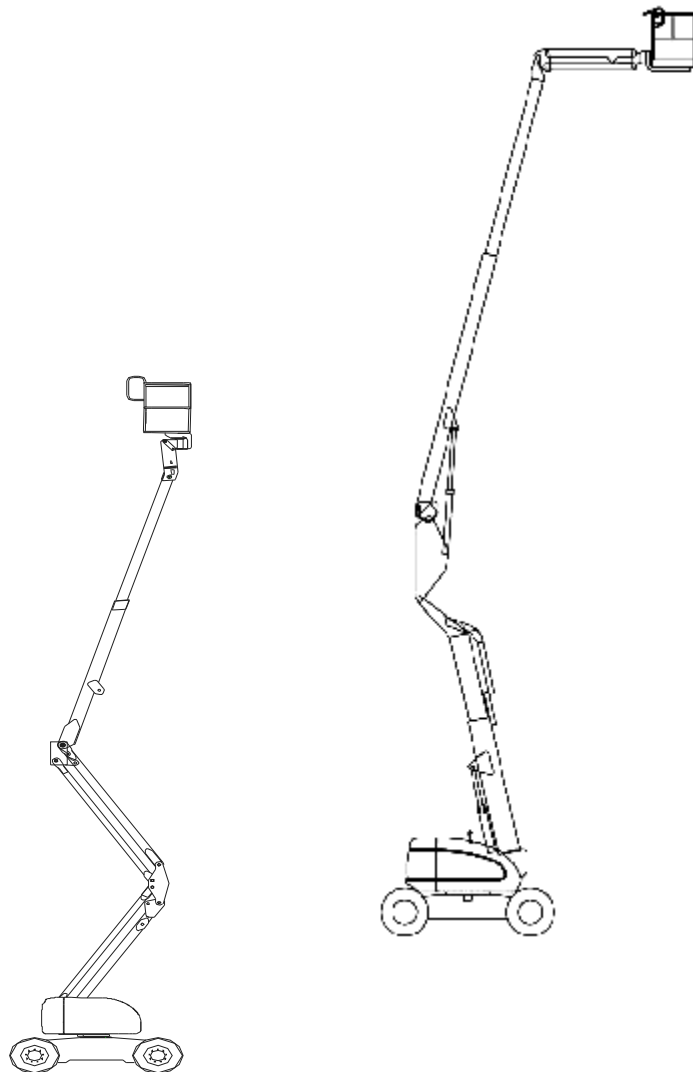




Hunan Sinoboom Heavy Industry Co., Ltd.

Technical Offer

GTZZ18



SINOBOOM Self-propelled Articulating Boom Lift (GTZZ18)

Detailed Technical Offer

Content

I. Company Profile.....	1
II. Technical Parameters.....	2
III. Technical Configuration	3
IV. Key Components' Origin	6
V. Tools and Spare Parts	7
VI. Training and Inspection.....	10
VII. After-sale Service	12
VIII. Certificates Documents	13
IX. SINOBOOM Photos.....	17

I. Company Profile

Hunan Sinoboom Heavy Industry Co.,Ltd is Chinese technical leading player in Chinese MEWP field, located in Changsha, Hunan, P.R.China, the Chinese engineering machinery manufacturing base. Sinoboom is specialized in engineering machinery R&D, production, sales and after sales services, with aerial work platform as the main product.

SINOBOOM R&D team consists of senior experts with more than 18 years of experiences based in hydraulic, mechanical, electrical separate fields and in Chinese engineering machinery field. Sinoboom self-patented self-propelled aerial work platform can provide access solution from 8m-43m working height. With focus on market demands and technical innovation, the company is developing, guided by the globalization strategy, as the one who enjoys the growth most rapidly and steadily.

There are 3 series of Self-Propelled aerial work platform covering working height from 8M to 43M, which are telescopic boom, articulating boom and scissors. Now Sinoboom machines are widely being used in ship building/repairing, construction sites, power, telecom, gardening, advertisement, airport and terminals, big objects manufacturers and even college campus in Chinese mainland, Hongkong area, Australia, Singapore, Malaysia, Middle East, and South America. Since 2010 Sinoboom is looking for its Europe partners for joint market development, as all series machines are successfully CE certificated via the world famous SGS.

