Henan Master Machinery Co., Ltd

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# OPERATION MANUAL

# FTS600A Truss screed Machine

PERFORMANCE · EFFICIENT ·RELIABLE

**Master** sincerely thanks you for selecting the Concrete Cutting Machine. For your Safety and proper operation, before you start to operate or carry out any maintenance on this equipment, YOU MUST READ and STUDY this manual carefully. Be sure to always keep it ready for reference.

**Produced By Henan Master Machinery Co.,Ltd**
**Dear Customer,**
**Thanks for choosing Master machine.**
**To ensure the safety and proper use of the machine, please read the instruction book carefully before use.**
**Also, please fill this card and save it for warranty use.**

| | | | |
|---|---|---|---|
| Buyer Name | | Purchase Time | |
| Tel | | Contact Person | |
| Address | | | |
| Product Name | Truss screed Machine | | |
| MODEL | FTS600A | | |
| Motor Model | | | |
| Note | | | |

Thank you very much that you have purchased the products.

This operation manual will tell you how to correctly operate and maintain your machine. Before using the machine, please read the

operation manual thoroughly to guarantee the correct operation. Following the operation requirements in the operation manual will make that your machine is in the best operation state so as to extend the life of the set. For you own safety and protection injury, carefully read, understand and observe the safety instructions described in this manual.

Keep this manual or a copy of it with the machine. This machine is built with user safety in mind; however, it can present hazards if improperly operate and serviced. Follow operating instructions carefully!

# WARNING

**Engine exhaust and some of its constituents and some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals to cause cancer, birth defects and other reproductive harm. Some examples of these chemicals are:**

- **Lead from lead-based paints.**
- **Crystalline silica from bricks.**

- **Cement and other masonry products.**
- **Arsenic and chromium from chemically treated lumber.**

**Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Always work in a well ventilated area, and work with approved safety equipments, such as dust masks that are specially designed to filter out microscopic particles.**

## FOREWARD

◇For your own safety and protection from bodily injuries, carefully read, understand and follow the safety instructions in this manual.

◇Please operate and maintain your machine in accordance with the instructions in this manual.

◇Defective machine parts are to be replaced as soon as possible.

◇Keep this owner's manual handy, so you can refer to it at any time.

◇No part of this publication may be reproduced without written permission.

◇We expressly reserve the right to technical modifications- even without express due notice - which aim at improving our machines or

their safety standards.

## FEATURE

This screed is a modern, high production machine intended to provide consolidation of concrete while striking off and closing concrete surfaces. The vibratory motion, consolidation, and closing action are controlled by the engine speed. This is designed with exact paving system, suitable and perfect for large concrete surfaces. The Max depth of impaction can be up to 20 centimeters. It is mostly used to pave, vibratorily impact the concrete surfaces, bridges' concrete surfaces, large parking sites and other large factory concrete surfaces. Finishing rates will depend on operator skill and job conditions. Do not use this machine for any application other than screeding concrete.

## SAFETY PRECAUTIONS

### 1. Operating safety

**Warning!** Familiarity and proper training are required for the safe operation of equipment! Equipment operated improperly or by untrained personnel can be dangerous! Read the operating instructions contained in both this manual and the engine manual and familiarize you with the location and proper use of all controls. Inexperienced operators should receive instruction from someone familiar with the equipment before being allowed to operate the machine.

1) Never use this machine for any application other than to screed concrete.
2) Never allow improperly trained people to operate this equipment. People operating this equipment must be familiar with the potential risks and hazards associated with it.
3) Never touch engine or muffler while screed is operating or

immediately after it has been turned off. These areas get hot and may cause burns.

4) Never use accessories or attachments which are not recommended by GONGZHEN for this equipment. Damage to equipment and/or injury to user may result.
5) Never operate machine with the belt guard missing. Exposed drive belt and pulleys create potentially dangerous hazards that cause serious injuries.
6) Never leave machine running unattended.
7) Never run machine indoors or in an enclosed area unless adequate ventilation, through such items as exhaust fans or hoses, is provided. Exhaust gas from the engine contains poisonous carbon monoxide gas; exposure to carbon monoxide can cause loss of consciousness and may lead to death.
8) Always keep hands, feet, and loose clothing away from moving parts of equipment.
9) Always wear protective clothing when operating equipment. For instance, goggles or safety glasses will protect eyes from damage caused by flying debris.
10) Always read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.
11) Always be sure operator is familiar with proper safety precautions and operation techniques before using the screed.
12) Always close fuel valve on engines equipped with one, when screed is not being operated.
13) Always store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.
14) Always operate screed with safety devices and guards in place

and in working order.

15) Always operate screed along even forms. Avoid objects protruding from concrete such as stakes or plumbing that would interfere with screed operation.

**2. Operator safety while using internal combustion engines**

Internal combustion engines present special hazards during operation and fueling! Failure to follow the safety guidelines described below could result I severe injury or death.

1) Do not smoke while operating screed.
2) Do not spill fuel when refueling engine.
3) Do not smoke when refueling engine.
4) Do not operate near open flames.
5) Do not refuel hot or running engine.
6) Do not refuel engine near open flame.
7) Always refill fuel tank in well-ventilated area.
8) Always replace fuel tank cap after refueling.

**3. Service safety**

Poorly maintained equipment can become a safety hazard! In order for the equipment to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

1) Do not attempt to clean or service screed while it is running. Rotating parts can cause severe injury.
2) Do not crank a flooded engine with the spark plug removed on gasoline-powered engines. Fuel trapped in the cylinder will squirt out the spark plug opening.
3) Do not test for spark on gasoline-powered engines, if engine is flooded or the smell of gasoline is present. A stray spark could ignite

fumes.

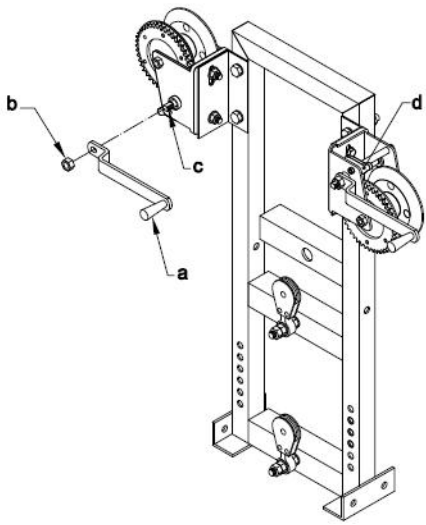
4) Do not use gasoline or other types of fuels or flammable solvents to clean parts, especially in enclosed areas. Fumes from fuels and solvents can accumulate and become explosive.
5) Always keep area around the muffler free of debris such as leaves, paper, cartons, etc. A hot muffler could ignite the debris and start a fire.
6) Always replace worn or damaged components with spare parts designed and recommended by GONGZHENG for service this machine.
7) Always remove or disconnect spark plug on screed equipped with gasoline engines, before servicing screed, to avoid accidental start-up.
8) Always handle cables carefully. The cables can fray and develop sharp edges which can cause serious cuts.
9) Always keep machine clean and labels legible. Replace all missing and hard-to-read labels. Labels provide important operating instructions and warn of dangers and hazards.

