PROPOSAL MI-8MSB HELICOPTERS

GENERAL INFORMATION

The purpose of creating of the Mi-8MSB helicopter is need to improve the flight performance of Mi helicopters during operating in hot climate, high-altitude take-off areas and high altitudes.

Advantages of Mi-8MSB helicopter:

- maintenance of take-off power up to the temperature of +55°C and up to the height of 4600 m;
- easy starting at high-mountainous and hot climate conditions;
- possible basing at altitudes up to 5000 m;
- up to 20 % fuel economy in comparison with standard Mi-8/Mi-17 helicopters;
- significantly extended life of the engines:
- simple maintenance, high repairability and reliability;
- steady operation in high dust- and smoke-laden conditions;
- low life cycle cost;
- high level of flight safety due to available “One Engine Inoperative 60-minute Continuous Power”;
- preparation for flight takes 5 minutes.

OUTLINE DRAWING AND PRINCIPAL DIMENSIONS

TECHNICAL SUPPORT

We supply Mi-8MSB helicopter with:

- spare parts set;
- tools and ground equipment set;
- operational documentation set.

COMPARISON OF OPERATIONAL PARAMETERS OF MI-8T and MI-8MSB/MI-17

No	OPERATIONAL PARAMETER	HELICOPTER MI-8T	HELICOPTER MI-8MSB/MI-17
1	Engine type	TV2-117A	TV3-117VMA- SBM1V-03
2	Total service life , h	7500	12000
3	TBO, h	1500	5000
4	Engine power, hp	2x1500	2x2000
5	Engine power on emerg. mode, hp	-	2800
6	Service ceiling, m	4500	7300
7	Engine operating time on emergency mode, sec	-	3600
8	Quantity of emergency modes' turning-on, times	-	8
9	Flight range, km	up to 470	up to 650
10	Flight speed, km/h: - maximum - cruise	 250 220	 260 240
11	Fuel consumption per hour, kg/h	580	520
12	Maximum ambient temperature, °C	+15	+55
13	Maximum take-off weight, kg	12000	13000
14	Standard take-off weight, kg	11100	11100
15	Altitude at which engine take off power is flat-rated, m	1600	4600

TV3-117VMA-SBM1V-03 ENGINE SPECIFICATIONS

Turboshaft engine with single-shaft gas generator and free turbine is flat-rated up to high ambient temperatures, altitude of deployment and flight in comparison with existing TV3-117 helicopter engines.

1. POWER RATING (SLS, ISA), HP

- 2.5-minute OEI and 60-minute continuousOEI (Cont 1) 2800
- 60-minute continuous OEI (Cont 2) 2000
- 30-minute continuous take-off 2000
- Take-off 2000
- Maximum continuous 1700
- Cruise I 1500
- Cruise II 1200
- Idle, max 200

2. MAXIMUM CONTINUOUS POWER RATING (H=0, Mfl=0, ISA):

- 2.5-minute OEI and 60-minute continuous OEI (Cont 1) flat-rated tamb, C° ..... +25
- Take-off and 60-minute continuous OEI (Cont 2) flat rated up to tamb, C° ..... +58

3. SPECIFIC FUEL CONSUMPTION KG/(HP^H)

- at take-off power rating, max., kg/(hp^h) 0,220

Variants of helicopters cabin:

1 (first) variant

1. УШВ-1 (UShV-1) Blade pitch indicator. Pilot
2. ИТЭ-1 (ITE-1) Main rotor rpm indicator. Pilot
3. RA-4500 Radio-altimeter switch
4. PFD (MFD10.SP0.00). Pilot
5. ТСДК-2 (TSDK-2) Lighting indicator panel, red. Pilot
6. ТСДК-2 (TSDK-2) Lighting indicator panel, yellow. Pilot
7. MFD (MFD10.SP0.00). Pilot
8. B18 SATHCOM Aviation clock. Pilot
9. LUN1106 Airspeed indicator
10. LUN 1241 Attitude indicator
11. EICAS (MFD10.SP0.00) Pilot central panel
12. LUN 1183 Vertical speed indicator
13. LUN 1128 Barometric altimeter
14. B18 SATHCOM Aviation clock. Copilot
15. RT-600 Radio compass control panel
16. MFD (MFD10.SPO.00). Copilot
17. ТСДК-2 (TSDK-2) Lighting indicator panel, yellow. Copilot
18. ТСДК-2 (TSDK-2) Lighting indicator panel, red. Copilot
19. PFD (MFD10.SPD.Q0). Copilot
20. ИТЭ-1 (ITE-1) Main rotor rpm indicator. Copilot

21. RIEKER Backlash indicator. Copilot
22. ACU6101 control panel of DVCS6100 digital voice communication system. Copilot
23. Garmin GTN 650. Copilot
24. АП-34Б2 (AP-34B2) Autopilot zero indicator
25. CLN-8 Control panel of RN-7 map generator. Copilot
26. ACU6101 Control panel of DVCS6100 voice communication digital system. Pilot central panel
27. 36V converter switch
28. Fuel bleeding switch
29. Engine electronic governor control panel
30. CLN-8 Control panel of RN-7 map generator. Pilot
31. АП-34Б (AP-34B) Autopilot control panel
32. Garmin GTH 650. Pilot
33. ACU6101 control panel of DVCS6100 digital voice communication system. Pilot
34. RIEKER Backlash indicator. Pilot