SINOBOOM well established manufacturing and quality control procedures is based on the ISO9001, and machines strictly following JG/T5101-3 and EN280 standard for an ensured high quality feature. Excellent hydraulic components from U.S.A and Europe, the broad application of the latest technology and new materials, CAD/CAE/CAM system, and comprehensive inspection methods are working together to secure quality, performance and competitiveness of SINOBOOM.

Keeping to our vision of honesty and technical development, we are continuing to contribute for customer demands of working safely and efficiently.



II. Technical Parameters

GTZZ18 parameters

Item	Measurement	Item	Measurement
Dimensions		Productivity	
Overall length(stowed)	8.83M (29ft)	Platform height max.	18.4M (60ft)
Overall width(stowed)	2.28M (7.5ft)	Working height max.	20.4M (67ft)
Overall height(stowed)	2.54M (8.3ft)	Horizontal reach max.	12.1M (40ft)
Ground clearance	0.23M (0.7ft)	Turntable rotation	360°continuous
Wheelbase	2.44M (8ft)	Platform rotation	160°
Overall weight	10500kg (4WD)	Platform Load capacity	250kg
Platform Size (L*W*H)	1.83*0.76*1.1M (6ft *2.5ft *3.6ft)	Grade ability	40% (4WD)
Platform levelling	Automatic	Turning radius(outside)	6.29M (20ft)
Tire specification	33x12-20	Turning radius(inside)	3.48 M (11.4ft)
Tire type	Solid	Turntable tailswing	0M (0ft)
Power		Max. Driving Speed	5km/h
Hydraulic tank vol.	110L	Driving Speed (stowed)	0~5km/h
Hydraulic system vol. (inc. the tank)	150L	Driving Speed (extended)	0~1.1km/h
Fuel tank vol.	110L	Max allowable wind force	12.5m/s
Control voltage	24V	Max allowable slope	3°
Engine	Cummins B3.3 60HP	Max noise on normal use	82dB(A)
Drive & steer model	4WD*2WS	Max allowable side force	400N

Optional: (All “option” configure will be charged per quotation)

Description	Specification
Platform Size (L*W*H)	2.44M*0.91M*1.1M (8ft*3ft*3.6ft)
Engine	Perkins 404D-22T
Tire	Foam
Operator protection	Anti-crash device

III. Technical Configuration

General performance

Sinoboom self-propelled articulated boom lift provides solutions to existing problems of aerial working at height. With the intelligent control system, a compact structure design and flexible multi-booms movements, SINOBOOM machines process outstanding capacity of crossing narrow space and infinitely accessing to complex working conditions.

Configuration

The whole body adopts finite element analysis design with safety as top consideration, and with critical parts like flex arms, rotating platform made by high-strength steel, topping the same kind products in terms of bearing capacity; Operating platform by joysticks

Electrical system

Advanced CAN-BUS with easy and reliable circuitry; unique math model to control range limit, safety alarm, auto-shift gearing, etc., endowing product with human intelligence; humanized operating handles that make operators feel convenient and comfortable.

Platform control station

Proportional control is employed for boom elevation, platform rotation and traveling.
One independent joystick control travel speed and rotation
Both hands simultaneously control movements of travel, turret rotation, boom elevation, telescoping without releasing the foot switch
Tilt alarm/indicator light.
Engine start/accelerator and travel speed selection.
Engine failure warning lamp (only with EUROIII engine, option), fuel level warning lamp, tilt warning lamp, system failure lamp.
Emergency stop, emergency pump and alarm horn.
Steel console cover.

