# GENERAL SPECIFICATION OF REFURBISHED BLACK HAWK UH 60 L SERIES HELI FOR BANGLADESH ARMY (DP-5)

Serial		Description	To be filled up by Principal/Supplier
PART	-1: GENERAL SPECIFICATION		
1.	Model of Helicopter	Black hawk UH 60 L Series	
2.	Country of Origin	USA	
3.	Country of Manufacture	USA	
4.	Country of Assembly	USA	
5.	Year of Manufacture	Not earlier than 1980, prefer latest version	
6.	Model Validity	Minimum 20 years	
7.	Name of Principal with Complete Address (Office address, Telephone, Fax, Email and Web address)	Details to be mentioned	
8.	Name of Manufacturer with Complete Address (Office address, Telephone, Fax, Email and Web address)	Details to be mentioned	
9.	Name of Local Agent with Complete Address (Office address, Telephone, Fax, Email and web address)	Details to be mentioned	
10.	General Function and Operational Capabilities	<ul> <li>a. The aircraft should be capable of operating during day and night under all-weather condition.</li> <li>b. The aircraft should have both Day and Ni VFR and IFR certified from FAA/EASA.</li> <li>c. The aircraft should have fully functional dual control system for pilot and co-pilot.</li> <li>d. The aircraft should have different convertible configuration to perform multi-mission tasks as CSAR, SAR, Armed Recce, air to ground fire support, troops transportation.</li> </ul>	SSURAL DEFENS

Serial	Subject	Description	To be filled up by Principal/Supplier
PART	-2 : TECHNICAL SPECIFICATION	e. The aircraft should be NVG certified and have full NVG compatibility.  f. The Aircraft should have a hard point for both winch and weapon.  g. The aircraft should provide protection from small arms fire to vital aircraft components and crew.  h. The aircraft should have environmental control system to reduce crew fatigue.  j. The aircraft should have lowest IR and noise signature to avoid enemy detection.  k. The aircraft should have chaff or flare to avoid enemy missile attack.	
11.	General Description	Must have all weather day and night Visual Flight Rules (VFR) & Instrument Flight Rules (IFR) operation capabilities.	
12.	Certification of the Aircraft	To be ICAO/FAA/EASA certified/ approved. (Details to be mentioned) (Certificate to be provided)	
13.	Aircraft Dimension (Overall Span, length and height)	Details to be mentioned	
14.	Ballistic Tolerance	Details to be mentioned	
15.	Crash Resistance	Details to be mentioned	
16.	System Redundancy	Details to be mentioned	
17.	Passenger, Medical Evacuation ar	nd Cargo	SNERALDEFEA
	a. Seating Capacity	2+2(Gunner)+12. (Details to be mentioned)	(3)

erial	Subject	Description	To be filled up by Principal/Supplier
	b. Passenger Seating Arrangement	Details to be mentioned with flight endurance in such configuration  a. Standard Configuration b. Troops transportation configuration c. Medevac configuration d. VIP configuration	To be fined up by Trificipal/Supplier
	c. Seat Pitch	To be mentioned  a. Troops transportation configuration  b. Medevac configuration  c. VIP configuration	
	d. Executive Seating Arrangement	Details to be mentioned	
	e. Medical Evacuation/ Causality Evacuation	Minimum: 2x Pilot +2 x Paramedics +2 x Litter (Stretcher) provision to be Certified. Sliding / litter/ ramp/ clamshell door for EMS. (Details to be mentioned)  a. Should be able to transport 2 lying patients in stretchers with 2 paramedic and additional attendance.  b. There should be easy entry and exit facility for the stretchers.  c. Life support equipment should be integrated in the medevac configuration.	
	f. Cargo Loading Arrangement	Details to be mentioned about internal and external cargo loading and securing system including weight limit and integral security equipment like cargo net, sling etc.	SCRAL BEEF
	g. Emergency Medical Service	Optional	(called a called a ca

