

1 Scope

This document specifies the standard status of MA600F cargo aircraft.

This document is applicable to MA600F cargo aircraft.

2 Aircraft Status Description

MA600F cargo aircraft is the upper wing medium and short ranged turbo-prop regional aircraft. The aircraft still adopts two pilots system, can load 7 LD2 container, 5 LD3 container, 5 88in×53in container panel or 5 88in×61.5in container panel respectively.

Refer to figure 1 for the aircraft 3-view drawing.

The placard for aircrew and ground crew is in English.

The aircraft can be painted with the customer designated pattern.

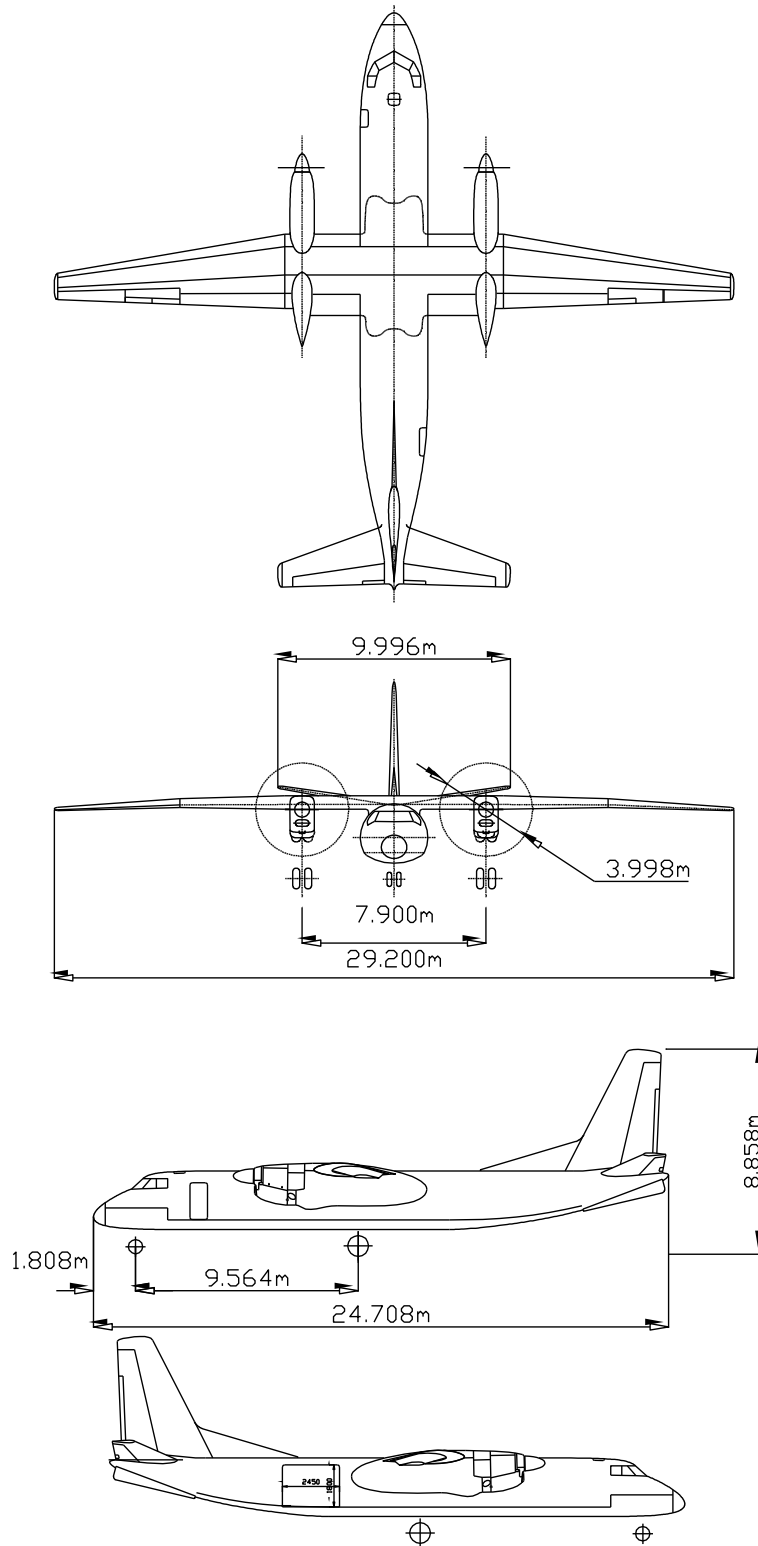


Figure 1 MA600F Aircraft F Status 3-view Drawing

3 Main Technical Data

3.1 Main Geometry Data

Aircraft Length	24.708 m
Wing Span	29.200 m
Parking Height (Free State)	8.853 m
Wing Area	74.980 m ²
Propeller Diameter	3.998 m
Space between Propeller and Aircraft Body	0.688 m
Wheel Track	7.900 m
Wheel Base	9.564 m
Body Max Width	2.90 m
Cargo Compartment Max Width	2.77 m
Cargo Compartment Max Height	1.91 m
Cross-section Area	4.44 m ²
Cargo Compartment Max Volume	74 m ³
Cargo Compartment Door Size	2.45m(W)×1.80m(H)
Entrance Door Size	0.76m(W)×1.58m(H)

3.2 Weight and CG Data

Max Taxi Weight	21900 kg
Max Takeoff Weight	21800 kg
Max Landing Weight	21600 kg
Max Payload	6100 kg
Max Fuel Weight	4030 kg
Manufacturing Empty Weight	13420 kg
Using Empty Weight	13580kg
Manufacturing Empty Aircraft CG	
Gear Up	15.28% MAC
Gear Down	18.35% MAC

3.3 Main Performance Data

3.3.1 Takeoff Distance (Consider the single engine condition and max takeoff weight according to CCAR25 requirement)

Sea Level, ISA condition, flap 15°: 1705m (5593 ft)

Sea Level, ISA condition, flap 5°: 1645m (5396 ft)

3.3.2 Landing runway length (max landing weight)

Dry runway, destination airport (factor 1.667)

Sea level, ISA condition: 1460m (4790 ft)