Turret control station

Interchangeable switch for turret/platform control.
Boom elevation, telescoping and rotation.
Travel, steering and platform level adjustment.
Engine start / stop and accelerator.
Charge lamp, system failure lamp, fuel level warning lamp.
Hour meter.
High engine water outlet temp. shut down / indicator lamp.
Low engine oil pressure shut down / indicator lamp.
Emergency stop, emergency pump.
Control console & main cpu (plvc).
Hydraulic oil level gauge.

Four-wheel-drive for better rough terrain ability (for 4WD 2WS models)

Each Tire has been equipped with driving motor and walking reducer to achieve four-wheel drive. Each tire owns a hydraulic motor to drive it for independent turning, in this way the room or space requires significantly less.

Electrical Dual-loop System and Emergency Functions

Aiming to guarantee security, SINOBOOM Company adopts high reliable electrical and hydraulic components, at the same time equips double sensors and dual-loop electrical system in the configuration. Emergency power unit ensures machine retracting even in case of engine failure.

Some illustrations of SINOBOOM machines

Engine

SINOBOOM provides multiple choices on the host engine: Cummins/Yanmar Engine can be rotated out, easily for maintenance and repair.



Power unit

The machine is equipped with a power unit, to prevent the machine shut down from the engine faulty. It will provide power to the machine to let the workers in the sky to stow down the boom and go back



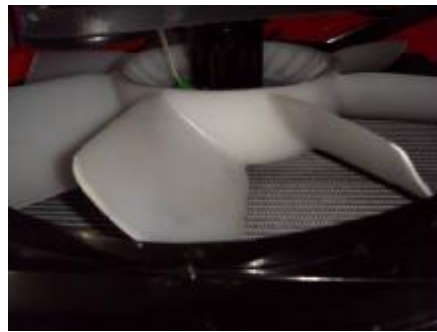
Pumps

All the pumps are world famous brands imported from EU/USA, which ensure the performance of SINOBOOM machine.



Cooling device

To ensure a continuous work and the temperature not sharply increased, SINOBOOM machines equipped with cooling device.



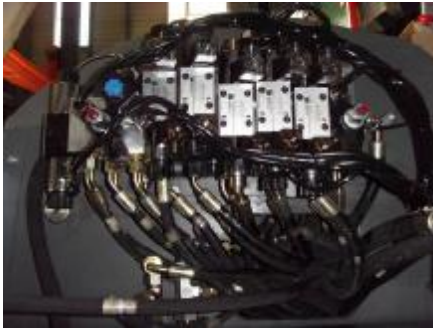
Protections

Durable flexible rubber is installed to protect all the cylinders; it's easy to be replaced with a zipper; Dust guard fixed in four sides of each joint of the booms;



Valve blocks

The major valve blocks are totally concentrated in the integrated block in the cabin, easy for maintenance, service and repair



Axle pin

Slide bearing to prevent bearing crack resulting from dust and other debris in the void between the axles. All axle pins are processed with the wear-resistance and electroplating.



CAN-Control

The control box on the ground is easy for adjustment, read, maintenance.



Control box on the platform

There is a control box equipped on the platform, which is easy for the operators to have all actions in the sky, the joysticks are famous brand imported from USA.



IV. Key Components' Origin

GTZZ15

NO.	Name	Origin
1	Engine	YANMAR / PERKINS(U.K)
2	Variable Pump	SAUER-DANFOSS(U.S.A.) / REXROTH / EATON
3	Gear Pump	PERMCO (U.S.A)
4	Drive Motor	INI / REXROTH
5	Drive Hub	INI / REXROTH
6	Balance Valve	OIL CONTROL(Italy)
7	Hydraulic Valve	OIL CONTROL(Italy) / HYDRAUFORCE(U.S.A.)
8	Oscillatory Motor	HELCA (U.S.A.)
9	Slewing Motor	WHITE(U.S.A.) / DANFOSS(U.S.A.)
10	Limit Switch	KACON (Korea)
11	Power Unit	HYDRONIT (Italy)
12	Coupling Shaft	KTR (Germany) / CENTA(Germany)
13	Proportional joy stick	SAUER-DANFOSS (U.S.A)
14	PLC	EPEC (Finland)
15	Cylinder Sealer	PARKER (U.S.A)
16	Air Filter	YANMAR (Japan)