Serial	Subject	Description	To be filled up by Principal/Supplier		
	(EMS) Facility	Para Para Para Para Para Para Para Para	To be fined up by 1 imelpair outphilot		
18.	Weight, Endurance and Range				
	a. Ramp Weight	To be mentioned			
	b. Maximum Takeoff Weight	10,000 Lb and above			
	c. Maximum Landing Weight	To be mentioned			
	d. Useful Load	Min 4100 lb			
	e. Maximum Payload	To be mentioned			
	f. Basic Empty Weight	10,500 lbs			
	g. Range and Endurance	Minimum 2.5.0 hours (MCP) / Minimum 250 NM. (maximum GW, ISA, Standard fuel, no reserve at sea level)			
	h. Maximum Zero Fuel Weight	Details to be mentioned			
- 1	<ul> <li>j. Fuel Consumption (Rate Per hour)</li> </ul>	Details to be mentioned			
	k. Range with standard fuel tank	To be mentioned			
	<ol> <li>Range with additional fuel tank (If available)</li> </ol>	Details to be mentioned			
	m. Cargo Hook Capacity	3400 (Minimum)			
	n. Winch/Hoist Capability	Minimum 2 persons at a time			
19.	Other Performances				
	a. Maximum Cruise Speed	To be mentioned			
- [	b. Normal Cruise Speed	To be mentioned			
	c. Service Ceiling	To be mentioned			
	d. Maximum Operational Altitude	To be mentioned			
	e. Maximum Operational Temperature	45°C and above			
	g. Rate of Climb (All Engine Operative, AEO and One Engine Inoperative, OEI)	Details to be mentioned	WERAL DEFEN		

Serial	Subject	Description	To be filled up by Principal/Supplier
20.	a. Type of Engine	Turbine engine with FADEC (Full authority digital engine control). Helicopter must have particle separator(s) / sand filter.	To the state of th
	b. Number of Engine	Multi Engine	
	c. Brand and Model of Engine	General Electric T700-GE-701D/CC (minimum 70% of component life available)	
	d. Name and address of Manufacturer	To be mentioned	
	e. Country of Origin	Group A	
	f. Country of Manufacture	Group A	
	g. Country of Assembly	Group A	
	h. Minimum Engine Power Ratings (100% RPM)	Engine Power Rating (For Take off) = Minimum 2 x 1662 SHP. Engine Power Rating Continue (MCP) =	
		Minimum 2 x 1662 SHP. Engine Emergency Power (OEI 30") = Minimum 1800 SHP ( To be mentioned)	
	j. Engine Operation Life	Minimum 5000 hours (minimum 70% of component life available) to be available	
	k. Engine Time Before Overhaul (TBO)	Details to be mentioned	
	I. Number of overhaul done so far	Details to be mentioned	
	m. Main Gear Box	Details to be mentioned including dry run capability in case of MGB oil leakage	
	n. Engine Test Bench Certificate	Engine Test Bench Report (for each model) which was prepared by manufacturer during production of engine at manufacturing factory must be produced and submitted to the PSI team for each model (duly signed and stamped by the manufacturer). Other engines (mentioning- engine number) of the same model must be certified confirming the engine Test Bench	COLSAL DEFENCES

