under strength fighter Mire, 14 Gloster Gladiators were handed over to the EVA. These were taken on charge by 21 Mira, whose surviving P.24's were transferred to 22 and 23 Mira. 21 Mira was withdrawn to Elefsis on December 19 for conversion training and the overhaul, by RAF ground crews, of their "tired" and "worn" Gladiators. On December 23 *Sgos* I. Kellas led 21 Mira with 11 Gladiators (two of the 14 handed over were unserviceable, one had crashed) to Ioannina, from where an 80 Squadron detachment moved back to Larissa.

Meanwhile, on December 3, six P.24's of 23 Mira had engaged 18 Fiat CR 42's of 160° Gruppo led by Magg. Oscar Molinari, southwest of Voskopoje (Moskhopoulis). Molinari, Sottoten. Giorgio Moretti and Serg. Luciano Tarantini each claimed a P.24 shot down, other pilots claiming a fourth and two probables. Just how many P.24's were really lost is not known, but *Ipsgos* Konstantinos Tsitsas flying Delta 133 was killed. According to Skulski, three P.24's were shot down. Only one Fiat CR 42 was claimed by the 23 Mira pilots.

Sometime after December 3, 22 and 23 Mire moved to Ptolemais where *Asmhos* E. Kelaidis had established his Fighter Command Post close to the 3rd Army Corps. But after December 15 the field was repeatedly flooded by rain, then snow fell, the temperature dropped suddenly and the field froze over, immobilizing the P.24's and making them vulnerable to attack by Italian aircraft. As the weather showed no signs of improving, the P.24's were dismantled on December 26, trucked to Amindeon, hauled by rail to Thessaloniki and re-assembled; they were again ready for operations on December 30! During this 4-day period the only EVA fighters operational were the Gladiators of 21 Mira at Ioannina and the five MB 151 C1's of 24 Mira that had been moved from Larissa to Sédes on December 7 and tasked with the defence of Thessaloniki.

From January 1, 23 Mira was based at Sédes from where its P.24's would operate over the Hellenic 3rd Army in the eastern sector of the front, using the Korçe airfields as forward landing grounds for refuelling. 22 Mira moved to Ioannina.

According to Beldecos, in early January the EVA fighter Mire had 28 operationally serviceable aircraft: 19 P.24's, seven Gladiators, and two Bloch MB 151's.

On January 8, bad weather having seriously limited operations on the previous days, 22 Mira P.24's intercepted a Z.1007bis formation over the front in the Ostravo area. The bombers' gunners claimed one P.24 shot down out of a fighter force of P.24's, Gladiators and "Hurricanes" (Bloch MB 151's!). *Sgos* G. Fanourgakis was reportedly credited with shooting down one Z.1007bis, but Shores notes that "although it appears that on this occasion none were lost". Later in the day 22 Mira P.24's and 21 Mira Gladiators engaged 150° Gruppo Fiat CR 42's escorting an Ro 37 of 72° Gruppo over the Kelcyre area. Each Mira claimed one Fiat shot down, one by the CO of 22

Mira, *Sgos* A. Antoniou, while the Italians claimed five Gladiators. "So far as can be ascertained," says Shores, "neither side in fact suffered any loss".

Ioannina airfield was unserviceable on January 12, as was that at Larissa on January 13 following heavy snowfall which continued, with rain in between, for the next few days. On January 17 and 18 continuous rain and thunderstorms put a stop to all flying. Thereafter 22 Mira moved to Sédes to relieve 23 Mira, which relocated to Ambelon to re-organize, and 21 Mira, which the weather had forced to move to Elefsis, moved to Ptolemais. 24 Mira, still at Sédes, now came under the control of EVA Fighter Command.

Very bad weather again limited operations by both air forces on most days from January 21 to 26, but in the afternoon of January 25 the P.24's of 22 Mira, together with Gladiators of 21 Mira, intercepted 10 Z.1007bis from 50° Gruppo Autonomo BT of 4a Squadra Aerea over Thessaloniki. *Sgos* A. Antoniou of 22 Mira claimed one bomber shot down and Gladiator pilots a second. The Italians reported one Z.1007bis brought down by AA fire, and a second damaged by Gladiators.

Also on January 25, P.24's and Gladiators according to Shores and Beldecos (but solely P.24's of 22 and 23 Mire according to Ledet), intercepted Fiat BR 20's of 37° Stormo BT over Kelcyre. The bombers' gunners claimed a Gladiator shot down. The Greeks claimed two Fiat BR 20's, one believed shot down by *Sgos* G. Doukas of 22 Mira, the second by a 23 Mira pilot. In fact, one of the bombers hit force-landed badly damaged at Berat while the second returned to Lecce with three crew members wounded.

Bad weather again limited activity from January 28 to about February 5. On February 8, 22 and 23 Mire both moved to the forward landing ground at Paramithia in north western Greece. On the same day, according to Regia Aeronautica records, but more likely on the day after according to EVA reports, Z.1007bis of 37° Stormo BT active in the "Cajazza" (?) and Suke area were attacked by P.24's and Greek Gladiators. One P.24 and one Gladiator were claimed shot down, and one P.24 claimed as a probable. One Z.1007bis was badly damaged and destroyed when force-landing at Lecce, three men being injured. Another Italian formation was also attacked by P.24's and returned to base with a man badly wounded.

On February 9 eight P.24's of 22 and 23 Mire, together with four Gladiators of 21 Mira, intercepted 18 Savoia S.79's of 104° Gruppo en route to bomb in the Kelcyre-Tepelene area. They were escorted by 12 Fiat G.50's of 24° Gruppo led by Magg. Eugenio Leotta and 12 Fiat CR 42's of 160° Gruppo led by Ten. Eduardo Crainz. In the ensuing dogfights the Fiat G.50 pilots claimed three P.24's and one Gladiator shot down; the Fiat CR 42 pilots, three Gladiators shot down by Ten. Crainz, Serg. Magg. Luciano Tarantini and Serg. Magg. Aurelio Munich, plus two P.24's shot down by Sottoten. Raoul Francinetti and Serg. Antonio Crabbia. Shores states two Greek fighters were definitely lost and one was badly damaged: *Ipsgos* Antonios Papaioannou was badly wounded in both legs and his Gladiator damaged beyond repair when he force-landed near Kakavia; one P.24 hit in the engine was destroyed crash-landing in a field, the pilot surviving unhurt; and a second P.24 was "shot up" but *Asmias* Ioannis Mihopoulos flew back to Sédes although wounded in the thigh. Beldecos says, however, that *Asmias* I. Mihopoulos was seriously wounded and irreparably damaged his machine force-landing near Kakavia, that *Ipsgos* K. Kotronis totally destroyed his machine (Gladiator?) crash-landing, and

that the aircraft flown by *Sgos* I. Kellas (Gladiator) and *Asmias* I. Dimitrakopoulos (P.24?) sustained serious damage.

The Greeks claimed six Italian aircraft shot down: *Sgos* I. Kellas of 21 Mira, two bombers; *Asmias* E. Dangoulas of 22 Mira, one bomber; *Anthsgos* Anastasios Bardavilias of 21 Mira, two fighters; and *Ipsgos* M. Mitralaxis of 22 Mira, one fighter over Berat. However, no Italian fighter was lost in the engagement, and Shores comments that "some of the bombers claimed may have been Ju 87's of 238a Squadriglia, which were operating over the front on this date. Six of these dive-bombers were reportedly attacked by 20 Greek fighters, Sottoten. Luigi de Regis's aircraft being seriously damaged and force-landing near Vlore, while a second aircraft was damaged, although reportedly by AA fire. Other aircraft claimed may have been the bombers attacked by Greek fighters on the previous day".

All day on February 10 Italian bombers of all types made sustained raids on Ioannina, three formations of 47° Stormo Z.1007bis and five Savoia S.79's of 104° Gruppo raiding the airfield in the morning, and all being attacked by P.24's and both EVA and RAF Gladiators. Shores states that "At least five formations raided the airfield during the afternoon", which was "practically a continual air alarm", with EVA and RAF fighters patrolling and intercepting in "a series of rather confusing engagements". Italian Fiat G.50 pilots and bombers' gunners claimed some three P.24's, one unidentified fighter and seven Gladiators shot down. In fact, *Anthsgos* Anastasios Bardavilias of 21 Mira was shot down and killed in his Gladiator (see February 11) while another Greek Gladiator was destroyed and three 80 Squadron Gladiators were damaged on the ground. But when 47° Stormo Z.1007bis bombers were intercepted by Gladiators and a "Curtis" (Bloch MB 151!), three were damaged by the fighters and AA fire, and when P.24's of 23 Mira intercepted 13 Fiat BR 20's of 37° Stormo BT, one was damaged by *Sgos* G. Fanourgakis of 23 Mira and crashed while landing at Vlore. A further ten 47° Stormo Z.1007bis attacked by Gladiators and P.24's suffered seven aircraft hit, one badly, and a number of aircrew wounded.

On February 11, at 0745 hrs, 17 Fiat CR 42's of 150° Gruppo CT, covered by 15 Fiat G.50's of 154° Gruppo, strafed Ioannina airfield. They shot down one 21 Mira Gladiator attempting to take off and damaged another three on the ground (Ledet notes that, according to Greek records, Bardavilias was killed on this date.) No Fiats were shot down. At 2245 hrs in bright moonlight six Fiat CR 42's of 150° Gruppo again strafed Ioannina, damaging one fighter.

There was considerable action by RAF fighters and bombers from February 11 through February 15/16, and the EVA fighter Mire cannot have been idle. However, the only record is of the interception on February 16 of Fiat BR 20's of 37° Stormo near Trebeshinj by, as Shores notes, "a reported 20" P.24's and Gladiators. An Italian crewman was wounded, and Italian gunners claimed a P.24 shot down. 23 Mira claimed a bomber shot down.

Commencing on about February 17 or 18, by which date 21 Mira had moved to Paramithia, an Advanced Operating Wing, to be known as "W(est) Wing", was set up at Ioannina to coordinate operations by the RAF squadrons in the Ioannina-Paramithia area being reinforced by additional units and more aircraft. With 22 and 23 Mire temporarily attached to W Wing and operating from Ioannina, two P.24's collided in the middle of the airfield at dusk. "Overnight", Shores says, "one good machine was rebuilt from the two damaged airframes". He notes

that "During these days of reinforcements heavy rain fell almost continuously, preventing nearly all activities over the front line or the Albanian bases".

On February 20, at 0930 hrs, 15 Fiat G.50's of 154° Gruppo escorting four Ro 37's and led by Magg. Mastragostino, encountered seven P.24's of 22 Mira together with 12 Gladiators and P.24's of 21 and 23 Mire over the Tepelene-Kelcyre area. 22 Mira claimed three Fiats shot down plus two probables, but actually only two were damaged. The pilots, Ten. Franchini and Ten. Fusco, had to make force-landings at Berat, one fighter being wrecked. *Esmias* E. Dangoulas claimed an Ro 37, but none of these was lost. The Italian pilots claimed 10 Greek fighters shot down and eight damaged. Shores notes that "Greek losses are not recorded, but none of their pilots were reported killed or wounded".

The weather again curtailed flying on February 21, and on February 22 continuous rain made Ioannina airfield unserviceable.

On February 23, 12 Fiat G.50's of 154° Gruppo patrolling the Kelcyre-Devoli area engaged a Greek fighter formation they estimated to comprise 10 P.24's and 15 Gladiators. The Italians claimed four P.24's and one Gladiator shot down, plus three of each type as probables. In fact, only one P.24 and one Gladiator were lost: *Esmias* Konstantinos Hrizopoulos of 21 Mira (Delta 188) and *Ipsgos* Nikolaos Skroumbelos of 23 Mira were both shot down and killed, the former at Kerasovo, the latter near Boubasi. 23 Mira claimed three Fiat G.50's shot down, but Shores notes that "the Italians appear to have suffered no losses on this occasion".

There are large gaps in the record of action by the Greek fighter Mire in the period February 24 through April 2, although the Italian spring offensive was launched on March 9 and stopped by March 15, the RAF fighters and bombers were active whenever the weather permitted, and all serviceable EVA aircraft must have been patrolling and flying sorties. Probably the Greek records for the period were lost and/or combat losses and damage necessitating time-consuming repairs severely limited the number of operationally serviceable P.24's available on many days. Shores mentions only that another four ex-RAF Gladiators were taken on strength by 21 Mira, two on March 11 and two on March 30, indicating that this Mira (and presumably the others) had sustained losses and damage.

On April 5, 21 Mira was at Paramithia, 22 Mira at Sédes (Thessaloniki) together with 24 Mira, and 23 Mira was at Ambelon.

Combat, phase 3

On April 6, at 0530 hrs, Hitler unleashed Operation Marita, the assault on Yugoslavia and Greece. German forces crossed the Bulgarian and Yugoslav borders, one thrust heading for Thessaloniki and then Larissa, the other via Kastoria for Kalambaka, inevitably necessitating a progressive and increasingly urgent withdrawal of Greek and British forces from Macedonia and Epirus to the south.

According to Skulski, on this day "only twelve P.24's were serviceable, eight with 22nd Mira and four with 23rd Mira ... Moreover the technical condition of these Greek machines was getting far worse and as a result of this, up until the end of the campaign just 200 sorties were achieved".

Sources disagree to a certain extent concerning which fighter Mire withdrew when to which airfields, often using different names for the same locations, e.g., Vassiliki being identified as either a Kalambaka or Trikala airfield and Ambelon

being misidentified as Larissa! According to Shores, 22 Mira and 24 Mira appear to have relocated almost immediately from Sédes to Vassiliki, where they were later joined by 21 Mira. Shores does not mention 23 Mira, thus implying that the unit remained at Larissa (Ambelon!). Ledet says only that "The Greek fighters were assembled at Vassiliki (21 Mira arriving there after the other Mire)", thus implying that all four fighter Mire were withdrawn to Vassiliki. Serge Joanne, writing only of 24 Mira, states that this unit relocated with three Bloch MB 151's to "Voevoda (also called Vassiliki), the Trikala airfield" on April 9. *Ipsgos* P. Ikonomopoulos, who intercepted a Do.17 that force-landed on April 7 (Shores says April 6), is quoted by Joanne as recalling that "Next day (April 8) we moved to the airfield at Larissa, then to Karditsa (a few kilometres south of Trikala), to Tanagra, and finally to Elefsis". However, Joanne notes that "According to the archives, the withdrawal airfields were Sédes – Trikala (Vassiliki!) – Amphiklia – Elefsis".

In the course of sorties flown on April 6, *Sgos* A. Antoniou, CO of 22 Mira, claimed a Bulgarian (probably Luftwaffe?) reconnaissance aircraft shot down over Kilkis north of Thessaloniki.

On April 9, Joanne states, 24 Mira flew several patrols from Vassiliki with three Bloch MB 151's: one together with three P.24's and three Gladiators over the Korçe area, another together with six Gladiators over the Doirani and Prespa lakes area.

On April 10, General Bakopoulos' army capitulated, German forces took Thessaloniki and all fighting ceased in eastern Macedonia. *Ipsgos* P. Ikonomopoulos of 24 Mira intercepted and claimed to have shot down a reconnaissance Z.1007bis.

On the morning of April 14, over the Epirus front, 21 Mira Gladiators attacked 10 Z.1007bis of 35° Stormo near Ioannina., but apparently neither side lost a machine. Later in the day P.24's of 22 Mira intercepted Ju 87's and *Esmias* P. Argiropoulos claimed one shot down near Trikala. Shores says this was "obviously" A5+EK of 2/StG1. In the Larissa area, a 23 Mira pilot shot down a Henschel Hs 126, identified by Shores as 5F+AH of 1(H)/14. According to Glass, 22 and 23 Mire now had 13 P.24's -- apparently a damaged machine had been repaired since early April.

Also on April 14, Wg Cdr Dudley Lewis from AHQ flew in to Paramithia to organize the evacuation of RAF Gladiators and Blenheims from that airfield and Ioannina to Agrinio, an operation that took three days to complete.

On April 15 shortly after dawn, Macchi MC 200's of 22° Gruppo CT strafed Paramithia, destroying and damaging many of some 44 Yugoslav aircraft waiting to refuel and evacuate. Twenty Fiat G.50's of 24° Gruppo CT strafed Ioannina, one Gladiator of 112 Squadron being badly shot up and the pilot wounded. At about 0700 hrs Bf 109E's strafed Larissa airfield, shooting down two Hurricanes and destroying, on the ground, a third Hurricane, a Gladiator and several Greek aircraft which Ledet says included two "Potez" (25A's or 633B2's?), a "Bloch" and several Avro Tutors or Avro 504's.

Meanwhile, at 0800 hrs at Vassiliki, five P.24's of 22 Mira, five Gladiators of 21 Mira and the two surviving serviceable MB 151's of 24 Mira were scrambled to intercept an approaching formation comprising an estimated 18 Ju 87s with a fighter escort. In the event, the formation changed direction to Trikala at the last moment and, just as the Greek fighters caught up with the Ju 87's, they were in turn intercepted by 20 Bf 109E's of II/JG 27. In the dogfight that followed, Oblt. Gustav Rödel

claimed a "Hurricane" (MB 151!), a Gladiator and a P.24 shot down; Ofw Otto Schulz, a P.24; Lt Ernst Böringen, a Gladiator; and Oblt Wilhelm Wiesinger, a Gladiator -- a total of six EVA fighters. The actual Greek losses included the Bloch MB 151 of *Esmias* Giorgios Mokkalas who was shot down and killed (after he had shot down two Ju 87's?); the Gladiator of 21 Mira CO Sgos I. Kellas, who was wounded, crash-landed and saw his machine go up in flames; the P.24 of *Asmias* A. Katsarellis who was shot down but survived badly wounded; and the Bloch MB 151 of *Ipsgos* P. Ikonomopoulos, which was badly damaged. *Ipsgos* Vasilios Kontogiorgos of 22 Mira was wounded.

23 Mira was still at "Larissa" (Ambelon!) according to Shores. In the morning *Asmias* Periklis Koutroumbas intercepted "a reconnaissance aircraft" (Hs 126?) which he was credited with having shot down in the Lithoro area, near Mount Olympus. Shortly afterwards he was himself shot down by Bf 109E's.

