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## **BRYZA AND SKYTRUCK, A POLISH IMAGE**

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The Polish M-28 is a successful PZL aircraft. Historically the design however was born in OKB Antonov's factory in the Ukraine. PZL used the concept and put the M-28 as a capable and successful generation of aircraft in the market.

### **RUSSIAN HERITAGE**

The well-known Antonov An-2 was in use in the Soviet Union as the workhorse for light cargo in large amounts. However a successor was very much wanted. The perception was a two engine aircraft which had to be operational from very modest landing strips, a common demand in that time in the Soviet Union. First there was the Antonov An-14 Ptchelka (Little Bee) but this proved not to be a great success. A somehow bigger variant saw the daylight, first designated as An-14M which changed later in An-28. The type even won a competition with the Beriev Be-30 which didn't reach production. The An-28 just did and the first one left the factory in 1973. Later the license rights were bought by PZL-Mielec in Poland which produced the first example in 1984. Shortly after this the Soviet Union stood at the preface of Glasnost and also difficult economic times. Antonov was not able to continue production of the An-28 and PZL earned the heritage. Antonov used the concept for a bigger airplane the An-38, and Poland changed the designation of their aircraft in M-28.

### **BETTER ENGINE**

The twin engine aircraft could be used for passenger and cargo transport in the civil and military field, enabling the pilot to use outstanding STOL characteristics. The thought must have been to improve the concept, to give it an own identity and use more Western advanced technology, and that was exactly what happened.

Simultaneously to the PZL An-28 the PZL M28 Skytruck was developed with minor changes at the fuselage and wings. A major change was a new engine which was the Pratt & Whitney Canada PT 6A-65B turbo engine with all metal Hartzell HC-5BMP-3 propellers to replace the Russian TWD-10B engines. Extension of avionics was reached by installing the Bendix / King equipment for VFR/IFR day and night and all weather capability. The whole concept was evaluated with FAR regulations. The first flight was in 1993 followed by Polish FAR-23 acceptance in 1996 and the American equivalent in 2004. In 2000 another variant, the M-28B was born. This aircraft was powered by two PZL-10S engines (license TWD 10B) with five-blade Hartzell propeller instead of three blade AW-24AN. The avionics are still very much analog but were followed by modernisation.

### **TRULY MULTI-ROLE**

The crew of the M-28 consists normally of six persons: Two pilots, a flight engineer, a Tactical Coordinator (Tacco) a navigator and a radio operator. The multi purpose

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M-28 uses a twin tail which provides some benefits easy accessability on the backside for cargo and exit for paratroopers which twelve of them can be taken inside. Cargo can be hoisted inside and to converse from passenger into cargo configuration takes little time, economic in use and the type can almost land everywhere.

Flying characteristics are good and stability with low speed is perfect. One of the initial objectives of the An-28 was to operate the type in the communer class on short distance in the Aeroflot network . There are possibilities to use the type as an air-ambulance and the aircraft is also very popular in Polish task- and observation tasks. The police or military of Nepal, Columbia, Venezuela, Vietnam and Indonesia use the aircraft. All different variants are in use in Poland especially with armed forces. Poland hereby cooperates together with Germany (Do-228 Nordholz) in four Polish quadrants (area's) and above international waters. In this concept two M-28E air pollution observe aircraft are in use with ths Swedish MSS5000 scanning system to fight pollution crimes in some 300 missions a year. Cooperation is also with Sweden.

## **POLISH VERSIONS**

The Skytruck is used by the Polish Airforce by the 13 PLT (Transport Regiment) in Krakow and with Polish border guard. Next to this several configurations are based at Baby Doly with the 28<sup>th</sup> Naval Squadron and at Simirowice with the 30<sup>st</sup> Naval Squadron. These units demonstrate whatever is all possible with the different versions. The Navy in Poland has named the M-28 with the word Bryza (Sea Brize) . It is in use as parachutist transporter (M-28B Bryza TD) with the 28 Squadron, but more known is the modernised martitme patrol example (M-28 Bryza 1R) with the 30 Squadron. The latter uses a 360 degrees surround looking ESR-400 search radar, fitted under the fuselage and equipped with communicating with Lijk-11 datalink. This variant controls the shipping routes, the exclusive economical zone and supports SAR units. Naval versions are flying with PZL 10S engines from PZL-Rzeszow. All naval versions have modernised avionics with a KFC-325 flight control system, Bendix/King KLN-900 sattelite navigation unit / GPS , LCR-92 laser gyro platform , RDR-2000 weather radar , SC-10D2 IFF transponder and KNR-634A navigational kit.

## **ADVANCED EQUIPMENT**

Two M-28's with specific equipment for ecological control are designated M-28B Bryza 1E. A later developed version for detecting submarines is called the M-28B Bryza 1RM Bis. This aircraft has the ability of a 360 degrees looking ARS-800-2 searchradar with ISAR capacity and Forward Looking Infra Red (FLIR) and can drop hydro-acoustic sono buoys from out of a dispenser. This type is recognizable with fare more pointed nose which houses the FLIR and other sensors. In the tail an MAG magnetic Anomaly Detector (MAD) is fitted. Ths sono buoys are tracked with the HYD-10 detection system. It's a potential small multi-tasking 'do-it-all' aircraft. The border police tasked with surveillance on illegal migration uses the M-28 05 with PZL engines, ARS-400M search radar and FLIR.

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## NEW DEVELOPMENTS

In 2006 a 176 An-28 / M-28's were produced by PZL, announced by the factory , but meanwhile production continued . It is said that even special units of the USAF ordered some ten examples. PZL is developping a stretched Skytruck version which they call the M-28+. The factory hopes to penetrate in new markets with this new version.

## TECHNICAL DATA:

### An-28 td / m-28b Skytruck and Bryza in short:

Crew	2 pilots in transport version mechanic, and up to three system operators in the special navy versions.
Passengers	18 , or 12 air-mobile soldiers
Length	13,1 meter
Engines	2x Pratt & Whitney Canada PT-6A-65B turboprops 1100 Pk each
Wingspan	22.06 meter
Height	4,9 meter
Cabin	L x W x H: 5,26m x 1,74m x 1,72m
Empty weight	3927 Kg or 4090 Kg with standard equipment
Fuelcapacity	2280 Liter
Max weight start	7000 – 7500 Kg depending on the type of engine
Max load	1700 – 2300 Kg Option: pod under fuselage 300 Kg.
Max Speed	350 km/Hr
Average speed	335 km/Hr
Landingspeed	140 km/Hr
Climbspeed	8m / second
Max reach	1365 Km (with 1000 Kg. Cargo)
Max ceiling	7260 meter

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