# Scissors Elevating Work Platforms

**JB/T 9229—2024**
Instead of JB/T 9229-2013

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## Foreword

This document is drafted in accordance with the provisions of GB/T 1.1—2020 *Guidelines for standardization—Part 1: Structure and drafting rules of standardization documents*.

This document replaces JB/T 9229—2013 *Scissors elevating work platforms*. Compared with JB/T 9229—2013, besides structural adjustments and editorial changes, the main technical changes are as follows:

- Modified the classification method and model coding (see Chapter 4, Chapter 4 of the 2013 edition);
- Modified the requirements for appearance quality and manufacturing assembly quality (see 5.1, 5.1 of the 2013 edition);
- Deleted the requirements for lifting, lowering and slewing speeds (see 5.3.3 of the 2013 edition);
- Modified the requirements for traveling speed of mobile scissors elevating work platforms at elevated traveling positions (see 5.4.8, 5.3.3 of the 2013 edition);
- Added referenced standards for extending structures and transmission systems (see 5.5);
- Deleted the dimensional requirements for work platforms and guardrails (see 5.5 of the 2013 edition);
- Deleted the material requirements for pin shafts (see 5.6.2 of the 2013 edition);
- Deleted the requirements for solid particle contamination of hydraulic oil (see 5.9.6 of the 2013 edition);
- Modified the expression of test methods (see Chapter 6, 5.12 of the 2013 edition);
- Deleted the operation and use requirements (see Chapter 9 of the 2013 edition).

Attention is drawn to the possibility that some parts of this document may involve patents. The issuing authority of this document does not take responsibility for identifying patents.

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# 1 Scope

This document defines the terms and definitions of scissors elevating work platforms, specifies the classification, model and technical requirements, describes the corresponding test methods, and stipulates the inspection rules, marking, packaging, transportation and storage requirements.

This document applies to the manufacture of scissors elevating work platforms.

# 2 Normative references

The following documents contain provisions which, through reference in this document, constitute indispensable provisions of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 3766 Hydraulic fluid power—General rules and safety requirements for systems and their components
GB/T 4208 Enclosures for electrical equipment—Degrees of protection provided by enclosures (IP Code)
GB/T 9465—2018 Aerial work trucks
GB/T 9969 General principles for instructions for use of industrial products
GB/T 13384 General technical conditions for packaging of mechanical and electrical products
GB/T 14048.1 Low-voltage switchgear and controlgear—Part 1: General rules
GB 20891 Limits and measurement methods for exhaust pollutants from diesel engines of non-road mobile machinery (China III, IV stages)
GB/T 25849—2010 Mobile elevating work platforms—Design calculations, safety requirements and test methods
GB/T 27548—2011 Mobile elevating work platforms—Safety rules, inspection, maintenance and operation
GB/T 30032.1—2015 Mobile elevating work platforms—Design, calculation, safety requirements and test methods for special components—Part 1: Mobile elevating work platforms equipped with telescopic guardrail systems
JB/T 5946 Engineering machinery—General technical specifications for coating
JB/T 11169-2011 Stationary elevating work platforms

# 3 Terms and definitions

The terms and definitions defined in GB/T 25849—2010, GB/T 27548—2011 and JB/T 11169-2011 as well as the following apply to this document.

3.1 **scissors elevating work platforms**
Elevating work platforms with scissors-type extending structures.

3.2 **stationary scissors elevating work platforms**
Scissors elevating work platforms without traveling mechanism, fixedly installed.

3.3 **mobile scissors elevating work platforms**
Scissors elevating work platforms equipped with traveling mechanism, movable at the operation site.

3.4 **manual mobile scissors elevating work platforms**
Scissors elevating work platforms whose traveling mechanism has no self-power and is moved manually on the work site.

3.5 **pedestrian-controlled mobile scissors elevating work platforms**
Scissors elevating work platforms whose traveling mechanism is powered and controlled by personnel walking with the machine to move.

3.6 **rail-controlled mobile scissors elevating work platforms**
Scissors elevating work platforms whose traveling mechanism is powered and moves on rails.

3.7 **self-propelled scissors elevating work platforms**
Scissors elevating work platforms whose traveling mechanism is powered and self-drivable, operating on or between work sites.

3.8 **trailer scissors elevating work platforms**
Scissors elevating work platforms whose traveling mechanism has no self-power, equipped with a device for connecting to a towing vehicle, and movable by the towing vehicle on or between work sites.