Serial	Subject		Description	To be filled up by Principal/Supplie
		Report by the ma stamped).	nufacturer (duly signed and	
	p. Type of APU	Details to be men	tioned	
	q. Minimum Engine Power rating	Details to be men	tioned	
21.	Life of Major Components	Component	TBO/ Retirement	
		Main Rotor Blade	Minimum 4000 Hours	
		Tail Rotor Blade	Minimum half of the life	
		A.P.U	Minimum 3000 Start	
		Main Rotor Hub	Minimum 2500 Hours	
		Main Gear Box	Minimum 6000 Hours	1
		Tail Gear Box	Minimum half of the life	1
	-	Intermediate Gear Box	Minimum half of the life	
		Servo Actuator	Minimum 8000 Hours	
		Power Transmission Shaft	Minimum 3000 Hours	
		Stationary Swash Plate	Minimum 10000 Hours	
		Main Rotor Shaft	Minimum 7000 Hours	
	ne, Fuselage and Cabin			
22.	a. Composition of Airframe	Details to be ment	ioned	
1	b. Country of Origin	USA		
1	c. Country of Manufacture	USA		
- 1	d. Country of Assembly	USA		
I	e. Cabin Dimension	Details to be ment	ioned	
	f. Baggage Compartment and Dimension	Should have cargo mentioned)	compartment. (Details to be	
	g. Number of Doors (Including Cargo Door, if available)	Details to be ment	ioned	CNU AL DEFENCE
	h. Dimension of all Doors (Including	Details to be ment	ioned	
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Serial	Subject	Description	To be filled up by Principal/Supplier
	Cargo door, if available)		
	j. Airframe Operation Life	Preferably on condition. (Details to be mentioned)	
	k. Airframe Time Before Overhaul (TBO)	Preferably on condition. (Details to be mentioned)	
	Zero time structural inspection	Completed before delivery	
	m. Corrosion Protection applied and documented	To be mentioned	
	p. No history of major structural repairs or modification that affects airworthiness	To be mentioned	
	q. Pressurization	Pressurized/ Non-pressurized Cabin. (In case of pressurized cabin, details to be mentioned)	3.5
	r. Availability of Oxygen (In flight)	To be mentioned	
	s. Number of Oxygen Mask	To be mentioned	
23.	Air Conditioning System		
	a. Type and Capacity	Details to be mentioned	
	b. Brand and Model	To be mentioned	
	c. Name and address of Manufacturer	To be mentioned	
	d. Country of Origin	Group A	
	e. Country of Manufacture	Group A	
	f. Country of Assembly	Group A	
	g. Details of Air condition system	a. Air condition for cockpit and cabin same or separate.      b. Impact of Air condition on overall performance of helicopter. ( any power reduction)	
24.	Landing Gear System		CHIERAL DE
	a. Type of Landing Gear	Wheel type. Preferably non-retractable.	

Serial	Subject	Description	To be filled up by Principal/Supplier
	b. Name and address of Manufacturer	To be mentioned	
	c. Country of Origin	USA	
	d. Country of Manufacture	USA	
	e. Life of Landing Gear System	To be mentioned Limitation of Landing gear like number of landing before overhaul	
	f. Capability of Landing gear	In case of emergency and hard landing	
25.	Tyre		
	a. Type of Tyre	Details to be mentioned ( Certified by FAA)	
1	b. Brand	To be mentioned	
	c. Tyre size	To be mentioned	
	d. Country of Origin	Group A	
	e. Country of Manufacture	Group A	
	f. Country of Assembly	Group A	
	g. Life of Tyre	To be mentioned	
26.	Rotor		
	a. Type of Rotor	a. Main Rotor: Minimum two blades. Flap restraints. Tail Rotor: Semi-rigid, two-bladed, see-saw type OR Fenestron. Details to be mentioned about Main Rotor System: number of blades, type of main rotor blade, fully articulated system or not, ballistic tolerance  b. Tail Rotor System: number of blades, Fenestron or normal, fully articulated system or not, ballistic tolerance	
	b. Brand	To be mentioned	
1	c. Rotor size	To be mentioned	COM DE
	d. Country of Origin	USA	Control of the contro
	e. Country of Manufacture	USA	900

Serial	Subject	Description	To be filled up by Principal/Supplier		
	f. Country of Assembly	USA			
	g. Life of Rotor	a. Life of main rotor blade minimum to be 8000 hours     b. Life of Tail rotor blade minimum to be half of the life     c. Overhaul facility of blades (To be mentioned)			
27.	Fuel System				
	a. Type of Fuel	Jet Fuel			
	b. Refuelling System	Details to be mentioned			
	c. Fuel Capacity	To be mentioned			
	d. Maximum Unusable Fuel	To be mentioned			
	e. Maximum Usable Fuel	To be mentioned			
	f. Component of Fuel System	Details to be mentioned			
	g. Fuel Tanks	Details to be mentioned. Should be a. Crash resistant b. Ballistic tolerant			
28.	Electrical System	Details to be mentioned including system redundancy			
29.	Battery				
	a. Type of Battery	To be mentioned			
	b. Model of Battery	To be mentioned			
- [	c. Name of Manufacture	To be mentioned			
	d. Country of Origin	USA			
	e. Country of Manufacture	USA			
	f. Country of Assembly	USA			
	g. Life of Battery	To be mentioned	SERAL DEC		
30.	Avionics and Instruments ( New	equipment's)			