## OPERATION

### 1. Freewheeling the crank

To make it easier when routing cables through guides or extending across forms, freewheeling the crank is an option. To do this:

1) Remove the crank handle (a) by loosening the nut (b) until handle unthreads from shaft (c).
2) Click the tab switch (d) to the middle as in neutral position.
3) Cable is now able to be pulled freely to desired length.
4) Click the tab switch (d) to forward or reverse drive positions.
5) Replace crank handle before operating screed.




**2. Installing screed sections**

The screed sections are connected in two places: at the top with T-bolts (a) and at the bottom with a bracket plate (b).

Each screed section has a coarse and a fine side, determined by the top tube T-bolt connector threads. These T-bolts are critical to alignment of the screed, so it is important to insure the integrity of the threads.

The bracket plate permanently mounts to the coarse end of the screed section. It is secured to section with shoulder bolts (c), lock nuts (d) and lock washers (e). The bracket plate also carries a bearing (f) that guides and aligns the eccentric shaft (g).

**Note:** Remember to always leave the bracket plate attached to the coarse section end and disconnect from the fine side.

**For initial setup:**

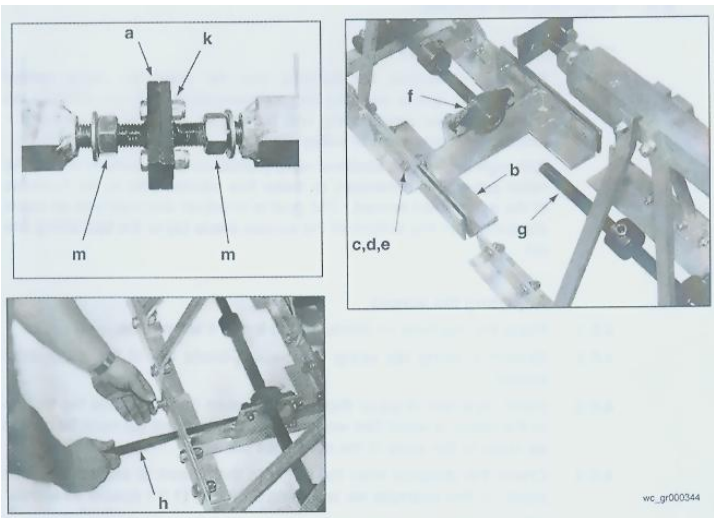
1) Lay the section of screed on a flat surface and install the bracket plate (b) to the coarse side.
2) Align the back T-blades and slide the two sections together while

guiding the eccentric shaft (g) into the mating surface of the bearing (f).

**Note:** While assembling the sections, make sure that the T-bolts are threaded into the top tube so they don't make contact with each other and impede the alignment of the bracket plate.

Once the sections are in place, you may proceed with loosely bolting the connector plate to the fine side of the screed. A tapered pin punch (h) inserted through the bolt holes will aid in the alignment of the bracket. Repeat this until all remaining mounting hardware is in place. At this time, the T-bolts can be adjusted so that they are at an equal distance between the assembled sections (i). Install the connecting hardware (k) and tighten. Leave the jam nuts (m) loose for the next step which is truing the screed.

Note: Once T-bolts have been adjusted at an equal distance, tighten all hardware making sure screed sections stay level.




## 3. Aligning the screed

Setting the screed for flatness can be done by using optical instruments, lasers or string line measurement. For our purpose we will discuss the basic string line technique, and set the screed for flatness with no crown or valley.

Although the screed sections were placed on a flat surface during the initial setup, it is necessary to make fine adjustments to the trueness of the assembled screed. The goal is to adjust and maintain an equal distance from the bottom of the screed blade (a) to the taut string line (b).

**Adjusting the screed**

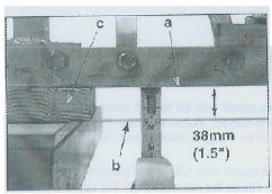
1) Place the machine on blocks or the forms it will ride on.
2) Stretch a string (b) along the back T-blade (a) of the assembled screed.
3) Insert spacers of equal thickness between the string and the bottom of the blade (a wood 2×4 works well). The spacers (c) must be placed as close to the ends of the screed as possible.
4) Check the distance from the string to the screed at each connection point. In this example we are using a 38 mm (1.5″) spacer as shown. After checking all of the connections, start the adjustment process at the point that is the farthest from true.
5) Begin adjustment by turning the T-bolts with a pliers or an adjustable wrench (d). One full revolution (360°) will raise or lower the screed approximately 3.2 mm (0.125″).
6) Continue turning the T-bolt until the distance from the string line to the screed blade is equal to the thickness of the spacer.
7) Simultaneously, check the string line gap while adjusting the height of the screed, until the desired result is obtained.

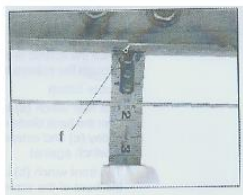
   Once the desired distance from the string line to the screed is

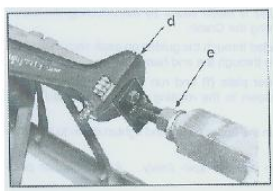
achieved at all of the connection points:

8) Tighten jam nuts (e).
9) Run the screed for approximately 5 minutes while checking for loose hardware, and tighten if necessary.
10) Check the alignment at the connection points (f) by using a taut string line and adjust (if needed) using the same procedures.

**NOTICE:** Always check the screed after it has been lifted or moved.




**4. Winch and cable**

Once the screed is properly adjusted you will need to route the cables through the pulleys and guides.

**Cable setup**

The rear winch (a) is equipped with 60 feet of cable and is mounted over the back blade of the screed. Route the cable through the bottom pulley (c) and extend out so the grab hook is secured to a solid point to winch against.

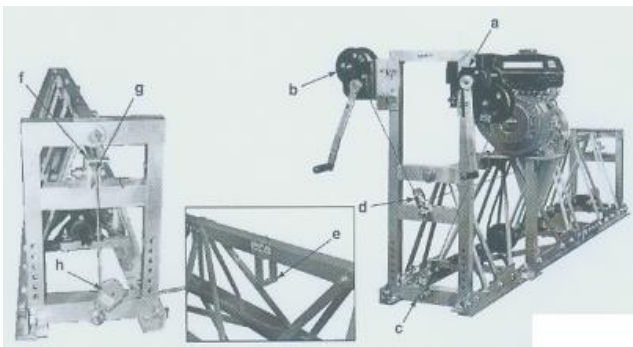
The front winch (b) is equipped with 100 feet of cable and mounted to

the front of the screed. Route the cable through the upper pulley (d) and thread through the guides in the center of the washer (e).

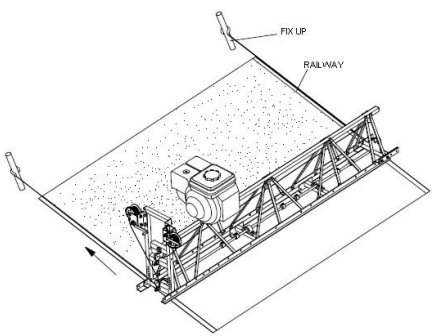
**Note:** Routing the cables is made easier by freewheeling the crank.

1) Loosen the cable T-plate (f) and run the cable over the fixed upper pulley (g) and down to the rotating pulley (h) located at the bottom of the screed.
2) Rest the keeper plate on the upper pulley and tighten down to keep the cable on track.