3.3.3 Single engine clean ceiling (95% MTOW)

ISA condition, APU air bleed: 3825m (12550ft)

Max operation altitude: 7620m (25000ft)

3.3.4 Max cruise speed(TAS), 95% MTOW, ISA condition

H=6000m (19685ft): 446km/h (240kn)

3.3.5 Leg Performance

ISA, No wind, MTOW, Max payload, Cruise altitude:6000m(19685ft), IFR backup fuel:

Max load range: 835km(451nm)

Block fuel : 1365kg(3009lb)

Block time: 2.15h

3.3.6 Full fuel distance 2116km

4 Standard Cabin Layout

The cabin layout of MA600F aircraft F status is cockpit, main cargo compartment and rear cargo compartment along aft direction.

4.1 Cockpit

In the cockpit, there are instrument panel, central console, left and right console, overhead control panel, left and right electronic equipment rack, two pilot seats and a foldable observer seat behind the left and right pilot seat; the partition door is installed; a set of main landing gear down switch light is installed to the upper left position of cockpit navigation landing signal indicator; add cargo compartment ventilation switch on the cabin environment control panel; central board installs emergency main landing gear down handle, add First-aid box at back of the right pilot in the cockpit.

4.2 Main Cargo Compartment

The cargo transfer device, guiding device and limit device are installed on the floor track.

The cargo compartment can load 7 LD2 container, 5 LD3 container, 5 88in×53in container panel or 5 88in×61.5in container panel respectively, which can meet the transportation requirement of small sized container.

9g cargo barrier net is arranged after the frame 9

The load capacity of cargo compartment floor is not less than 400 kg/m^2 .

Paint the loading mark of LD2 container, LD3 container, 88in×53in container panel 88in×61.5in container panel and 5 special container panel on the left and right side wall of the main cargo compartment.