GTZZ18

NO.	Name	Origin
1	Engine	CUMMINS
2	Variable Pump	SAUER-DANFOSS(U.S.A.) / REXROTH / EATON
3	Gear Pump	PERMCO (U.S.A)
4	Drive Motor	SAUER(U.S.A) / REXROTH
5	Drive Hub	REXROTH / REGGIANA(Italy)
6	Balance Valve	OIL CONTROL(Italy)
7	Hydraulic Valve	OIL CONTROL(Italy) / HYDRAUFORCE(U.S.A.)
8	Oscillatory Motor	HELCA (U.S.A.)
9	Slewing Motor	WHITE (U.S.A.)/ DANFOSS(U.S.A.)
10	Limit Switch	KACON (Korea)
11	Power Unit	WINNER(Taiwan) / HALTER(U.S.A.)
12	Coupling Shaft	KTR (Germany) / CENTA(Germany)
13	Proportional joy stick	SAUER-DANFOSS (U.S.A)
14	PLC	EPEC (Finland)
15	Cylinder Sealer	PARKER (U.S.A)
16	Air Filter	DONALDSON(U.S.A)

V. Tools and Spare Parts

Free Tool Kit for GTZZ15 / GTZZ18

Serial	Name in English	Qty
1	Adjustable Spanner 450mm	1
2	Adjustable Spanner 250mm	1
3	Plus Driver 150#	1
4	Screw Driver 150#	1
5	Straight Tip Shaft Circlip Pliers 150	1
6	Straight Tip Hole Circlip Pliers 150	1
7	Sleeve Wrench 4	1
8	Double End Solid Wrench 5.5*7	1
9	Double End Solid Wrench 8*10	1
10	Double End Solid Wrench 13*16	1
11	Double End Solid Wrench 16*18	1
12	Double End Solid Wrench 18*21	1
13	Double End Solid Wrench 22*24	1
14	Double End Solid Wrench 30*32	1
15	Double End Solid Wrench 34*36	1
16	Hexagona Wrench 5	1
17	Hexagona Wrench 6	1
18	Hexagona Wrench 8	1
19	Hexagona Wrench 10	1
20	Hexagona Wrench 12	1
21	Tool Kit 160*160*330mm	1
22	Strap Wrench 9"	1

Free Spare Parts for GTZZ15

Serial	Parts in English	Spec.	Code	Qty
1	O Sealing Ring	7.5*1.5	GB1235-76	20
2	O Sealing Ring	9.0*1.5	GB1235-76	20
3	O Sealing Ring	10.0*2.0	GB1235-76	20
4	O Sealing Ring	12.0*2.0	GB1235-76	15
5	O Sealing Ring	16.3*2.4	GB1235-76	10
6	O Sealing Ring	20.0*2.0	GB1235-76	10
7	O Sealing Ring	20.3*2.4	GB1235-76	10
8	O Sealing Ring	25.3*2.4	GB1235-76	10
9	O Sealing Ring	24*2.4	GB1235-76	2
10	O Sealing Ring	32*3.1	GB1235-76	1
11	Combined Sealing Ring	22	JB982-77	10
12	Combined Sealing Ring	42	JB982-77	2
13	Combined Sealing Ring	48	JB982-77	2
14	Oil Cup	M10*1	GB/T1152-1989	10
15	Oil Cup	M10*1	GB/T1153-1989	10
16	Suction Filter		WU-100*80F-J	2
17	Oil return filter core		FAX-100*3	1
18	high pressure filter core		LH060D3BN/HC	1
19	Fuse	10A ϕ 6*30		10
20	Fuse	15A ϕ 6*30		10
21	Oil Pressure Tester Kit		PBT-H2/P2-40-1000	1
22	Oil Pressure Tester Kit		PBT-H2/P2-6-1000	1
23	Combined Sealing Ring	18	JB982-77	5
24	Combined Sealing Ring	24	JB982-77	5
25	Combined Sealing Ring	14	JB982-77	5
26	Connector		DI-3/9/16-18UNF	1
27	Connector		CSH G1/4"WD	1
28	Plug		VSCH-R1/4"WD	2
29	Plug		VSCH-R3/8"WD	2
30	Plug		VSCHK 10-L	2
31	Plug		VSCHK 12-L	2