3.9 **truck scissors elevating work platforms**
Mobile scissors elevating work platforms with a motor vehicle chassis and traveling control located in the vehicle cab.

3.10 **platform height**
Vertical distance between the load-bearing surface of the work platform and the horizontal support surface of the scissors elevating work platform.

3.11 **maximum platform height**
Maximum vertical distance between the load-bearing surface of the work platform and the horizontal support surface of the scissors elevating work platform.

# 4 Classification and model

## 4.1 Classification

Scissors elevating work platforms can be divided into stationary and mobile types. Mobile scissors elevating work platforms are classified into the following types according to moving modes:

- manual mobile scissors elevating work platforms;
- pedestrian-controlled mobile scissors elevating work platforms;
- rail-controlled mobile scissors elevating work platforms;

- self-propelled scissors elevating work platforms;
- trailer scissors elevating work platforms;
- truck scissors elevating work platforms.

## 4.2 Model

The product model consists of product code and main parameter. The main parameter is the work platform height, expressed as follows:

- Update/variant code: indicated by uppercase English letters in order;
- Main parameter: indicated by Arabic numerals, unit: millimeter (mm);
- Product code: specified by the manufacturer, indicated by uppercase English letters.

# 5 Technical requirements

## 5.1 General requirements

5.1.1 For scissors elevating work platforms of Type 2 in GB/T 25849-2010, an up-down communication device shall be provided; for other types with maximum platform height greater than 18 m, communication measures for up-down contact are recommended.

5.1.2 Self-propelled scissors elevating work platforms traveling on tires shall preferably use solid tires or foam-filled tires; those using pneumatic tires shall have measures to prevent overturning due to tire blowout.

5.1.3 Engine emissions of scissors elevating work platforms shall comply with GB 20891.

5.1.4 Errors of length, width and height in the overall moving state shall not exceed 1% of the nominal value.

5.1.5 Appearance quality requirements:

- Coating shall comply with JB/T 5946;
- Exposed metal surfaces shall be treated against rust.

5.1.6 Manufacturing and assembly quality requirements:

- Pipelines and circuits of hydraulic and pneumatic systems shall be neatly and reasonably arranged, firmly connected and easy to maintain;
- No oil or air leakage shall occur on scissors elevating work platforms;
- Nameplates and markings of scissors elevating work platforms shall be firmly, correctly, conspicuously and clearly installed.

5.1.7 Operating conditions of scissors elevating work platforms shall meet the following requirements:

- Solid and flat ground, no ground subsidence during operation;
- Ambient temperature: -20 ℃~+40 ℃;
- Ambient relative humidity ≤90% (at 25 ℃);
- Wind speed ≤12.5 m/s;
- Altitude ≤1000 m;
- Allowable fluctuation of external power supply voltage: ±10%.

Beyond the above range, it shall be negotiated between the user and the manufacturer.

## 5.2 Operating performance

5.2.1 All mechanisms shall ensure smooth and accurate actions of lifting, lowering, slewing and telescoping of the work platform, without crawling, trembling, impact or abnormal increase in driving power.

5.2.2 Natural deflection of the work platform during lifting shall not exceed 0.5% of the maximum platform height.

5.2.3 The extending structure shall enable the work platform to stay reliably in the air. When the work platform bears rated load and stays at any height within the lifting stroke, the sinking amount of the work platform within 20 min shall not exceed 5 mm.

5.2.4 Noise requirements:

- Ear-side noise of internal combustion engine-driven scissors elevating work platforms ≤86 dB(A), ambient noise ≤82 dB(A);
- Ear-side noise of electric-driven scissors elevating work platforms ≤80 dB(A), ambient noise ≤76 dB(A).

5.2.5 Emission limits of internal combustion engine drive shall comply with GB 20891.

5.2.6 The transmission system shall run smoothly without abnormal noise caused by vibration or hydraulic pump cavitation.

5.2.7 The extending structure and drive control system shall be safe and reliable. The work platform shall brake reliably at any position when extended under rated load.

5.2.8 The slewing mechanism and drive control system shall be safe and reliable. The work platform shall brake reliably at any position when slewing under rated load.

5.2.9 Under no-load condition, errors of maximum platform height and initial platform height shall not exceed 1% of the nominal value; errors of longitudinal and transverse span of outriggers shall not exceed 1% of the nominal value; errors of length, width and height of scissors elevating work platforms shall not exceed 1% of the nominal value.