Serial	Subject	Description	To be filled up by Principal/Supplier
	a. List of Standard instruments	Details to be mentioned including minimum master equipment list of instruments	
	b. Cockpit	NVG compatible Glass Cockpit /Conventional (ICAO/FAA certified /approved).	
	c. Number of Panel (both Pilot and Co-Pilot Side)-Primary and Secondary	PFD, MFD for both pilots. Details to be mentioned	
	d. Digital Moving Map	To be Available	
	e. Dimension of Panel	Details to be mentioned	
	f. Make and Model of panel	Details to be mentioned	
	g. Availability of EHSI, EADI, EFIS, EICAS, IESI	To be Available	
	h. TCAS	To be Available	
	j. TAWS	To be Available	
	k. GPS	To be Available	
	I. FMS	Details to be mentioned	
	m. Auto pilot (Make and model)	Preferable to have 4 axis auto pilot. Details to be mentioned	
	n. Weather Radar (Make and model)	To be Available. Details to be mentioned	
	o. Communication: VHF, HF etc.	Details to be mentioned	
	p. Navigation: ADF, VOR, ILS, DME, Marker Beacon	Details to be mentioned	
	q. CVR & FDR	Details to be mentioned	
	r. Transponder Mode S	Details to be mentioned	
	s. Radio Altimeter	Details to be mentioned	
	t. Passenger Address System	Details to be mentioned	
	u. ELT	Details to be mentioned	
	v. FLIR/ Aerial Photography etc.	Details to be mentioned (if any)	
	w. Stand by instruments	Details to be mentioned	
31.	Anti-Icing & De-Icing System (Optional)	Should have Anti-Icing & De-Icing System.  Details to be mentioned	SNEBAL DEFEN
32.	Hard Point	To be available for Rappelling / Fast Roping/	13

Serial	Subject	Description	To be filled up by Principal/Supplier		
		Para Drop and armament.			
33.	Rescue Hoist	To be available			
34.	Crash protection	Mention if any crash protection is available like crash resistant landing gear, seats of fuel system etc.			
35.	System Redundancy	Mention the redundancy of vital helicopter systems like hydraulic system, fire system, fuel system, electric system etc.			
36.	NVG	The State of the State of the State of			
	a. Type of Night Vision	The helicopter should have certified NVG capability with helmet, goggles (Gen 4 with white phosphor) and other accessories			
	b. Brand	To be mentioned, preferably ANVIS-9/ most upgraded version			
	c. Country of Origin	Group A			
	d. Country of Manufacture	Group A			
	e. Country of Assembly	Group A			
37.	Fire Protection System				
	a. Power Plant	Details to be mentioned			
	b. Cockpit, Cabin and Cargo Compartment	Details to be mentioned			
38.	List of Optional Items/Avionics/ Equipment which may increase mission/ operational capability of the helicopter	To be mentioned, prefer to have chaff or flare			
39.	Any Other Capability/ Extraordinary capability of the helicopter	To be mentioned			
40.	Colour	The paint scheme of the aircraft will be as per Inventor's requirement	WERAL DEFEN		
41.	Warranty	Details to be mentioned			

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Serial	Subject	Description	To be filled up by Principal/Supplier
42.	Standard Maintenance Tools and Accessories	List of standard maintenance tools and accessories with country of origin as per manufacture's standard to be provided along with the offer	то ве плестор ву Етпералопринег
43.	Optional Maintenance Tools and Accessories	List of optional maintenance tools and accessories with country of origin as per manufacture's standard to be provided along with the offer	
44.	Publications	Under mentioned manuals/ catalogues are to be provided with each aircraft:  a. Latest Flight Manual (in English).  b. Latest Maintenance Manual (in English).	
45.	Certificate	Category-A landing and take off Certificate. Helicopter to be certified for day/ night VFR and IFR.	2:
46.	Optional Accessories	Brand, model, origin, range, generation (If any) and other details to be mentioned	
	<ul> <li>Search Light/Night Sun with NVG capability</li> </ul>		
	<ul> <li>b. Fire fighting bucket / equipment</li> </ul>	Details to be mentioned	
	c. Loud hailer / PA system	Details to be mentioned	
	d. EGPWS	Details to be mentioned	
	e. WAAS	Details to be mentioned	
47.	Armament and Ammunition	To be available for window guns, Gun Pod and Ammunition (M134D and M240). (Details to be mentioned including system, calibre, usages, and country of origin, country of manufacturer, weight, range, any interoperable system, and other details to be mentioned.)	STEPAL DEFE

