



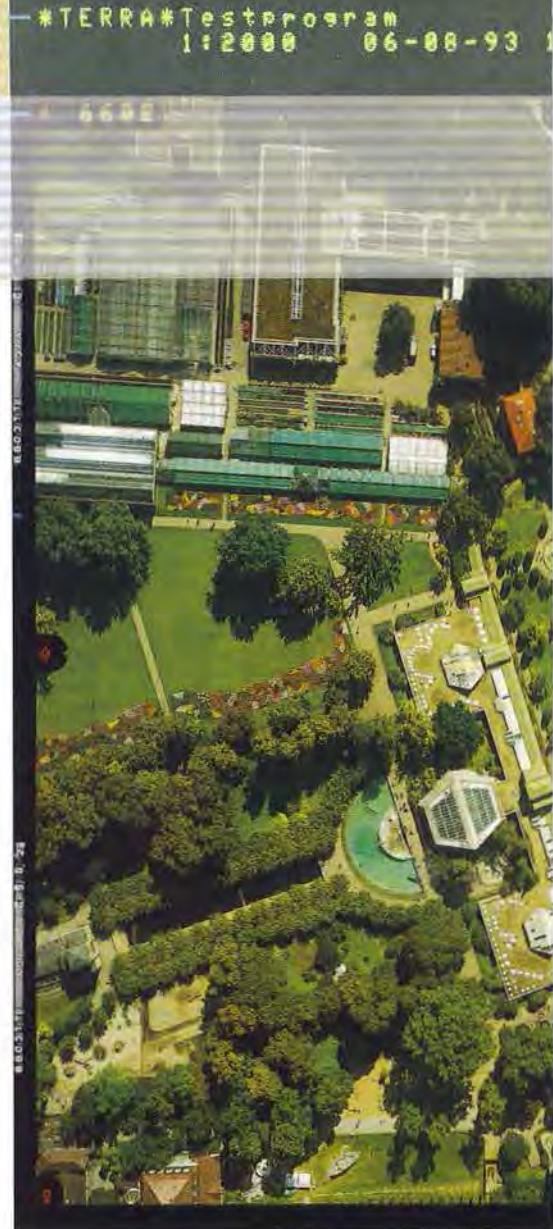
RMK TOP

ZI
IMAGING



AERIAL
Camera System

RMK TOP Modular Design and System Components



The RMK TOP features a systematic, modular design. The individual components form logical functional units optimized to the needs of both practical application and economical use. Special consideration has been given to the space available in the aircraft, the installation conditions and the necessity of component change.

The RMK TOP system comprises:

- RMK TOP 15 camera body with PLEOGON A3 4/153 wide-angle lens or
- RMK TOP 30 camera body with TOPAR A3 5.6/305 normal-angle lens
- T-CU central control unit with microprocessor
- T-TL terminal for camera operation and monitoring
- T-MC film magazine with FMC
- T-AS gyro-stabilized suspension or
- T-AL suspension mount

- navigation instruments for visual or automatic navigation
- T-NT navigation telescope for navigation, visual overlap control and drift determination
- T-NA automatic navigation meter for automatic overlap control
- The RMK TOP can be integrated into GPS-supported photoflight management systems

Camera Body

The camera body is a compact and rugged component containing the lens cone with the focal plane frame and auxiliary data field, the pulsed rotary shutter, 4 controllable internal filters, the diaphragm and the motored drive assemblies. The control electronics are installed in the T-CU control unit. The complete camera body is replaced for changing the focal length.

T-MC Film Magazine

The T-MC film magazine contains the supply and take-up spools, the pressure plate for film flattening and the device for forward motion compensation (FMC). The FMC control system is installed in the T-CU control unit. A cassette design with both film supply and take-up within one housing provides the benefit of easy film replacement during flight, and film can be easily in sections without cutting the film.

Film Size:

- Width 240mm
- Length 150m (500ft) for 0.10mm film thickness

Supply Indicator:

- Digital Indicator on the terminal, analog on the magazine, differential pressure sensor for vacuum monitoring

Pressure Plate:

- Flatness $\pm 5\mu\text{m}$, plate number is exposed on the film



T-AS Gyro-Stabilized Suspension Mount

The T-AS suspension mount connects the camera body to the floor of the aircraft. Its main purpose is to ensure vibration-free vertical photography, while also making allowance for drift. The essential feature which decisively improves performance is the gyro-stabilization of the camera body in 3 axes.