See figure 2 for the loading layout and station of the main cargo compartment

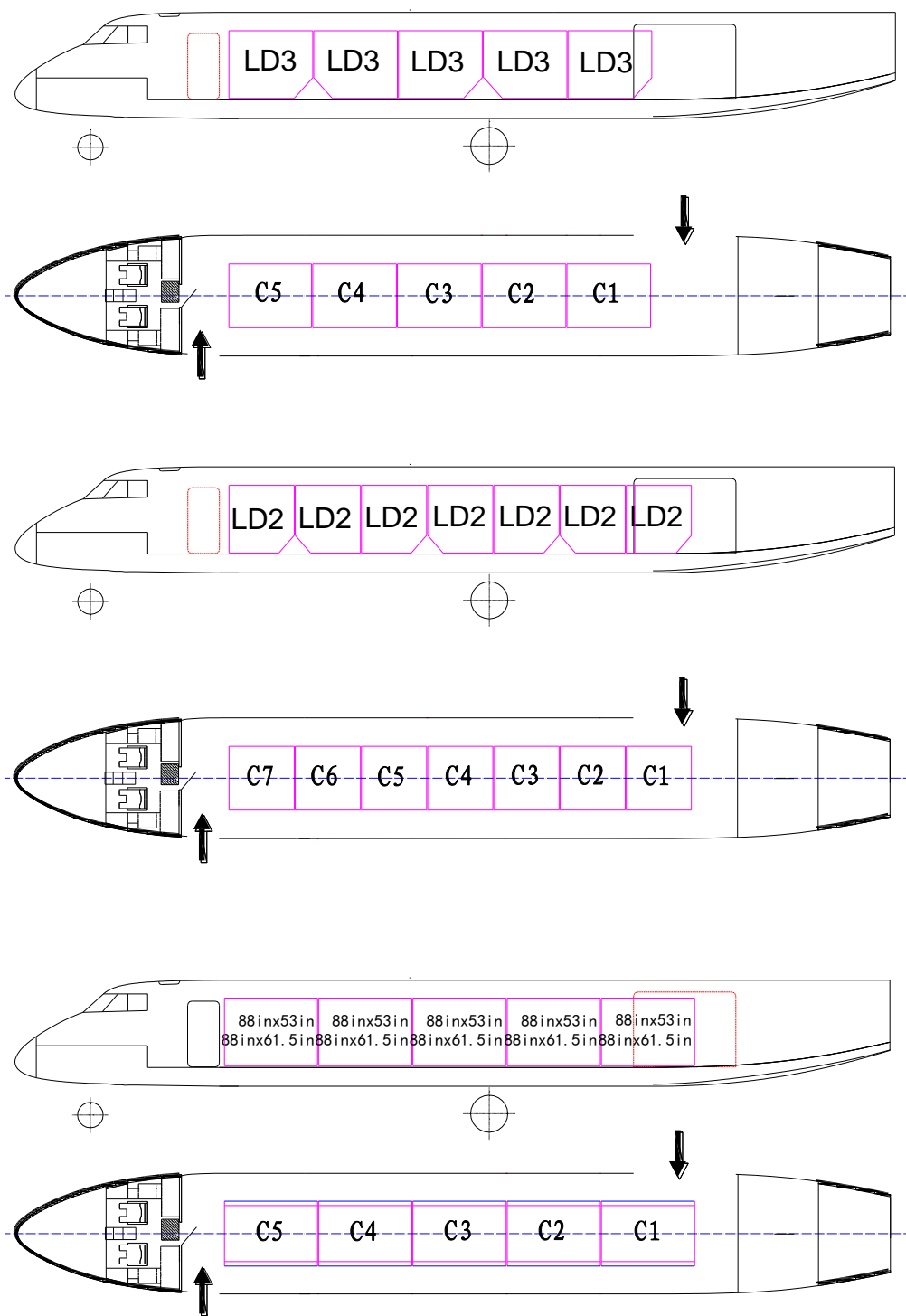


Fig. 2 Loading Layout and Station Map of the Main Cargo Compartment

4.3 Rear cargo compartment

The layout of rear cargo compartment is the same as that of MA600F aircraft

5 Aircraft Main System

5.1 Air Conditioning System (ATA 21)

The air conditioning system is composed of distribution system (including air bleed, air distribution and air recycle system), air circulation cooling, temperature control and cabin pressurization regulation system etc. The cargo compartment air distribution pipe and air supply duct have been redesigned, the cargo compartment air ventilation switch has been added to the cockpit.

5.2 Auto Flight Control System (ATA 22)

It is mainly composed of flight control computer, state selection panel, auto pilot panel, actuator of rudder, actuator of elevator, actuator of aileron and trim actuator.

5.3 Communication System (ATA 23)

It is mainly composed of HF radio, VHF communication radio, audio system and cabin voice recorder.

5.4 Power Supply System (ATA 24)

It is mainly composed of main 28.5V DC power supply system, APU 28.5V DC power supply system, three phase 115V variable frequency AC power supply system and single phase 115V/26V constant frequency AC power supply system.

5.5 Equipment and Interior Decoration (ATA 25)

The equipment in the cabin includes pilot service facility and portable emergency equipment.

No-window, single degree of curve decoration panel is used for the cargo compartment side wall.

The ceiling board is composed of center ceiling board and side ceiling board.

The surface of all the interior decoration panel is painted with imported fire-retardant coating.

5.6 Fire Prevention System (ATA 26)

The fire prevention system is composed of fire warning/smoke detection system and fire extinguishing system.

Fire warning/smoke detection system is composed of engine, APU fire warning detection system and smoke detector in cargo compartment; the fire extinguishing system is composed of the fixed fire extinguishing system for engine and APU, the portable fire extinguishing bottle in cockpit compartment. There are 10 smoke detectors on the ceiling of cargo compartment.

