PK-ATBH7 TOWABLE FLAIL MOWER

Pow'R'kraft

OPERATION & PARTS MANUAL

Please read these instructions before using. Always grease all fittings and be sure to always check and fill with oil before operating! Retain this manual for future use.

BETSTCO
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541-895-3083 M-F 7am-4pm PST
83371 Melton Rd, Creswell OR 97426

Pow'R'kraft

Assembling

In the need of shipping safely, many parts this machine is disassembled before shipping. So you have to assemble several parts when you have received this machine.

IMPORTANT SAFETY INSTRUCTIONS

WARNING! Read all instructions.
Failure to follow all instructions listed below may result in fire, serious injury and/or DEATH. The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

Set up Precautions

1. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. This equipment has a spark arresting muffler included. A spark arresting muffler is required by law in California, on some US Forest Service land, and possibly in other areas or situations.
4. Set up and use only on a flat, level, well-ventilated surface.
5. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during set up.
6. Use only lubricants and fuel recommended in the Specifications chart of this manual.

WARNING!
IMPORTANT INFORMATION

The Hitch Coupler MUST be properly secured to the hitch ball of the towing vehicle. After assembly and attachment, pull up and down on the Hitch Coupler to make sure the hitch ball is fitting snugly in the Hitch Coupler. **There must be no play between the hitch ball and Hitch Coupler.** If there is play, tighten the Adjustment Nut until no play is present. If the Adjustment Nut is too tight, the Handle will not lock. **Carefully read and follow the complete instructions in this manual BEFORE setup or use.**

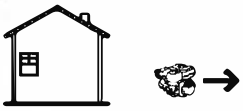
If the Coupler is not secured properly, the ball could come loose while the Trencher is in motion, possibly causing property damage, SERIOUS PERSONAL INJURY, or DEATH.

⚠ DANGER

Using an engine indoors CAN KILL YOU IN MINUTES.

Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.

NEVER use inside a home or garage, EVEN IF doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

Specifications

Displacement		270cc
Engine Type		Horizontal Single Cylinder 4-stroke, OHV, 9HP, Recoil Start
Engine Family		JJDGS.2702GA
Cooling System		Forced air cooled
Fuel	Type	87+ octane unleaded gasoline
	Capacity	1.72 Gallon
Engine Oil	Type SAE	10W-30 above 32° F 5W-30 at 32° F or below
	Capacity	1 Quart
Run Time @ 50% Load with full tank		3 hours
Sound Level		106 dB
Bore x Stroke		80 mm x 60 mm
Compression Ratio		8.2:1
Rotation viewed from PTO (power takeoff - the output shaft)		Counterclockwise
Shaft	Shaft	1" x 3.48"
	Keyway	1/4" (6.3 mm)
	End Tapped	7/16 - 20
Spark Plug	Type	F6TC (Torch)
	Gap	0.7 - 0.8 mm
Valve Clearance	Intake	0.006" ± 0.0008"
	Exhaust	0.008" ± 0.0008"
Speed	Idle	1,740± 50 RPM
	Maximum	3,600 RPM
Battery Required		12V 18Ah (Electric start Model)
Hydraulic Oil		3.5 Gallons
Tire Inflation		22 PSI
Digging Depth		6-1/2 and 7 Feet Deep
Maximum Digging Reach		9.15 Feet
Spool Valve		Rated 10.6 GPM
Pump		Rated 2.7 GPM
Boom Travel		60° Left/Right
Bucket Load Capacity		12" wide bucket 1.24 Cubic Feet
Hitch Ball size		2"" Diameter

The emissions control system for this Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For engine warranty information, refer to the last pages of this manual.

WARNING SYMBOLS AND DEFINITIONS	
⚠	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

Symbol Definitions

Symbol	Property or Statement
RPM	Revolutions Per Minute
HP	Horsepower
	WARNING marking concerning Risk of Eye Injury. Wear ANSI-approved safety goggles with side shields.
	Read the manual before set-up and/or use.
	WARNING marking concerning Risk of Hearing Loss. Wear hearing protection.

Symbol	Property or Statement
	WARNING marking concerning Risk of Respiratory Injury. Operate engine OUTSIDE and far away from windows, doors, and vents.
	WARNING marking concerning Risk of Fire while handling fuel. Do not smoke while handling fuel.
	WARNING marking concerning Risk of Fire. Do not refuel while operating. Keep flammable objects away from engine.

Operating Precautions

1. 