   **Note:** Pulley must be able to spin freely. Adjust T-plate accordingly.
3) Extend the cable out to a solid point to winch against and you are ready to pour concrete.




## OPERATION SKETCH MAP




## STARTING & STOPPING PROCEDURE

### 1. Before operation checks

a. Check the oil level: Before beginning your preoperational

checks, be sure the engine is level and the engine switch is in the OFF. Remove the filler cap/dipstick and wipe it clean. Insert and remove the dipstick without screwing it into the filler hole. Check the oil level shown on the dipstick. If the oil level is low, remove the oil filler cap, and fill to the upper limit mark on the dipstick with recommended oil. Screw in the filler cap/dipstick securely.

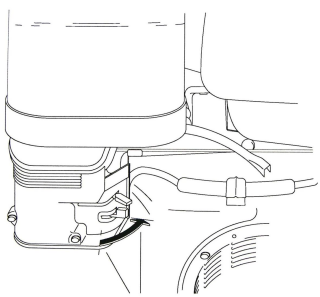
SAE 10W-30 is recommended for general use. The engine is certified to operate on unleaded gasoline with a research octane rating of 90 or higher. Unleaded gasoline produces fewer engine and spark plug deposits and extends exhaust system life. Never use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt or water in the fuel tank.

b. Check air filter: Remove the air cleaner cover and inspect the filter. Clean or replace dirty filter elements. Always replace damaged filter elements. If equipped with an oil-bath air cleaner, also check the oil level.

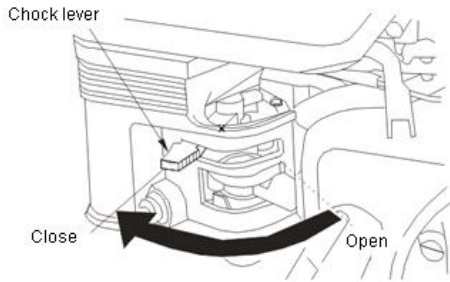
**Notice!** Running the engine with a low oil level can cause engine damage.

**2. Start engine procedure**

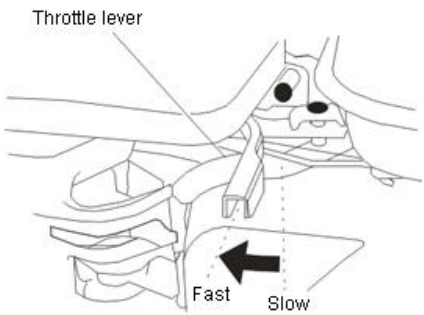
a. Move the fuel valve lever to the ON position.



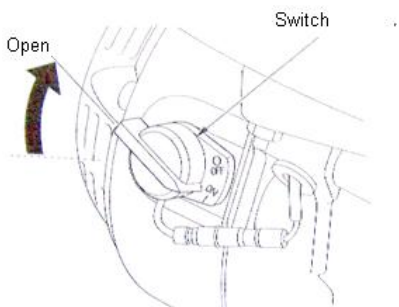
b. Move the choke lever to the CLOSE position. If the engine is warm or the air temperature is high, move the control lever away from the OPEN position as soon as the engine starts.




c. Move the throttle lever away from the SLOW position, about 1/3 of the way to toward the FAST position.

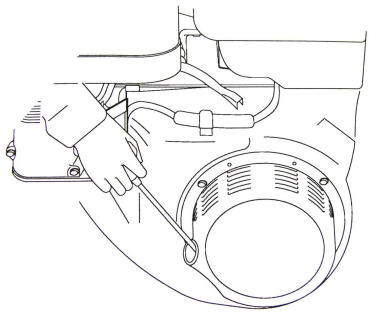



d. Turn the engine switch to the ON position.



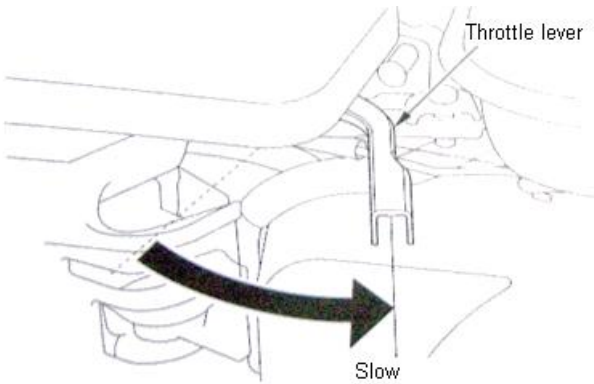
e. Pull the starter grip lightly until you feel resistance, then pull briskly. Return the starter grip gently.

**CAUTION!** Do not allow the starter grip to snap back against the engine. Return it gently to prevent damage to the starter.

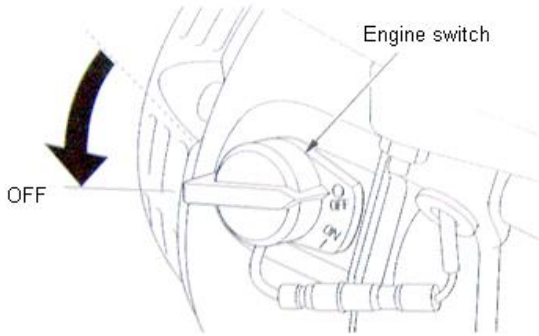


**3. Stopping the engine**

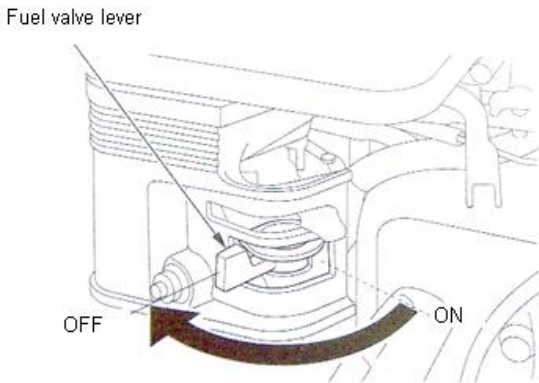
a. Move the throttle lever to the SLOW position.




b. Turn the engine switch to the OFF position.




c. Turn the fuel valve lever to the OFF position.




**4. Operating the screed**

1) Set screed unit on top of forms. There should be a (6-18") overhang on each end.
2) Extend both cables out so each grab hook is secured to a solid point to winch against.
3) Place one laborer every 10ft. of screed to spread the concrete to a level of 12.7～25.4mm (0.5-1.00") above the bottom of the front angle blade.

**CAUTION:** Allowing the level of concrete to drop below the blades

will cause a low spot or a “valley” and create more work to level the concrete.

**CAUTION:** Overloading with concrete can cause the screed to ride up or bend creating high spots or “crowns”.

4) To achieve desired concrete results, the engine should be kept at the lowest speed possible.

**Note:** The combination of slow travel speed, uniformly spread concrete, and one designated operator will enhance the quality of the floor.

### 5. Stopping the screed

If the screed has to be stopped in the concrete, it is important to do so quickly to prevent ridges. Before starting up again, pick up the screed and set it back approximately one foot and proceed.

If there is a time delay between concrete pours, the unfinished concrete should be rough graded back and well below the screed strike off height. This will prevent a cold joint when screed operation is resumed.