Free Spare Parts for GTZZ18

Serial	Parts Name	Spec.	Code	Qty
1	O Sealing Ring	6.0*1.5	GB1235-76	15
2	O Sealing Ring	7.5*1.5	GB1235-76	15
3	O Sealing Ring	9.0*1.5	GB1235-76	15
4	O Sealing Ring	10.0*2.0	GB1235-76	10
5	O Sealing Ring	12.0*2.0	GB1235-76	5
6	O Sealing Ring	16.3*2.4	GB1235-76	10
7	O Sealing Ring	20.0*2.0	GB1235-76	5
8	O Sealing Ring	20.3*2.4	GB1235-76	5
9	O Sealing Ring	25.3*2.4	GB1235-76	5
10	O Sealing Ring	30*2.4	GB1235-76	1
11	O Sealing Ring	32*3.1	GB1235-76	3
12	O Sealing Ring	60*3.1	GB1235-76	2
13	O Sealing Ring	20*2.4	GB1235-76	2
14	O Sealing Ring	19*1.8	GB/T3452.1-92	10
15	O Sealing Ring	20*1.8	GB/T3452.1-92	10
16	O Sealing Ring	28*3.55	GB/T3452.1-92	10
17	O Sealing Ring	30*3.55	GB/T3452.1-92	10
18	O Sealing Ring	22.4*2.65	GB/T3452.1-92	10
19	Combined Sealing Ring	14	JB982-77	5
20	Combined Sealing Ring	33	JB982-77	5
21	Combined Sealing Ring	42	JB982-77	5
22	Combined Sealing Ring	48	JB982-77	5
23	Oil Cup	M10*1	GB/T1152-1989	10
24	Oil Cup	M10*1	GB/T1153-1989	10
25	Fuse	10A Φ6*30		10
26	Fuse	20A Φ6*30		5
27	Oil Pressure Tester Kit		PBT-H2/P2-6-1000	1
28	Oil Pressure Tester Kit		PBT-H2/P2-40-1000	2
29	Connector		CSH G1/4"WD	1
30	Connector		DI-3/9/16-18UNF	1
31	Plug		VSCH-R1/4"WD	2
32	Plug		VSCH-R3/8"WD	2
33	Plug		XVSCHK 10-L	2
34	Plug		XVSCHK 12-L	2
35	Suction Filter		WUI-250×80F-J	2
36	Filter core		FAX-250×3	1
37	Filter core		LH0110D3BN/HC	2
38	Filter core		P828889	1
39	Filter core		P829333	1
40	Machine oil filter core		LF16011	1
41	Oil-water separator filter core		FS1242	1
42	Diesel filter core		FS19594	1

VI. Training and Inspection

1. The Technical Training course

SINOBOOM will provide technical training courses on the operation and basic maintenance at Sinoboom plant.

2. The Training Content

Training Item	Status	Result
1.Mechanism structure		
Chassis		
Turntable		
Boom		
Platform		
2、 Hydraulic part		
Basic principle		
Basic structure		
Function module (position, function)		
Basic maintenance		
Replacement of the hydraulic components		
Replacement of the filter elements		
Failure search and remove		
3、 Electric part		
Basic principle		
Basic structure		
Controller		
Failure diagnosis		
4、 Controller		
Ground controller		
Extend or retract		
Steering		
Amplitude variety		
Platform Controller		
Travelling		
Extend or retract		
Steering		
Amplitude variety		
5、 Daily maintenance		
Inspection before starting		
Coolant system		
Air system		
Hydraulic pump		
Engine		
Oil-filling		
Butter oil		
Hydraulic oil		
Gear oil		
Diesel oil		
Replacement of gaskets		
Replacement of the filter elements		

3. Inspection

Pre-inspection: SINOBOOM will notify the customer the actual delivery date before the latest shipping date specified in the contract.