On the extinguishing control panel at cockpit top, the three smoke detection buttons CARGO FWD SMK(cargo foreword smoke), CARGO MID SMK(cargo mid smoke), CARGO AFT SMK(cargo after smoke). On the EICAS in cockpit instrument panel, the three smoke detection red warning information CARGO FWD SMOKE(cabin forward smoke), CARGO AFT SMOKE(rear cabin smoke), CARGO MID SMOKE(mid cabin smoke)".

5.7 Flight Control System (ATA 27)

The flight control system is composed of main control system, auxiliary control system, flap control system and gust lock control system.

The main control system is composed of aileron control system, rudder control system and elevator control system; the auxiliary control system is composed of aileron trim tab control system, aileron servo compensating tab, elevator trim tab control system, rudder trim tab and compensation adjustment tab control system.

5.8 Fuel System (ATA 28)

The fuel system includes storage system, pressure refueling system, fuel measurement and control system, fuel supply and transfer system, and ventilation system.

The storage system includes 6 sets of fuel tank; the fuel supply system supplies fuel to left and right engine by left and right independent system, which is composed of fuel supply ejection pump, fuel transfer ejection pump and fuel supply valve etc.

5.9 Hydraulic System (ATA 29)

The hydraulic system is composed of main hydraulic system and auxiliary hydraulic system.

The main hydraulic system is mainly composed of engine driven hydraulic pump, oil filter, accumulator, pressure sensor, low pressure relay etc, the auxiliary hydraulic system is mainly composed of hydraulic electric pump, oil filter, pressure sensor etc

5.10 Anti-icing and Rain Protection System (ATA 30)

Anti-icing and Rain Protection System is mainly composed of pneumatic deicing system, sensor heating, windshield heating, electric windshield wiper, propeller deicing and icing detection system.

The pneumatic deicing system includes wing and empennage deicing system, and engine air inlet duct deicing system.

5.11 Indication / Recording System (ATA 31)

Indication/recording system is composed of engine indication aircrew warning system, flight data recording system, audio warning system, digital interface unit and aviation clock etc.