At "Kazaklar" (Ambelon!) Shores states, a 208 Squadron Hurricane taking off "struck the wing of a poorly dispersed Greek PZL". The damage sustained by the P.24 is unknown.

Fliegerkorps VIII's claims for April 15, apart from RAF aircraft, included two P.24's and three Gladiators by II/JG 27 and a third P.24 (Lysander?) by I(J)LG2.

The RAF's losses were severe: the serviceable aircraft left by the end of the day totalled only 18 Hurricanes, 12 Gladiators, 14 Blenheim IF's and 22 Blenheim bombers. As the British ground forces were to withdraw south, it was decided to evacuate the airfields at Paramithia, Ioannina, Larissa, Ambelon, Niamata and Almiros, the RAF squadrons relocating to Elefsis, Hassani and Menidi.

On April 16 the remaining, serviceable EVA fighters at Vassiliki and Ambelon were flown out south to Amfiklia (aka Dadi) at the foot of Mount Parnassos. Shores puts the total at 21 fighters: 11 P.24's, eight Gladiators and two Bloch MB 151's. Ledet says there were 23 machines: 11 P.24's, nine Gladiators, two Bloch MB 151's and an Avia B.534. The 11 P.24's must have been the combined strengths of 22 and 23 Mira, and the total indicates that, since *Asmias* A. Katsarellis of 22 Mira and *Asmias* P. Koutroumbas of 23 Mira had been shot down the previous day, but the P.24 struck by a Hurricane was apparently (still? again?) airworthy, Glass's total of 13 serviceable P.24's available on April 14 is correct.

On April 18 Prime Minister Alexandros Korizis committed suicide after learning that the exhausted Army of the Epirus commanded by General Georgios Tsolakoglou, had initiated negotiations for its surrender to the German 12. Armees. (Korizis was succeeded by Emmanouil Tsouderos.) Yugoslav aircraft were evacuated from Greece to Crete and Egypt, and RAF fighters and bombers were constantly active.

On April 19 an attack on the landing ground at Amfiklia, coming as a surprise because of a breakdown in the raid warning system, caught all the EVA fighters on the ground and enabled strafing Bf 109's to destroy most of what was left of the EVA's Fighter Command. Shores states that "All but three of the 21 PZLs, Gladiators and Blochs were destroyed. The German pilots claimed ten 'Glostors' and nine unidentified aircraft destroyed, plus one Spitfire (sic) shot down over the airfield -- presumably a Bloch attempting to join the combat". (Shores also says "The three surviving fighters were ordered to fly to Eleusis; only 23 Mira's few PZLs, now based at Argos in the Peloponnese remained to offer any Greek aerial resistance". However, this cannot be correct as both 22 Mira's and 23 Mira's P.24's were

evacuated to Amfiklia.) Ledet provides more precise figures: "8 Gladiators, 7 PZLs and two Blochs are destroyed on the ground. Only the Gladiator Delta 196 is slightly damaged. Two mechanics still at the site repair it, permitting Capt. Papadimitriou to take off for Elefsis in the evening. Only four P.24s of 22 Mira (and 23 Mira?) can escape the massacre and take refuge at Argos in the Peloponnese". Skulski states simply that "The machines that survived were moved to Argos".

April 20 was a day of unceasing combat and Shores notes that "If 15 April had been the worst day so far for the Royal Air Force in Greece, the 20th was to be its ultimate nemesis". 80 and 33 Squadrons had a third of their 15 Hurricanes shot down defending the Athens area. At Elefsis, at 1535 hrs, strafing Bf 109E's of II/JG27 destroyed several aircraft, including, according to Shores, "two 33 Squadron Hurricanes and two of the surviving Greek fighters here". Ledet again differs, saying "the Bf 109s of II/JG 27 which destroy several of the precious Hurricanes on the ground as well as the Greek Gladiator Delta 196".

On April 21 the Luftwaffe pressed home further attacks on Elefsis (two Hurricanes destroyed, several others further damaged), Menidi (Blenheims damaged, one beyond repair) and Agrinio. In the evening Greek forces in the Larissa area and the Army of the Epirus finally capitulated.

On April 22, members of the Greek Royal Family were evacuated to Crete by 230 Squadron Sunderland flying boat, and 112 Squadron withdrew to Crete with 14 surviving Gladiators. Six Hurricanes were flown from Elefsis to nearby Megara landing ground and from there, in the evening, to a small EVA training airfield at Argos. There they joined 12 Hurricanes which had arrived earlier from Elefsis, the surviving P.24's evacuated from Amfiklia, some Potez 25A's of 4 Mira, a number of Avro Tutors and 626's, and various elderly EVA aircraft, all of which were dispersed among the surrounding olive groves. Ground defence consisted of Greek troops with two Bofors guns and two Hotchkiss machine guns; a British AA unit dispatched to defend the airfield had gone to the wrong location.

On April 23, the Hurricanes at Argos, only some of which were serviceable, were joined by five more from Maleme (Crete). Almost immediately after their arrival, Shores relates, "An estimated 20-25 Do.17s made a level bombing attack from altitude, followed by a similar number of Ju 88s which dive-bombed, after which escorting Bf 109s from II and III/JG 77 came down to strafe". Only four Hurricanes managed to take off and escape; most of the remaining fighters were destroyed.

During the day the King and Crown Prince of Greece, the British Minister in Athens, and non-essential key and RAF personnel were evacuated to Crete by Sunderland and BOAC Empire flying-boats.

At about 1800 hrs, while three Hurricanes were on patrol and another two had just taken off, the airfield at Argos was attacked by an estimated 40 Bf 110s of I/ZG 26 led by Maj. Wilhelm Makrocki. All the remaining Hurricanes were hit. Shores notes that "By the end of the attack some 13 Hurricanes had been wrecked" and "Almost all the Greek aircraft had been destroyed, the Luftwaffe claiming 53 destroyed at Argos during the day". Fliegerkorps VIII's claims for April 23 included, apart from a flying-boat, six twin-engine aircraft and 50 unidentified types, one Hurricane and one "PZL" shot down.

Both Glass and Skulski say the damaged P.24G Delta 102 was subsequently photographed by the Germans at Argos, as

was the P.24 Delta 112 of 22 Mira according to Ledet. Since Skulski mentions that Delta 102 was reportedly flown by *Ipsgos* G. Laskaris of 23 Mira, this would seem to indicate that not all four P.24's evacuated from Amfiklia to Argos on April 19 were from 22 Mira.

On April 24, at 0430 hrs at Argos, seven Hurricanes and three Lodestar transports flown in the night before to evacuate key personnel, took off for Crete together with five Avro Ansons of 13 Mira and four EVA Avro Tutors. As Shores remarks, "No airworthy Allied aircraft were now left on the mainland; only a handful of seaplanes remained at some of the coastal harbours". (The last EVA bombers had all been destroyed at Tanagra on April 20.)

Some sources have stated that one P.24 was flown out to Crete, then to Egypt, but there is no evidence to this effect. One unidentified P.24 was captured by the Italians, and Glass and Skulski both say it was shipped to the *Centro Sperimentale di Volo* at Guidonia near Rome. Skulski states it was still there on

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Author's notes

The basic thread of "Combat, phases 1 -- 3", is based on Shores' "Air War for Yugoslavia, Greece and Crete 1940/41" published in 1987, but has been amended primarily with reference to more up-to-date, if less detailed, accounts by Flt Lt G.J. Beldecos (1999), Michel Ledet (March 2000), Przemyslaw Skulski (2002) and Andrzej Glass (2004).

It has not been possible to identify the codes worn by the P.24's on charge to each Mira at the outbreak of war, or the codes worn by the 21 Mira machines transferred to 22 and 23 Mira in December 1940, or the codes of all the P.24's still operational in April 1941. Beldecos implies that only 23 Mira had cannon-armed P.24F's when war broke out, but Ledet, Glass and Skulski claim the P.24F 'Delta 129' was on charge to 22 Mira in autumn (October?) 1940.

The transliterated Greek names of persons and ranks have been used throughout, as have the place names current in 1940/41 except in quotes, e.g. "Eleusis" (Elefsis). The alternative Greek names of Greek localities used by various sources are shown in parenthesis, e.g. Vassiliki (aka Voevoda). An incorrect identification of an airfield in a quote is indicated thus: "Trikala (Vassiliki)". The Greek or Italian names of places in Albania are shown in parenthesis in order to help readers identify locations in accounts published elsewhere, e.g. Korçe (Koritsa) and Vlore (Valona). Localities or areas mentioned by sources but not found on the maps available are indicated by '(?)'.

September 8, 1943, while Glass notes that "the only P.24 with Greek markings to be found in Italy after the war was a wreck at a junkyard in Brindisi in 1945".

Athens was evacuated by Allied troops on the night of April 26 and occupied by German troops early in the morning of April 27, 1941. The evacuation of mainland Greece by British and Commonwealth forces was completed by May 1, 1941.

Thirty Grumman F4F-3A Wildcats ordered for the EVA shortly before April 6, 1941, arrived at Port Suez in an American freighter after mainland Greece had fallen. Delivery of another 15, plus 30 Curtis P.40B's had not been initiated, neither had the proposed supply of 30 Curtis H-75A's (ex-French contract) by the RAF.

Sid Napier (SAFCH #1521), Burgstrasse 2, CH-4107 Ettingen, Switzerland.

As always I am indebted to Greek friends and fellow enthusiasts for their advice, assistance and encouragement. Stavros Verras helped me with explanatory comments on his article in NEA 1/99, with information subsequently acquired, and with copies of the photos needed to illustrate the points he makes. Stamatis Andreou not only provided information but took the time and trouble to read my draft, check and correct the spellings of names, and correlate the confusing alternative names of airfields and landing grounds used by various sources.

I also owe thanks to Roger Wallsgrove and Robert Peczkowski for the Polish authored reference material they made available.

Equivalent ranks

EVA	RAF	USAF
Sminias (<i>Smias</i>)	Corporal	Sergeant
Episminias (<i>Esmias</i>)	Sergeant	Master Sergeant
Arhisminias (<i>Asmias</i>)	Flight Sergeant	Chief Master Sergeant
Anthiposminagos (<i>Anthsgos</i>)	Pilot Officer	2 nd Lieutenant
Iposminagos (<i>Ipsgos</i>)	Flying Officer	1 st Lieutenant
Sminagos (<i>Sgos</i>)	Flight Lieutenant	Captain
Episminagos (<i>Epgos</i>)	Squadron Leader	Major
Antisminarhos (<i>Asmhos</i>)	Wing Commander	Lt. Colonel
Sminarhos (<i>Smhos</i>)	Group Captain	Colonel

Captions for photos on pages 35-56.

1. One of the five Gnôme-Rhône 14 Kfs powered P.24A's initially delivered. Note the lack of a spinner and the underwing cannon. All five machines were retrofitted with the Gnôme-Rhône 14N-07 radial and brought up to P.24F/G standard. Some, if not all five, were converted into P.24G's by substituting machine guns for the cannon. (via author)

2. Delta 116, a P.24G still without armament, at Tatoi airfield in 1938. Note the natural metal finish and markings, particularly the large underwing roundels, the absence of a fuselage roundel, the rudder stripes, the black code with its 'dot' and '1's, the weight data and PZL badge on the fin. (via author)

3. Delta 103 was one of the five P.24A's initially delivered. It is now powered by a Gnôme-Rhône 14N-07, has a spinner, and machine guns have been substituted for the underwing cannon. Note the absence of underwing roundels. (Przemyslaw Skulski via Mushroom Models Publications)

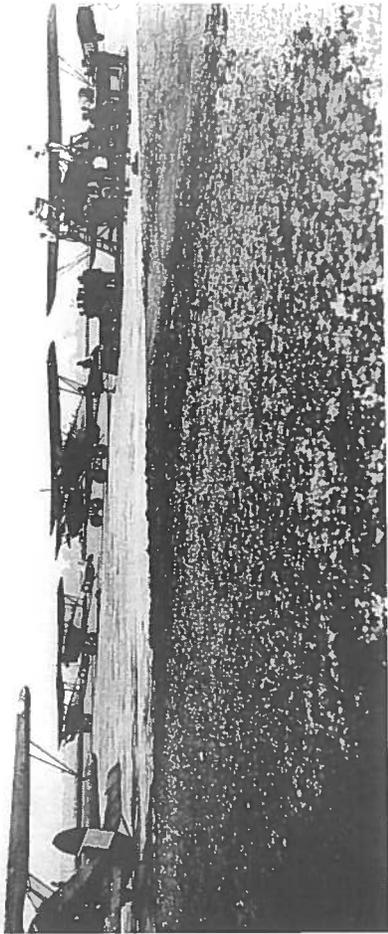
4. Delta 129, a P.24F, photographed in autumn 1940 wearing the dark green/light earth scheme. (P. Skulski via Mushroom Models Publications)

5. A wartime photo of Delta 117. The camouflage scheme on the wings does not match that on the fuselage or the cowling. Was this the machine re-built overnight at Ioannina using parts from two damaged airframes? Note the wheel fairings. (via Stavros Verras)

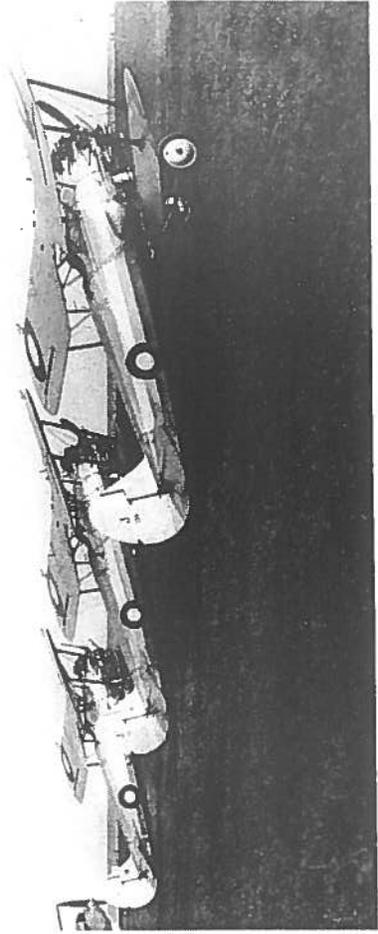
6. The wreck of a P.24G. Note the absence of an underwing roundel typical of the early weeks of the war. (P. Skulski via MMP)

7. Delta 102, reportedly flown by *Ipsgos* G. Laskaris of 23 Mira. Note the strong contrast between the dark green and light earth of the camouflage colours. The small emblem under the cockpit is a red spider, not a crab or scorpion. (Przemyslaw Skulski via Mushroom Models Publications)

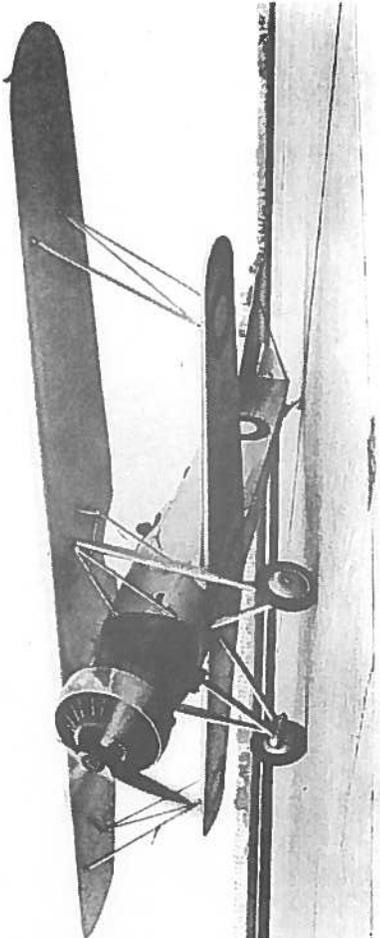
8. Delta 112, a P.24G of 22 Mira. Note the white code instead of a black and the open, folded down canopy. As on Delta 102, there is a strong contrast between the two upper surface camouflage colours. This photo and others show the ailerons are from another, cannibalised P.24. The machine was apparently hit by cannon shells (via author)