Final inspection table is as below:

Inspection Item	Status	Result
1.Overall inspection		
Surface inspection		
Mechanical leak inspection		
Bolts state inspection		
Engine condition		
Labels		
Instrumentation		
Engine rotating-out function		
2、Ground control		
Key switch		
Engine operation/start/stop		
Emergency stop		
Auxiliary power		
Re-start delay		
Turret/platform rotation		
Boom function		
3、Platform control		
Engine operation/start/stop		
Emergency stop		
Re-start delay		
Auxiliary power		
Turret/platform rotation		
Axle stowed/extended		
Axle steering		
Boom/cable guiderail/cable		
Boom extended		
Boom stowed		
Boom raised		
Boom lowed		
Limit switch for boom extended		
Limit switch for boom extended		
Limit switch for driving confirmation		
High-speed travel		
Low-speed travel		
4、Safety		
Load test		
Level warning		
Foot switch		
Gradeability		
Lock function for boom raise		

VII. After-sale Service

1. General

Under normal operating conditions, Sinoboom provide the following warranty service based on that the aerial lifts are operated and maintained correctly as per instruction in the Operation and Maintenance Manual.

Warranty range:

Failures caused by design, manufacture or quality problem of parts.

Failures caused by welding.

Operation failures or hydraulics problems caused by manufacture or assembly.

Note: Free spare parts and tools are exclusive, fast moving parts are exclusive which including cylinder seal kit, filter element of engine and hydraulics.

Warranty period:

12-month or accumulative operation time 2000 hrs for the complete appliance, whichever comes earlier.

36-month or accumulative operation time 6000 hrs for the structure parts, whichever comes earlier.

Note: Warranty of engine and hydraulic pumps should follow the policy of manufacturer; warranty period of battery is 3-month.

After the warranty period, SINOBOOM or SINOBOOM partner still offer life-long maintenance, spare parts supply and technical support services with cost charged.

2. Service content

- (1). **FREE** installation and adjustment instruction.
- (2). **FREE** professional technical training for you to train qualified operators.
- (3). Inspect periodically the operation of machines and instruct maintenance and repair for your operators.
- (4). Warranty service and life-long maintenance services out of warranty period (charge of material and labor cost).

3. Vendor's commitment

- (1). The vendor shall renovate within the limited period if any unqualified items occur in the inspection.
- (2). The vendor shall make respond within 24 hours after receiving the complaint call or fax if any malfunction within the warranty period, and instruct the repair.
- (3). If machine fails due to vendor's responsibility, vendor should assign technician and arrive at the work site to provide free maintenance, vary from the distance and other force majeure.
- (4). The vendor shall provide broad preferential technical support, service and prior accessory supply.

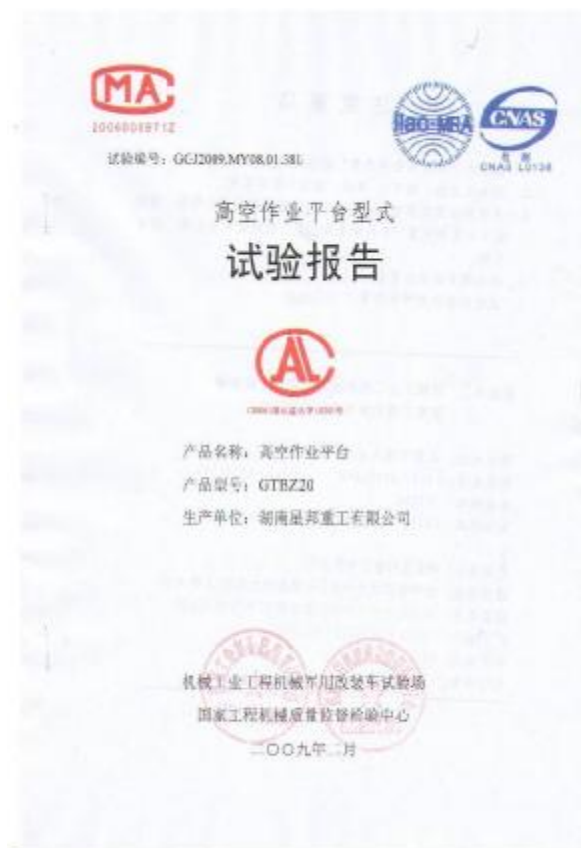
IPAF certificate of membership (International power access federation)