5.12 Landing Gear (ATA 32)

The landing gear system is mainly composed of nose landing gear and door, main landing gear and door, landing gear retraction and extension system, wheel and brake (including anti-skid system), nose wheel steering system, landing gear position indication and warning system etc.

Install a double contactor microswitch at the down lock of each main landing gear, add a set of main landing gear down auxiliary indication system in the cockpit, the main landing gear down auxiliary indication system and original gear down indication system

are independent to each other(including wiring and indicating lights etc), the operation principle is the same.

5.13 Lighting System (ATA 33)

The lighting system is composed of cockpit lighting, cargo compartment lighting, equipment bay lighting, exterior lighting and emergency lighting etc.

The cargo compartment lighting is provided by 12 DD-2A ceiling lights on the ceiling, 4 of the lights can be used as the duty light. There are two lights installed on the internal surface of the cargo door for lighting of the cargo door area.

5.14 Navigation System (ATA 34)

It is mainly composed of total static pressure system, air data system, heading altitude system, emergency magnetic compass, synthetic electronic standby instrument, electronic flight instrument system, weather radar, enhanced ground proximity warning system, air traffic warning and anti-collision system, radio altimeter, navigation receiving system, DME, air traffic management system, GPS and flight management system etc.

5.15 Oxygen System (ATA 35)

The oxygen system is composed of crew oxygen system and portable oxygen system. There is no oxygen system in the cargo cabin, the oxygen low pressure switch on the right console of cockpit is cancelled.

5.16 Maintenance Diagnosis System (ATA 45)

The maintenance diagnosis system is composed of avionics system maintenance diagnosis system and non-avionics system maintenance data collecting processor.

5.17 APU (ATA 49)

One GTCP36—150[CY] APU produced by Honeywell is adopted.

5.18 Cargo System (ATA 50)

The cargo system is mainly composed of cargo barrier net and cargo loading system. There is a 9g cargo barrier net 54mm after frame 9 in front cargo compartment. There is a set of cargo loading system on the floor between frame 9-32 in the cargo cabin. There is a luggage net in the rear cargo compartment at frame 37.

The 9g cargo barrier net is in grid structure, which is composed of lateral net strip, vertical net strip, double lug support, fast release hook assembly and adjusting steel plate etc, used to undertake emergency landing load of 9g for 6100kg cargo.

The cargo loading system is composed of transfer device, ball bearing tray device, guiding device and limit device etc, which are used to transfer, guide and limit the unitized

cargo. The connection between cargo loading system and floor or track is fast release connector.

The cargo loading system can load 7 LD2 container, 5 LD3 container, 5 88in×53in container panel or 5 88in×61.5in container panel respectively.

The rear cargo compartment luggage net installed at frame 37 in rear cargo compartment is used to limit the movement of the bulk cargo between frame 37-40.

5.19 Door (ATA 52)

The external door is composed of boarding door, cargo door, cockpit emergency exit and landing gear well door etc. The boarding door can be used as emergency exit. The cargo door is electrically controlled, using manual control as the standby method. The opening and closing of the door inside and outside of the aircraft are electrically controlled, the emergency opening outside of the aircraft adopts manual control. The door can be turned upward by 100°.

5.20 Fuselage (ATA 53)

The fuselage is the multi stringer monocoque structure made of aluminum alloy. The pressure cabin is from frame 1 to 40, the other area is non-pressure zone.

5.21 Nacelle (ATA 54)

The left, right nacelle is composed of main landing gear well, engine compartment, fairing and tail cap. The rear section of the right nacelle is APU compartment, the rear section of left nacelle is fire extinguishing bottle.

5.22 Stabilizer (ATA 55)

The horizontal stabilizer is composed of aluminum alloy twin spar, aluminum alloy rib and skin. The left and right elevator is the single spar structure.

The vertical stabilizer is composed of aluminum alloy twin spar, aluminum alloy rib and skin. The rudder is the single spar structure.

