



AIRPORT EQUIPMENT SERVICES PTE. LTD.

41 Kallang Pudding Road, #03-10 Golden Wheel Building,
Singapore 349316 Phone: (65) 65421160 Fax: (65) 65421160
Email: aessg@singnet.com.sg Website: www.aessg.com

(Business Registration No: 199400661M)

WTJ5060JKT Mobile Passenger Stairs



I. Products introduction

The designed height off ground for WTJ5060JKT mobile passenger stair is from 2370mm to 5630mm, which could be slightly adjusted for height tolerance between passengers stair and hatch, height of stair platform could reach 5800mm after slight adjustment, this type of passengers stair could be applied for A310, A320, A330, A340, B737, B747, B757, B767, B777.

National patent No. ZL 2007 2 0039192.2

II. Standard:

ZB/T50 001-87	Special vehicles--Engineering approval evaluation program
JB/T5943—91	welding general technical specification for construction machinery
IATA AHM—913	<Function requirement of GSE>
IATA AHM—910	<Function requirement of GSE>
IATA AHM—915	Standard control device
SAE--ARP836A	Design of passenger steps and safety standard

III. Major technical performance parameter

Chassis type		ISUZU QL1080ZKARZY
Engine	Type	ISUZU 4KH1-TCN2
	Max power	110kW/2600rpm
Overall dimension (length×width×height) mm		7400×2500×3650
Wheelbase mm		3815
Curb weight kg		7400
Ground clearance mm	Min height	2400
	Max height	5800
Shrinking quantity of shrinking platform mm		0--300
Fixed platform (length×width) mm		2800×1500
Fixed ladder		15
Lift ladder		13
Turnover ladder		1
Maximum load-bearing (person)		60

IV. Safety device and emergency measures

1. The unit adopt special design of internal structure and single cylinder raising and lowing with hydraulic lock, it's very easy operation and more safety.
2. The anti-collision protection device is installed on front platform, when movable platform close to aircraft, the protection device will automatic cut off control circuit for avoided the risk of collision.
3. The front platform is made of movable and extensive platform, in the front of active platform install rubber pipe, so improve safety interface between the platform and aircraft door.
4. When the ladder body is up and down, has buzzer warning; the yellow sparking lights are installed on the platform.
5. When the outriggers is standing the ground, the indicator red light will alarm to drivers.
6. Install emergency hand-operated pump, once the electrics and hydraulics appear breakdown, the unit should ensure emergency evacuation by the outriggers retackling and the ladder body raising or lowing.

V. Structure summarization

WTJ 5060JKT mobile passenger stair is made of motor vehicle chassis, under-frame, going aboard ladder, going aboard platform, fine tuning mechanism, hydraulic system

and electric system etc.

1. Chassis

The chassis adopts the second class chassis repacking of ISUZU.

2. Under-frame

The under-frame is made of auxiliary stringer mounted at motor vehicle stringer, ladder body supporting beam, backwards and forwards supporting leg beam, supporting leg and other accessories, so there are six supporting legs.

3. Going aboard ladder

Going aboard ladder is made of fixed ladder, escalator and overturning trail ladder.

3.1 Fixed ladder: Fixed ladder is made of cleat side sill, lifting oil cylinder, ladder body side plate, armrests and foot steps.

3.2 Elevator: an elevator is mainly constituted of side sill of ladder step, side plates, railings and stepper. There is wedge plate underneath elevator to fasten it, and tip of wedge plate is on top of elevator and roller of adjustment mechanism. Expansion of hoist oil cylinder drives expansion of elevator, angle between elevator and ground can be adjusted automatically during operation of hoist tank, elevator, it is simple to operate.

3.3 Turning tail stair: turning tail stair is first tail stair, it is mainly used for increase departure angle during transportation, which is realized by manually.

4. Boarding platform

Boarding platform constituted of fixing platform, expansion platform, side slide door and expansion oil cylinder contacts with airplane directly and forms coupling joint with upper section of elevator. The limit switch on front section of the platform could ensure it get to airplane safely and the platform will stop automatically once it is in place. Expansion platform could adjust deviation between platform and hatch by swing on left and right if ladder vehicle does not vertically against hatch. Side slide door could adjust space occurred during expanding. It is easy to lock and unlock the side slide door for its mechanical locating unit.