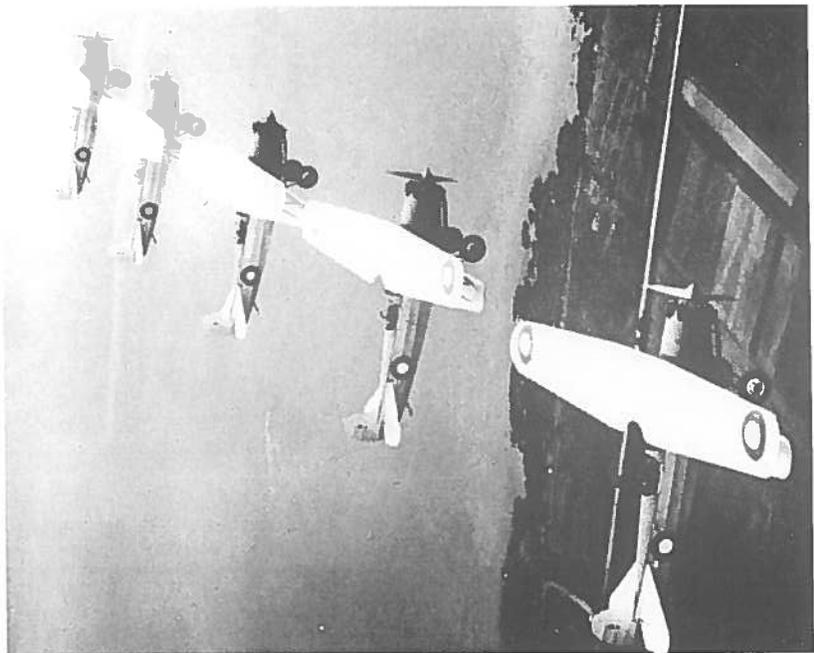
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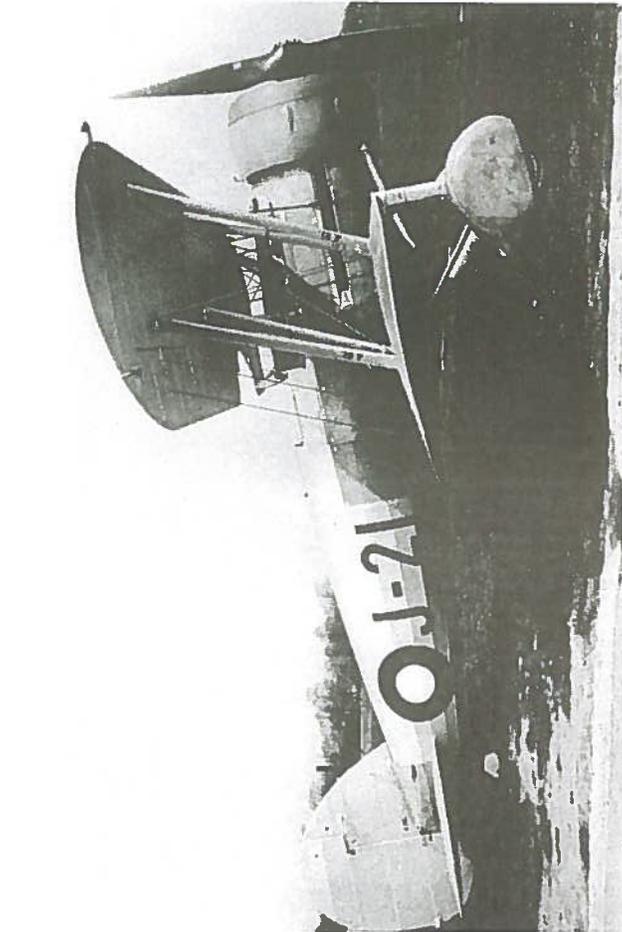
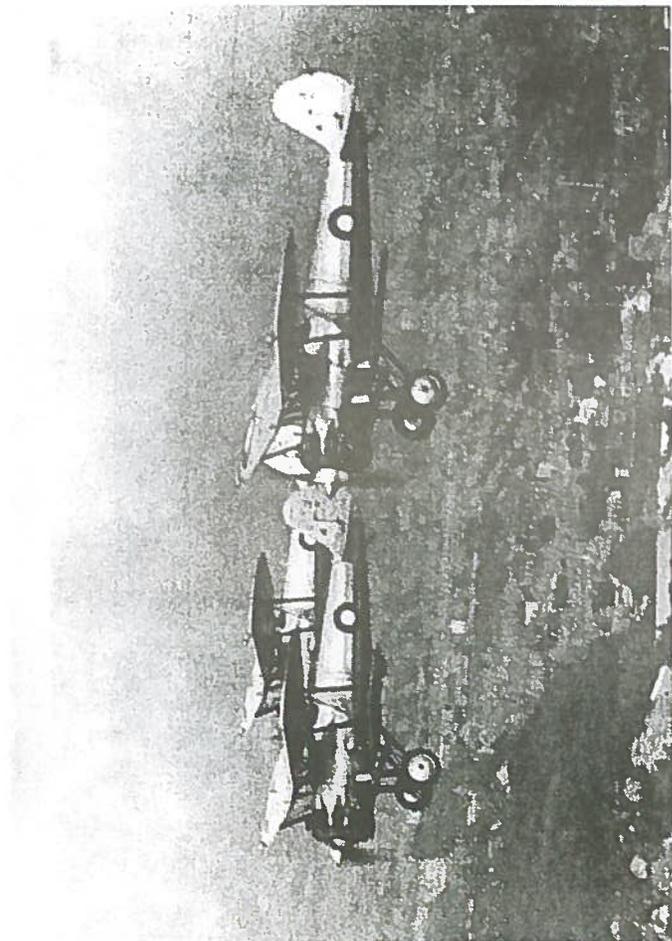
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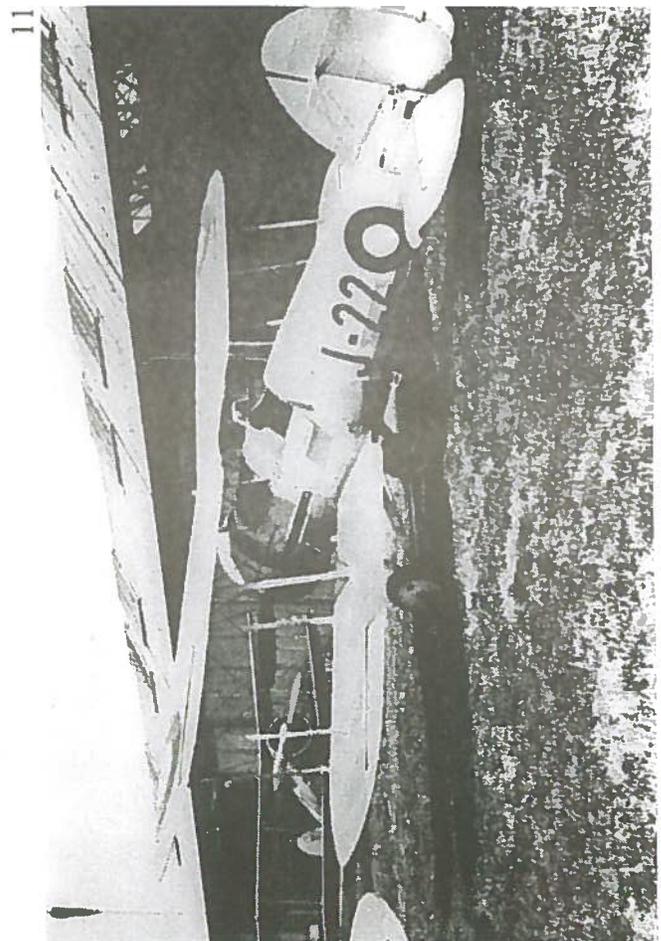


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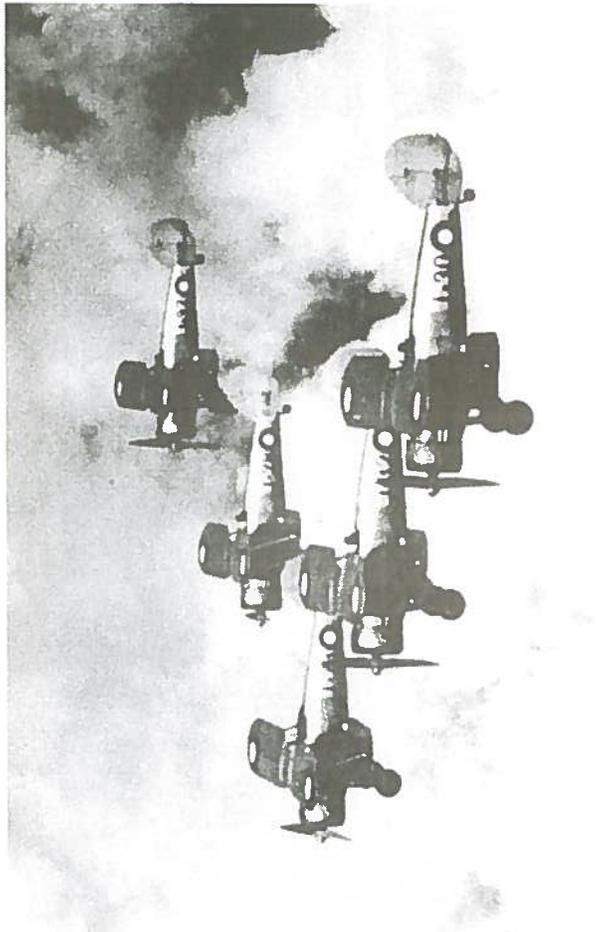
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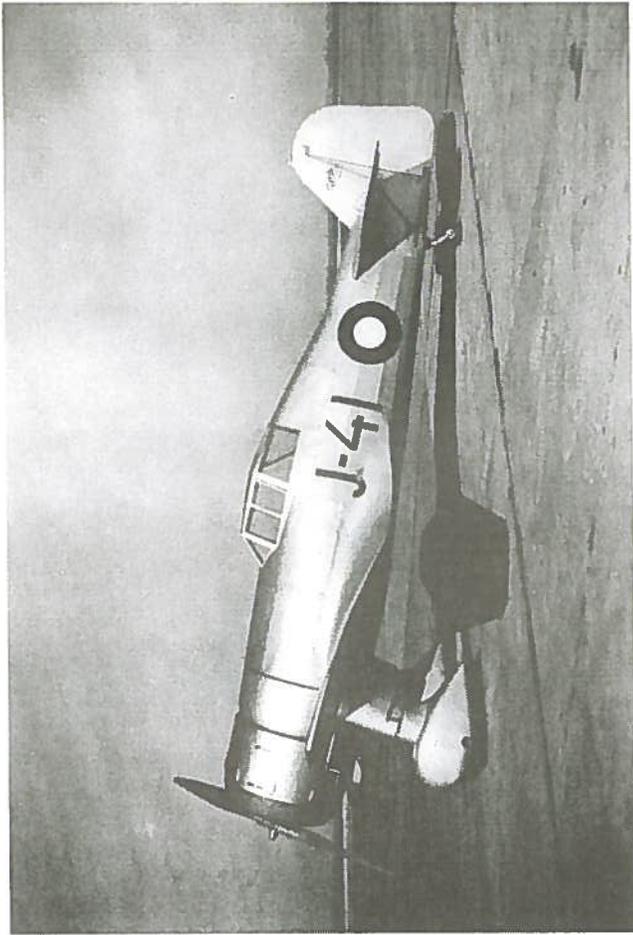
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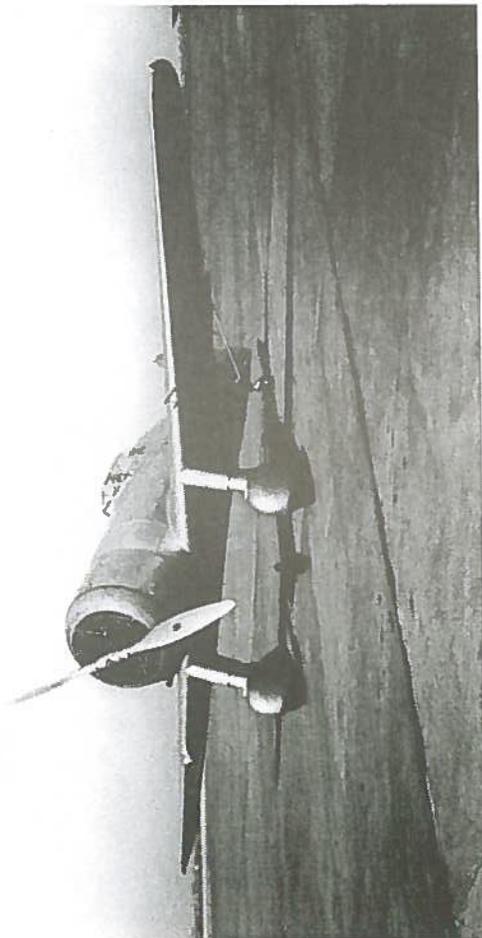


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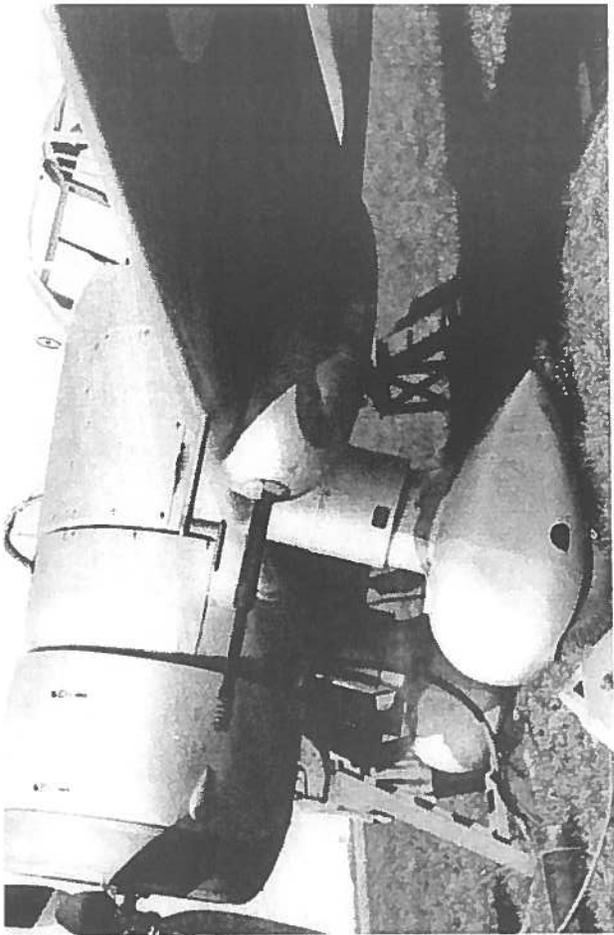
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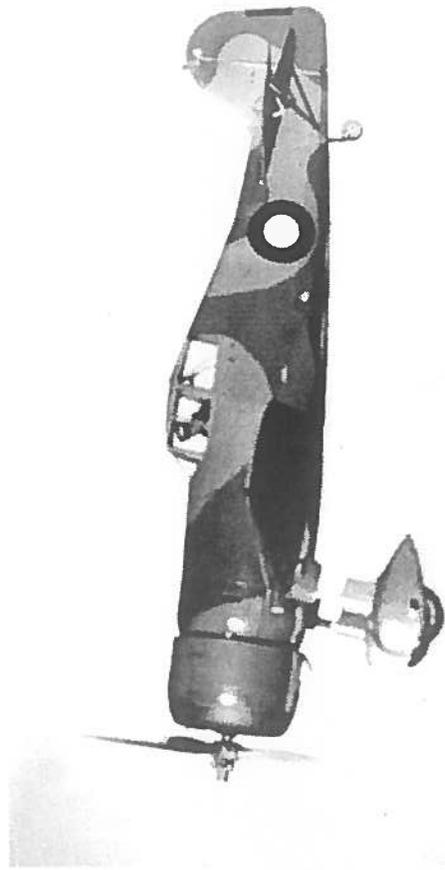


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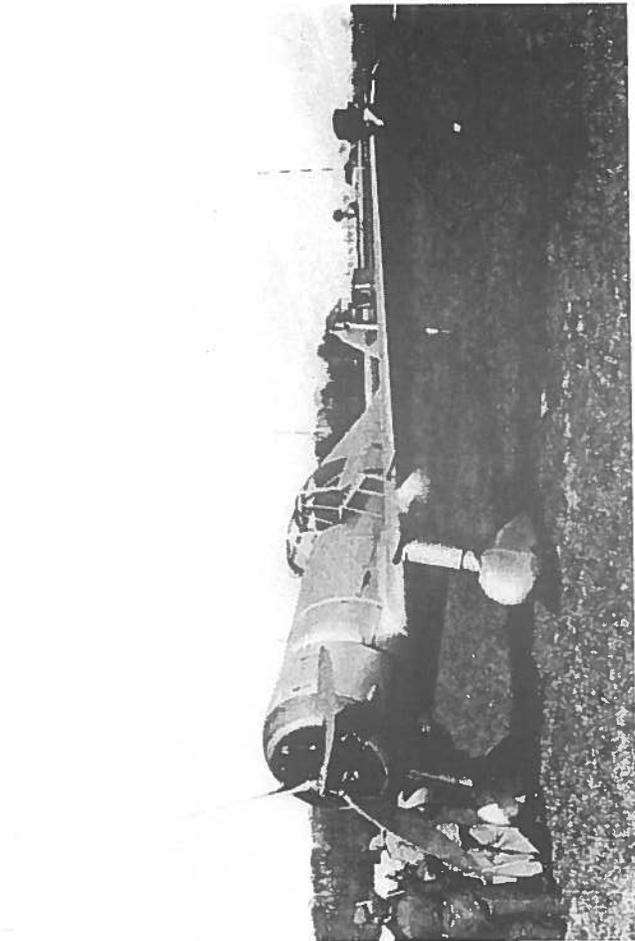


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WESERÜBUNG 1940

The Danish Air Services Defense Against the German Invasion April 9th, 1940

Part IA

Aprildagene in Denmark

Douglas Dildy & Kai Willadsen

Poised at the entrance to the Baltic Sea, Denmark has been a small, peaceful European nation ever since Napoleonic times. It consists of two main parts, the Jutland Peninsula extending northward from the Schleswig region of northern Germany and Zealand, the large island upon which Copenhagen is situated, in the throat of the passage from the North Sea to the Baltic. Between Zealand and Jutland lie a collection of islands—Fyn, Lolland and Møn among them—which channel the waterways into two main passages, the Great Belt and the Little Belt. To the east some 85 miles (137 km) lies the island of Bornholm, situated much deeper in the Baltic Sea.

The last time Denmark had a real need for an effective military fighting force was in 1864, not surprisingly, when they were attacked by the Germans. After 75 years of peace, Hitler's unbridled ambition, belligerent pronouncements and unfettered military expansion programs motivated the Danish government to provide a more professional military establishment. The Defense Act of 1937 expanded the small army, establishing a general headquarters and two divisions—one for Jutland and one for Zealand—and the Bornholm garrison, restructured the air arm, and established anti-aircraft, engineer, and transportation supporting units.

The Early Days

The Danish Army's aviation service was initially established on December 14, 1911. Four aircraft were acquired—one Henri Farman, one Maurice Farman, one Bleriot and one Caudron design—and three airfields were used: Ringsted, near Copenhagen, Odense on Fyn, and Viborg in southern Jutland. The Maurice Farman design proved most acceptable and another five were built by *Tøjhusværkstederne* ("Royal Arsenal Workshops"). In 1915 these were supplemented by acquiring from Sweden a pair of Farman HF.22s (with a third being built by *Tøjhusværkstederne*) and a pair of Thulin H models (license-built Morane-Saulniers).

Because WWI denied the fledgling air arm modern types from foreign sources, in 1917 *Tøjhusværkstederne* undertook license production of a dozen Vickers F.B.5 (Fighting Biplane design 5) popularly known as the "Gun Bus". Developed three years prior, this two-seat pusher biplane carried a Lewis .303 caliber (7.7mm) machine gun and was powered by a nine-cylinder, 100hp Gnome Monosoupape rotary engine. Loaded as it was, it was underpowered and had marginal performance—only 70mph (113km/hr). Consequently they were primarily used by the Danes as reconnaissance machines.