Type Approval Test Certificates

China National Construction Machinery Quality Supervising Test Center and MMI Proving Ground for Construction Machinery and Refit Military Vehicles

GTBZ20



GTBZ25



GTBZ36



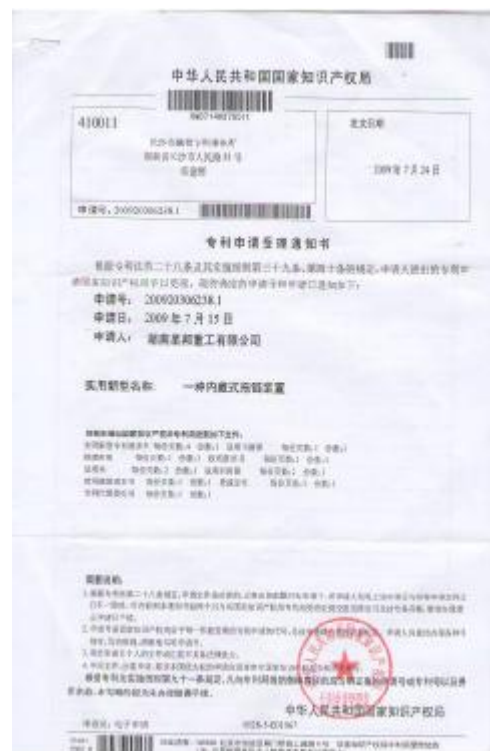
SINOBOOM Patent Certificates

The self-patent certificate of self-propelled aerial work platform;
A telescopic taw chain unit with mobile bracket;

A embedded taw chain unit

A telescopic taw chain unit ; An anti-crash unit of the telescopic cylinder and steel rope bracket

An anti-crash unit of the telescopic cylinder and steel.



SINOBOOM CE Certificates for GTZZ15

Client: Hunan Sino boom Heavy Industry Co., Ltd.
27# Nan'er Road,
Changsha,
Hunan,
P.R.China



SGS United Kingdom Limited
Unit 10
Bowburn South Industrial
Estate
Bowburn
Durham

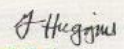
CERTIFICATE OF ADEQUACY

Certificate No MDC 732
SGS United Kingdom Ltd is a Notified Body appointed by the DTI under the Machinery Directive 2006/42/EC.
Appointment Number 0353.

Date of Issue	15 th April 2010
SGS Reference	CST135159/1
Details of Product	Articulated Boom Aerial Work platform MODEL TYPE: GTZZ 15, GTZZ 15J
Date of Receipt	12 th April 2010
Date of Assessment	12 th April to 15 th April 2010
Assessment Performed	Assessed for compliance with the requirements of Annex VII of the Machinery Directive 2006/42/EC (Technical File).
Conclusion	In the opinion of SGS the submitted technical file referenced as OUCE 10107 satisfies the requirements of the Machinery Directive 2006/42/EC.
Issue No.	1
Valid until	14 th April 2015

*This certificate refers only to the sample submitted for test. This certificate shall not be reproduced except in full
without the written approval of SGS United Kingdom Limited.*
*The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC
Declaration of Conformity and compliance with all relevant EC Directives.*



Authorised Signatory

F. Higgins
Principal Test Engineer

SGSPAPER
10063162

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Client: Hunan Sino boom Heavy Industry Co., Ltd.
27# Nan'er Road,
Changsha,
Hunan,
P.R.China



SGS United Kingdom Limited
Unit 10
Bowburn South Industrial
Estate
Bowburn
Durham

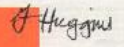
EC TYPE EXAMINATION CERTIFICATE

Certificate No MDC 733
SGS United Kingdom Ltd is a Notified Body appointed by the DTI under the Machinery Directive 2006/42/EC.
Appointment Number 0353.