CARBON MONOXIDE HAZARD
Using an engine indoors
CAN KILL YOU IN MINUTES.
Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell.

NEVER use inside a home or garage, EVEN IF doors and windows are open.

Only use OUTSIDE and far away from windows, doors, and vents.

2. Contact local utility companies before beginning any project. Buried utility lines may not be marked and, if struck, can cause SERIOUS PERSONAL INJURY or DEATH.
3. Keep children away from the equipment, especially while it is operating.
4. Keep all spectators at least 20 feet from the equipment during operation.
5. Fire Hazard! Do not fill fuel tank while engine is running. Do not operate if gasoline has been spilled. Clean spilled gasoline before starting engine. Do not operate near pilot light or open flame.
6. Do not touch engine during use. Let engine cool down after use.
7. Never store fuel or other flammable materials near the engine.
8. Industrial applications must follow OSHA requirements.
9. Do not leave the equipment unattended when it is running. Turn off the equipment (and remove safety keys, if available) before leaving the work area.
10. The equipment can produce high noise levels. Prolonged exposure to noise levels above 85 dBA is hazardous to hearing. Wear ear protection when operating the equipment or when working nearby while it is operating.
11. Wear ANSI-approved safety goggles and hearing protection during use.
12. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline-powered engines may ignite the dust or fumes.
13. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.
14. Use only accessories that are recommended by FHM for your model. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.
15. Stay alert, watch what you are doing and use common sense when operating this piece of equipment. Do not use while tired or under the influence of drugs, alcohol or medication.
16. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
17. Use this equipment with both hands only. Using equipment with only one hand can easily result in loss of control.
18. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.
19. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
20. Do not cover the engine or equipment during operation.
21. Keep the equipment, engine, and surrounding area clean at all times.
22. Use the equipment, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of equipment, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation.
23. Do not operate the equipment with known leaks in the engine's fuel system.

Operating Precautions (cont.)

25. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
26. WARNING: This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
27. WARNING: This product contains di (2-ethylhexyl) phthalate (DEHP), a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
28. Never place your hands or body near a hydraulic fluid leak. High-pressure fluid can be forced under the skin resulting in serious injury.
29. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
30. Keep hands and feet away from moving parts. Do not reach over or across equipment while operating.
31. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. **If damaged, have the equipment serviced before using.** Many accidents are caused by poorly maintained equipment.
32. Use the correct equipment for the application. Do not modify the equipment and do not use the equipment for a purpose for which it is not intended.

Transport Precautions

1. Only use a suitable means of transport and lifting devices with sufficient weight bearing capacity when transporting the equipment.
2. Properly secure the equipment to transport vehicle to prevent it from rolling, slipping, and tilting.
3. Always make sure the hitch coupler is securely fixed to the vehicle before moving it. If the Coupler is not secured properly, the link could come loose while the trailer is in motion, possibly causing property damage, SERIOUS PERSONAL INJURY, or DEATH.
4. Do not exceed 30 MPH when towing the Trencher.
5. Do not tow the Trencher on roads or highways. This product is not D.O.T. compliant, and is not road legal.

Service Precautions

1. **Before service, maintenance, or cleaning:**
   a. **Turn the engine switch to its "OFF" position.**
   b. **Allow the engine to completely cool.**
   c. **Then, remove the spark plug wire from the spark plug.**
2. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
3. **Do not alter or adjust any part of the equipment or its engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed engine speed.**
4. Wear ANSI-approved safety goggles, heavy-duty work gloves, and dust mask/respirator during service.
5. Do not allow the hydraulic hose to come in contact with any hot part of the unit. The hose might be damaged, possibly causing it to burst or leak under high pressure.
6. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Betstco for a replacement.
7. Have the equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
8. Store equipment out of the reach of children.
9. Follow scheduled engine and equipment maintenance.

Refueling:

1. Do not refill the fuel tank while the engine is running or hot.
2. Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
3. Refuel in a well-ventilated area only.
4. Wipe up any spilled fuel and allow excess to evaporate before starting engine. **To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.**

SAVE THESE INSTRUCTIONS.

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

⚠WARNING

RISK OF ACCIDENTAL STARTING RESULTING IN SERIOUS PERSONAL INJURY.
Turn the Power Switch of the equipment to its "OFF" position, wait for the engine to cool, and unplug the spark plug wire(s) before assembling or making any adjustments to the equipment.

The emission control system for this product's Engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the last pages of this manual.