## ENGINE MAINTENANCE

The Periodic Maintenance Schedule below lists basic maintenance intervals for the engine and screed. Items listed may be carried out by the layman with everyday hand tools. However, adjusting valve clearances may require the skill of a professional engine mechanic. Read the engine manufacturer’s Owner’s Manual for more information on engine maintenance.

### 1. Periodic maintenance schedule

| **Routine Service Intervals** | Before each use | After first 20 hours | Every two weeks or 50 hrs | Every month or 100 hrs | Every year or 300 hrs |
|---|---|---|---|---|---|
| Check fuel level | ● | | | | |
| Check engine oil level | ● | | | | |
| Check fuel lines | ● | | | | |
| Inspect air cleaner elements. Replace as needed. | ● | | | | |
| Check and grease bearings | | | | | |
| Check and tighten external hardware. | ● | | | | |
| Check and tighten belt | | ● | ● | | |
| Clean air cleaner elements. | | | ● | | |
| Change engine oil | | ● | | ● | |
| Clean cooling system | | | | ● | |
| Check and clean spark plug | | | | ● | |

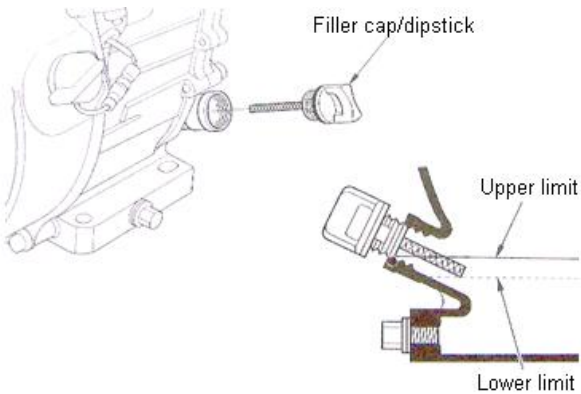
| | | | | | |
|---|---|---|---|---|---|
| Clean sediment cup | | | | ● | |
| Check and adjust valve clearances. | | | | | ● |

## 2. LUBRICATION

### 1) Engine oil lever check

Check the engine oil level with the engine stopped and in a level position.

1. Remove the filler cap/dipstick and wipe it clean.
2. Insert and remove the dipstick without screwing it into the filler neck. Check the oil level shown on the dipstick.
3. If the oil level is low, fill to the edge of the oil filler hole with the recommended oil.
4. Screw in the filler cap/dipstick securely.




### 2) Engine oil change

Drain the used oil while the engine is warm. Warm oil drains quickly and completely.

a. Place a suitable container below the engine to catch the used oil, and then remove the filler cap/dipstick, drain plug, and washer.

b. Allow the used oil to drain completely, then reinstall the drain plug,

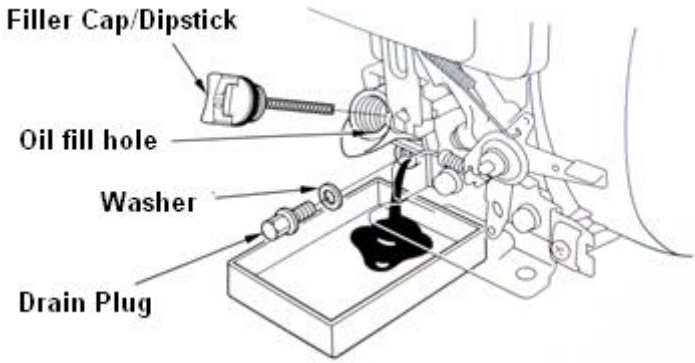
washer, and tighten drain plug securely.

**Notice!** Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash; pour it on the ground, or down a drain.

c. With the engine in a level position, fill to the outer edge of the oil filler hole with the recommended oil.

**Notice!** Running the engine in a low oil level can cause engine damage.

d. Screw in the filler cap/dipstick securely.




**3. SPARK PLUGS**

Recommended spark plugs: BPR6ES (NGK) W20EP-U W20EPR-U (ND)

For good performance, the spark plug must be properly gapped and free of deposits.

**Notice!** An incorrect spark plug can cause engine damage.

1) Disconnect the spark plug cap, and remove any dirt from around the spark plug area.

2) Remove the spark plug with a 13/16-inch spark plug wrench.

3) Inspect the spark plug. Replace it if the electrodes are worn heavy carbon buildup is found, or if the insulator is cracked or chipped.

4) Measure the spark plug electrode gap with a suitable gauge. The gap should be 0.028-0.031 in (0.70 - 0.80 mm). Correct the gap, if necessary, by carefully bending the side electrode.

5) Check that the spark plug washer is in good condition. Install the spark plug carefully, by hand, to avoid cross-threading.

6) After the spark plug seats, tighten with a 13/16-inch spark plug wrench to compress the sealing washer.

7) When installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer.

8) After the spark plug seats, tighten with a 13/16-inch spark plug wrench to compress the sealing washer. If reinstalling the used spark plug, tighten 1/8 - 1/4 turn after the spark plug seats. If installing a new spark plug, tighten 1/2 turn after the spark plug seats.

9) Attach the spark plug cap.

**NOTICE!** The recommended spark plug has the correct heat range for normal engine operating temperatures. A loose spark plug can overheat and damage the engine. Over tightening the spark plug can damage the threads in the cylinder head.

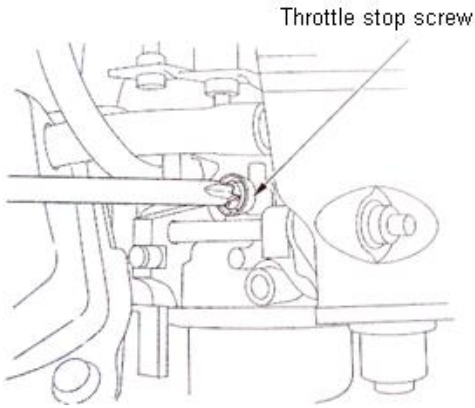
**4. CARBURETTOR ADJUSTMENT**

1) Start the engine outdoors, and allow it to warm up to operating temperature.

2) Move the throttle lever to its slowest position.

3) Turn the throttle stop screw to obtain the standard idle speed.

Standard idle speed: 1440r/min




**5. AIR FILTER SERVICE**

A dirty air filter will restrict air flow to the carburetor, reducing engine performance. If you operate the engine in very dust areas, clean the air filter more often than specified in the MAINTENANCE SCHEDULE.

**WARNING!** Never use gasoline or low flammable point solvents for cleaning the air cleaner element. A fire or explosion could result.

**NOTICE!** Operating the engine without an air filter element, or with a damaged air filter element, will allow dirt to enter the engine, causing rapid engine wear.

3) Remove the wing nut from the air cleaner cover, and remove the cover.

4) Remove the wing nut from the air filter, and remove the filter.

5) Remove the foam air filter element from the paper filter.

6) Inspect both air filter elements, and replace them if they are damage.

7) Paper air filter element: Tap the filter element lightly several times on a hard surface to remove excess dirt, or blow compressed air through the filter element from the inside out. Never try to brush the

dirt off; brushing will force dirt into the fibers.

8) Foam air filter element: Clean in warm soapy water, rinse, and allow to drying thoroughly. Or clean in nonflammable solvent and allow to drying. Dip the filter element in clean engine oil, and then squeeze out all excess oil. The engine will smoke when started if too much oil is left in the foam.