5.2.10 All control devices and components shall work reliably and accurately.

## 5.3 Structure and stability

5.3.1 Safety factors and stability of scissors elevating work platforms shall comply with 5.2 of GB/T 25849—2010 and JB/T 11169.

5.3.2 For scissors elevating work platforms with rated load capacity ≤300 kg and number of passengers ≤2, stability under maximum lateral force on the work platform shall be calculated and verified by test according to 5.2.4 of GB/T 25849—2010, or meet the following deflection requirements:

When the scissors elevating work platform bears rated load at the most unfavorable position on horizontal ground and is subjected to maximum horizontal lateral force on the work platform, the deflection $a$ shall not exceed the value of Formula (1):

$$a = kH \quad (1)$$

Where:

$k$ — deflection coefficient, $k$=0.02;

$H$ — maximum platform height, mm.

At maximum platform height, the maximum horizontal lateral force $F$ acting on the work platform is calculated by Formula (2):

$$F = 0.15G \quad (2)$$

Where:

$F$ — maximum horizontal lateral force, N; not less than 250 N;

$G$ — rated load, N.

Note: Deflection assessment is not required for stationary scissors elevating work platforms with guide supports within the lifting range.

## 5.4 Chassis and traveling system

5.4.1 Chassis and traveling system shall comply with 5.3 of GB/T 25849—2010.

5.4.2 After power cut-off of the traveling mechanism, mobile scissors elevating work platforms shall be towable after taking measures.

5.4.3 Mobile scissors elevating work platforms shall be equipped with a braking system.

5.4.4 Braking performance shall ensure reliable braking in forward and reverse directions when driving on asphalt or cement roads with the maximum gradient specified by the manufacturer with the transmission in neutral.

5.4.5 Gear shifting and steering of the traveling system shall be flexible.

5.4.6 Brakes shall maintain braking state after braking action.

5.4.7 Rail-controlled mobile scissors elevating work platforms shall be equipped with limit position deceleration, limit switches and derailment prevention devices.

5.4.8 Traveling speed of mobile scissors elevating work platforms at elevated traveling positions shall not exceed the following values:

- Truck scissors elevating work platforms: 1.5 m/s when using travel controller in cab;
- Rail-controlled mobile scissors elevating work platforms: 3.0 m/s;

- Other self-propelled scissors elevating work platforms: 0.7 m/s.

## 5.5 Extending structure

5.5.1 Extending structure shall comply with 5.4 of GB/T 25849—2010.

5.5.2 Transmission system of extending structure shall comply with 5.5 of GB/T 25849—2010.

5.5.3 No abnormal shaking, jamming or impact during lifting.

5.5.4 An auxiliary lowering device shall be provided in case of power or pipeline failure.

5.5.5 Connection between work platform and scissors shall be firm and reliable.

5.5.6 Parallelism of two rails shall not exceed 3/1000.

## 5.6 Work platform

5.6.1 Work platform shall comply with 5.6 of GB/T 25849—2010.

5.6.2 Telescopic work platforms shall comply with Chapter 4 of GB/T 30032.1—2015.

## 5.7 Hydraulic system

5.7.1 Hydraulic system shall comply with 5.9, 5.10 of GB/T 25849—2010, JB/T 11169 and GB/T 3766.

5.7.2 Setting pressure of hydraulic system relief valve shall not exceed 1.1 times the rated working pressure; maximum setting pressure of hydraulic system shall not exceed the rated working pressure of the hydraulic pump.

5.7.3 Hydraulic system shall be equipped with overload and impact protection devices.

5.7.4 Hydraulic system shall be equipped with devices to prevent sliding of hydraulic cylinders and work platform due to self-weight or overspeed lowering and crashing caused by pipeline rupture or leakage.

5.7.5 Minimum bursting strength of all key joints and hoses in hydraulic and pneumatic systems shall be 4 times the designed system operating pressure. Minimum bursting strength of non-key joints and hoses shall be 3 times the designed system operating pressure.

## 5.8 Control system and electrical equipment

5.8.1 Control system and electrical equipment shall comply with 5.7 and 5.8 of GB/T 25849—2010.

5.8.2 Operating force and stroke of operating devices:
a) Hand operating force ≤100 N, stroke ≤400 mm;
b) Foot operating force ≤200 N, stroke ≤200 mm.

5.8.3 An emergency lowering device operable on the ground in case of power failure or fault shall be provided with obvious marking.