1 (first) variant

No	Model	Description
1.	YLUB-1 (UShV-1)	Blade pitch indicator. Pilot
2.	I/IT3-1 (ITE-1)	Main rotor rpm indicator. Pilot
3.	RA-4500	Radio-altimeter switch
4.	PFD	(MFD10.SP0.00). Pilot
5.	TCflK-2 (TSDK-2)	Lighting indicator panel, red. Pilot
6.	TCflK-2 (TSDK-2)	Lighting indicator panel, yellow. Pilot
7.	MFD	(MFD10.SP0.00). Pilot
8.	B18 SATHCOM	Aviation clock. Pilot
9.	LUN1106	Airspeed indicator
10.	LUN 1241	Attitude indicator
11.	El CAS	(MFD10.SP0.00) Pilot central panel
12.	LUN 1183	Vertical speed indicator
13.	LUN 1128	Barometric altimeter
14.	B18 SATHCOM	Aviation clock. Copilot
15.	RT-600	Radio compass control panel
16.	MFD	(MFDIO.SPO.OO). Copilot
17.	TCflK-2 (TSDK-2)	Lighting indicator panel, yellow. Copilot
18.	TCflK-2 (TSDK-2)	Lighting indicator panel, red. Copilot
19.	PFD	(MFD10.SPD.Q0). Copilot
20.	I/IT3-1 (ITE-1)	Main rotor rpm indicator. Copilot
21.	RIEKER	Backlash indicator. Copilot
22.	ACU6101	Control panel of DVCS6100 digital voice communication system. Copilot
23.	Garmin GTN 650.	Copilot
24	АП-34Б2 (АР-34В2)	Autopilot zero indicator

1 (first) variant

No	Model	Description
25.	CLN-8	Control panel of RN-7 map generator. Copilot
26.	ACU6101	Control panel of DVCS6100 voice communication digital system. Pilot central panel
27.		36V converter switch
28.		Fuel bleeding switch
29.		Engine electronic governor control panel
30.	CLN-8	Control panel of RN-7 map generator. Pilot
31.	АП-34Б (АР-34В)	АП-34Б (АР-34В) Autopilot control panel
32.	Garmin GTH 650.	Pilot
33.	ACU6101	Control panel of DVCS6100 digital voice communication system. Pilot
34.	RIEKER	Backlash indicator. Pilot

2 (second) variant

2 (second) variant

No	Model	Description
1.	A-037	Altitude radio altimeter
2.	GTN-750	Airborne avionics navigation system equipment GRS/VOR/LOC/GS/COMM
	KX165A	Airborne avionics navigation system equipment GRS/VOR/LOC/GS/COMM
	KR-22	Marker receiver
	KN-63	DME
3.	Алмаз-УП	Voice warning equipment
4.	ST3400H	HTAWS
5.	AD 32	Air data system
6.	БАС-В	Airborne integrated built in test (BIT) and crew warning system
7.	Ice Detector 0871CT2	Ice detector
8.	CAS-67A	TCAS
9.	KT 76C/GTX-330D	Aircraft transponder
10.	RDR-2100	Weather surveillance radar
	EX600	MFD
	KVG350	AHS
11.	АГБ-3К сер. 3	Third (standby) artificial horizon
12.	AEROX MV54GH	Crew oxygen equipment
13.	LPG-150	Winch

LIFE LIMITS

Helicopters' service life 20,000 hours without calendar service life and helicopters' TBO 2,000 hours and 8 years and its components except aggregates indicated in Table No.1.

Table No. 1. TBO of aggregates after overhaul, which will be different from the helicopter TBO 2,000 hours within 8 years.

No	Description	Part number	TBO hrs/yeas	
1	Main Rotor Hub	8-1930-00	1500	7
2	Cyclic Pitch Control Unit	8-1950-000	1500	8
3	Fan	8А-6311-00	1500	8
4	Fan Drive Cardan Shaft	8А-6314-00	1500	8
5	Tail Rotor	8-3904-000	1000	7
6	Chain	ПР-15,875-2300-1-2 5200-02 ТУ	1000	7
7	Combination Control Hydraulic Actuator	КАУ-115А	1500	10
8	Gyro Horizon	АГБ-3К ser.3	3000	5
9	Generator	СГС-40ПУ, ГТ40ПЧ8В	1500	8

Main gearbox VR-14 TBO - 2000 hours within 12 years.

TV3-117VMA-SBM1V-03 ser. engine life limits:
- Time before the first overhaul and TBO - 2,000 hours, with extension up to 5,000 hours.
- Total life - 12,000 hours, 12,000 cycles

TRAINING

I AM AERO LLC will arrange an enhanced training of the flight and maintenance personnel in specific operation and maintenance features of the helicopters. Mandatory requirement for the enhanced training is as follows: the specialists shall have skills and experience in operation and maintenance of Mi-8, Mi-17 helicopters.

Training will be provided at the certified Training Center of I AM AERO LLC include:

- theoretical training of flight and maintenance personnel;
- simulator training of flight personnel;
- practical training of maintenance personnel;
- flight training of helicopter crews.

Total period of the enhanced training is up to 30 calendar days.

I'M AERO LLC.
CEO
Kirill Ratnikov