At high altitudes, the engine's carburetor, governor (if so equipped), and any other parts that control the fuel-air ratio will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the engine and any other devices used with this product.

Assembly

1. This equipment has a spark arresting muffler. A spark arresting muffler is required by law in California, on some US Forest Service land, and possibly in other areas or situations.
2. Due to the size of the Trencher and its components, assistance may be required during the entire assembly process.
3. Use jacks (not included) to evenly raise the Frame Assembly & support with jack stands (not included).
4. Place a Tire over the four studs on each Hub. Secure the Tires to the Hubs, using four Lug Nuts per Tire. The Lug Nuts must be snug. Inflate the Tires to 22 PSI
5. Mount both wheel assemblies near the boom end of the Frame and secure with Lock Pins.
6. Slightly raise the jacks, remove the jack stands, then lower the jacks. Block the Tires and tighten the Lug Nuts to at least 90 ft-lbs.
7. Attach Seat to the Seat Bottom Plate and secure both Seat and Plate to the post on top of Hydraulic Oil Tank.
8. Attach the Control Support to the Frame Assembly (90) using four Hex Bolts.

NOTE: The Hydraulics of this unit are tested before shipment. There may be hydraulic fluid present in components. Assemble the unit in an area that will not be damaged by leaking hydraulic fluid. It is recommended that you wrap rags securely over the Hydraulic Connectors on all the Cylinders during assembly. Wear splash-resistant ANSI approved safety goggles and other protective gear to prevent injury from leaking fluid.

9. Attach the Main Boom to the Boom Pivot using the Pin through the bottom hole and Clevis Pin No. through the upper hole. Secure both pins with Hair Pin Clip; Pin requires one Cotter pin on each end. See Main Arm Assembly.
10. Mount the Boom Extension to the Main Boom (36) using the Pin left, and Clevis Pin No. 1, top. Secure both pins with Hair Pin Clip.
11. Attach the Hitch Coupler to the Frame Assembly under the Engine using Hex Bolts and Hex HD. Bolt .
12. Connect, tighten, and check all hydraulic hose fittings to the proper connections, as shown in the Hose Connection Diagram. Hoses and fittings are numbered. Tighten all fittings.
13. Open the Hydraulic Fluid Fill Plug. Top off the Hydraulic Fluid Reservoir with high quality hydraulic fluid. Check that the fluid level is between the lines on the hydraulic tank view window. Close the Hydraulic Fluid Fill Plug securely.

Attaching the Leg Assembly

1. To use the Trencher, the Leg Assemblies must be installed next to the Boom, and the Wheels and Axles moved to the rear.
2. Move the Trencher to the work area.
3. Start the engine and use the Boom Controls to curl the Bucket toward the Boom without touching the ground. Moving the Bucket Assembly down to the ground will raise the Frame Assembly. Lift the Tires just off the ground and stop.
4. Ensure the controls will not be touched or bumped, and that the Trencher will remain motionless. Never place any part of your body under the Trencher.
5. With the Tires off the ground, remove the Wheel and Axle to the operator's left and replace with the left side Extension Leg and Leg Assembly. Direct the Extension Leg so it turns toward the Bucket end of the Trencher. Secure with Lock Pin No. 2. Repeat procedure for the right side. Raise Bucket Assembly again to lower onto Leg Assembly, and turn Engine off.
6. Using a jack and jack stands (not included), raise up the engine end of the Trencher and disconnect from the Towing Hitch. Slide the Wheels and Axles into the engine end of the Frame Secure each Axle with Lock Pin No. 2.

Purging the Cylinder

1. Remove all Safety Locking Pins (15), disengage the Safety Latch (41) and loosen Hydraulic Tank Fill Plug (11).
2. Press forward on the Boom Swing Lever (located on Control Panel (9)) until the Boom stops moving, then pull back on it until it moves in the other direction. Center the Boom.
3. Press forward on the Main Boom Lever until the Main Boom is fully raised. Then, press Forward on the Boom Extension Lever until the Boom is fully extended.
4. Press forward on the Bucket Lever until the Bucket is fully extended. Pull back on the Lever to retract it fully.
5. Pull back on the Boom Extension Lever until the Boom is pulled back all the way. Pull back on the Main Boom Lever until the Main Boom is lowered completely.
6. Adjust the Boom back to its rest position and replace all locking devices.
7. Shut off the Engine, check the Hydraulic Fluid level and refill as necessary.