## BLADES MAINTENANCE

### 1. Cleaning the screed

1) Remove any excess concrete with a high pressure washer. Be sure to remove any concrete buildup on the underside of the front angle blades and rear T-blades.

**CAUTION:** Do not use a hammer or wire brush to remove concrete from the screed.

2) Grease shaft bearings with Shell Alvania RL2 or equivalent to force out any grit or water. Do not over grease this will cause excess drag on the shaft.

### 2. Storage

Before storing the screed for a long period of time:

1) Close the fuel valve and remove and empty sediment cup under carburetor.

2) Disconnect the fuel line from the carburetor. Place open end of fuel line into a suitable container and open fuel valve to drain fuel from tank.

**WARING**! Gasoline is extremely flammable. Drain fuel tank in a well ventilated area. Do not drain tank in an area with flames or sparks.

3) Loosen the drain screw on the carburetor and drain any remaining fuel from carburetor.

4) Change the engine oil.
5) Remove the spark plug and pour approximately one tablespoon (30ml) of clean engine oil into the cylinder. Crank the engine a few turns to distribute the oil to the inside of the cylinder walls.
6) Pull the starter rope slowly until resistance is felt and leave handle in this position. This ensures that the intake and exhaust valves are closed.
7) Grease the shaft bearing with low temperature grease after final usage. Run the screed at operating speed for approx. one minute.
8) Store screed in clean, dry area or cover with a protective tarp.

**3. Transporting**

**WARING!** Let engine cool before transporting screed or storing indoors, to avoid burns or fire hazards.
1) Turn the engine fuel valve to the off position.
2) Make sure the screed is level to prevent fuel from spilling.
3) Secure the screed by tying it down with suitable rope.

**CAUTION:** To avoid damage to frame, disconnect screed sections before transporting.

## TROUBLESHOOTING

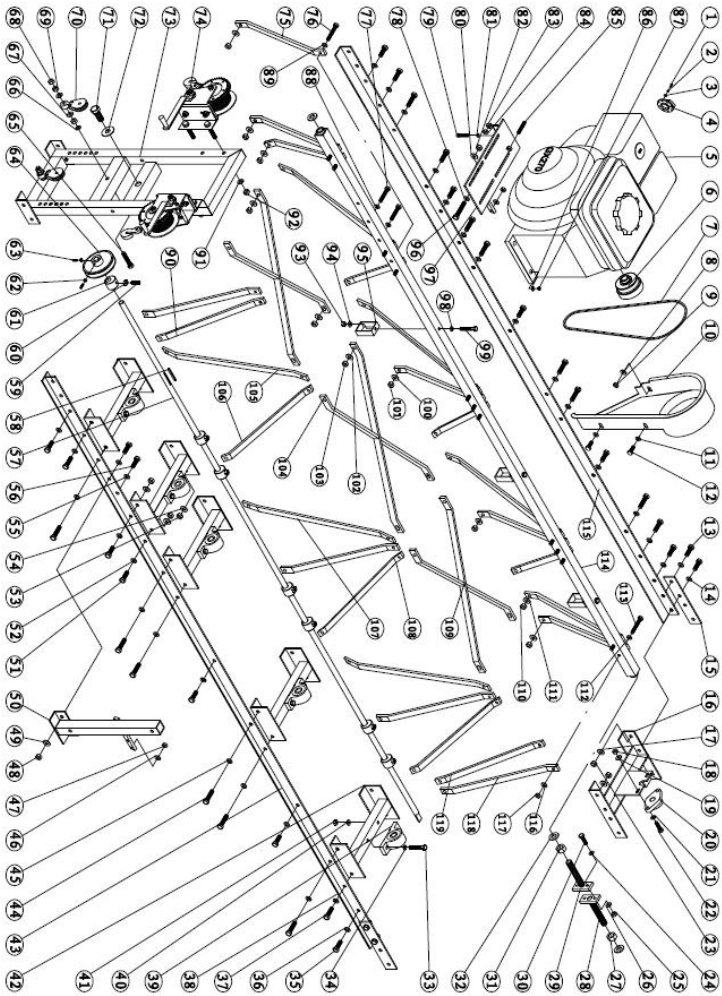
If engine doesn't start, check that:
1) Engine switch is on "Start".
2) Fuel valves under fuel tank and on engine are open.
3) Fuel tank has fuel.
4) Choke lever is in correct position. Choke should be closed when starting a cold engine.
5) Spark plug is in good condition.

6) Spark plug cap is tight.

7) Engine oil level is adequate.

## Diagram

1. Truss screed HP30 components



| Item | Part no. | Part name | Qty | Item | Part no. | Part name | Qty |
|---|---|---|---|---|---|---|---|
| 1 | 10001 | Screw M4×12 | 1 | 43 | 10043 | T-blade | 1 |
| 2 | 10002 | Gasket 4 | 1 | 44 | 10044 | Bolt M12×55 | 12 |
| 3 | 10003 | Washer 4 | 1 | 45 | 10045 | Gasket 12 | 12 |
| 4 | 10004 | Releaser hood | 1 | 46 | 10046 | Washer 10 | 2 |
| 5 | 10005 | Engine （GX270） | 1 | 47 | 10047 | Locknut M10 | 2 |
| 6 | 10006 | Clutch | 1 | 48 | 10048 | Locknut M13 | 2 |
| 7 | 10007 | Belt B54 | 1 | 49 | 10049 | Washer 12 | 2 |
| 8 | 10008 | Washer 10 | 1 | 50 | 10050 | Engine mount | 1 |
| 9 | 10009 | Locknut M10 | 1 | 51 | 10051 | Bolt M12×40 | 3 |
| 10 | 10010 | Belt guard | 1 | 52 | 10052 | Gasket 12 | 3 |
| 11 | 10011 | Gasket 10 | 2 | 53 | 10053 | Locknut M10 | 3 |
| 12 | 10012 | Bolt M10×30 | 2 | 54 | 10054 | Washer 10 | 3 |
| 13 | 10013 | Bolt M12×40 | 8 | 55 | 10055 | Gasket 12 | 2 |