Stabilization Range:

- $\pm 5^\circ$ in φ $\pm 5^\circ$ in ω $\pm 6,5$ in κ .
- Max. angular speed $10^\circ/\text{s}$
- Max angular acceleration $20^\circ/\text{s}^2$
- Stabilization level 1:10 to 1:30
- Vertical alignment $\pm 0.5^\circ$ (standard deviation)
- Tracking range in drift $\pm 30^\circ$



RMK TOP



Technical Information

RMK TOP 15 with Pleogon A3 wide-angle lens, focal length 153mm (6"), angular field 93' (diagonal), aperture f/4 to f/22 continuously variable, distortion $\leq 3\mu\text{m}$.

RMK TOP 30 with TOPAR A3 normal-angle lens, focal length 305 mm (12"), angular field 56' (diagonal), aperture f/5.6 to f/22 continuously variable, distortion $\leq 3\mu\text{m}$.

Shutter:

- Pulsed rotating-disk shutter with 50ms constant access time.
- Mid-point of exposure pulse: max. deviation $\pm 2\%$ of the exposure time
- Exposure time: 1/50s to 1/500s, continuously variable

Fiducials:

- 8 point-shaped fiducials in the corners and midway along the edges, numbered 1 to 8, spacing 113mm, point diameter $100\mu\text{m}$,
- crosslines with $50\mu\text{m}$ line thickness, exposure at midpoint of shutter open time.

Programmable Data Annotation

- Field size approx. 210mm x 10mm, located at the top of successive photos

Counter:

counter for hours of operation and number of exposures

Filters:

- 4 internal filters are selectable on the terminal
- Sandwich and color external filters are also available

T-CU Control Unit

The T-CU control unit contains the control and power electronics including the micro-processor and interfaces for GPS and navigation systems. As the central electronic distributor, it interconnects the major components of the entire camera system.

- Minimum exposure cycle time 1.5s
- V/H range 0 to 0.2rad/s
- Overlap range 0 to 99% in steps of 1%



T-TL Terminal

The T-TL terminal is used for operation and monitoring of the complete RMK-TOP camera system. Its basis is a programmable compact computer which is connected to the T-CU with a cable of optional length and can therefore be installed anywhere within the aircraft or on the navigation instruments. The terminal also permits data exchange with an external personal computer for mission data planning and evaluation.

Film Size:

- Width 240mm
- Length 150m (500ft) for 0.10mm film thickness

Supply Indicator:

- Digital Indicator on the terminal, analog on the magazin, differential pressure sensor for vacuum monitoring

Pressure Plate:

- Flatness $\pm 5\mu\text{m}$, plate number is exposed on the film



Performance Features and Benefits



RMK TOP Aerial Survey Camera System

RMK TOP aerial survey camera system represents the standard in aerial photography with superb image quality, optimum suitability for GPS-supported photoflights, and easy integration into photoflight management systems. Photographs taken with the RMK TOP will continue to provide the basis for both digital and analytical photogrammetry in the future.

The 12 decisive benefits of the RMK TOP System:

- 1 Modular design with easy to change components and compatibility with previous RMK A components
- 2 High performance lenses with internal filters and extremely high image quality
- 3 Comprehensive image motion compensation by FMC and gyro-stabilized suspension mount
- 4 Stabilized camera axis ensuring small nadir angles
- 5 Precise overlap control and pin-point photography
- 6 Unique pulsed rotating-disk shutter with a constant access time of 50ms
- 7 Ideal for GPS-supported navigation and aerotriangulation
- 8 Integration into a GPS-supported photoflight management system
- 9 Menu-driven central control by a compact computer and logging of the mission data
- 10 Automatic v/h measurement for overlap control and FMC
- 11 Automatic exposure control using the principle of image quality priority
- 12 Outstanding reliability and flexibility

For more information or a demonstration, call:

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