The Danish examples differed from the original design in having lengthened, rounded fuselage nacelle noses and wire trailing edges to the mainplanes and ailerons. Ten used (and probably badly worn) Monosoupapes were acquired from England and these were mounted to the first ten examples (serials V-1 through V-10) with the last pair (V-11 and V-12) having 110hp Gyro rotaries purchased from the USA. The Monosoupapes gave endless troubles and soon resulted in the

type being withdrawn from service. In fact it is doubted if V-10 and V-12 ever flew at all. The Gunbuses were placed in storage at Avedøre (west of Copenhagen) until 1924 when 11 of them were scrapped, the twelfth following suit two years later.

That same year the air arm acquired six examples of the indigenously-designed fighters built by the Nielsen og Vinther A/S tool company. Designated the "Aa"—and possibly designed and produced with some assistance from the Thulin company—the Danish fighter was a small biplane first flown on 21 January, 1917. Powered by a Thulin copy of the 90hp Le Rhône rotary engine it had a top speed of 93mph (150km/hr) and mounted a single Madsen 8mm machine gun above the upper wing to fire over the propeller arc.

To this small force nine additional Thulin Hs were license-built as trainers, called *H-Maskinen*, in 1918. However, with the end of WWI, the need for an air arm—an expensive ancillary to a peaceful nation's token armed forces—was less compelling and the unit was closed.

Hærens Flyverkorps

Following the abortive attempt between 1912-1919 to create an air arm, the *Hærens Flyverkorps* ("Army Aviation Corps") was established in August 1922 headquartered at Kløvermarken airfield, immediately south of Copenhagen. The service never attained its authorized strength, having to be content with only a single observation squadron of eight Potez XV.A2s and four Breguet XIV.A2 biplanes. The first fighter of the resurgent Danish army air arm was a Fokker D.VII (of WWI fame; serialied "F-1") was purchased from *Dansk Luftrederi* where it had been used for joy-riding. Additionally a training school, known as the *Flyverskole*, was established at Kløvermarken and was initially equipped with five old LVG B.IIIIs, two Fokker S.III primary trainers, and a pair of new Fokker C.I observation aircraft to be used as advanced trainers, acquired in 1923.

The C.I was Fokker's first entry into the field of two-seat reconnaissance biplanes. Designed at the end of WWI for the German *Luftstreitkräfte*, they used the very successful D.VII fighter as a basis and merely lengthened the fuselage 11 in (.28m) to accommodate the observer's cockpit and increased the wingspan to 7.38ft (2.25m) to lift the additional weight. Although a number of these was on order, the Armistice ended the war before any showed up at the front. Anthony Fokker took 70 of them to Holland, selling them to the Dutch army and naval air services, and also exported some to Russia.

Powered by the same 185hp BMW III engine that equipped the legendary D.VII, the C.I could fly at 110mph (177km/hr) and could mount a single fixed machine gun fired forward and a flexible one on the ring around the observer's cockpit. The Danish models, however, were unarmed and equipped with dual controls for flight training.

The C.I proved to be an efficacious training machine and in 1925 three more were acquired, as was the license for *Tøjhusværkstederne* to produce them locally. Fifteen of the

Danish derivatives—called *O-Maskinen* and “Type IO” in Danish service—were produced beginning the next year. These were powered by a 220hp BMW engine and had a top speed of 124mph (200km/hr) and soon relieved the aged LVGs in the training unit. (For Danish army aircraft designations, see Note 1.)

In the observation unit the Potez XVs proved unsatisfactory and by the mid-1920s Denmark was looking for a more viable reconnaissance aircraft. In 1925 Denmark purchased five new C.Vbs, one version of Fokker’s latest and perhaps his most successful post-WWI design, powered by the 400hp Lorraine-Dietrich 12Db liquid-cooled engine. These were known as the C.V M/26, or “Type IR”, in Danish service and were serialised “R-1” to “R-5” to reflect their reconnaissance role. A license for local manufacture was also purchased and another 13 C.Vb’s (“R-6” to “R-20”) were built by *Tajhusværkstederne* from 1927 to 1931, with Fokker supplying 12 fuselages to help production.

The first purpose-built multi-role combat aircraft, the C.V design was offered in five versions, each being equipped with different combinations of wings and engines to perform different tasks. The first three variants had the broad thick wing, with the overhanging aileron balances seen on the D.VII and C.Is, while the two newer versions featured a more efficient tapered wing design. The last of these quickly caught the interest of the Danish air arm.

In fact, two conversion sets for the new tapered wings were purchased and installed on Danish C.Vbs “R-1” and “R-2” which were used for a round-trip flight from Copenhagen to Toyko beginning in March 1926. The mid-1920s was a time of great aviation advances and achievements and many long-distance flights were staged to demonstrate the new technology’s capabilities, and to wave the flag. So with the new wings and additional Lamblin radiator to cope with the tropical conditions and the name “Danmark” emblazoned upon their dark green fuselage sides, the two C.Vs headed off on their 6,500 mile (10,500km) journey via the British East Indies. Aircraft “R-2” was damaged in Thailand, but the other crewed by pilot Capt A. P. Botved and mechanic Olsen, arrived safely in Tokyo. Capt Botved returned in June, by way of Siberia, covering the distance in 72 flying hours in nine days.

With Fokkers’ new wings having proven themselves in some of the most arduous conditions, a few years later the *Hærens Flyverkorps* ordered the newest C.V version, the C.Ve, as its standard reconnaissance aircraft. The prototype (serialised “R-21”), powered by a 550hp Bristol Pegasus IIM-2 radial engine, arrived from the Fokker factory in July 1933 and served as a model for an additional 11 examples produced by *Hærens Flyvertropper Vaerksteder* (“Army Aviation Troops Workshop”) in 1933-34. These were designated as C.V M/33 “Type IIR” and serialised “R-22” to “R-32”.

The following year an additional 12 were constructed and received serials “R-41” to “R-52”. Powered by the a nine-cylinder 440hp Bristol Jupiter VII radial engine, they were designated as C.V M/33 “Type IIIR”. (These were equipped with the lower-power Jupiter radial for commonality with the new Bristol Bulldog fighters being acquired at about the same time.) Also in 1935 five of the surviving C.Vb Type IRs, beginning with “R-2” as the prototype, were rebuilt with the tapered wings and Jupiter engines and the Danish army air arm finally had enough of this type to equip two reconnaissance squadrons.

Hærens Flyvertropper

Meanwhile, with the Army Act of 1 November 1932 it was decided to base the *Hærens Flyvertropper* at *Værloselejren* (“Camp Værlose” a former an infantry training camp located 15 km [nine miles] northwest of Copenhagen). A grass field shaped as an equilateral triangle approximately 1 square kilometer (4/10s of a square mile) in size was established on the valley south of the camp.

In 1934, the *Flyveskolen* (“Flying School”) began to use the camp and during 1935-36 the operational units moved to the camp. The year before the school had begun to receive 15 new de Havilland DH.82 Tiger Moths (“Type IS” in Danish service) as its primary trainers. That year the school received a pair of DH.84 Dragons (“Type IIS”) for training and communications tasks. In 1939 these were retired in favour of a pair of DH.90 Dragonflies (“Type IIIS”) acquired two years prior.

About this time the *Hærens Flyvertropper* also realized the need for fighter defense and in March 1931 acquired four Bristol Type 105D Bulldogs (known as “Type IJ”). An excellent fighter of the “golden age” of biplane aviation the Bulldog began as a private venture by Bristol Aircraft Company, making its first flight on May 17, 1927. Powered by a nine-cylinder 450hp Bristol Jupiter VII radial engine it was capable of 173mph (278 km/hr) and proved to be very maneuverable, so much so it was prone to spinning problems throughout its service life. A very popular “between the wars” fighter, the Bulldog equipped ten RAF squadrons and showed up in the inventory of ten other nations.

The Danish version differed by having the Jupiter VIF.H engine with the Viet gas starters. Instead of two Vickers .303 caliber machine guns, each mounted high on the fuselage sides, the 105D had a pair of Madsen .300inch weapons mounted lower along the sides. The four aircraft were delivered in overall aluminum dope and bare metal and the serial numbers (initially “J-151” through “J-154”, then “J-301” through “J-304” after March 1932) were initially placed on the rudder in small characters with the “J” above the numbers. When the serials changed to “J-1” through “J-4” in 1933, they were placed in large characters on the fuselage sides after the national insignia.

These were supplemented by seven *O-Maskinen* “Type IIO” single-seat trainers powered by the 160hp Mercedes in-line engine. First flown in 1932, these had the rear cockpit faired over and provision for a pair of 8mm machine guns mounted in the cowling. There is no evidence they were ever armed and they were used to transition Danish pilots, who were familiar with the Fokker derivative IO trainers and IR observation aircraft, to the world of single-seat fighters.

The IJs and IIOs were used to equip *1.Eskadrille* (abbreviated *1.ESK*). On October 29th, 1936, “J-2” was badly damaged when Corporal V. C. Lauriston hit a fence at Værlose with the landing gear and crashed. The pilot survived but the aircraft was written off and struck off charge in July 1937. Once the Gloster Gauntlets began to arrive to equip the squadron, the remaining three Bulldogs were used as unarmed fighter trainers. (Note 2)

Units of Hærens Flyvertropper

With these new acquisitions *Hærens Flyvertropper* able to form two fighter and two reconnaissance squadrons. These were organized into the *Sjællandske Flyverafdeling* and *Jydske Flyverafdeling* (Zealand and Jutland Aviation Units, respectively), both having their staff at *Værloselejren*.

On the 9th of April, 1940, the *Hærens Flyvertropper* consisted of:

1.ESK—Established 1 November 1932 as the first fighter squadron of the Danish army air arm, the unit flew the four Bulldogs until the Danish government obtained a license to produce the Gloster Gauntlet (“type IJJ”) in 1935. After acquiring one pattern aircraft (ex-RAF K4081, serialed “J-21”) from the parent company in Britain, the *Værksteder* produced another 17 examples (“J-22” through “J-38”). The *1.ESK* was finally fully equipped as the first Danish fighter squadron by the end of 1938.

The Gloster Gauntlet—the last operational fixed gear, open cockpit biplane produced in Britain—was a powerful fighter. Developed from a prototype that lost the RAF contract to the Bristol Bulldog in 1927, the Gauntlet became the Bulldog’s replacement seven years later after it mounted the 570hp Bristol Mercury VIS2 radial engine. The robust, refined design had a maximum speed of 230mph (370 km/hr) at 15,800ft (4,815m) and mounted a pair of Vickers .303 caliber machine guns in the fuselage.

The *1.Eskadrille’s* experience with the Gauntlet was marred by five tragic, fatal crashes (Note 3). A rather involved investigation found the cause to be a design fault coupled with material failure that on these occasions caused the inability to pull out of a dive. Consequently, by the spring of 1940, *1.ESK* had only 13 of the type on strength at Værløse airfield just west of Copenhagen.

By this time, the *Hærens Flyvertropper* applied camouflage to all their combat aircraft (no to *Flyveskolens* Tiger Moth trainers): it consisted of an ochre (greenish-yellow)/dark gray-green top coat and light gray-blue undersurfaces. The red and white Danish roundel was located in the usual six positions and Danish national flags were applied to the fin/rudder and on the top and bottom of the tailplanes. The serial number—formerly in large black letter-numerals on aluminum doped examples—was placed at the top of the rudder in small white numbers, without the letter “J”.

2.ESK—Established 1 November 1932 when the only operational squadron—at that time flying the remainder of the 18 Fokker C.Vb’s—was redesignated. In July 1937 two Fokker D.XXIs (“type IIIJ”; serialed “J-41” and “J-42”) were purchased from the factory in Holland. A license for Danish production was also acquired and the *Værksteder* built ten additional examples (“J-43 through “J-52”) in 1939/40.

These aircraft were powered by the 825hp Bristol Mercury VIII nine-cylinder radial engine and armed with two indigenously-designed DISA 8mm machine guns mounted atop the fuselage. One example (“J-42”) was experimentally fitted with Madsen 20mm cannon in underwing pods.

The *2.ESK* commenced conversion to the D.XXI in late 1939. All 12 of the fighters were delivered but the unit was not fully operational on the type by the time Denmark was invaded. On that date, *2.ESK* had eight D.XXIs (as well as three C.I trainers) operational. Once hostilities in Europe erupted, these aircraft were finished in olive green/khaki camouflage on top with light blue undersides.

3.ESK—Established 1 November 1932. Lack of resources available to equip this unit initially resulted in it being formed on the remainder of 15 *O-Maskinen* dual-seat training aircraft that had been originally supplied to the *Flyverskole* at Kløvermarken. These were replaced in 1933/34 with the arrival of the Pegasus-engined C.Ve, the Fokker-built and the 11 license-built C.Ve’s

all going to *3.ESK*. Early in 1940 a camouflage finish similar to that used on the Gauntlets of *1.ESK* was applied. By the end of March, the unit had nine C.Ve’s, two C.Vb’s, and a de Havilland DH.90 Dragonfly twin-engine biplane light transport on strength.

4.ESK—Never formed due to financial constraints.

5.ESK—Established in 1935 on the second batch of Jupiter-engined C.Ve’s. By the time of the German invasion it had a strength of a dozen C.Ve’s and a pair of C.Vb’s.

Flyverskole—Having been a part of the Danish air service since its inception, the flying school had progressed from its initial compliment of left-over WWI types to a dozen deHavilland DH.82 Tiger Moths for initial training, five *O-Maskinen* for advanced training, and a single DH.90 Dragonfly for light transportation duties.

Divided organizationally, as was the army, between Jutland and Zealand, the *1.ESK* and *3.ESK* were assigned to the *Sjællandske Flyverafdeling* to support the Zealand Division and *2.ESK* and *5.ESK* formed the *Jyske Flyverafdeling* to support the Jutland Division. Physically, however, the entire army air arm was concentrated at *Værløselejren*. Because work at Kløvermarken on building new aircraft was accelerated, and in order to get more room for the workshops, the *Hærens Flyvertropper* staff moved from Kløvermarken to *Værløselejren* on 1 March 1940, joining its school and operational units.

While equipped and trained to meet a threat from their belligerent southern neighbor, in the final days before the German invasion the *Hærens Flyvertropper* was hamstrung by political constraints. The government relied on the assurances of the German-Danish Non-Aggression Treaty of 1939. Signed on 31 May in Berlin, the document confirmed ‘the existing friendly relations of neighbourship’ and the Danish government took extraordinary steps to preserve this illusion.

Since deployment of the four combat squadrons to their wartime dispersal airfields to support the army’s two field divisions could be seen as preparation for war, it was feared that doing so would provide a provocation for the Germans to attack. Therefore, the units of the *Hærens Flyvertropper* were gathered at *Værløselejren* until the fateful day, when it was too late.

End Notes

1. The Danish army air service had its own aircraft designation system. It consisted of a Roman numeral followed by a letter. The letter indicated the role of the aircraft:

J for *Jager* (Fighter)

R for *Rekognosceringsplan* (Reconnaissance ‘Plane)

S for *Skoleplan* (Trainer)

O for *Overgangsplan* (Advanced Trainer)

M for *Mølleplan* (Autogyro)

The Roman numeral indicated which type, in sequence, fulfilled that role. For example:

IJ was the Bristol Bulldog

IJJ was the Gloster Gauntlet

IIIJ was the Fokker D.XXI

Note: The first Danish fighter aircraft was actually a Fokker D.VII, serialed “F-1” purchased from *Dansk Luftrederi* in 1922, along with a damaged one as a source for spare parts. It was written off after crashing at Kastrup in September 1927. (H3: 97)

2. The three surviving Bristol Bulldog IJs were all retired to storage by 1940, to be scrapped two years later during the German occupation.

3. The five fatal crashes of Gauntlets were:

<u>Date</u>	<u>Serial</u>	<u>Location</u>	<u>Pilot's Name</u>
4/27/1937	J-26	Øresund	Cpl V. C. Lauritsen
2/12/1938	J-35	Bregnerød	2Lt Asger Klüver
7/6/1938	J-27	Kore Sand	Maj J. Kjelstrup
3/19/1939	J-33	Snekkerup	Cpl K. R. Jensen
8/8/1939	J-31	Kallesmærsk Hede	2Lt T. B. Thomsen

Douglas C. Dildy (SAFCH #844) 3813 Madrid Dr NE, Albuquerque, New Mexico, 87111 and Kai Willadsen (SAFCH #863) Sankt Jorgensgade 16, 4200 Slagelse, Denmark

Captions for photos on pages 2, 17-20. All photos are from the Thijs Postma Collection, unless otherwise noted.

1: Line-up of Type IO "O-Maskinen" at the ready. While the type was developed as an advanced trainer, it retained a rudimentary combat capability as an observation aircraft, as evidenced by the flexible gun ring mounted to the rear cockpit. The 15 Type IOs were initially assigned to the *Flyverskole* ("Flying School") at Kløvermarken in 1925-26, but also equipped the *3.Eskadrille* at Værlose in 1932-33 while the new unit was awaiting its new Fokker C.Ve reconnaissance aircraft. Note that the cowlings have been painted a darker color on operational aircraft.

2: "Type IO" number O-63. The aircraft fabric was coated with silver dope and the metal panels are painted a dark - probably a dark green - color. Prior to 1933 the serial number was carried on the rudder with an "O" above the number. Note the lack of cooling vents in the cowling panels and gun mounting ring in the rear cockpit.

3: "Type IO" number O-65. After sometime in 1933 the serials were moved, in large letters-numerals, to the fuselage sides. About this time the *O-Maskinen* reverted back to the *Flyverskole* as advanced trainers. Note that the metal panel top decking has been painted the same color as the cowling and that the rear cockpit has been reconfigured for training with the removal of the gun ring and installation of a small windscreen for the instructor.

4: Fokker C.Ve "R-21" during engine run at Schiphol. The initial batch of Danish C.Ve's ("Type IIR") were powered by a 550hp Bristol Pegasus IIM-2 radial engine, the heavier engine requiring it to be mounted well ahead of the firewall (the break between the dark metal and silver fabric surfaces) to maintain the correct balance (i.e., center of gravity). This aircraft was delivered to Værlose in July 1933 and became the pattern for the *Haerens Flyvertropper* Workshop to build another 11 examples, supplying them to *3.ESK* for operations.