5.8.4 For scissors elevating work platforms equipped with upper and lower control devices, the two sets shall be interlocked. The lower control device shall have the functions of the upper one (except traveling control) and an override device for the upper control.

5.8.5 Control handles (or buttons) for movement of scissors elevating work platforms shall automatically reset (return to "stop" or middle position) when released, and the operating direction shall be consistent with the functional movement direction.

5.8.6 The lower control device shall be installed at a position where the operator can clearly see the whole process of extension and slewing.

5.8.7 All operations shall not interfere with each other or cause misoperation, and shall be light, flexible, accurate and reliable.

5.8.8 Insulation performance of electrical components shall comply with GB/T 14048.1; insulation resistance of main components ≥1.0 MΩ, insulation resistance of secondary wires to ground ≥2.0 MΩ.

5.8.9 Protection degree of electrical equipment shall not be lower than IP54 specified in GB/T 4208.

5.8.10 Electrical system shall be equipped with safety protection devices; a main switch for cutting off load shall be installed in the main power circuit, and a grounding protection connection point shall be provided to ensure grounding resistance ≤4.0 Ω. The grounding connection point shall have obvious grounding marking.

5.8.11 Control circuit voltage of electrical system shall adopt safe voltage or reliable anti-electric shock protection measures. All non-conductive metals shall be grounded; insulating protective sleeves shall be provided when wires pass through metal holes.

## 5.9 Stabilizers

5.9.1 Stabilizers shall comply with 5.3 of GB/T 25849—2010.

5.9.2 If stabilizers are specified in the design, they shall be described in the product manual and marked at a conspicuous position. The scissors elevating work platform can only operate when stabilizers are adjusted to working state, and an interlock device shall be provided.

5.9.3 Each outrigger shall be reliably fixed at the specified position, individually adjustable, and equipped with a mechanical locking device.

5.9.4 Hydraulically driven stabilizers shall be equipped with devices to prevent retraction in case of hydraulic circuit failure.

## 5.10 Insulation performance

Insulation performance of scissors elevating work platforms shall comply with GB/T 9465.

## 5.11 Safety protection devices

5.11.1 Safety protection devices shall be provided for moving parts hazardous to human body. Safety protection devices shall comply with 5.11 of GB/T 25849—2010 and 5.10 of JB/T 11169—2011.

5.11.2 Overload protection devices shall comply with 5.4 of GB/T 25849—2010.

5.11.3 A red non-auto-reset emergency stop device shall be provided to effectively cut off all power systems in emergency, located at an easily accessible position for operators.

5.11.4 Limit devices shall be provided at end positions of each movement.

5.11.5 Chassis tilt safety protection devices shall comply with 5.3.2 of GB/T 25849—2010.

5.11.6 Safety measures shall be taken along the periphery of the lower surface of stationary scissors elevating work platforms when the distance between the lower surface and the upper surface of the base frame is less than 100 mm.

5.11.7 For slewing work platforms, a locking device shall lock the platform after stopping at a certain angle; the work platform shall not slew during traveling.

5.11.8 For telescopic work platforms, a locking device shall lock the platform after stopping at a certain position; a retracting device shall be provided in case of telescopic structure failure. The work platform shall not telescope during traveling.

5.11.9 Safety devices shall be provided to prevent uncontrolled lowering of the work platform in case of power or oil circuit failure, but controlled lowering is allowed.

5.11.10 For insulated work platforms, the insulation voltage shall be marked on the platform.

## 5.12 Reliability requirements

5.12.1 Reliability test duration of scissors elevating work platforms is 200 h. Mean time between failures (MTBF) and reliability shall not be less than the values specified in Table 1.

5.12.2 After 200 km no-load traveling of self-propelled scissors elevating work platforms, no obvious wear of traveling mechanism, no loosening of connections between work platform, lifting mechanism, base frame, outriggers and other components, no permanent deformation or cracks are allowed.

**Table 1 Mean time between failures and reliability**

| Maximum platform height $H$ (m) | $H \leq 10$ | $10 < H \leq 16$ | $16 < H \leq 20$ | $H > 20$ |
|---|---|---|---|---|
| MTBF (h) - | 120 | 100 | 80 | 60 |

| | | | | |
|---|---|---|---|---|
| Stationary | | | | |
| MTBF (h) - Mobile (except self-propelled) | 100 | 80 | 60 | 50 |
| MTBF (h) - Mobile (self-propelled) | 80 | 70 | 50 | 40 |
| Reliability (%) | 94 | 92 | 90 | 90 |

# 6 Test methods

## 6.1 Performance tests

All performance tests except reliability and noise tests shall be carried out according to 6.1 of GB/T 25849—2010, JB/T 11169 and GB 20891.