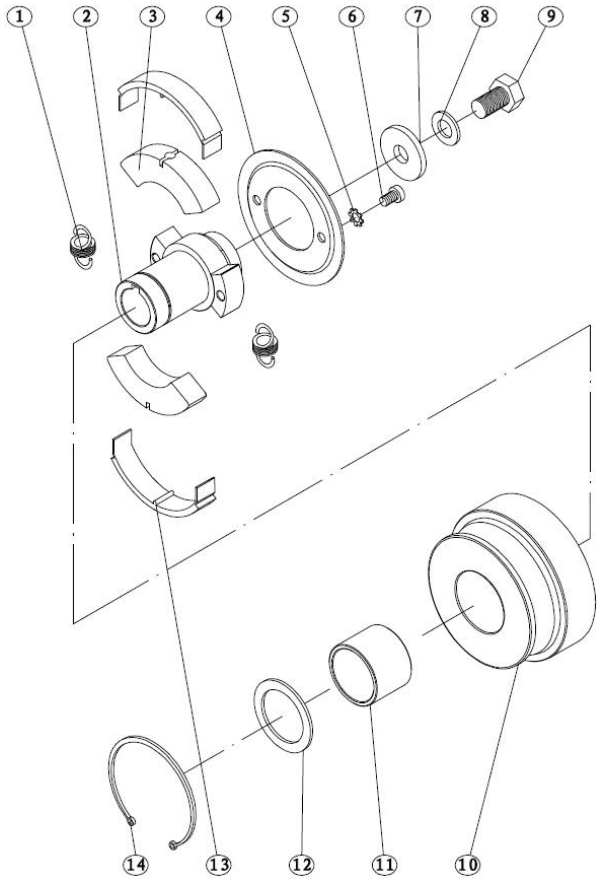
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 14 | 10014 | Gasket 12 | 8 | 56 | 10056 | Bolt M12×40 | 2 |
| 15 | 10015 | Plate | 2 | 57 | 10057 | Shaft | 1 |
| 16 | 10016 | Bracket | 1 | 58 | 10058 | Key 6×6×65 | 1 |
| 17 | 10017 | Washer 12 | 8 | 59 | 10059 | Screw M10×35 | 7 |
| 18 | 10018 | Locknut M10 | 2 | 60 | 10060 | Locknut M10 | 7 |
| 19 | 10019 | Washer 10 | 2 | 61 | 10061 | Eccentric block | 7 |
| 20 | 10020 | Bearing UCFLU204 | 1 | 62 | 10062 | Locknut M6 | 2 |
| 21 | 10021 | Gasket 10 | 2 | 63 | 10063 | Screw M6×20 | 2 |
| 22 | 10022 | Bolt M10×40 | 2 | 64 | 10064 | Pulley | 1 |
| 23 | 10023 | Locknut M12 | 8 | 65 | 10065 | Bolt M12×65 | 2 |
| 24 | 10024 | Gasket 10 | 2 | 66 | 10066 | Gasket 12 | 2 |
| 25 | 10025 | Locknut M10 | 2 | 67 | 10067 | Washer 12 | 4 |
| 26 | 10026 | Washer 10 | 2 | 68 | 10068 | Locknut M12 | 2 |
| 27 | 10027 | Nut M20×1.5 | 1 | 69 | 10069 | Nut M12 | 4 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 28 | 10028 | T-bolt | 1 | 70 | 10070 | Pulley | 2 |
| 29 | 10029 | T-bolt | 1 | 71 | 10071 | Bolt M20×2.5×50 | 1 |
| 30 | 10030 | Bolt M10×40 | 2 | 72 | 10072 | Washer | 1 |
| 31 | 10031 | Nut M20×2.5 | 1 | 73 | 10073 | Frame | 1 |
| 32 | 10032 | Flat steel washer | 3 | 74 | 10074 | Winch assembly | 2 |
| 33 | 10033 | Bolt M10×65 | 10 | 75 | 10075 | Vertical strut Ⅱ | 1 |
| 34 | 10034 | Gasket 10 | 10 | 76 | 10076 | Bolt M10×80 | 1 |
| 35 | 10035 | Bolt M12×40 | 8 | 77 | 10077 | Bolt M10×65 | 2 |
| 36 | 10036 | Gasket 12 | 8 | 78 | 10078 | Gasket 12 | 2 |
| 37 | 10037 | Bolt M12×45 | 5 | 79 | 10079 | Bolt M8×45 | 4 |
| 38 | 10038 | Gasket 12 | 5 | 80 | 10080 | Washer 12 | 1 |
| 39 | 10039 | Bearing P204 | 5 | 81 | 10081 | Gasket 8 | 4 |
| 40 | 10040 | Washer 10 | 10 | 82 | 10082 | Locknut M12 | 1 |
| 41 | 10041 | Locknut M10 | 10 | 83 | 10083 | Washer 10 | 2 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 42 | 10042 | Bracket | 5 | 84 | 10084 | Locknut M10 | 2 |
| Item | Part no. | Part name | Qty | Item | Part no. | Part name | Qty |
| 85 | 10085 | Screw M10×60 | 1 | 103 | 10103 | Locknut M12 | 12 |
| 86 | 10086 | Washer 8 | 4 | 104 | 10104 | X-strut Ⅱ | 1 |
| 87 | 10087 | Locknut M8 | 4 | 105 | 10105 | Strut Ⅲ | 4 |
| 88 | 10088 | Gasket 10 | 2 | 106 | 10106 | Strut Ⅳ | 4 |
| 89 | 10089 | Gasket 10 | 1 | 107 | 10107 | Strut Ⅵ | 2 |
| 90 | 10090 | Strut Ⅱ | 2 | 108 | 10108 | Strut Ⅴ | 2 |
| 91 | 10091 | Washer 12 | 4 | 109 | 10109 | X-strut Ⅰ | 2 |
| 92 | 10092 | Locknut M12 | 4 | 110 | 10110 | Locknut M12 | 5 |
| 93 | 10093 | Locknut M10 | 3 | 111 | 10111 | Washer 12 | 5 |
| 94 | 10094 | Washer 10 | 3 | 112 | 10112 | Gasket 10 | 12 |
| 95 | 10095 | Washer | 3 | 113 | 10113 | Bolt M10×80 | 12 |
| 96 | 10096 | Bolt M12×75 | 1 | 114 | 10114 | Beam Ⅰ assembly | 1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 97 | 10097 | Mount | 1 | 115 | 10115 | L-blade | 1 |
| 98 | 10098 | Gasket 10 | 3 | 116 | 10116 | Washer 10 | 12 |
| 99 | 10099 | Bolt M10×65 | 3 | 117 | 10117 | Locknut M10 | 12 |
| 100 | 10100 | Washer 12 | 8 | 118 | 10118 | Vertical strut Ⅰ | 8 |
| 101 | 10101 | Locknut M12 | 8 | 119 | 10119 | Strut Ⅰ | 2 |
| 102 | 10102 | Washer 12 | 12 | | | | |

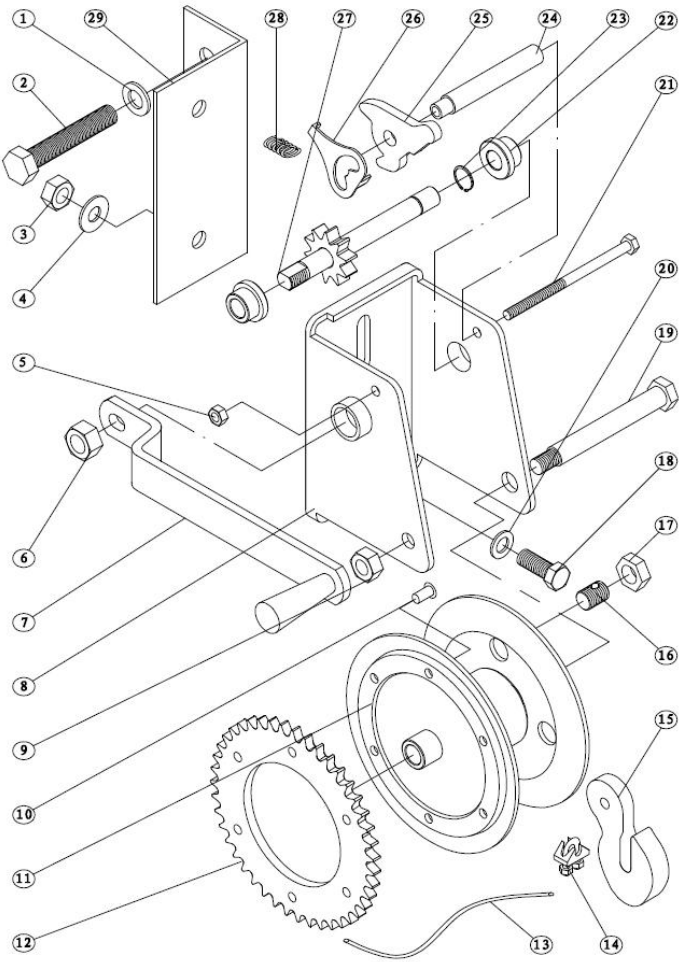
2. Clutch assembly




| Item | Part no. | Part name | Qty |
|---|---|---|---|
| 1 | 1000601 | Spring | 2 |
| 2 | 1000602 | Shaft | 1 |
| 3 | 1000603 | Centrifugal weight | 2 |

