The Ukrainian Mi-8 MSB Helicopter
A Singular Opportunity for Latin America

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I. Introduction to the Mi-8 MSB

- Ukrainian-built and certified Helicopter
  - Type Certificate issued 2011, Certified for Serial Production 2012
- Most modern of the Mi-8 (domestic)/Mi-17(export) family
  - 11,000 produced in more than 40 versions from 1964-2013
- Built by Motor Sich and exported from Ukraine through Ukrespecexport National Military Sales Corporation
- Former Soviet designation helicopter to which Ukraine has complete sales and marketing rights
- Extremely Robust, Durable, and Capable helicopter
- NO need for any continuing reliance on Russian suppliers
II. High Altitude/High Temperature Performance

- Altitude – Set World Altitude Record 15/08/2013 – 9150 meters; maximum altitude for Mi-17 is 5000 meters
- MSB reached 5000 meters with one engine
- High Temperature Operations – can take off under full power at ambient temperature up to 55º Celsius, versus 25º Celsius for Mi-17
- Range - 650 Km (920 Km with auxiliary fuel tank) vs 580 Km. for Mi-17 with TV3 engine; 480 Km for Mi-8 with TV2 engine
- Fuel Consumption 500Kg/hour, 620Kg/hour for Mi-17
- 4100 Kg. Cargo capacity/35 passengers
II. Superior Flight Performance

• No lag in throttle response, in contrast to Mi-17. Pilots report that helicopter is more agile and feels and handles lighter than Mi-17.

• Reaches full power from engine idle in 8 seconds, compared to 15 seconds for Mi-17

• Cold Engine Start is possible at up to 4600 meter altitude, compared to 1600 meters for Mi-17. Critical ability for extended high altitude operations

• In Andean Region or in Mexico’s higher areas, an Mi-8 MSB can carry greater payloads to higher altitudes than any other helicopter.

• Future enhancements to transmission will further increase altitude, cargo capacity, and operational flexibility
Certification of World-Record Altitude
9150 Meters – August 15, 2013
World Record Flight
MSB Shut Down at 4200 Meters Altitude
Dangerous/Impossible Restart for other Helicopters
III. The Mi-8 MSB Advanced Engine
(model TV3-117-VMA-SBM-1V-4E)

- The TV3-117 engine - 5 years R&D, Engineering and metallurgical breakthroughs
- Maximum 2800 horsepower, Flat rate 1500 horsepower in adverse conditions (extreme altitude, heat, smoke, etc.)
- Rigorous 3-year test program by Ukraine – Certified New Aircraft
- Complies with all NATO Standards Ukraine has won contract to maintain NATO
- 5000 hours TBO, compared to 1500-2000 for Mi-17 Engine
- Can be retrofitted to Mi-17 helicopters as part of fleet management program
TV3-117VMA-SBM1V 4E
## Mi-8 MSB vs. Mi-8 and Mi-17

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mi-8T</th>
<th>Mi-17</th>
<th>Super Mi-8MSB</th>
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<tbody>
<tr>
<td>Engine Ignition</td>
<td>Electric</td>
<td>Electric</td>
<td>Electric</td>
</tr>
<tr>
<td>Maximum Speed</td>
<td>250km/hour</td>
<td>250km/hour</td>
<td>250km/hour</td>
</tr>
<tr>
<td>Engines</td>
<td>TV2-117A (1973) 1700 hp</td>
<td>TV3-117MT (1977) 2200 hp</td>
<td>TV3-117-VMA-SBM-1V (2011) 2800 hp</td>
</tr>
<tr>
<td>Fuel Consumption</td>
<td>620 kg./hour</td>
<td>620kg./hour</td>
<td>500kg./hour</td>
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<tr>
<td>Engine Start Altitude</td>
<td>1600 m</td>
<td>1600 m</td>
<td>4600 m</td>
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<tr>
<td>Operational Ceiling</td>
<td>4500 m</td>
<td>5000 m</td>
<td>9150 m</td>
</tr>
<tr>
<td>Operational Range</td>
<td>480km</td>
<td>580km</td>
<td>650km</td>
</tr>
<tr>
<td>Maximum Payload</td>
<td>4000kg</td>
<td>4000kg</td>
<td>4100kg</td>
</tr>
<tr>
<td>Time Between Overhaul</td>
<td>1200-1500 hours</td>
<td>1500-2000 hours</td>
<td>5000 hours</td>
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<tr>
<td>National Origin</td>
<td>Russia</td>
<td>Russia</td>
<td>Ukraine</td>
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IV. The Value Proposition