## 6.2 Reliability test

### 6.2.1 General requirements

Reliability test shall meet:
a) Replacement of wearing parts according to normal maintenance regulations is allowed during the test, and maintenance and repair shall be recorded in detail. No further adjustment of the whole machine is allowed, and no test with faults is allowed;
b) The scissors elevating work platform carries out lifting actions under rated load, with interval ≤10 min between two cycles; reliability assessment duration is 200 h. One cycle: lift from initial position to maximum height, then lower to initial position.

### 6.2.2 Fault classification

Scissors elevating work platform faults are divided into four categories according to personal safety, component damage, function impact and repair difficulty:
a) **Catastrophic fault**: Severe deformation of components, fuselage fracture, serious degradation of insulation performance under normal operation, causing personal injury or death;
b) **Serious fault**: Distortion and deformation of structural parts, failure of safety protection devices under normal operation, repair time >3 h;
c) **General fault**: Affecting service performance, requiring shutdown for maintenance, usually repaired or replaced with on-board tools, repair time ≤2 h, not frequent;
d) **Slight fault**: Faults caused by loose fasteners, improper adjustment or insufficient maintenance, repair time ≤30 min.

### 6.2.3 Fault criticality coefficients

Fault criticality coefficients are listed in Table 2 according to fault categories.

**Table 2 Fault criticality coefficients of scissors elevating work platforms**

| Fault category | Fault name | Fault criticality coefficient $\varepsilon$ |
|---|---|---|
| 1 | Catastrophic fault | ∞ |
| 2 | Serious fault | 3.0 |
| 3 | General fault | 1.0 |
| 4 | Slight fault | 0.2 |

### 6.2.4 Reliability assessment

[6.2.4.1](6.2.4.1) MTBF is calculated by Formula (3):

$MTBF = t_o / r_\beta$ (3)

Where:

$MTBF$ — mean time between failures, h;

$t_o$ — cumulative operating time, h;

$r_\beta$ — equivalent fault number during reliability test, calculated by Formula (4):

$r_\beta = \Sigma(n_i \times \varepsilon_i)$ (4)

Where:

$n_i$ — number of faults of category $i$;

$\varepsilon_i$ — criticality coefficient of category $i$. Set $r_\beta$=1 if $r_\beta$<1.

[6.2.4.2](6.2.4.2) Reliability is calculated by Formula (5):

$R = (1 - t_1 / t_o) \times 100\%$ (5)

Where:

$R$ — reliability, %;

$t_1$ — total fault repair time, h.

$t_o$ and $t_1$ exclude normal maintenance time.

## 6.3 Noise test

### 6.3.1 Measuring condition

Scissors elevating work platform bears rated load under lifting, lowering or traveling conditions.

### 6.3.2 Measuring positions

Include operator’s ear side and positions 7.5 m from front, rear, left and right edges

of the machine, 1.2 m above ground. Measure three times and take the maximum value.

### 6.3.3 Noise correction

Subtract the correction value in Table 3 if background noise is 6–10 dB(A) lower than measured noise. Measurement is invalid if the difference is <6 dB(A).

**Table 3 Correction values for noise measurement**
Unit: decibel (dB)

| Difference between measured noise and background noise | Correction value |
|---|---|
| 6–8 | 1.0 |
| 9–10 | 0.5 |
| >10 | 0 |

# 7 Inspection rules

## 7.1 Inspection classification

Inspections are divided into factory inspection and type test.

## 7.2 Factory inspection

7.2.1 Each product shall undergo factory inspection and be delivered only after passing inspection and issuing a product qualification certificate by the manufacturer’s quality inspection department.

7.2.2 Factory inspection items are listed in Table 4.

## 7.3 Type test

7.3.1 Type test shall be carried out in any of the following cases:
a) Trial production finalization of new products or old products transferred to other factories;
b) Resumption of production after suspension for more than three years;
c) Major changes in structure, material or process during formal production that may affect product performance;
d) Significant difference between factory inspection and previous type test results;
e) Requirements proposed by national policies or national quality supervision institutions.