5.23 Window (ATA 56)

There are 3 windows on each side of the cockpit, the windshield and side window is the electric heating window, the rear side window is the organic glass. There is no window in the main cargo cabin.

5.24 Wing (ATA 57)

The wing is composed of center wing, inboard wing, outboard wing, flap of center wing, flap of outboard wing and aileron.

The center wing is composed of leading edge, wing box, trailing edge and inboard flap. There are four flexible fuel tank in the wing box.

The inboard wing is composed of leading edge, wing box, trailing edge and outboard flap. The wing box part is the integrated fuel tank.

The outboard wing is composed of leading edge, wing box, trailing edge, inboard aileron, outboard aileron and wing tip fairing.

5.25 Propeller (ATA 61)

Two sets of 247F-3 four-blade full composite material propeller produced by Hamilton Sundstrand are adopted.

5.26 Power Plant (ATA 71)

Two PW127J turbo-prop engines produced by Canada Pratt & Whitney are adopted.

5.27 Engine Fuel Control System (ATA 73)

The engine fuel control adopts electronic fuel control system with mechanical backup, the control parts are composed of mechanical fuel control device (MFC), engine electronic control device (EEC).

5.28 Engine Indication (ATA 77)

There are high pressure rotor speed, low pressure rotor speed, torque, ITT, propeller speed, oil temperature, oil pressure, fuel flow, fuel consumption indication and other warning signal, which are shown on EICAS.

5.29 Oil System (ATA 79)

The oil system is composed of oil cooler, air flap mechanism control device and oil pressure / temperature indicating system.

6 Main Airborne Equipment

See Table 1 for the main airborne equipment of the aircraft.

Table 1 Aircraft Main Airborne Equipment List

ATA	Name	Model/ Part No.	Qty.	Unit	Manufacturer	Remarks
21	Air conditioning					
1	Air re-circulation machine	785720-6	2	piece	HAMILTON SUNDSTRAND	
2	Cabin environment parameter collector	GY-81	1	piece	221 Factory 221	
3	Cabin altitude controller	52770-181	1	piece	KOLLSMAN	
4	Temperature controlling box	754890-2	2	piece	HAMILTON	
22	Auto flight					
	Autopilot system	APS-85	1	set	Collins	
	1) Flight control computer	FCC-86E	1	piece	Collins	
	2) Mode selection panel	MSP-85	1	piece	Collins	

ATA	Name	Model/ Part No.	Qty.	Unit	Manufacturer	Remarks
	3) Autopilot panel	APP-85	1	piece	Collins	
	4) Rudder servo motor	SVO-85C	1	piece	Collins	
	5) Elevator servo motor	SVO-85C	1	piece	Collins	
	6) Aileron servo motor	SVO-85C	1	piece	Collins	
	7) Trim servo motor	334D-6A	1	piece	Collins	
23	Communication					
	1 HF radio					HF-9000
	1) HF transceiver	HF-9031A	1	piece	Collins	
	2) HF antenna regulator	HF-9041	1	piece	Collins	
	2 VHF radio	VHF-4000	2	set	Collins	
	3 Audio system					6100
	1) Audio control panel	ACU6100-2-(230)	3	piece	Becker	
	2) Electronic Remote Control Assembly	REU6100-2-(010)	1	piece	Becker	
	3) Socket Panel	CP3100- (3)	3	piece	Becker	
	4 Pilot Call Panel	HJB-1	1	piece	Xi'an Zhengyuan	
	5 Cabin Audio Recorder					SSCVR
	1) Audio recorder	980-6022-001	1	piece	Honeywell	
	2) Speaker monitor	980-6116-004	1	piece	Honeywell	
24	Power supply					
	1 DC starter generator	23080-014	2	piece	LUCAS	
	2 APU DC starter generator	23080-014A	1	piece	LUCAS	
	3 Battery	4078-22	2	piece	SAFT	
	4 AC generator	31708-010	2	piece	LUCAS	
	5 Static inverter	1B1000-1G	2	piece	AVIONIC INSTR. INC.	
25	Equipment/Facility					
	1 Pilot seat	KJY100A-03R/L	2	Set	Aerospace Lifesaving Equipment Co., Ltd.	
	2 Observer seat	GKY100A-03	1	piece	Aerospace Lifesaving Equipment Co., Ltd.	
	3 Cargo loading system	CLS-MA600FF	1	set	PFW 公司 PFW company	
	4 . 9g cargo barrier net	Y7III-8601-300	1	set	XAC	
	5 Rear cargo compartment luggage net	Y7III-7956-200H-1	1	set	XAC	
	6 First-aid box	6240-48-KYZ4	1	piece	Aerospace Lifesaving Equipment Co., Ltd.	