- **Acquisition Cost:** $12 Million US dollars, including Electronic Flight Instrument System (EFIS) – “Glass Cockpit” $6 – 10 M (USD) less than Mi17
- Countries with US FMS credits can use these funds for EFIS and other US-origin options
- Can deliver 30-40 in about 12 months, versus 24-36 months for Mi-17s
- Total Life-Cycle Cost of Ownership of Mi-8 MSB is Far Lower:
  - TBO of 5000 flight hours, versus 1500-2000 hours for Mi17
  - Each major overhaul costs $2-2.5 Million US dollars, thus, 5000 TBO reflects $6.125 million dollar savings per helicopter about every 8 years
  - 12% more fuel efficient than Mi17, 35% more fuel efficient than Mi-8
  - Reduce life-cycle costs by 50% through local maintenance facilities
- Sales contract made under US law, significant legal protections and advantages over Russian acquisition
- Financing arranged through Ukrainian and other banks
IV. The Value Proposition Continued
Upgrading and Maintenance of Existing Mi-8/Mi-17

- Many Latin American Countries operate Mi-8 or Mi-17 helicopters.
- We offer single source and single point of contact for all your Mi-8/Mi-17 needs, including existing fleet.
- We will refurbish your older helicopters or accept them as trade-ins for new Mi-8 MSBs provided they are cost-effective candidates for rebuilding.
- We are willing to retrofit new engines to your existing fleet and raise it to the Mi-8 MSB standard and to take over maintenance and repair of all Mi-8/Mi-17.
- Ukraine has won the contract to maintain all NATO Mi-8s/17s.
- No Ukrainian-maintained Mi-8/17 leased to UN for peacekeeping or logistic support has ever been lost.
IV. The Value Proposition
Training, Parts, Maintenance, and Warranty

Each helicopter includes:

- Transition training for up to 3 rotary-wing certified mechanics (60 hours)
- Transition training for up to 3 heavy-lift certified helicopter pilots (90 hours)
- Full suite of spare parts and tools
- Performance and maintenance intervals unconditionally guaranteed by factory
- Outsourced maintenance program and personnel available on separate basis (In-country/Regional maintenance depot)
- Absolute and unconditional factory guarantee of the complete helicopter for the first 200 hours of flight time
- Absolute and unconditional guarantee of 5000 hours between overhaul
- Anticipated life expectancy of fuselage and air frame 15000 hours (inspection every 1500-2000 hours); transmission – 7500 hours (inspection every 1500 hours); main rotors – 2000 hours; tail rotor - 1500 hours.
EFIS “Glass Cockpit” in Mi-8 MSB
IV. Optional Configurations

- The Mi-8 MSB can be customized to perform a wide variety of Missions, and can be easily reconfigured
- Attack and Combat Support Operations
- Intelligence, Surveillance, and Reconnaissance
- Search and Rescue
- Medical and Casualty Evacuation
- Firefighting Configuration
- VIP Transport
Significant Combat Capability

The Mi-8 MSB can perform attack and combat support operations with only modest adjustments from its transport capability. Will require government regulatory approval. A typical low-cost but effective package would be as follows:

- Sub wings for weapons carriage and four weapons pylons
- 4 UV-16-57 Rocket Pods (55mm S-5 rockets)
- Advanced Ukrainian Computer-controlled laser targeting system for unguided munitions. Requires Night Vision Package
- Gun mounts for 7.62 mm PK machine guns – forward firing, pilot controlled, and/or door mounted, and/or window mounted
- Chaff Dispenser and Active IR Jammer
- Cockpit Armor Plating
- Extra conformal fuel tanks
- Vibration Dampening
- MX-12 Skyball ISR Turret from L-3 or similar
Intelligence, Surveillance, and Reconnaissance Configuration (ISR)

For ISR the Mi-8 MSB can be equipped with:

- ISR turret (MX-15, MX-20) which include visible light, Forward Looking Infra-Red (FLIR), and Laser sensors/emitters
- Will require Government Regulatory Authorization
- Communications package for relevant Mission priced separately
- 1 auxiliary fuel tank
- Package cost $900,000
- Night Vision Package – $50,000
Search and Rescue Configuration

For Search and Rescue the Mi-8 MSB is fitted with:

- Electric Hoist with Static Electricity discharge
- 2 High-power Search Lights
- Rescue equipment optimized for terrain, weather conditions, and special risks etc.
- Up to 10 stretchers
- Complete Package Price : $250,000
- Night Vision Package – about $50,000
Medical/Casualty Evacuation

- We can furnish the Mi-8 MSB with a full suite of medical equipment as determined by flight surgeons as follows:
  - In-flight care equipment: Ventilators, ECGs and monitoring equipment, CPR equipment, burn kits and complex trauma kits, medications, and medical supplies
  - Up to 20 stretchers (ideal intensive care configuration is 7)
  - Package price: $275,000
Fire-Fighting Configuration

Mi-8 MSB is outstanding fire-fighting tool and would typically be fitted as follows:

- External Sling
- Bambi Max, Torrentula or PowerFill Bucket - up to 4 tons of water
- Marine Recovery Device (MRD)
- Package Cost: $260,000
VIP Transport Configuration

VIP Transport Configuration is highly personalized and final product will be meticulously tailored to customer preferences. Illustrative elements to be included are the following:

- Basotect UL acoustic insulation
- Multimedia information /entertainment system
- Inmarsat/Gogo airborne Internet
- Galley/SkyChef station
- Luxury seating with extra safety features
- Bullet-proof plating for selected areas
- Electronic Countermeasures
- Package cost of $300,000-$900,000
- Night Vision – about $50,000
VI. The Service Proposition
Regional Maintenance and Overhaul Center

- We anticipate a regional maintenance /refurbishment depot capable of major overhaul of the airframe and rebuilding of the engines in Latin America.
- Will substantially lower maintenance time requirements and costs, while greatly increasing control and visibility of helicopter maintenance operations.
- Russians will not do anything to keep Mi 17s flying, we stand behind Mi-8 MSBs and will be on site to insure customer satisfaction.
- Justification for building such a center, on a Joint Venture or other basis, depends on demand and number of aircraft in region.
- Will result in technology transfer and significant development and economic benefits / jobs in your country.
- Significant commercial/export opportunity for host country.
- Exact location to be determined by consensus and mutual agreement.
VI. The Service Proposition

Ancillary Services

We will provide the following additional services:

- Project management for the entire Mi-8 MSB acquisition project to include logistics, safety, maintenance, & training
- Management of the process of upgrading or swapping out older aircraft, either by taking them ourselves, selling them on to third parties, or modernizing them into essentially new Mi8 MSBs.
- Coordination of the regulatory requirements and policy preferences of the US and Ukrainian governments
- Compliance with ITAR export requirements
- Compliance with and protection of your rights under US law
VII. Transnational Synergies, Logistics, and Collaboration

- Coordinated regional acquisition, maintenance, and logistics will reduce costs and increase the interoperability of Latin American rotary wing assets.
- Will promote regional military integration and cooperation among willing partners and allies.
- Would permit pooled acquisition and integrated use of assets for certain missions, such as fire-fighting, medical evacuation, etc.
- Integrated standardization will vastly improve the speed and effectiveness of disaster relief, peace keeping, humanitarian assistance, and other joint international missions.
VIII. Latin America Takes Wing – A New Dimension for the Inter-American Defense Board

- A coordinated Mi-8 MSB program offers scope for Latin American countries to develop greater coherence and integration in defense policy with a view to purely Latin American needs.
- This reflects, and will in turn strengthen, regional independence and confidence.
- The IADB has a key role to play so that Latin American Nations, individually and collectively, will have a higher profile and greater international influence on the global stage.
Contact

- Security Solutions Technology
  - Charles Floyd, Tel. +1 (301) 273 5620
  - cfloyd@securitysolutionstechnology.com

- Security Solutions Technology:
  - Manfred Schweitzer, Tel +1 (202) 375 0638
  - mschweitzer@bellsouth.net