Note: The Fill Plug is vented. When tightening the Fill Plug, tighten it securely then back it off slightly.

Attach the Boom weldment to the swing weldment, using the 30mm pin

Attach the Boom cylinder. You might need to relieve the pressure of the cylinder to reach the swing weldment. To do so, unscrew the hose that are attached to the cylinder.

Once the cylinder is in place, use the M8x60 bolt and M8 Lock Nut to secure the cylinder in position - #18(bolt) #17(nut) on the exploded view of the boom assembley.

Using another M30 pin, Connect the Front Arm weldment to the Boom weldment.

Use the M8 Bolt and M8 Lock Nut to secure the pin into place

Relieve pressure in the cylinder

Remove pin and place the front arm cylinder in position, install the pin and use your M8 Bolt and lock nut to secure ram.

Attache your hose fittings back on the cylinder.

Tighten all hose fittings and nuts and bolts. Grease your zirk fittings.

Attaching handles

Attach handles throught the rubber boot and tighten the handles snug.

Tuck in rubber boots

Installing the seat.

Install seat bracket and adjust geight of sleeve under the seat.

Attach seat belt receiver and tighten down bolts.

Use the boom to lift tires off of the ground

Remove the tires and place opposite side of the jack stands

You might have to raise the jack to get the tire weldments in to their slot.

Lift stabilizer rods and place them where you took the tires out of.

Raise up the boom and let the stabilizer legs sink into the ground

Raise up the jacks and lock them into their horizontal position.

Tighten all Nuts and Bolts! Grease all the Zirks! Check Engine Oil! Check Hydraulic Oil!

CAUTION: BEFORE DOING, MAKE SURE THAT UNIT IS ON LEVEL GROUND AND REDUCE SPEED OF ENGINE TO SLOW OPERATION OF THE BACKHOE CONTROLS.

1、 **Towing:** When towing switch the tires to the rear or backhoe end of your unit. To do this use jacks and jack stands (Not Furnished) to raise the out rigger stabilizing arms off the ground. Remove the arms and place them in storage position. Next place a block, jack or other item under the towing hitch stand and take pressure off of the towing tires by lowering the boom and dipper until you can remove the tire assembly. After removing the tire assemblies , again by using the backhoe boom and dipper raise the rear of the backhoe and install the wheel assemblies in towing position.

Tow hitch end is front of units, Backhoe end is rear of unit.

CAUTION: BEFORE DOING MAKE SURE THAT UNIT IS ON LEVEL GROUND AND REDUCE SPEED OF ENGINE TO SLOW OPERATION OF THE CONTROLS.

2、 **Using the Backhoe:** While connected to your tow vehicle back your excavator to where you want to use it. If you desire to use the backhoe without being connected to a tow vehicle you will need to exchange out rigger stabilizing arms with wheels and tires.

Using jacks and Jack stands; (Not Furnished) While still connected to your tow vehicle, raise the tires off the ground and switch tires to the front of the unit. Then install the out rigger stabilizing arms. You are now ready to disconnect from your tow vehicle and begin using the backhoe. It may be necessary to use a Jack to disconnect unit from your tow vehicle.

USE EXTREME CAUTION WHEN REMOVING AND EXCHANGING WHEELS AND TIRES & OUT RIGGER ARMS.

Read the ENTIRE IMPORTANT SAFTEY INFORMATION section
including all text under subheadings therein before set up or use of this product.

Pre-Start Checks

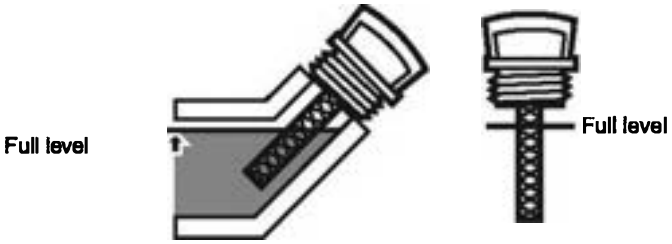
Inspect engine and equipment looking for damaged, loose, and missing parts before set up and starting. If any problems are found, do not use equipment until fixed properly.