5: Type IIR number "R-21" front quarter view. This perspective provides a good look at the distinctive front of the nine-cylinder Pegasus radial and the polished narrow-chord Townend Ring, as well as the strutting used on Danish C.Ve's.

6: Five IIRs refueling during a cross-country formation flight to Soesterberg airfield in Holland. The "Type IIR" was the second version of the C.Ve produced by the Army Aviation Troops Workshop. It retained the original C.Ve M/33 fuselage and wings but was powered by the 440hp Bristol Jupiter VII radial engine for commonality with the new Bristol Bulldog fighters being acquired at about the same time. Note the Dutch

Fokker C.Vd "304" and F.VII "800" in the edges of the photo.

7: The five Danish Type IIRs flying in formation over Holland. Apparent in this view are the small serial numbers on the rudders and the dark colored upper fuselage decking panels.

8: In March 1931 the *Haerens Flyvertropper* acquired four Bristol Type 105D Bulldogs ("Type IJ"). A very effective and popular "between the wars" fighter, the Danish Bulldogs were initially serialled J-151 - J-154 but, as seen here, these were changed to J-301 - J-304" after March 1932. In 1933 the Bulldogs' serials were changed to J-1 - J-4 were placed in large characters on the fuselage sides forward of the national insignia.

9: Three Danish IJ Bulldogs in flight. Here it is apparent that the interplane and landing gear strutting was painted a dark - probably black - color. Also note that, as evidenced by the breech bulges above the lower wings, the Madsen .300 caliber machine guns are mounted much lower on the fuselage sides than on RAF and other Bulldogs. These, along with seven *O-Maskinen* IIO single-seat "fighter trainers" equipped *1.Eskadrille*, the first fighter squadron in the Danish army air arm.

10: In 1935 the *Haerens Flyvertropper* began acquiring the much more powerful Gloster Gauntlet ("Type IJJ"), one of the last open-cockpit biplane fighter designs. After acquiring this aircraft (ex-RAF K4081, serialled "J-21") as a pattern the Aviation Troops Workshop produced another 17 examples, serialled J-22 - J-38. Note the wheel spats, the dark shade of the metal fuselage panels, and the tiny "J-21" labels on the landing gear and interplane struts and at the base of the vertical fin.

11: Type IJJ number J-22. This aircraft was the *Værksteder's* ("Aviation Troops Workshop") first example of producing the Gloster Gauntlet under license. Normally a robust and effective biplane fighter, the Gauntlet had a design flaw which, when coupled with a materiel failure, resulted in the inability to recover from a dive. This cost the lives of five Danish pilots and the loss of five examples of this type.

12: Five Type IJJs flying in formation. These are aircraft J-28, J-29, J-30, J-32 and J-37. These all survived peacetime training operations and were warming up for dispersal flights on 9 April 1940 when the Germans attacked. J-32 was destroyed in that attack and J-28, J-29 and J-30 were all damaged. The ultimate fate of the surviving Danish Gauntlets is unknown.

13: Danish prototype Fokker D.XXI ("Type IIIJ") J-41. The Danes acquired their first D.XXI in July 1937, even before the Dutch army air arm, resulting in several differences. The type was armed with two DISA 8mm machine guns firing through the propeller (the ends of the "gun tubes"

can be seen inside the cowling), instead of the Dutch-standard four machine guns in the wings, and had a cine-film camera mounted beneath the right wing.

14: Another Fokker factory photo of the original D.XXI/Type IIIJs number J-41. The Danish versions were powered by a 760hp Bristol Mercury VII radial initially turning a two-blade metal propeller. This engine is recognized by the rocker arm bulges in the cowling surface, as is evident here. J-41 became the pattern aircraft for Danish license production.

15: Fokker provided two D.XXI/Type IIIJs to the *Haerens Flyvertropper*, J-42 being the second example. J-42 was used for several modifications and tests. As seen here between test flights to evaluate the installation of Madsen 20mm cannon, J-42 was reequipped with a three-blade propeller.

16: The *Værksteder* produced another ten IIIJs, serialled J-43 - J-42. Here the first example of a Danish-made D.XXI is conducting an engine run, with the cowling removed for maintenance. Note the lack of landing gear pants and spats, and the antenna mast above the cockpit canopy, indicating this was one of the few examples equipped with a radio.

17: Type IIIJ serial J-42 was used for the experimental installation of Madsen 20mm cannon, mounted beneath the wings in large pods. The DISA 8mm gun tubes inside the cowling are plainly evident in this view, as is the presence of one of the Danish engineers overseeing the tests.

18: Close-up of the Madsen 20mm cannon installation on J-42. Here J-42 is being refueled between evaluation flights. Note the mechanic standing on the step built into the wheel spats, the white-letter Dunlop tires, and tire inflation hole in the spats outboard side. Also of interest is the ring-and-bead gunsight.

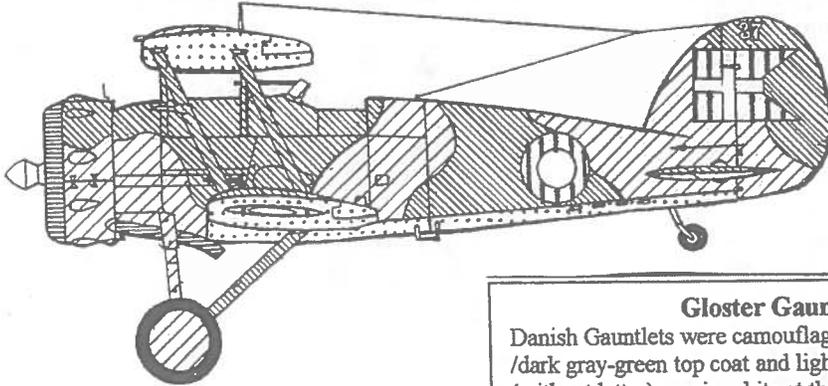
19: Type IIIJ number J-44 in warpaint. With the increasing tensions and approaching hostilities, the *Haerens Flyvertropper* prudently camouflaged their combat aircraft. They were painted an olive green and khaki combination on top with very light blue undersides. The serial number was carried in small black letter-numerals low on the vertical fin. Note the smooth cowling housing the more powerful 825hp Mercury VIII in the Danish-built IIIJs, as well as the camouflaged C.Ve with the modified "angular" rudder in the background.

20: Type IIIJ number J-47 in flight. It is evident that the Danish camouflage was essentially a "mirror" pattern on the fuselage sides where both carried virtually the same wavy combination of olive and khaki. Also note that in this photo J-47 lacks the lower landing gear "trousers" or "pants" leg fairing covering the oleo strut.

AIRCRAFT OF HÆRENS FLYVERTROPPER

1.Eskadrille

Gloster Gauntlet (IIJ) Fighter J-37

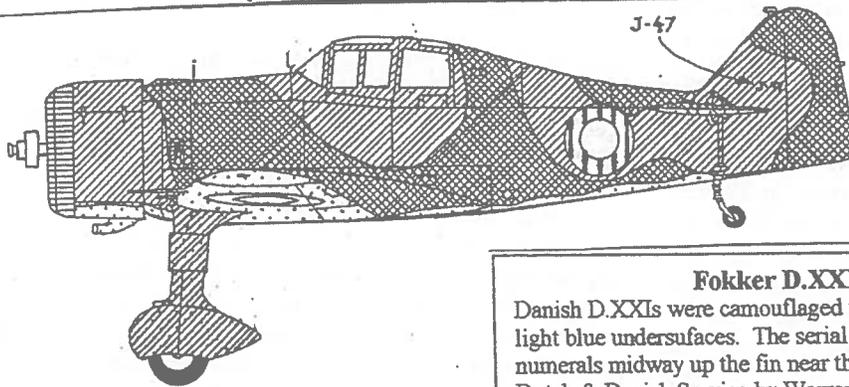


Gloster Gauntlet (IIJ) J-37, 1.Eskadrille

Danish Gauntlets were camouflaged in a wavy pattern of ochre (greenish-yellow) /dark gray-green top coat and light gray-blue undersurfaces. The serial number (without letter) was in white at the top of the rudder, above the Danish pennant. SOURCE: *Flying Colors* by William Green and Gordon Swanborough, pg 47.

2.Eskadrille

Fokker D.XXI (IIIJ) Fighter J-47

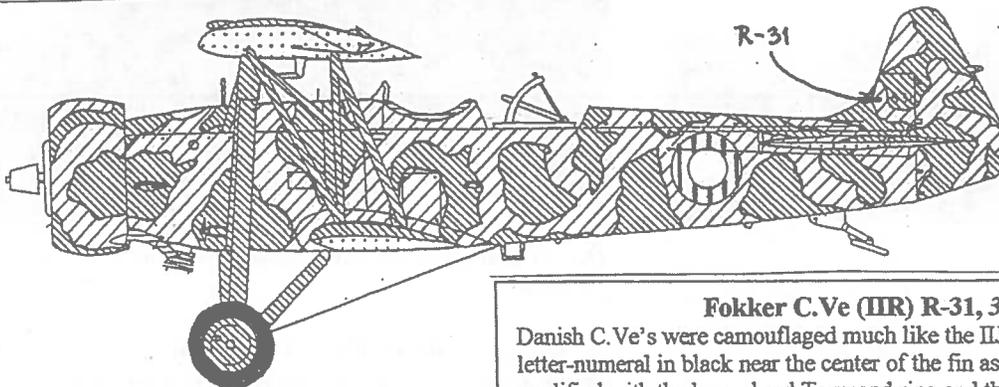


Fokker D.XXI (IIIJ) J-47, 2.Eskadrille

Danish D.XXIs were camouflaged with olive green and khaki topsides and very light blue undersurfaces. The serial number was carried in small black letter-numerals midway up the fin near the rudder post. SOURCE: *Fokker D.XXI: Dutch & Danish Service* by Warren Eberspacher, pg 31.

3.Eskadrille

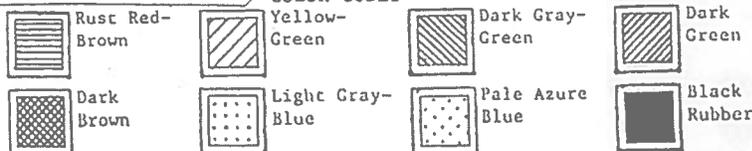
Fokker C.Ve (IIR) Reconnaissance Biplane R-31



Fokker C.Ve (IIR) R-31, 3.Eskadrille

Danish C.Ve's were camouflaged much like the IIJ Gauntlets but with the serial letter-numeral in black near the center of the fin as on the IIIJs. This example was modified with the long-chord Townend ring and the angular rudder providing greater surface area. SOURCE: *Air International*, October 1979, pg 166.

COLOR CODES



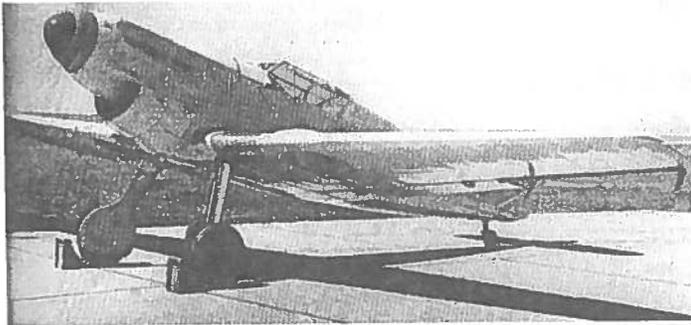
The Early Messerschmitt Bf 109 V Models

Paul Whelan

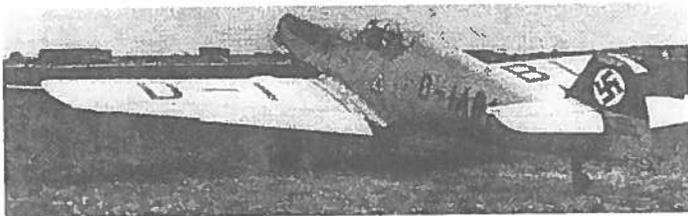
There has been a great deal of confusion and speculation over the years on which were the early Bf 109 V Models, and which of these were sent to be tested by the Legion Condor in Spain during the Civil War. In November of 1936, three of the V Models were packed up and sent along to Spain. Some authors have over the years even said that four prototypes had been sent. Hannes Trautloft in his memoirs¹ clearly mentions only three having been received, and we know at that time only five prototypes were in existence. These were the V-1, 3, 4, 5 and 6, the V-2 having crashed on 1 April 1936.

The exact V models sent to Spain were the V-3, 4 and 6, and while some authors continue to mistakenly claim that the aircraft 6-1 flown by Trautloft was the V-3², photos recently up for auction on E Bay plus one other on the internet definitely put their theory to rest. In these photos of 6-2 one can clearly see the early preproduction windscreen with its one-piece side panels unique to the V-3³ and also the bulges in the upper wing surface to accommodate the larger balloon tires used on the first three prototypes. This thus proves that Trautloft flew the V-4, and that the V-6 model became 6-3. In this article we will examine the first six V- Models to see what their differences and similarities were in hopes of finally ending the confusion.

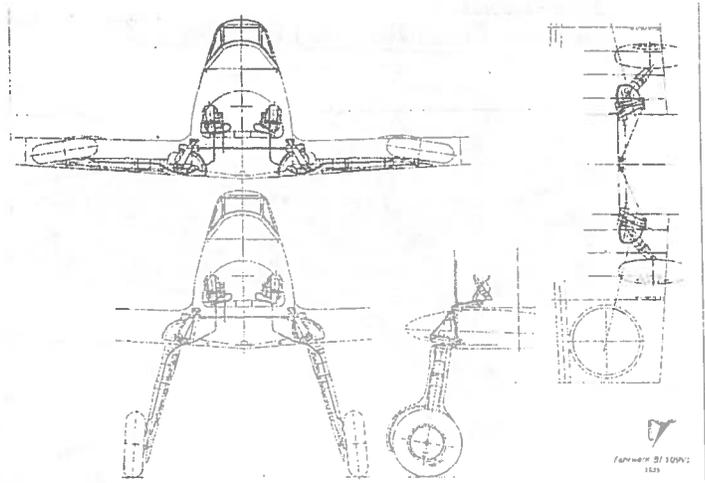
V-1 Werk Nummer 758 Coded D-IABI, this was the first Bf 109 built. It was fitted with a British Rolls Royce Kestrel II engine of approximately 583 H.P. and it first flew on 28 May 1935. This aircraft had an under the nose radiator similar to that used on subsequent Bf 109 thru the D model, but the shape was more rounded at the bottom. The Pitot tube oddly stuck straight out of the port wing tip and the Turn & Bank indicator nozzle was mounted on the port side of the fuselage just forward of the windscreen as can be seen in the photo.



Note the Pitot tube sticking straight out of the wing tip and also the Turn & Bank indicator nozzle. Incidentally I have seen this photo used in some books and also on an Internet site where it has been accidentally reversed. NASM



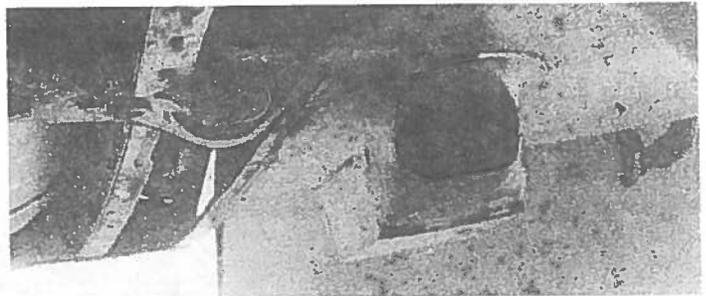
Here the wing bulges for the larger tires can be seen



The drawing shows the reason the bulges were required in the upper wing surfaces

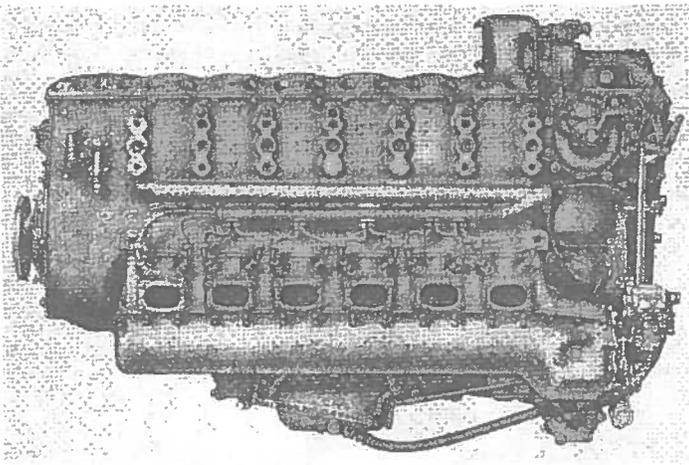
Not seen in the photos above was the oil cooler inlet on the leading edge of the starboard wing at the root, which was also unique to this model. This aircraft remained in Germany and continued test flights until eventually being scrapped.

V-2 Werk Nummer 759 Coded D-IILU, This aircraft was the first fitted with the new Junker Jumo 210A inverted 12 cylinder engine, which produced 680 H.P. and first flew on 12 December 1935. It also had its Turn & Bank nozzle mounted just forward of the windscreen, but on the starboard side, while the Pitot tube was moved the below the port wing approximately 4.5 feet from the tip. The position of the oil cooler was also changed to beneath the port wing at the junction line with the fuselage.



Here is shown the oil cooler intake fairing at the wing/ fuselage junction

As was noted above, this aircraft crashed on 1 April 1936 was later scrapped, so was not one of the models used by the Legion Condor.

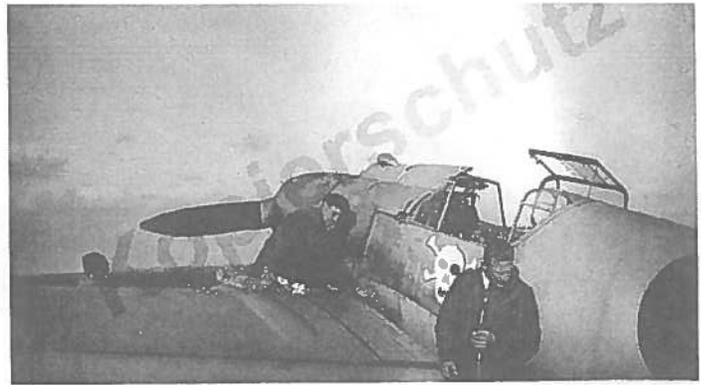


V-3 Werk Nummer 760 Coded D-IOQY, engine used was the Jumo 210C rated at 700 H.P. V-3 first flew on 8 April 1936 and when photographed on a flight test in Germany, the spinner was of a blunted style and gave the impression that it carried a motor mounted weapon, but when sent to Spain, it now had a cone type spinner and was only equipped with two MG 17s mounted in the upper forward fuselage.