Date of Issue	15 th April 2010
Details of Product	Articulated Boom Aerial Work Platform MODEL TYPE: GTZZ 15, GTZZ 15J
Manufacturer	Hunan Sino boom Heavy Industry Co., Ltd.
Date of Receipt	12 th April 2010
Technical File Reference No.	OUCE 10107
Assessment Performed	Type examination with reference to: Conformity to Annex 4 and Annex 1, the Essential Health and Safety Requirements of the Machinery Directive 2006/42/EC section 1.
Standards Referenced	EN 280: 2001+A2: 2009; EN ISO 14121-1:2007
Conditions Subject to Issue	Acceptance of information detailed in Technical File OUCE10107 and referenced against CST135159/1
Declaration	In the opinion of SGS the submitted technical file satisfies the requirements of the Machinery Directive 2006/42/EC
Issue No.	1
Valid until	14 th April 2015

*This certificate is only valid for the equipment and configuration described in conjunction with the data detailed
above. This certificate shall not be reproduced except in full without the written approval of SGS United Kingdom
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Declaration of Conformity and compliance with all relevant EC Directives.*



Authorised Signatory

F. Higgins
Principal Test Engineer

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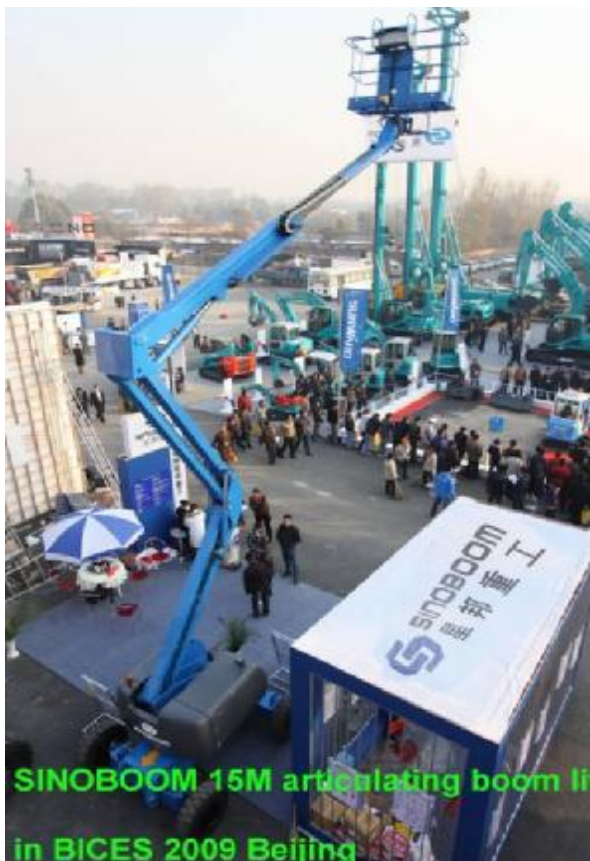
IX. SINOBOOM Photos

A corner of the assemble workshop



**GTZZ15 Articulating Boom Lift
IN BICES 2009 IN BEIJING**

**GTZZ15 Articulating Boom Lift
IN BAUMA 2010 IN GERMANY**



Sinoboom GTZZ15 in Malaysia



GTZZ15
BEING STUFFED TO 20'GP CONTAINER
FOR SINGAPORE



GTZZ15
BEING TESTED FOR THE GRADEABILITY
FOR SINGAPORE



GTZZ15,GTBZ20,GTBZ25 GTBZ38 for CMIC



GTZZ15 FOR HUNAN BROADCASTING SYSTEM