5. Micro-adjustment mechanism

Micro-adjustment mechanism is constituted of door frame, supporting port, expansion bracket, rollers and micro-adjustment oil cylinder, rollers is mounted on sides on top of expansion bracket. If deviated height for connection between boarding platform of passenger elevator and hatch occurs, the micro-adjustment oil cylinder could extend up support and to drive elevator platform move up, which bring about connection between boarding platform of passenger elevator and hatch.

1. supporting port
2. rollers
3. micro-adjustment oil cylinder
4. expansion bracket
5. door frame



6. Hydraulic system

Hydraulic system is constituted of oil cylinder, oil filter, globe valve, oil pump, hand pump, check valve, solenoid directional valve, hydraulic control double check valve, hoist oil cylinder, micro-adjusting oil cylinder, front and rear supporting foot oil cylinder, expansion oil cylinder of platform and unlocking oil cylinder, pressure gauge, oil tube and piping accessories.

Hand pump is for emergency use. Open emergency valve and turn hand pump manually if malfunction occurs to motor or oil pump. It is prohibited for use and it shall be kept closed.

All oil cylinders work by double-acting single piston rod except micro-adjustment oil cylinder works by single-acting single piston rod. There is a spring mounted on top inside of unlocking oil cylinder which could reset the oil cylinder.



Rated pressure of hydraulic system is 10Mpa, readings on pressure gauge on oil tube could directly reflect rated pressure of hydraulic system, which has been adjusted and it could not be adjusted on accession.

6. Electrical system

Refer to instruction manual for car chassis. Laying electrical wires includes three aspects:

7.1 Illumination system

Illumination system is constituted of platform light, ladder light and alarm light.

7.2 Control system

Control system is constituted of quality display, control circuit and electric control relay.

a. quality display

Quality display not only display instant height, but teeth change to teeth chain, which reflects stimulation indication (↑ ↓) for up and



down, and buzzing signals during elevator lifting down and support foot signal.

b. control circuit of moving platform

There is one micro-adjustment switch for operational expansion platform and another one. One is for control panel in cab for driver; the other one is in front of right stopping plate on platform and connected with airplane directly.

c. control circuit of locking position of elevator

Steel block will lock teeth of guide rod and form solid coupling when boarding ladder lifts to certain height. Operate controller for electric switches to remote opening locking block when height goes down.

7.3 Safe protective system for knocking off

There are proximity switches mounted on both left and right sides of rubber buffer in front of platform. The switches will alarm automatically if it gets near by airplane or barrier and disconnect control circuit for platform expansion automatically and avoid platform knocking airplane.

VI. List of main configuration

No.	Type and description	Unit	Qty	Manufacturer
1	Chassis parts			
1.1	ISUZU QL1070A1KAY	piece	1	ISUZU
2	Hydraulic system			
2.1	Lifting cylinder	piece	1	China
2.2	Arm-brace cylinder	piece	6	China
2.3	Platform cylinder	piece	2	China
2.4	Magnetic valve	piece	5	China
2.5	EF4-50 Hydraulic air filter	piece	1	China
2.6	YN-60 0—25Mpa pressure gauge	piece	1	China
2.7	LXZ-160X80LY oil filter	piece	1	China
2.8	YWZ-100T Liquid thermometer	piece	1	China
2.9	Hand pump	piece	1	China
3	Electric system			
3.1	Travel switch	piece	4	China
3.2	Rita anti-collision alarm system	piece	1	China
3.3	Height-range indicator for lift platform	piece	1	China
3.4	Alarm lamp	piece	1	

List of spare parts and tools

SN	Name	Quantity
1	Tools attaching vehicle	
1.1	Tools attaching vehicle of chassis	1
1.2	Fire extinguisher	1
1.3	Spare wheel	1
1.4	Bulb	2
1.5	Fuse	5
1.6	Seal ring	2
1.7	Relay	6
1.8	Switch	6
1.9	Hand pump rocker	1
2	Data attaching vehicle	
2.1	Product acceptance certificate	1
2.2	Operation instruction	1
2.3	Data attaching vehicle of chassis	1