Here can be seen the prototype windscreen with one piece side panels used only on the V-3*. All others including the V-1 and V-2 used the two-piece windscreen side panels used on production models. Here also can be seen the pitot tube hanging beneath the port wing. The top wing bulges are a little harder to discern due to the angle the photo was taken from. Illust. from Ritter Von Schleich by F. Lange *Note there is a photo of D-IUDE which also shows a one piece side panel, but this photo has been so retouched and is undoubtedly a propaganda photo of the V-3 with different letters, as the real D-IUDE was not delivered to the Luftwaffe until mid February 1937.

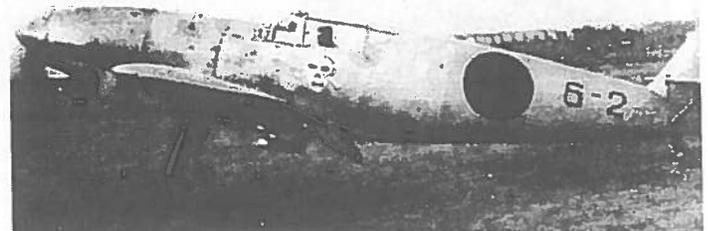
This was to have been the aircraft Trautloft was to fly, but when he arrived at Tablada airfield in Seville, he found that Fw. Erwin Kley had crashed it. Therefore another of the V models had to be readied for him. Later after the V-3 had been repaired, it was coded 6-2 and had a Scull and crossbones painted on the port side. This aircraft was flown by Lt. Paul Rehahn and would later crash on take off from Caceres on 11 February 1937. This time the aircraft was destroyed and Rehahn killed.



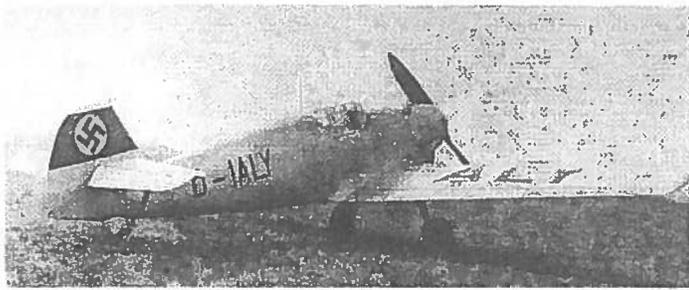
Here the bulges on the upper wings can be seen also the V-3s unique one piece side panels of the windscreen. E Bay



Here we see the aircraft from the front and can see the cone shaped spinner. E Bay



V-4 Werk Nummer 878 coded D-IALY, and was powered by the Jumo 210B. This aircraft is listed as the prototype for the B model, and differed from the earlier models by being the first to use the new narrow high-pressure tires that did not require the upper wing bulges. But it did still share some things with the V-2 and 3, the most noticeable being the use of the Turn and Bank indicator nozzle still sticking off the starboard side of the fuselage forward of the windscreen. This sensor would be moved on later V and production models to inside the panel directly behind the cooling radiator. The Pitot tube hanging beneath the port wing was the same as on all other 109s from the V-2 thru E model. Also the oil cooler was still located next to the port wing junction, this would later be moved outboard approximately 2 feet. Also the top front of the cowling was more rounded, flowing into the propeller.

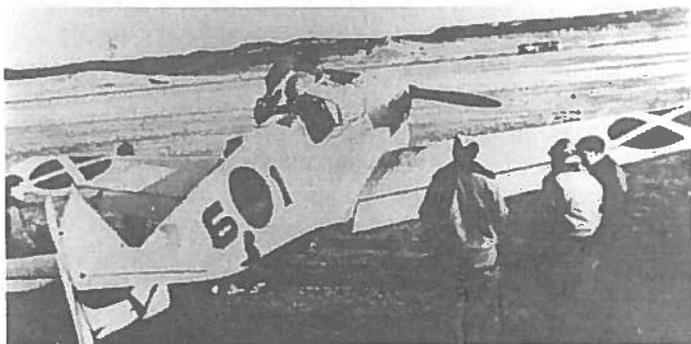


Here we see the V-4 and just forward of the windscreen the Turn & Bank nozzle is discernible as a light line due to Sun hitting it but the shadow of it is also seen as two lines. This seems to have been the last to mount the sensor here.

This was the aircraft readied for Trautloft and coded 6-1, which he first flew on 14 December 1936 after several days of engine problems. Trautloft after a period of testing the V-4, was sent in mid January 1937 to the Madrid front and flew it along with the He 51s as part of 3J/88. Trautloft had a Green heart painted on both sides of the aircraft to represent Thüringen the Green Heart of Germany. When at the beginning of March 1937 Trautloft left Spain, this aircraft was taken over by Herwig Knüppel who was then CO of VJ/88. There have been and continue to be a lot of authors who say the three V models were returned to Germany after testing. Yet there are photographs of both 6-1 and 6-3 with the new style numbering, which would prove that they remained in Spain at least until August 1937 and maybe longer.

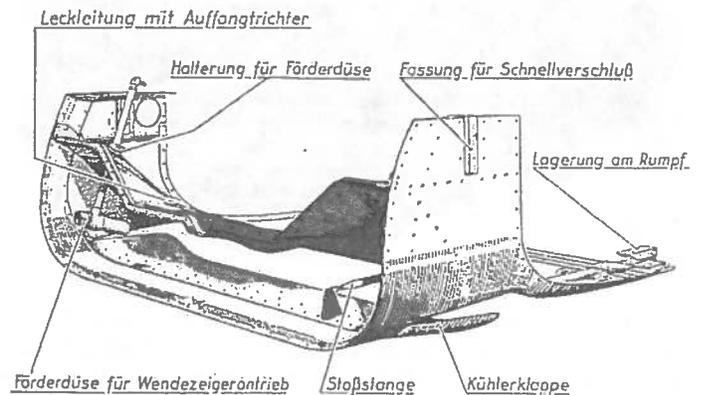


Trautloft standing besides his aircraft. Note the over sized black disc. Trautloft

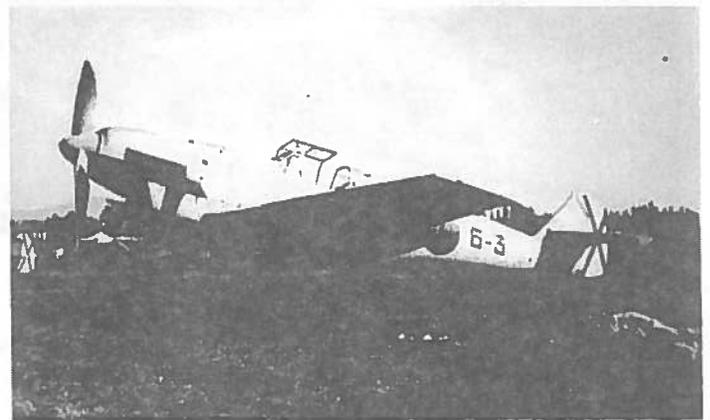


This photo shows 6-1 in the new style numbering adopted in the later summer of 1937 Arraez

This aircraft remained in German for flight and weapons testing, and was still listed for tests in 1938. On this and subsequent models the Turn & Bank indicator nozzle was moved to inside the panel directly behind the radiator as shown in this drawing from LDv.557 Teil 2.



V-6 Werk Nummer 880 code unknown. This is possible as this aircraft was rushed to completion making its first flight on 11 November 1936, only days before being sent to Spain with V-3 & 4. The engine used on this model was the Jumo 210D, which was then used on all Bf 109B & D types, the C model using the Jumo 210G with fuel injection. This aircraft was operational in Spain at least until the fall of 1937, and was flown for a time by Hennig Strümpell. There is not much information about its operational use, we know from a photo in Jet & Prop #12 that due to a stopped engine problem it had a wheels up landing.

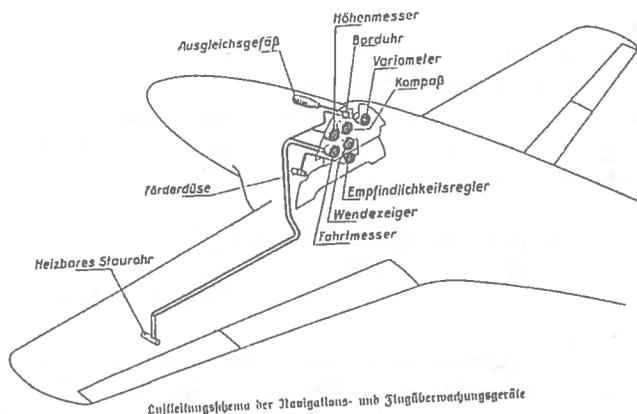


The V-6 model as initially flown in Spain January 1937. C. Ricci



Another photo of 6-3 which now carries the Top Hat of 2J/88 Spanish Air force

V-5 Werk Nummer 879 Coded D-IIGO. First flight was on 5 November 1936. It was also powered by a Jumo 210B engine.



Drawing from LDv.557 Teil 3 showing the Pitot tube and gages and the Turn & Bank nozzle and gage

So as we can see, the first V models had their differences and their similarities, and it is hoped that this article will help to clear

up the confusion, especially as regards those sent to Spain in November 1936.

1. H. Trautloft, Als Jagdflieger in Spanien, Albert Hauck & Co. Berlin 1939
2. There is even an internet site where mention is made that the V-3 model 6-2 had its wings and windscreen changed and thus was renumbered 6-1. All this supposed changing to allow for what they call the Pitot tube on the side of the fuselage, which was in fact the Turn & Bank sensor and which was also on the V-4.
3. Photos of the cabin of V-2 as shown in Messerschmitt Bf 109A-E by Radinger & Schick, clearly show the windscreen side panels as two piece as was the V-1 and V-4 thru E model, so it seems that only the V-3 had one piece side panels.
4. In Mombeck's Jagdwaffe vol. 1 part 2, there is a photo of 6-3 with the new style numbering and metal propeller.

Losses of Bf 109 in Spanish Civil War

Svatopluk Matyáš

[Author's note: In 1998 I published my book, *Fighters over Spain 1936-1939*, (in Czech). This book was written in cooperation with P. Whelan, I. Gordeljanov, B. Bridgeman, J. Falco and G. Massimello. This article surveys Bf 109 losses in SCW. I know it is incomplete, nevertheless I hope that it will be helpful to all colleagues interested in this theme. Thank you in advance for any corrections or additions to this information.]

1. Bf 109V 3 10/12/36
Tablada
At attempt about first start occurred engine failure. Plane broken up, pilot Uffz. E. Kley unhurt.
VJ/88
2. Bf 109V3 6-2? 22/02/37
Caceres
Repaired after first accident. Lt. P. Rehahn perished when his plane in altitude 400 m became uncontrollable and crashed. H. Trautloft writes, that Rehahn shortly after takeoff from Caceres crashed perpendicular to ground from unknown
VJ/88
3. Bf 109B-1 11/0737
Avila Battle of Brunette
Uffz. N. Flegel force-landed owing to engine failure; broke undercarriage and destroyed plane. E. Abellan Agius states plane was hit in aerial combat over Brunette.
2.J/88
4. Bf 109B-1 6-11 12/07/37 Villaverde
Battle of Brunette
Uffz. G. Honess was shot down in aerial combat and crashed from altitude 2500 m, pilot perished.
2. J/88
Possible conquerors: 1. American F. Tinker, but date does not agree for Tinker states 13. 7. 2. Soviet pilot P. Butrym (S. Ambrosyov). 3. Gunner of R-Z
5. Bf 109B-1 17/07/37
Battle of Brunette
After aerial combat with I-16, Hptm. G. Handrick force landed from engine failure in Escalonac. Pilot unwounded. 2. J/88
Victor could have been F. Tinker, who this day claimed a Bf 109. But Tinker wrote in his memories, that motor of Bf 109

- finally burst into flames and pilot took to his parachute. A. Logoluso says Tinker could have shot down near Madrid another Bf 109 with unknown German pilot, who jumped by parachute, was captured, and later exchanged.
- 6, Bf 109B-1 6-14 18/07/37
Battle of Brunette
Uffz. Harbach was shot down in aerial combat with I-16. Baled out and landed unwounded in own territory.
2. J/88
7. Bf 109B-1 6-8 13/08/37
North front in area Santander
8. Bf 109B-1 6-9 13/08/37
Oblt. G Lutzow states in his diary that 6-8 and 6-9 can not be repaired. Fuselage of 6-8 broken on two parts at landing accident (7/37).
2. J/88
9. Bf 109B-2 6-30 16/08/37
North front in area Santander
Ofw. R. Seiler overturned machine on landing at Alar d'el Rey (Nogales), but suffered only slight bruises. (6-30 is also connected with pilot W. Staage in the month of July. But in July 1937, the B-2 probably were not yet operational: Note by Matyas).
2. J 188
10. Bf 09B-1 6-7 02/09/37
North front in Asturias
Fw. N. Flegel swung on landing and broke up plane on airfield La Albericia in Santander (Santander-Ouster). This field was situated on gentle slope and it caused many problems on take-off and landing. According to Abellan accident occurred after aerial combat with I-16. Plane repaired?
2. J/88
11. Bf 109B 05/09/37

Asturias

Lt. W. Adolph overshot and crashed on steep slope behind airfield in Llanes. Plane irreparable, pilot unwounded. Short runway on this airfield caused great problems on landing. 1. J/88

12. Bf 109B 15/09/37

Bay of Biscay

Machine of Fw. O. Polenz damaged in aerial combat with I-15. According to H. Harder, Polenz was attacked by three adversaries and made error, when he accepted maneuver duel. He got hit three times and had to return home.

1. J/88

13. Bf 109B-1 6-12 15/09/37

Asturias

Uffz. H. Stange overturned and aircraft broke up. (7 planes were destroyed on landing at airfield Ponteijos near Santander. 2. J/88

14. Bf 109B-1 6-4 autumn?

15. Bf 109B-1 6-5 (see 14)

These planes, worn out in combat on in the North, were dismantled and sent to the air base at Leon (where the Legion Condor had its main base and workshops) to serve there as store of spare parts (J. Arraez). Logoluso wrote to Matyas, that 6-4 was written off about November 1937 at Leon, after an accident.

16. Bf 109B-1 6-15 04/12/37 Bujaraloz

Battle of Terrell

Fw. Polenz force-landed on thr road from Azaila to Escatron and was captured. The almost undamaged plane fell into hands of Republicans.

1. J/88

Possible causes: 1. Polenz was shot down in aerial combat. 2. According to Abrosov - Polenz was shot down by Soviet pilot A. Gusev in I-16. Gusev followed Polenz fown and patrolled over him until the arrival of Republican soldiers. 3. Polenz had to land because he run out of fuel. This possibility is very probable for his machine was intact except for the wing that was slightly damages on landing.

17 Bf 109B 05/12/37

Battle of Teruel

Ofw. L. Sigmund was shot down and wounded in aerial combat with I-15. He escaped by parachute, but landed in Republican territory and was captured. Carried to hospital in Barcelona.

1. J/88

18. Bf 109B 12/01/38 Battle of Teruel

Abrosov assumes that the Bf 109 damaged by a gunner of a SB-2, was the plane of W. Schellmann. The plane had a damaged propeller and holes in the gasoline and oil tanks. Schellmann himself admits that during his first aerial combat, when his plane was hit, he panicked, ran away and lost contact with his squadron. After landing, he counted 7 hits on his plane.

1. J 188

19. Bf 109B 07/02/38

Battle of Teruel

ObLt. W. Balthasar shot down four SB-2, but his plane got a number of hits by SB-2, I-16, and from machine-gun fire from ground. With greatest effort, he over flew back over the front and landed in a meadow. He wrote that his Bf 109 was "riddled" and he himself was theoretically dead. Plane written-off. 2.

J/88

20. Bf 109B 11/03/38

Sastago Offensive in Aragon

ObLt. A. Graf zu Dohna was shot down on his second sortie in dogfight with an I-16 in the area of Caspe. He crashed into the river Ebro and perished.

2. J/88

Possible conqueror: Spaniard J. Bosch of 4-21

21. Bf 109B-2 6-20 04/04/38

Cross-country flight from Zaragoza to

Lanaja

Lt. F. Awe perished in a mid-air collision with Uffz. A. Borchers. The propeller of Borchers' plane severed Awe's machine into two parts and cut off Awe's head. Awe was found by rescue crews in the mangled wreckage (R. Proctor).

1. J /88

22. Bf 109B-2 6-21 04/04/38

Cross-country flight from Zaragoza to

Lanaja

Borchers force-landed after collision with Awe. His plane overturned, but suffered only slight injury and was saved by some farmers. According to Proctor, the rescue crew pulled Borchers out after much difficulty. He was terribly shaken, but not seriously injured. Both planes were completely destroyed.

1. J /88

23. Bf 109 I 14/06/38

Lt. H. Henz was shot down by I-16 south of Castellon. He force landed on the north bank of the river Mijares in enemy territory and was captured. His plane was then set on fire by six Bf 109 to keep it from falling into the hands of the enemy. Even so, according to Tarazona, Republicans obtained from the plane undamaged carburetor, machine guns, altimeter, and oxygen breathing set.

1. J/88

Possible conquerors: 1. Soviet pilots P. Basmakov, N. Livanskij and A. Stepanov in cooperation with Spaniards shot down three Bf 109 (Abrosov). 2. Spaniard A. Arias claimed individual victory over Bf 109, it was later confirmed as probable. (Logoluso - Claims of Arias).

24. Bf 109B-2 6-33 14/06/38

Lt. E. Priebe was shot down and badly wounded (bullet in lung, holed left shoulder, cracked shoulder blade). by accurate fire from an I-15. Even so, he flew over the front and force-landed on the airfield at Villafames. After landing, he lost consciousness. Carried to field hospital in Zaragoza, where doctors removed the bullet. He was sent to Germany for further treatment.