ATA	Name	Model/ Part No.	Qty.	Unit	Manufacturer	Remarks
26	Fire-proof					
	1 Smoke detector	PU90-671WR2	10	piece	JAMCO	
	2 Portable fire extinguisher	BA20703GR-3	1	piece	FIRE FIGHTING ENTERPRISES Ltd	
	3 8-liter fire extinguisher	Y7-6654-00-801	2	piece	XAC	
27	Flight control					
	1 Flap control device	T-3C	1	set	135 厂 Factory 135	
	2 Critical angle of attack signal system	XLG-3C	1	set	221 厂 Factory 221	
28	Fuel					
	1 Centrifugal pressure pump	RLB-20D	2	set	103 厂 Factory 103	
	2 Main fuel supply injection pump	RPB-6	2	set	103 厂 Factory 103	
	3 Fuel transfer injection pump	RPB-7	4	set	103 厂 Factory 103	
	4 Fuel transfer injection pump	RPB-8	2	set	103 厂 Factory 103	
	5 Fuel measuring and controlling system	BUC-50C	1	set	251 厂 Factory 251	
29	Hydraulic					
	1 Engine driving pump	PV3-022-36	2	set	VICKERS (1)	
	2 Electrical pump	MPEV3-011-33	1	set	VICKERS (1)	
	3 Hydraulic accumulator	Y7III-5841-0B	1	piece	XAC	
	4 Brake accumulator	Y7-5818-0	1	piece	XAC	
30	Anti-icing and rain protection					
	1 De-icing boot	29S-7D5237 series	13	piece	GOODRICH	
		29S-5D5237 series	6			
	2 Electrical windshield wiper		1	set	SYNERAVIA	
	3 Icing detector	BTQ-1	1	piece	Factory 185	
	4 Electrical heater	2D1798	4	piece	GOODRICH	
	5 Windshield temperature regulator	WTR-II	4	piece	Beijing Jinyanlai Company	
31	Indication/Recording					
	1 Aviation clock	309-C	2	piece	Factory 618	
	2 Flight data recording system	FJ-30L	1	set	Factory 3327	
	3 Engine indication crew warning system					