| | | | |
|---|---|---|---|
| 4 | 1000604 | Cover Washer | 1 |
| 5 | 1000605 | Washer 6 | 2 |
| 6 | 1000606 | Screw M6×10 | 2 |
| 7 | 1000607 | Washer | 1 |
| 8 | 1000608 | Gasket 12 | 1 |
| 9 | 1000609 | Bolt M7/16-20UNC×1″ | 1 |
| 10 | 1000610 | Pulley | 1 |
| 11 | 1000611 | Bushing | 1 |
| 12 | 1000612 | Washer | 1 |
| 13 | 1000613 | Lining | 2 |
| 14 | 1000614 | Retaining ring 35 | 1 |

3. Winch assembly

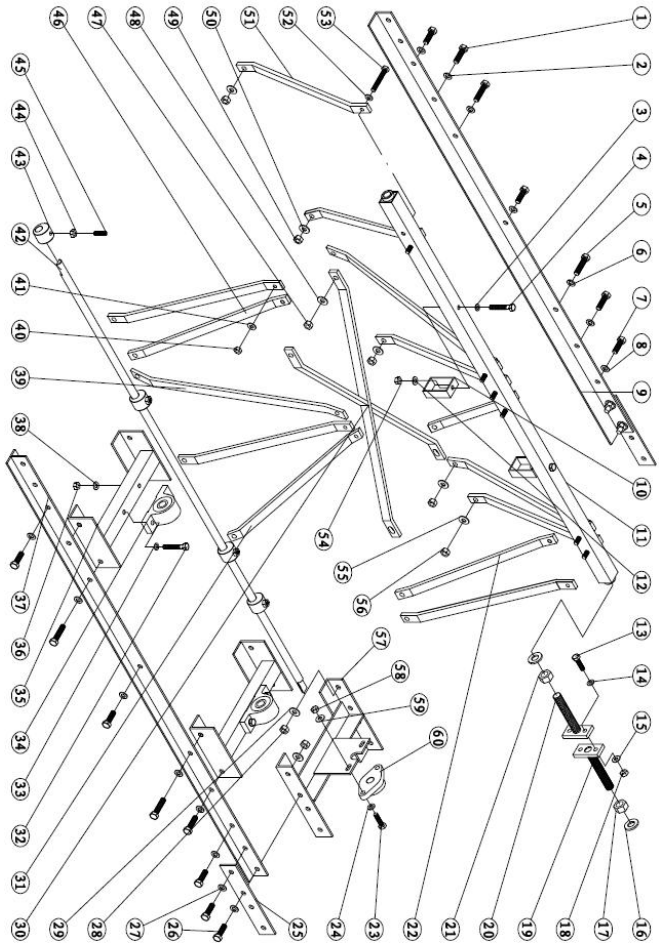



| Item | Part no. | Part name | Qty |
|---|---|---|---|
| 1 | 1007401 | Gasket 12 | 4 |
| 2 | 1007402 | Bolt M12×70 | 4 |

| | | | |
|---|---|---|---|
| 3 | 1007403 | Locknut M10 | 4 |
| 4 | 1007404 | Washer 10 | 4 |
| 5 | 1007405 | Locknut M6 | 2 |
| 6 | 1007406 | Locknut M12 | 2 |
| 7 | 1007407 | Handle | 2 |
| 8 | 1007408 | Bracket | 2 |
| 9 | 1007409 | Locknut M10 | 2 |
| 10 | 1007410 | Screw | 2 |
| 11 | 1007411 | Winch | 2 |
| 12 | 1007412 | Gear | 2 |
| 13 | 1007413 | Cable | 2 |
| 14 | 1007414 | Clip | 2 |
| 15 | 1007415 | Lifting | 2 |
| 16 | 1007416 | Screw | 2 |
| 17 | 1007417 | Nut M12 | 4 |
| 18 | 1007418 | Bolt M10×25 | 4 |
| 19 | 1007419 | Shaft | 2 |
| 20 | 1007420 | Gasket 10 | 4 |
| 21 | 1007421 | Bolt M6×100 | 2 |
| 22 | 1007422 | Bushing | 2 |
| 23 | 1007423 | Retaining ring 12 | 2 |
| 24 | 1007424 | Shaft | 2 |
| 25 | 1007425 | Tab switch | 2 |

| | | | |
|---|---|---|---|
| 26 | 1007426 | Plate | 2 |
| 27 | 1007427 | Shaft | 4 |
| 28 | 1007428 | Spring | 2 |
| 29 | 1007429 | Bracket mount | 2 |