1. J /88

25. Bf 109 30/06/38

Fw. Alfred Held destroyed his plane in a forced landing. He was severely injured. (P. Laureau).

2. J/88

26. Bf 109 23/07/38

La Cenia

The plane of Uffz. Boer was damaged in aerial combat. W. Molders says bullet passed through wing and hit undercarriage. Boer belly-landed and "erased" his plane. According to Abrosov - Boer was shot down by Soviet pilots and force-landed on his territory in area of Viver.

3. J/88

27. Bf 109 23/07/38
 Lt. H. Tietzen landed with hits in spar of wing, which had to be replaced. Molders says to Boer's (see 26) and Tietzen's problems: " The fellows have to learn to pay more attention."

1. J/88
 28. Bf 109B-1 6-6 28/07/38
 (date according to Molders)

Battle of Ebro
 Machine of Uffz. F. Jaenisch (Janisch) was over enemy territory when he was probably hit by AA fire that damaged the supercharger. The pilot continued to fly over the front, but on landing on the airfield at Tortosa, he crashed and destroyed the plane. Proctor states the date was 27/07/38 when the plane crash landing SW of Tortosa. The plane was completely wrecked, but pilot escaped without injury.

3. J/88
 29. Bf 109 01/08/38 Battle of Ebro

After aerial combat with an I-16, Lt. H. Tietzen had to force-land on his territory. Laureau places the landing in no man's land 12 km NW of Gandesa.

1. J/88
 30. Bf 109 05/09/38 Battle of Ebro

Molders states that Lt. M. Lutz was attacked from behind by an I-16 and was hit in the supercharger. With a smoking engine, he flew back over the front and his aircraft was destroyed on forced landing. He suffered a slight wound to the head. Molders emphasizes: "He was an incredible lucky, boy." Proctor writes that Lutz's machine was badly damaged during a desperate fight NE of La Cenia. Although wounded, he managed to break off the engagement and landed his plane at a recovery field. According to M. Zefirov, Lutz was shot down in aerial combat NW of La Cenia.

2 J/88
 Possible conquerors: 1. Spaniard F. Merono writes that he shot down the Bf 109 that had pursued and shot down F. Castello. 2. Soviet pilot V. Semenko, who (according to Abrossov) shot down one Bf 109.

31. Bf 109 09/09/38 Battle of Ebro

Lt. Lutz was shot down on his 25. sortie. According to his own narration, he got hit in the engine by an I-16 attacking with the advantage of height. With his engine misfiring and smoking, he flew back over the front and crashed in an olive grove. His machine was destroyed..

Note: The descriptions of Lutz being shot down on 5 and 9. September are very similar. It is possible that these are the same case, in error only in the date. Ries and Ring state 9/9 according to the narration of the pilot. Abrossov dates this event also on 9. September.

32. Bf 109 09/09/38 Battle of Ebro

Uffz. Kiening was attacked from below by an I-15 and crashed on forced landing. Molders situates landing near Batea and adds Kiening's machine had three hits in wing, one in radiator, and one in the oil piping. "It was enough," comments Molders.

3. J/88
 33. Bf 109 27/09/38 Battle of Ebro

Lt. H. Tietzen, after an aerial combat with I-16, had to force land with a bullet in the shoulder; the plane was damaged. Proctor writes that pilot of the Rata managed to turn in on Tietzen and rake his plane with machine-gun fire. Tietzen was hit twice in shoulder, but broke off the fight and, bleeding badly, made an emergency landing in a field not far from Gandesa. Laureau locates landing on field 1 km NE of Gandesa.

J / 88
 Possible conquerors: 1. Six Soviet pilots in I-16 at the head with S. Gricevec shot down one Bf 109 of 1. J/88 (Abrossov). 2. Merono writes, that one Bf 109 was shot down by Fernandez; he does give the complete name of this Republican pilot (Surname Fernandez is very frequent in Spain. Note of Matyas).

34. Bf 109 + 4 04/10/38 Battle of Ebro

One Bf 109 was destroyed and four damaged during the bombing of airfield at La Cenia by SB-2. Molders writes that six Me's were light damaged by splinters.

35. Bf 109D 6-67 04/10/38 Battle of Ebro

Lt. O. Bertram was shot down in aerial combat with I-16. He baled out and after landing was captured. Machine crashed N of Garcia.

1. J/88
 Possible conquerors: 1. Spanish Republican pilot S. Cortizo (4-21) by attack from below. 2. Soviet pilot Gricevec.

36. Bf 109 10/10/38 Battle of Ebro

on the second attack on a SB-2, the machine of ObIt. J. Gamringer was damaged by fire of bomber gunners. The pilot had to abandon combat and crashed on landing in own territory. According to Proctor, Gamringer had to defend himself against vicious attack by enemy fighters. He was hit in the arm, but escaped by dive out of the line of fire and made emergency landing. Christ, in War Diary, states that he made a smooth force landing with only a light injury of thr arm. 3. J/88

37. Bf 109D 6-74 05/11/38 Battle of Ebro

Gefr. H. Nirminger was slightly wounded during an aerial combat with I-16 and had to force-land. His plane was dismantled, and the wings, elevator, and engine were used as spare parts(?). Abrossov states date 6. 11.

1. J/88
 38. Bf 109 05/11/38 Battle of Ebro

Uffz. Marz was shot down in aerial combat S of Valencia and captured.

3. J/88
 39. Bf 109C 6-19 16/12/38
 40. Bf 109D ? 6-83 ? 16/12/38 (See 39)

Two Bf 109 were destroyed on ground during a bombing of airfield La Cenia by SB-2.

41. Bf 109 29/01/39
 Lt. K. Batticher was hit over Mollet by AA fire (machine-gun fire ?),. He crashed and perished.

2. J/88
 42. Bf 109E 6-98 06/02/39

Uffz. H. Windemuth was shot down over the airfield at Vilajuiga and perished. His plane crashed at steep angle on airfield. H. Ring wrote to Matyas that in Relacion de las bajas de personal de la Legion Condor it is stated that Windemuth "causa de la

muerte derribado y asesinado en el campo" (he was shot down and murdered on the airfield)

1. J/88

Possible causes: 1. He was-shot down by Spanish Republican fighter J. Falco, who succeeded take off with I-15. 2. He could be shot down by ground fire.

43. Bf 109E 16/03/39

44. Bf 109E

(see 43)

Two machines collided in air over Toledo. The pilots baled out. Lt. R. Strassner was slightly wounded. 3. J/88

Some further losses and possible losses (without sufficient data)

1. ? 6-3 third Bf 109 delivered to Spain (?). Damaged (broke up)during a forced landing (?).

2. B-1 6-13

Plane worn out, irreparable (07/37), or returned after repair?

3. B- 2 6-29

Collapse of undercarriage on landing because side wind, Avila, Battle of Brunette (?), or other airfield, North front (?). Version B-2 probably not intervened in the Battle of Brunette. (Note of Matyas).

4. B ?\

Pilot unable to lower undercarriage on landing. Plane badly damaged, but pilot walked away from crash, North front, 30/09/37.

5. B-2 6-21(?)

Collapse of undercarriage on forced landing, plane heavy damaged. Plane of Lt. R. Pingel (?), 2. J/88, North front, October 1937 (?).

6. B-2 6-32

Landed, probably with engine-off. Plane overturned on nose, left leg broken.

7. B ?

Engine failure, machine broke up (100%), 06/12/37.

8. B ?

During a cross-country flight. Uffz. A. Kurz crashed in Leon and perished 23/12/37. It is not sure, whether Kurz in this flight was flying a Bf 109 (Note of Matyas). Ries and Ring state A. Kurz was a member of J/88. But, in Verlustliste der Legion Condor Kurz is stated as member of K/88.

9. B ?

10. D 6-80

11. ? ?

Did not returned to base 13/12/38.

12. ? ?

One pilot was shot down, baled out, and drifted into Nationalist territory. Before two hours, he was in the hands of the Reds, 31/12/38, 1. J/88 (?).

13. E 6-100

Collapse of undercarriage on landing at airfield Sabadell; gear sank into badly backfilled hole made by bombing. Catalan campaign, end of Jaftdary 1939 (?).

14. E-3 6-111

Plane overturned on landing (?), propeller distorted, right leg light damaged.

15. E 6-96

Some authors state that 6-96 was shot down on 06/02/39 over Vilajuiga and H. Nirminger perished.. J. Falco writes that found in the crashed 6-96 was a parachute inspection form (Fallschirm Ausweis) in the name of Nirminger. Finally he locates two

places of fallen Bf 109 on his map of aerial combat @ (ij 06/02/39 over Vilajuiga. But Verlustliste der Legion)

Condor records Nirminger's death on 11/05/39 in an air accident in Leon. In his letters to Matyas, H. Ring insist the same and further writes that 06/02/39. in Vilajuiga crashed only one Bf 109 and machine 6-96 belonged to planes that were handed over to Spain. Ring sent to Matyas also a copy of the list of members 1. J/88 on 05/05/39 from S. Reents. Among pilots is stated H. Nirminger.

Note: Some of these losses can refer to losses already described in the first part of article, but without the code numbers of the aircraft.

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Legion Condor - Relaciones de fallcidos en la guerra civil espanola en accion de guerra, accidente y muerte pbr enfermedad, anos 1936 a 1939, Archivo historico del Ejercito del Aire, Villaviciosa de Oden

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Correspondence and consultation with: J. Falco, I. Gordelianov, A. Logoluso, J. Pino Alda, H. Ring, P. Whelan and M. Sandner (German expressions)

From our French friends at TMA (publisher of AirMagazine) come the announcement of several books that will be of great interest to SAFO readers: (1) The Breguet 19 saw service with many small countries including Belgium, Poland, Spain, Yugoslavia, Argentina, Bolivia, Venezuela, Brazil, Greece, Turkey, Croatia, Romania, China, and Japan. The book, *Breguet 19*, is in French and has over 250 photos, 80 color drawings, and scale drawings. It is currently available at the prepublication price of 44€ plus 6€ postage in Europe or 10€ for rest of world. After publication, the cost will be 50 € plus 8€ postage in Europe and 10€ for rest of world. (2) They are also carrying a new series from Poland called *Polskie Skrzydła*. The first four volumes are available; #1 Spad 61, Spad 51, & Wilbault 70; #2 Morane 406, Caudron 714, MB 151 used by Polish airmen; #3 PWS-10, Avia BH-33, PZL P-7; and #4 Hawker Hurricane used by Polish airmen. These 48-page booklets are in Polish and include photos, color drawings and scale drawings. They each cost 12€ plus 5€ postage in Europe and 8€ for rest of world. These publications can be ordered from: TMA, 75 rue Claude Decaen, 75012 Paris, France. For further information contact TMA by E-mail: airmagazine@wanadoo.

P-47 Thunderbolt no Brasil - In Brazil 1945-1957, by Mauro Lins de Barros, with illustrations by Sandro Dinarte, (2005), Adler Editora Ltda., Avenida Gomes Freire, 647 sala 905, ISBN 85-89015-09-2 (e-mail contato@adler-books.com.br)

It is my guess that many SAFO readers, like myself, can remember a time, not so long ago, when there was a general despair that little serious aero-historical work was being accomplished within Latin America. Recently, however, a number of magnificent additions to the literature have emerged, and this soft-bound, extremely well illustrated 80 page monograph qualifies.

The book is extremely well produced and, for those reluctant to take on a foreign-language title, the text is in both Brazilian (Portuguese) and English, including the photo captions. There are 84 black-and-white images, 15 color photos, and 21 color side views - including a wonderful Colors and Markings section which, for the first time (so far as this observer is aware) shows the different variations in the famous "Senta a Pua" unit insignia of the 1oGAVCa. It should be noted that the book documents the use of the aircraft in Brazil, and does not include the 1oGAVCa in Italy, although a number of the color illustrations show veteran aircraft of the unit as they appeared shortly after coming home.

A number of surprises are included. Photos starting on page 46, for instance, show aircraft of the 1o/4o GAV at Fortaleza with their distinctive "playing card" insignia on the nose cowls after transferring there in 1957. The first of the excellent color side views shows the single FAB P-47B-RE that, to the surprise of this reader, had part of its engine cowl painted yellow and red - certainly an excellent modeling candidate.

This book is highly recommended, and the author should be congratulated for a truly outstanding contribution to the literature on Latin American military aviation."

Dan Hagedorn (SAFCH #394).

Lockheed Hercules Production List 1954-2007 24th edition, by Lars Olausson. 160 pages, spiral-bound, A-5 size. Obtain directly from the author: Lars Olausson, Ornsuddevagen 234, S-530 32 Satenas, Sweden. In Europe £10.00 or €15 cash in envelope; rest of world US\$22 cash, airmail included. "No cheques, please: My bank charge is \$26!"

As regular as the swallow returning the Capistrano, Lars comes out with his yearly edition updating the listing of the history of every C-130

build. Those of you who have earlier editions, or remember the reviews that have appeared in SAFO, will need no introduction to this labor of love. However, for the uninitiated, here is a brief review: The majority of the book (the first 129 pages) is a listing of each C-130 with its history up to the present time. Appendices of greatest interest to SAFO readers re: "Government Operators and Owners (past and present)" and "Destroyed Aircraft".

In past reviews, I have followed the stories of the Kuwaiti C-103s. However, for this review I'll see what Lars has on the Iraqi C-130: From the list of "Government Operators" I find that Iraqi Air Force operates three C-130s: 3789, 3802, & 3903. Going to the production list, I found: 3789 is a C-130E first delivered to the USAF (6304); after serving with a number of USAF units it was transferred to the IraqAF (0601) as 'YI-302'. 3802 is also a C-103E; delivered to the USAF (6306), after serving with a number of USAF units it was transferred to the IraqAF 23Sqn (0502) as 'YI-301'. 3903 is also a C-103E; delivered to the USAF (6401); after serving with a number of USAF units it was transferred to the IraqAF 23Sqn (0502) as 'YI-303'.

Of course, there's a lot more information about the use of these C-103s in the USAF including units and color schemes at various times. However, I left this out to save time. I've also used the notation as in the book to emphasize the transparency of Lars' abbreviations.

Lars' **Lockheed Production List** is truly a labor of love. Don't you wish someone would do the same for your favorite aircraft?

[Editor: This edition of the Production list is available from the SAFCH Sales Service for \$15.00.]

Batailles Aeriennes

. lela Presse, 29 Rue Paul Bert, 62 230 Outreau, France. 4 issues per year. Europe 45€. Rest of World 50€.

La Luftwaffe en Afrique. 1942 Des origins au déclenchement de l'opération Crusader. Batailles Aeriennes #34. 72 A-4 size pages. (Octobre/Novembre/Décembre 2005). €12.50.

Although lacking in small-air-force interest, this latest edition in the Batailles Aeriennes series deserves the consideration of all aviation enthusiasts interested in WWII. This 88-page issue continues the usual excellent Batailles Aeriennes format of a French text, a plethora of well-reproduced, mostly new photos of air and ground activities supplemented by colorful side-view drawings of the aircraft involved in the action being described.

Chapter heading are: "La situation a la veille de l'arrivée des Allemands", "La Luftwaffe en Afrique avant Rommel", "The Germans are coming ...", "L'offensive allemande", "Accentuation de la pousse de l'Axis", "Repli allié sur Tobrouk", "La Tagjagd arrive ...", "Nouvel assaut de l'Axe (mai 1941)", "Brevity", "Battleax", "Accalmie". "Renforcement de la Tagjagd", "Conclusions", "Annexs", "Uniformes", and "Maquette".

The numerous photos, all from German sources, include many contemporary color photos. There are 22 color side-view drawings [Bf 110 (4), BF 109 (9), Hs 126 (1), Ju 87 (5), & Ju 88 (3)]. The

2-page "Uniformes" section consists of color drawings of 10 Luftwaffe personnel in uniform. The "Maquette" section features 7 color photos of a complete model of the 1/48-scale Revell Ju 87B-2/R2.

Batailles Aeriennes has nothing to recommend it to the students of the small air forces, but if you're interested in the Luftwaffe in North Africa, it is well worth acquiring.

La RAF Contre Attaque! Offensive aerienn sur l'Europe: avril-juin 1941. Batailles Aeriennes #35. 96 A-4 size pages. (Janvier/Fevrier/Mars 2006). €12.50.

This is another in the excellent Batailles Aeriennes series, which while lacking information on the small air forces, is an excellent publication offering lots of new or rarely published photos and color side-view drawings of RAF and Luftwaffe aircraft of the time period of the title. The photos are well reproduced on high-quality glossy paper and the color illustrations are beautifully rendered.

The chapter headings are: (1) La situation en debut de 1941; (2) Les influences exterieures; (3) Que faire?; (4) Sweeps, Circus & C°; (5) Les limites du present ouvrage; (6) Operations

aeriennes; (7) Conclusions. The largest section of the book, Chapter 6, consists of 65 pages describing the day-by-day aerial activities during the "Non Stop Offensive" from 15 April to 17 June 1941.

There are 22 color side-view drawings [Spitfire (4); Bf 109; (4); Blenheim (3); Havoc (3); Hampden (2); Defiant (1); Hurricane (2); He 111 (1); and Ju 88 (2)]. The 2-page Uniformes et Tenues de Vol has color drawings of the RAF crew in their flying outfits. The Maquette section consists of 3 pages on the 1/48-scale Hasegawa Hurricane Mk.I/II including 8 color photos of the completed model.

There are a few photos of potential small-air-force interest: a Breguet Bizerte in Luftwaffe markings, a Fokker G.I in RAF markings, a Fokker T.VIII in Luftwaffe markings, and Hurricanes and Spitfires of 303 and 306 (Polish) Squadrons.

La RAF Contre Attaque is another excellent Batailles Aeriennes publication that will appeal to all students of the aerial warfare in WWII who are not intimidated by the French text.

Review copy provided by Michel Ledet of Lela Presse/

Sebastopol: A l'assault de la forteresse! (1^e partie). Batailles Aeriennes #36 (Avril/Mai/Juin 2006). 72 A-4 size pages. Soft bound. €12.50.