ATA	Name	Model/ Part No.	Qty.	Unit	Manufacturer	Remarks
	1) Indicator	AFD-3300	1	piece	Collins	
	2) Data collector No.1	DCU-5010	1	piece	Collins	
	3) Data collector No.2	DCU-3110	2	piece	Collins	
	4 Audio warning system	GJH-1	1	set	Factory 118	
32	Landing gear					
	1 Nose landing gear wheel	FJL-104	2	piece	Factory 514	
	2 Nose landing gear tire	7.5-10 No inner tire	2	piece	Yinchuan Rubber Factory	
	3 Main wheel	LS-125A	4	piece	Factory 514	
	4 Main landing gear tire	35x11.75-14(890x 300)	4	piece	Yinchuan Rubber Factory	
	5 Brake system	LSX-25C	1	set	Factory 514	
	6 Brake device	LS125A-3000	4	set	Factory 514	
33	Illumination					
	1 Cockpit illumination system	KZH-233	1	set	Factory 118	
	2 Navigation light (red)	HD-27	1	piece	Factory 118	
	3 Navigation light (green)	HD-27A	1	piece	Factory 118	
	4 Tail navigation light	WD-7A	1	piece	Factory 118	
	5 Observation light	ZLD-4	1	piece	Shanghai Dongfeng Photographic Equipment Factory	
	6 Landing taxiing light	ZLD-6A	2	piece	Factory 135	
	7 Anti-collision light (white)	FZD-36A	1	piece	Factory 118	
	8 Anti-collision light (red)	FZD-36	1	piece	Factory 118	
34	Navigation					
	1 Air data system	ADS-85A	2	set	Collins	
	2 Integrated electronic standby instrument (IESI)	C16221ATA01	1	piece	THALES	
	3 Heading attitude system	AHS-3000A	2	set	Collins	
	4 Electronic flight instrument system					
	1) Self-application flight display	AFD-3310	4	piece	Collins	
	2) Indication control panel	DCP-3310	2	piece	Collins	
	3) Course and heading panel	CHP-3010	1	piece	Collins	
	4) Curser control panel	CCP-3010	2	piece	Collins	
	5 Emergency magnetic compass	LC-5D	1	piece	Factory 212	

ATA	Name	Model/ Part No.	Qty.	Unit	Manufacturer	Remarks
6	Radio altimeter	ALT-1000	1	set	Collins	
7	Enhanced ground proximity warning system	MK VIII	1	piece	Honeywell	
8	Navigation receiver (VHF omni-directional beaker/ instrument landing system)	NAV-4000	2	set	Collins	
9	DME	DME-4000	2	set	Collins	
10	Weather radar	RTA-844	1	set	Collins	WX R-840 Series
11	Air traffic warning and anti-collision system					
	1) Integrated processor	TSS-4100	1	piece	Collins	Including one S mode transponder
	2) Outer compensation unit	ECU-3000	1	piece	Collins	
12	S mode transponder	TDR-94D	1	piece	Collins	
13	Flight management system	FMS-3000	1	set	Collins	
14	Global positioning system	GPS-4000S	1	piece	Collins	
15	Radio tuning unit	RTU-4220	2	piece	Collins	
16	Integrated avionics processing system	ICC	1	set	Collins	
35	Oxygen					
1	Oxygen bottle (1100 liters)	895-49040	1	piece	EROS	
2	Portable oxygen bottle (310 liters)	9700-C1A-YYON	2	piece	EROS	
3	Full face crew oxygen mask	174690-B3	2	piece	B/E	
4	Smoke protection mask	1540F	1	piece	B/E	
45	Central maintenance system					
1	Maintenance diagnostic computer	MDC-3110	1	set	Collins	
2	Maintenance data acquisition processor	SSJ-4	1	piece	221 Factory 221	

ATA	Name	Model/ Part No.	Qty.	Unit	Manufacturer	Remarks
49	APU					
	Auxiliary power unit	GTCP36-150[CY]	1	set	Honeywell	
50	Cargo System					
	1 Bearing ball & roller system					
	2 limit lock					
	3 Front stop device					
	4 Rear stop device					
	5 Limit Lock device					
	6 Track assembly					
	7 Threshold lock device					
52	Door					
	Cargo door		1	piece		
	Cargo door open drive device	CSK-15	1	set	Factory 114	Including one CSK-15-500
	Cargo door lock drive device	CSK-16	1	set	Factory 114	
56	Window					
	1 Windshield glass	Y7III-151-0-1/-2	2	piece	China Construction Material Science Research Institute	
	2 Side window electrical heating glass	Y7III-0271-500-1/-2	2	piece	China Construction Material Science Research Institute	
61	Propeller					
	Propeller system	247F-3	2	set	HAMILTON SUNDSTRAND	
72	Engine					
	Engine	PW127J	2	set	PRATT & WHITNEY CANADA	
79	Oil					
	Oil cooler	8439C000-002	2	piece	NORMALAIR-GARRETT LTD	