al	Subject	Description	To be filled up by Principal/Supplier
		Optional availability of EGMS with gun system, rocket pod to be mentioned including Ammunition. (Price to be quoted Separately) Optional availability of Claws wing with rocket pod and Missile Launcher/ Pod to be mentioned Including Ammunition. (Price to be quoted Separately) EGMS/ Claws wing is preferred	
	GUN		
Ī	a. Name of the Gun	To be mentioned	
	b. Country of Origin	To be mentioned	
	c. Country of Manufacture	To be mentioned	Q
	d. Country of Assembly (If Different than Country of Origin)	To be mentioned	
	e. Year of Manufacture	Not earlier than the year of the contract	
	f. Model validity	Details to be mentioned	
	g. Number of Crew	To be mentioned	
	h. Name, Address, Contact Number, Website/ e-mail Address of the Manufacturer	To be mentioned	
	j. Name, Address, Contact Number, Website/ e-mail Address of the Principal	To be mentioned	
	k. Name, Address, Contact Number, Website/ e-mail Address of the Local Agent	To be mentioned	
	I. Calibre (mm)	To be mentioned	
	m. Type	To be mentioned	
	n. Model	To be mentioned	
	p. Weapon operating system (Automatic/Semiautomatic)	To be mentioned	CHERAL DE
0	<ul> <li>q. Ammunition Feed System</li> </ul>	To be mentioned	

ial	Subject	Description	To be filled up by Principal/Supplier
	r. Type and name of compatible ammunition, the gun can fire	To be mentioned	
- [	s. Maximum Muzzle Velocity	To be mentioned	
	t. Maximum Chamber Pressure	To be mentioned	
	u. Maximum Rate of Fire (Rounds per Minute)	To be mentioned	
	v. Sustained Rate of Fire (Rounds per Minute) (Firing for a prolonged period in operational situation)	To be mentioned	
	w. Effective Range against aerial target(m)	To be mentioned	
	x. Effective Range against ground target(m)	To be mentioned	
	y. Maximum Elevation (Degree)	To be mentioned	
	z. Maximum Depression (Degree)	To be mentioned	4
	aa. Maximum Traverse (Degree)	To be mentioned	
	bb. Length of Barrel (mm)	To be mentioned	
	cc. Length, width and height of the gun	To be mentioned	
	dd. Barrel Life	To be mentioned	
	ee. Number of spare barrel available for each weapon	To be mentioned	
	Number of rifling	To be mentioned	
	ff. Compatibility of the ammunition with ammunition used by BD Army	To be mentioned	
	gg. Provision of assembling of gun system with the helicopter	To be mentioned	
	hh. Provision of disassembling of gun system	To be mentioned	
_	jj. Sight	To be mentioned	STOM DEFENO
1	kk. Capacity of ammunition box	To be mentioned	

ıl	Subject	Description	To be filled up by Principal/Supplier
	(Rounds) for each weapon		
	II. Ammunition stowage (Rounds) with specific location	Details to be mentioned	
	mm. Total weight of the gun(kg)	To be mentioned	
	nn. Operating Temperature	To be mentioned	
	pp. Storage Temperature	To be mentioned	
	qq. Operation During Fog, Rain and Snow	To be mentioned	
	EGMS (External Gun Mount SYSTE	<u>M</u> )	
1	a. System	Details to be mentioned	
-	b. Model	To be mentioned	
	c. Usages	Details to be mentioned	
	d. Country of origin	To be mentioned	
	e. Country of manufacturer	To be mentioned	
	f. Weight	To be mentioned	
	g. Any interoperable system	Details to be mentioned	
	h. Azimuth	To be mentioned	
	j. Elevation	To be mentioned	
	k. Name and caliber of the guns that can be mounted on the EGMS	To be mentioned	
- 10	I. No of Guns can be mounted on the EGMS	To be mentioned	
	m. Mounted Gun operating system	Details to be mentioned	
	n. Other details	To be mentioned	
	Claws Wing		
-	a. System	Details to be mentioned	
	b. Model	To be mentioned	CAM DEFE
	c. Usages	Details to be mentioned	(3)
_	d. Country of origin	To be mentioned	86n