This is another in the excellent Batailles Aeriennes series which, while lacking information on the small air forces, is an excellent publication offering lots of new or rarely published photos and color side-view drawings of Soviet and Luftwaffe aircraft. The photos are well reproduced on high-quality glossy paper and the color illustrations are beautifully rendered. Worth special notice is Batailles Aeriennes propensity of including photos of relevant ground and sea activities. Of particular interest in this volume are the photos of ships of the Soviet Black Sea Fleet.

The chapter headings are: (1) La situation generale et les forces en presence; (2) Combats aeriens en novembre: Les attaques contre la ville

repoussees; (3) Les operations aerriennes de decembre: Le deuxieme assaut est repousse;

There are 19 color side-view drawings [I-153 (1); Pe-2 (2); I-16 (3); Bf 109F (1); Ju 88 (2); Ju 87 (2); MBR-2 (2); DB-3f aka Il-4 (2); He 111 (2); Yak-1 (1); and Su-8]. [Editor's note: The color illustrations contain the first printing error I've noticed in the 36 volumes of this series: The page with color side-view drawings of two I-16 and an Su-8 was repeated.] The 2-page Uniformes et Tenues de Vol has color drawings of the Soviet and Luftwaffe personnel in their flying outfits. The Maquette section consists of 3 pages on building the 1/72-scale Smer I-153 'Tchaika' including 8 color photos of the completed model.

Tables include: (1) The Black Sea Fleet Air Order of Battle on 7 and 25 November 1941 listing unit, airfields, and the number and type of aircraft

on charge. (2) Missions carried out by the Sebastopol aircraft between 1 November and 31 December 1941 listing type of mission and type of ground targets and German aircraft destroyed. (3) Number of aerial victories claimed by the airmen of the Black Sea Fleet from the beginning of the of the war until 22 February 1942 listing airmen and number of victories. Three excellent maps show the position of the front line as the siege continued.

Sebastopol: A l'assault de la forteresse! is another excellent Batailles Aeriennes publication that will appeal to all students of WWII aerial warfare who are not intimidated by the French text.

Review copy provided by Michel Ledet of Lela Presse/

-letters-

"I take issue with Robert Meguid's closing comment ("Modeling the Avro Lancaster in REAF Service," April 2006) that the fate of the nine Royal Egyptian Air Force (REAF) Lancaster bombers is unknown. Most, if not all, were destroyed by British and French aircraft during the Suez Conflict of Oct/Nov 1956. In fact, Brian Cull and his co-authors include a photo (page 223) of the wrecks of five Lancasters at Cairo West in their excellent book Wings Over Suez."

Charles G. Jarrells, (SAFCH #1558), Dayton, OH. flyinghistory@yahoo.com

"I thought I might have had something to offer about the Royal Egyptian AF Avro Lancasters, (SAFO \$116) as I was with the Royal Army medical the Suez Canal Zone from early 1947 to spring of 1948, but I only spotted Royal Air Force Lancasters. For what its worth, here are some observations: I hitch-hiked from Fayid to Royal Air Force Station Kasfareet (No. 107 Maintenance Unit was based there) on 3 August 1947. There was one Lancaster on the field. There were two dumps of wrecked and abandoned aeroplane adjoining the airfield, a larger 'southern' one, a smaller 'northern' one, as well as a vast sea of aero-motors. There were three Lancasters on the northern dump, viz.: RF299 and two which had been instructional airframes - 5000M and 5001M (previous identities not seen).

"I went again on 3 November 1947 when there were two (operational) Lancasters on the aerodrome. They were in blue&grey camouflage, with ventral H2S radomes but no upper turrets, with red spinners and codes in red: RL-B SW293 and RL-R RE123.

"[The code letters 'RL' were used by 37 Squadron but these aircraft were probably from 38 Squadron. which at about this time was using Ein Shemir in Palestine. But the use of 'RL' was quite complicated -- as well as 37 Sqdn. they had been the code for 279 Sqdn., then 1348 Flight, and 621 Sqdn. re-numbered as 8 Sqdn. which was absorbed into 38 Sqdn. These remarks, as far as they can be understood, are from M. Garbett and R. Goulding Avro Lancaster in Unit; Service (Osprey, Arco, 1970). On their seventh text page, they give a few extra details of the hand-over to the Royal Egyptian Air Force. A complicated business!]

"One of these days I'll dig out a few serial numbers of wrecked Greek or maybe Egyptian aircraft I spotted in those days."

Denys Voaden, (SAFCH #1483), 8616 Edmonston Ave., College Park, MD, 20740-2748, USA.

"In order to try to stop perpetuation of a myth, I would like to comment on a statement made in the review of van der Mey's book on the Dornier Wal in SAFO No 116. No Dornier J Wals were ever built in the Soviet Union. Two military Wals were acquired by the air force for evaluation in 1926 and these were followed by another 20 in 1928. Two Do J Wals were acquired by the Dobrolet airline and they were delivered in 1930. Two J Ild Bis Wals fitted with M-17 engines were acquired for civil use in 1933 and M-17 engines were installed in many of the earlier Wals as well in 1932-33.

"In 1924 the Ukrvozdukhput' airline was planning to start assembly of Dornier Wals from imported components in their workshops in Khar'kov, but this was never realized. Factory No 31 at Taganrog never built any Wals; the engine change (to M-17) was made at Factory No 45 in Sevastopol. Lennart Andersson (SAFCH #68), Tiundagatan 52B, SE-752 30 Uppsala, Sweden.

"I recently bought a metal model of a MiG-17 I found in a local antique store that has a good selection of aircraft models and stuff. The MiG is a heavy-weight model, chromed and mounted on a chromed base. (Since then I saw and probably will buy another Eastern European item: two chrome models of the FRK-1, the early Russian cruise missile based on the MiG-15 on a wooden base.)

"The MiG-17 has two very faded insignia on the fuselage that seem to be roundels of a light blue and white. Somewhere in my well-kept files, I think I have an insignia chart that was published in Air Forces Monthly or some other English magazine, but I cannot immediately find it. I've tried doing Internet searches, but still can't find exactly what I am looking for or a list of nations that flew the MiG-17. Does the insignia sound at all familiar to you? If not, is there a SAFO member who might be of help."

Thomas McGarry (SAFCH #950), 21 Davinci St., Lake Oswego, OR, 97035, USA. E-Mail: twmflak@teleport.com.

[Ed: I sent Thomas a list of MiG-17 users, but none seem to have carried an insignia that could be described as light-blue and white. Can anyone help?]

"The latest issue of International Air Power Review has a nice photo section covering the current aircraft serving with the Armenian Air Force. The photos consist mainly of Su-25 Frogfoots (Frogfeet?) with a smattering of helicopters (Mi-24, Mi-8, & Mi-2),

a ubiquitous An-2, and training aircraft (L-39, Yak-18T, Yak-52, & Yak-55). The curious thing about these photos is the variety of national insignia carried by these aircraft. None of these insignia match in John Cochrane's book on Military Aircraft Insignia of the World (1998), that consisted of a round disc divided into three horizontally bands of red, blue, gold (from top to bottom). The aircraft in the Air Power photos all carry roundels with concentric rings in these same colors. These roundels are carried on the vertical fin and on underside of the wing. (None of the photos show the upper side of the wing.) This change from horizontal bars to circular rings is not too startling, but there are startling differences between aircraft, even aircraft of the same type in the same photo. The most prevalent type is red, blue, gold (from outside in), but some of the Frogfeet carry roundels of gold, blue, gold, white (from outside in). Just to add spice, one of the L-39 is shown a roundel of red, blue, gold, white (from outside in). The Yak-52 has a roundel of yellow, blue, red (from outside in), and the Yak-55 has gold, light blue, red (from outside in).

"What's the poor modeler to do if he wants to add an Armenian aircraft to his collection? I suppose the safe thing is to do either two Frogfeet (or two L-39) in the different insignia. By the way, the article has a photo of a Frogfoot obtained from Czech Republic with Armenian insignia but still retaining the vertical fin decorated with the naked lady riding on a Bison. (The decal for this tail decoration may still be available from MPD in the Czech Republic.)" Jim Sanders (SAFO #1), 27965 Berwick Dr., Carmel, CA 93923, USA.

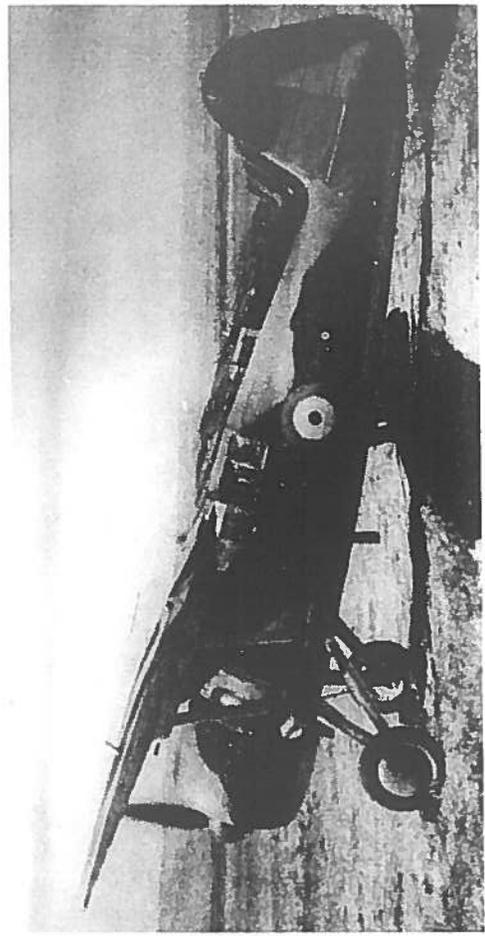
"I feel like this is a commercial for these folks, but I wanted to share it anyway. Stella and I displayed at the Sheffield show on Saturday and met there a young couple who have embarked on a cottage industry that I thought was kind of interesting. They produce a series of CD based 'How To' guides for making models. The difference is that they are kit specific. They sell for between £4-£5 and have detailed information about their subject matter. Each contains some 95 pages of information and photos and covers some basic but valuable stuff. If you have any interest, their website is:

www.weeac.co.uk. I bought Part 1 of the Hasegawa 1/48 Bf 109. They've only just started, but it certainly has promise."

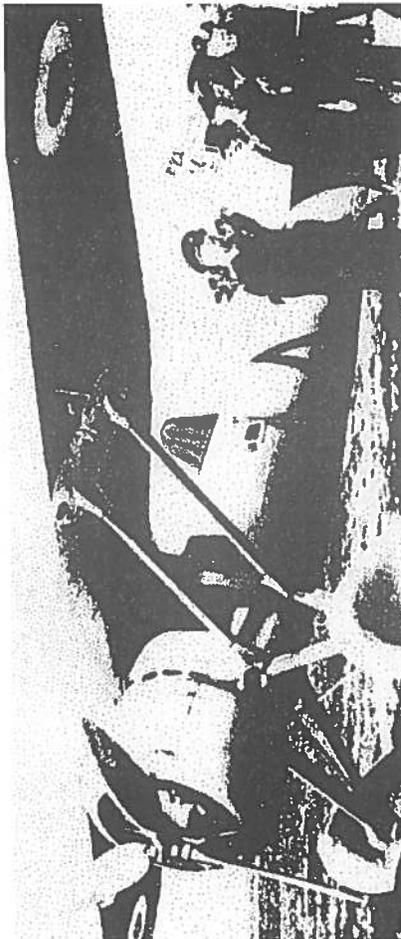
Gary Wenko (SAFCH #1588).



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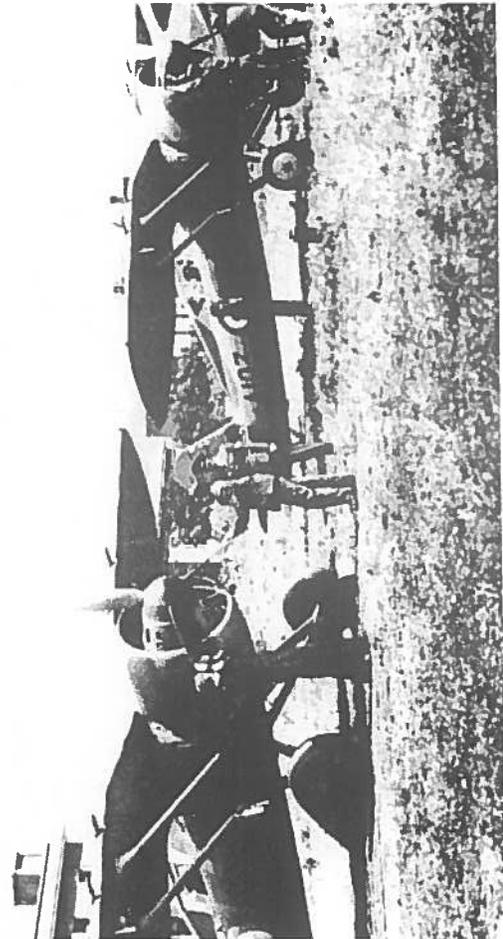


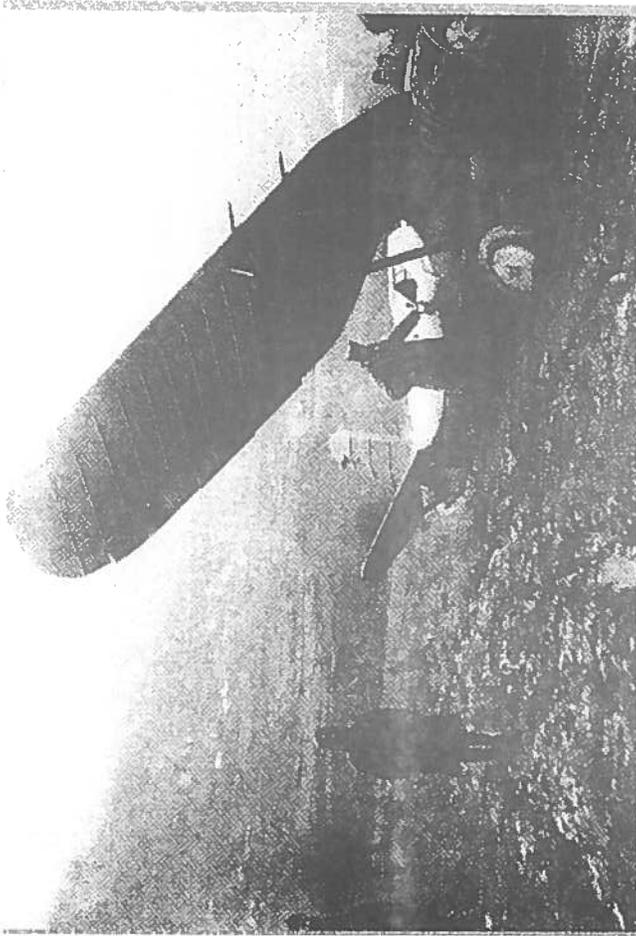
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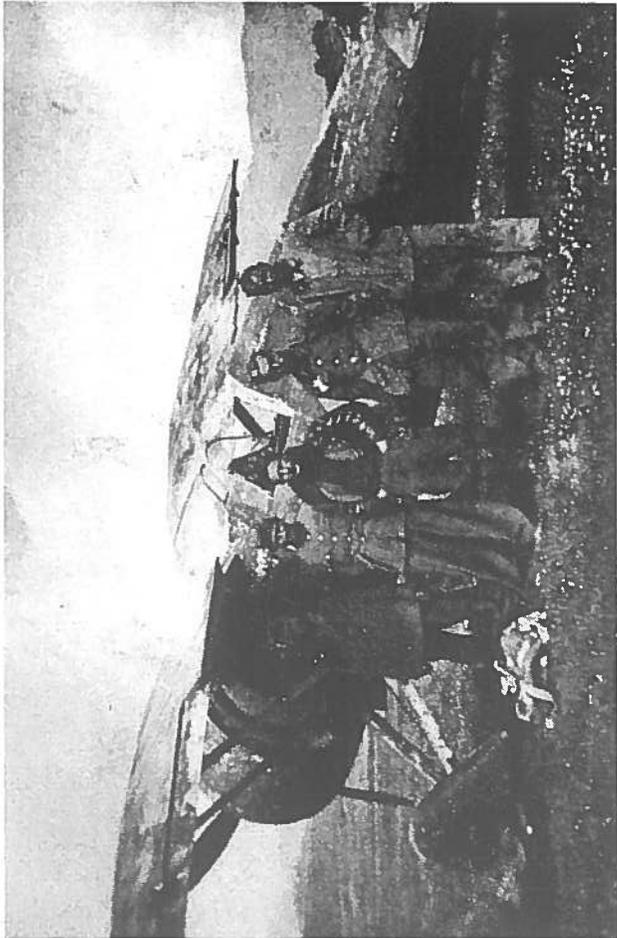
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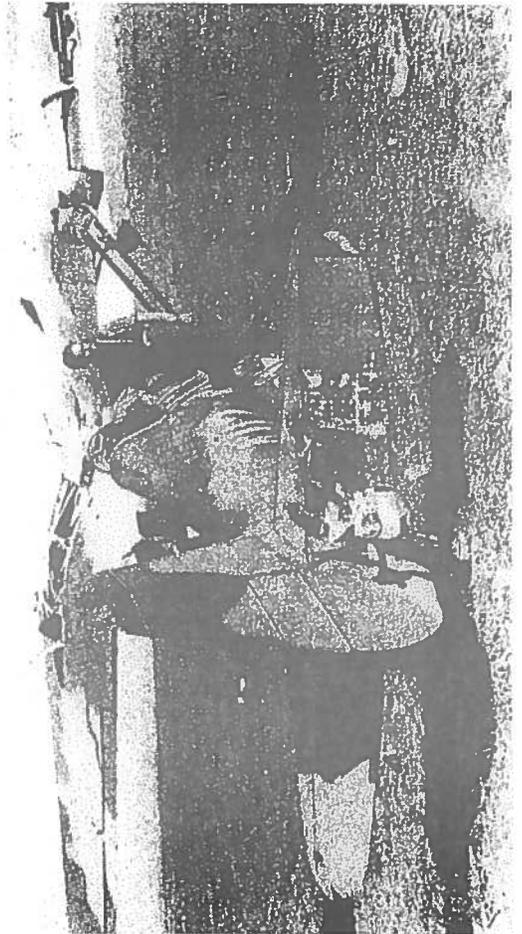


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