4. HC-15 assembly

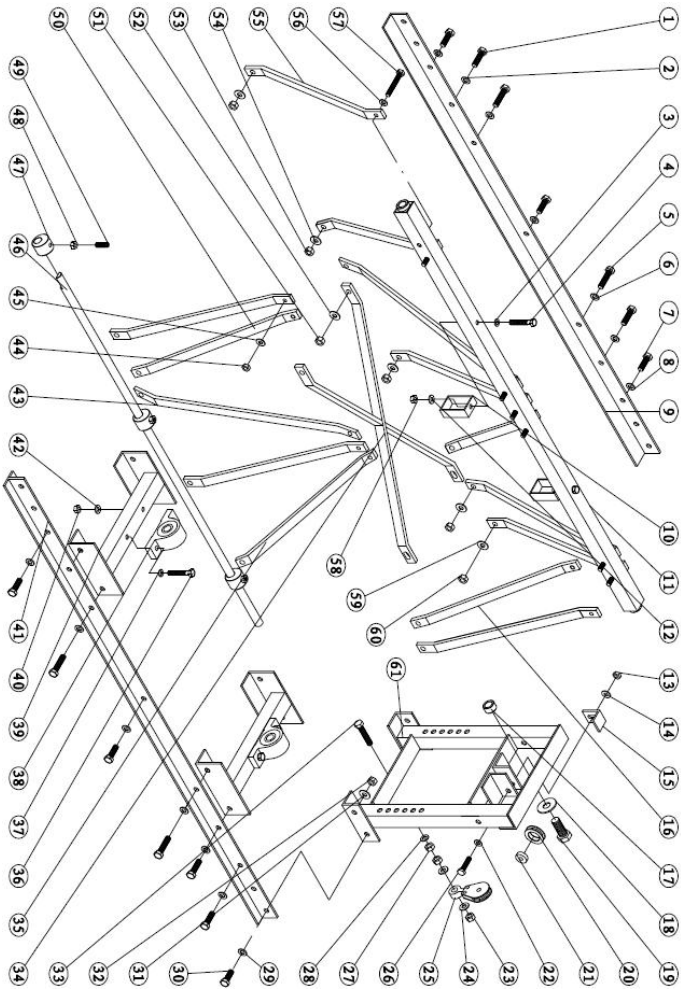


| Item | Part no. | Part name | Qty | Item | Part no. | Part name | Qty |
|---|---|---|---|---|---|---|---|
| 1 | 10120 | Bolt M12×45 | 4 | 31 | 10150 | Strut Ⅳ | 2 |
| 2 | 10121 | Gasket 12 | 4 | 32 | 10151 | Bolt M10×65 | 4 |
| 3 | 10122 | Gasket 10 | 2 | 33 | 10152 | Gasket 10 | 4 |
| 4 | 10123 | Bolt M10×65 | 2 | 34 | 10153 | Bearing P204 | 2 |
| 5 | 10124 | Bolt M12×55 | 4 | 35 | 10154 | Bracket | 2 |
| 6 | 10125 | Gasket 12 | 4 | 36 | 10155 | Locknut M10 | 4 |
| 7 | 10126 | Bolt M12×40 | 6 | 37 | 10156 | T-blade Ⅱ | 1 |
| 8 | 10127 | Gasket 12 | 6 | 38 | 10157 | Washer 10 | 4 |
| 9 | 10128 | L-blade | 1 | 39 | 10158 | Strut Ⅲ | 2 |
| 10 | 10129 | Washer | 2 | 40 | 10159 | Locknut M10 | 7 |
| 11 | 10130 | Beam Ⅱ | 1 | 41 | 10160 | Washer 10 | 7 |
| 12 | 10131 | Washer 10 | 2 | 42 | 10161 | Shaft Ⅱ | 1 |
| 13 | 10132 | Bolt M10×40 | 2 | 43 | 10162 | Eccentric block | 4 |
| 14 | 1013 | Gasket 10 | 2 | 44 | 1016 | Locknut M10 | 4 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 3 | | | | 3 | | |
| 15 | 10134 | Washer 10 | 2 | 45 | 10164 | Screw M10×35 | 4 |
| 16 | 10135 | Flat steel washer | 2 | 46 | 10165 | Strut Ⅱ | 2 |
| 17 | 10136 | Nut M20×1.5 | 1 | 47 | 10166 | Locknut M12 | 4 |
| 18 | 10137 | Locknut M10 | 2 | 48 | 10167 | Washer 12 | 4 |
| 19 | 10138 | T-bolt | 1 | 49 | 10168 | Locknut M12 | 4 |
| 20 | 10139 | T-bolt | 1 | 50 | 10169 | Washer 12 | 4 |
| 21 | 10140 | Nut M20×2.5 | 1 | 51 | 10170 | Vertical strut Ⅰ | 6 |
| 22 | 10141 | Strut Ⅰ | 2 | 52 | 10171 | Gasket 10 | 7 |
| 23 | 10142 | Bolt M10×40 | 2 | 53 | 10172 | Bolt M10×80 | 7 |
| 24 | 10143 | Gasket 10 | 2 | 54 | 10173 | Locknut M10 | 2 |
| 25 | 10144 | Plate | 2 | 55 | 10174 | Washer 12 | 6 |
| 26 | 10145 | Bolt M12×40 | 8 | 56 | 10175 | Locknut M12 | 6 |
| 27 | 10146 | Gasket 12 | 8 | 57 | 10176 | Bracket | 1 |
| 28 | 10147 | Locknut M12 | 8 | 58 | 10177 | Locknut M10 | 2 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 29 | 10148 | Washer 12 | 8 | 59 | 10178 | Washer 10 | 2 |
| 30 | 10149 | X-strut Ⅲ | 1 | 60 | 10179 | Bearing UCFLU204 | 1 |

5. HE-15 assembly



| Item | Part no. | Part name | Qty | Item | Part no. | Part name | Qty |
|---|---|---|---|---|---|---|---|
| 1 | 10180 | Bolt M12×45 | 4 | 32 | 10211 | Locknut M12 | 4 |
| 2 | 10181 | Gasket 12 | 4 | 33 | 10212 | Bolt M12×65 | 1 |
| 3 | 10182 | Gasket 10 | 2 | 34 | 10213 | X-strut Ⅲ | 1 |
| 4 | 10183 | Bolt M10×65 | 2 | 35 | 10214 | Strut Ⅳ | 2 |
| 5 | 10184 | Bolt M12×55 | 4 | 36 | 10215 | Bolt M10×65 | 4 |
| 6 | 10185 | Gasket 12 | 4 | 37 | 10216 | Gasket 10 | 4 |
| 7 | 10186 | Bolt M12×40 | 6 | 38 | 10217 | Bearing P204 | 2 |
| 8 | 10187 | Gasket 12 | 6 | 39 | 10218 | Bracket | 2 |
| 9 | 10188 | L-blade | 1 | 40 | 10219 | Locknut M10 | 4 |
| 10 | 10189 | Washer | 2 | 41 | 10220 | T-blade | 1 |
| 11 | 10190 | Beam Ⅱ | 1 | 42 | 10221 | Washer 10 | 4 |
| 12 | 10191 | Washer 10 | 2 | 43 | 10222 | Strut Ⅲ | 2 |
| 1 | 1019 | Locknut | 1 | 44 | 10223 | Locknut | 7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | 2 | M10 | | | | M10 | |
| 14 | 10193 | Washer 10 | 1 | 45 | 10224 | Washer 10 | 7 |
| 15 | 10194 | T-plate | 1 | 46 | 10225 | Shaft Ⅲ | 1 |
| 16 | 10195 | Strut Ⅰ | 2 | 47 | 10226 | Eccentric block | 4 |
| 17 | 10196 | Bushing | 1 | 48 | 10227 | Locknut M10 | 4 |
| 18 | 10197 | Washer | 1 | 49 | 10228 | Screw M10×35 | 4 |
| 19 | 10198 | Bolt M20×2.5×50 | 1 | 50 | 10229 | Strut Ⅱ | 2 |
| 20 | 10199 | Pulley | 1 | 51 | 10230 | Locknut M12 | 4 |
| 21 | 10200 | Bearing 6200ZZ | 1 | 52 | 10231 | Washer 12 | 4 |
| 22 | 10201 | Gasket 10 | 1 | 53 | 10232 | Locknut M12 | 4 |
| 23 | 10202 | Locknut M12 | 1 | 54 | 10233 | Washer 12 | 4 |
| 24 | 10203 | Washer 12 | 2 | 55 | 10234 | Vertical strut Ⅰ | 6 |
| 25 | 10204 | Pulley | 1 | 56 | 10235 | Gasket | 7 |
| 26 | 10205 | Bolt M10×45 | 1 | 57 | 10236 | Bolt M10×80 | 7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 27 | 10206 | Nut M12 | 2 | 58 | 10237 | Locknut M10 | 2 |
| 28 | 10207 | Gasket 12 | 1 | 59 | 10238 | Washer 12 | 6 |
| 29 | 10208 | Gasket 12 | 4 | 60 | 10239 | Locknut M12 | 6 |
| 30 | 10209 | Bolt M12×35 | 4 | 61 | 10240 | End frame | 1 |
| 31 | 10210 | Washer 12 | 4 | | | | |