Serial	Subject	Description	To be filled up by Principal/Supplier
	e. Country of manufacturer	To be mentioned	
	f. Weight	To be mentioned	
	g. Any interoperable system	Details to be mentioned	
	h. Azimuth	To be mentioned	
	j. Elevation	To be mentioned	
	k. Length of claws wing	To be mentioned	
	Type and caliber of Rocket and Missiles can be fired by the claws wing	To be mentioned	
	m. No of Rockets and Missiles can be fired by the claws wing	To be mentioned	
	n. Firing system of the Rocket launcher and Missile launcher of the claws wing	To be mentioned	
	p. Other details	To be mentioned	
48.	Delivery Time/Period	Maximum 12 Months	
PART-	3: TRAINING REQUIREMENT		
49.	Pilot Training	To be provided. Cost of following trainings to be mentioned separately:  a. Pilot training to include pilot-incommand rating and practice of all emergencies.  b. Instructor rating training.  c. Maintenance Check Flight pilot rating training.	
50.	Repair and Maintenance Training	a. Various levels of repair, maintenance and troubleshooting training for independent field maintenance to be provided.     b. Cost of each type of training to be mentioned separately.	OSBAL DEFEN
51.	Equipment Management Training	a. Inventory control and management training to be provided.	9
51.	Equipment Management Training	separately.  a. Inventory control and management training to be	

Serial	Subject	Description	To be filled up by Principal/Supplier
		b. Cost to be mentioned.	
PART	4: REPAIR AND MAINTENANCE REC	QUIREMENT LESS LIST OF SPARES	
52.	Level of Repair	Details to be mentioned	
53.	Manuals for Preventive Maintenance and Repair	Details to be mentioned	
54.	Provision of Repair, Maintenance and after Sales Service Support	Details to be mentioned including online maintenance support	
55.	Books & Publications: a. Owners/ operators manual in English (book type) including CD/ DVD. b. Workshop/ repair manual in English (book type) including CD/ DVD. c. 100% updated original master spare parts catalogue in English (book type) including CD/ DVD. d. Complete and updated master spare parts price catalogue/ list in English (book type) including CD/ DVD. e. Technical and maintenance update to be provided free of cost for life time.	To be provided (As per requirement of Electrical and Mechanical Engineers Directorate).  To be provided (As per requirement of Electrical and Mechanical Engineers Directorate).  To be provided (As per requirement of Electrical and Mechanical Engineers Directorate).  To be provided (As per requirement of Electrical and Mechanical Engineers Directorate).	
56.	Software and data update of all Avionics and Instruments	To be provided free of cost life time	
57.	Maintenance package	For minimum 3 years or 500 hours including one spare Engine (Cost to be mentioned separately)	
ART-	5: LIST OF SPARES		roal no
58.	List of Standard Spare Parts, Tools and Accessories	To be provided (As per requirement of Electrical and Mechanical Engineers Directorate).	

Serial	Subject	Description	To be filled up by Principal/Supplier
59.	List of consumable items	To be provided (As per requirement of Electrical and Mechanical Engineers Directorate).	
60.	List of 5 % Spare List (fast and slow moving item)	To be provided (As per requirement of Electrical and Mechanical Engineers Directorate).	
PART-	6: TOOL LIST FOR DIFFERENT LEVI	EL OF MAINTENANCE	
61.	Analysing, Measuring, Testing/ Fault Finding and Diagnostic Set	To be provided (As per requirement of Electrical and Mechanical Engineers Directorate)	
62.	Ground Support Equipment (GSE) and Special Service Tools (SST)	To be provided (As per requirement of Electrical and Mechanical Engineers Directorate)	2
63.	Special Service Materials (SSM)	To be provided (As per requirement of Electrical and Mechanical Engineers Directorate)	
PART-	7: FINANCIAL SPECIFICATION		
64.	Financial Specifications	Payment related options and issues are to be mentioned in details.	