7.3.2 Type test items are listed in Table 4.

7.3.3 For cases a), b), e) in 7.3.1, test all items in Table 4; for cases c), d) in 7.3.1, only test affected items.

7.3.4 One prototype shall be randomly sampled for type test, with unlimited sampling base.

7.3.5 Judgment rules:

- If any item 2, 4, 5, 7, 8–14, 16 in type test (Table 4) is unqualified, the product is judged unqualified. If the above items are qualified and one other item is unqualified, re-inspection is allowed for that item; failure in re-inspection leads to unqualified judgment. If the above items are qualified and two other items are unqualified, the product is judged unqualified;
- If any item 2, 3, 7, 10, 12, 13, 16 in factory inspection (Table 4) is unqualified, the product is judged unqualified. If the above items are qualified and one other item is unqualified, one rework is allowed; failure after rework leads to unqualified judgment. If the above items are qualified and two other items are unqualified, the product is judged unqualified.

**Table 4 Inspection items**

| No. | Inspection item | Test method | Judgment basis | Type test | Factory inspection |
|---|---|---|---|---|---|
| 1 | Appearance inspection | Visual inspection | 5.1.5 | △ | △ |
| 2 | Safety protection devices | Visual inspection | 5.11 | △ | △ |
| 3 | Manufacturing and assembly quality | 6.1 | 5.1.6 | △ | △ |
| 4 | Stability | 6.1 | 5.3 | △ | — |
| 5 | Structural stress | 6.1 | 5.3 | △ | — |
| 6 | Overall structural parameters | 6.1 | 5.1.4, 5.2.9 | △ | △ |

| | | | | | |
|---|---|---|---|---|---|
| 7 | Operating performance | 6.1 | 5.2 | △ | △ |
| 8 | Work platform sinking amount | 6.1 | 5.2.3 | △ | △ |
| 9 | Chassis and traveling system performance | 6.1 | 5.4 | △ | △ |
| 10 | Extending structure performance | 6.1 | 5.5 | △ | △ |
| 11 | Work platform and guardrail dimensions & performance | 6.1 | 5.6 | △ | — |
| 12 | Hydraulic system | 6.1 | 5.7 | △ | △ |
| 13 | Control system and electrical equipment | 6.1 | 5.8 | △ | △ |
| 14 | Stabilizers | 6.1 | 5.9 | △ | △ |
| 15 | Noise | 6.3 | 5.2.4 | △ | — |
| 16 | Emission | 6.1 | 5.1.3, 5.2.5 | △ | — |

| | | | | | |
|---|---|---|---|---|---|
| | test | | | | |
| 17 | Insulation performance | 6.1 | 5.10 | △ | △ |
| 18 | Reliability test | 6.2 | 5.12 | △ | — |

Note: △ = test item; — = non-test item.

# 8 Marking, packaging, transportation and storage

## 8.1 Marking

### 8.1.1 Nameplate

A product nameplate shall be fixed at a conspicuous position, marked with:
a) Manufacturer name;
b) Product name and model;
c) Factory serial number (or machine environmental protection code) and manufacturing date;
d) Maximum platform height;
e) Rated load;
f) Total machine mass;
g) Rated voltage and test date for insulated scissors elevating work platforms.

### 8.1.2 Marking

Markings of scissors elevating work platforms shall comply with 7.3 of GB/T 25849-2010.

## 8.2 Packaging

8.2.1 Packaging shall comply with GB/T 13384.

8.2.2 The following random documents shall be provided upon delivery:

- Product qualification certificate;
- Operation manual;
- Packing list.

Operation manual shall comply with GB/T 9969 and GB/T 27548.

## 8.3 Transportation

8.3.3 Reliable fixing and hoisting protection measures shall be taken for whole-

machine or disassembled transportation.

8.3.2 Both ends of pipelines and joints in disassembled transportation shall be plugged with special plugs.

8.3.3 Transportation shall comply with national highway, railway and waterway cargo transportation rules.

## 8.4 Storage

8.4.1 Scissors elevating work platforms shall be stored in a ventilated and dry warehouse; otherwise, sun protection, rain protection, moisture protection and corrosion protection measures shall be taken.

8.4.2 Batteries shall be disconnected during storage and charged every two months.

8.4.3 Fuel and water shall be drained for long-term storage; rust-proof measures shall be taken on easily rusted surfaces; adjustment holes, oil filling holes, air inlet/outlet holes, etc. shall be tightly sealed with caps, plugs or other methods.

8.4.4 The whole machine shall be started and operated regularly during long-term storage, with inspection interval ≤ two months.