Checking and Filling Engine Oil

NOTICE: Your Warranty is VOID if the engine's crankcase is not properly filled with oil before each use. Before each use, check the oil level. Engine **will not start with low or no engine oil.**

1. Make sure the engine is stopped and is level.
2. Close the Fuel Valve.
3. Clean the top of the Dipstick and the area around it. Remove the Dipstick by turning it counterclockwise, and wipe it off with a clean, lint free rag.
4. Reinsert the Dipstick without threading it in and remove it to check the oil level. The oil level should be up to the full level as shown above.
5. If the oil level is at or below the low mark add the appropriate type of oil until the oil level is at the proper level. SAE 10W-30 oil is recommended for general use. (The SAE Viscosity Grade chart on page 19 in the Maintenance section shows other viscosities to use in different average temperatures.)
6. Thread the dipstick back in clockwise.

NOTICE: Do not run the engine with too little oil. Engine **will shut off if engine oil level is too low.**



Checking and Filling Fuel

Warning! To Prevent **INJURY FROM FIRE:** Fill the fuel tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

1. Clean the Fuel Cap and the area around it.
2. Unscrew and remove the Fuel Cap.
3. Remove the Strainer and remove any dirt and debris. Then replace the Strainer.

Note: Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol. Add fuel stabilizer to the gasoline or the Warranty is VOID.

Note: Do not use gasoline that has been stored in a metal fuel container or a dirty fuel container. It can cause particles to enter the carburetor, affecting engine performance and/or causing damage.

4. If needed, fill the Fuel Tank to about 1 inch under the fill neck of the Fuel Tank with 87 octane or higher unleaded gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use
5. Then replace the Fuel Cap.
6. Wipe up any spilled fuel and allow excess to evaporate before starting engine. To prevent FIRE, do not start the engine while the smell of fuel hangs in the air.

Starting the Engine

Before Starting the Engine

Before starting the engine:

a. **Follow the Set Up Instructions to prepare the equipment.**
b. **Inspect the equipment and engine.**
c. **Fill the engine with the proper amount and type of both stabilizer-treated unleaded gasoline and oil.**

Transporting the Trencher

1. Lock the Boom In Place. Use the Bucket Lever to line the hole on the Bucket up with the hole on the Boom Extension. Insert a Safety Locking Pin and secure with a Ball Pin.
2. Use the Boom Swing Lever to line up the hole in the Boom Pivot with the Hole in the Frame. Insert a Safety Locking Pin and secure with a Pin.
3. Put the Boom into the Up most Position until the Transport Pin on the side of the Main Boom Piviot may be inserted and the boom lowered against the transport pin.
4. When transporting the Trencher, make sure your hitch (not included) is compatible with the Hitch Coupler. Follow all of the safety warnings for towing in your vehicle's manual. The Hitch Coupler will only accept a 2 inch hitch ball.
5. To reduce friction between the hitch ball and Hitch Coupler, apply a layer of heavy-weight grease over the hitch ball.
6. Temporarily remove the "R" Pin and Safety Pin. Then, pull up on the Trigger and lift up on the Handle. See Figure I.

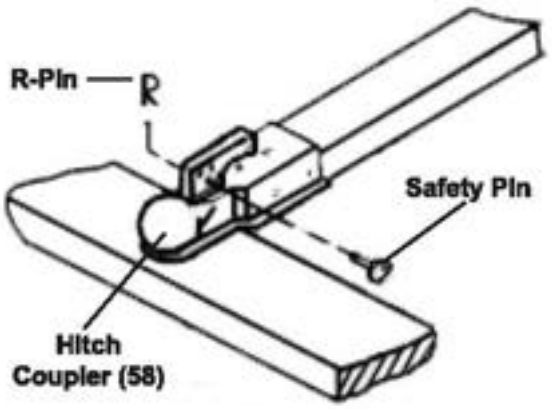


Figure I

7. Place the Hitch Coupler over the vehicle's hitch ball, pull the trigger, push down on the Handle, and release the Trigger, making sure it locks in the slot.
8. Pull up and down on the Coupler to make sure the hitch ball is fitting snugly in the Coupler. There should be no play between the hitch ball and Coupler. If there is play, tighten the Adjustment Nut until no play is present. If the Adjustment Nut is too tight, the Handle will not lock.

WARNING! If the Hitch Coupler is not secured properly, the ball could come loose while the Trencher is in motion, possibly causing property damage or SERIOUS PERSONAL INJURY.

9. Make sure to attach each side of the Safety Chain (56) equally to the towing vehicle's rear bumper or frame.

CAUTION! Care must be taken when backing up the Trencher. Only back up the Trencher on a straight path. If the Trencher is allowed to turn off the straight path while backing up, the Trencher could jackknife, causing severe damage to the Trencher and to the towing vehicle.

10. To prevent accidents, turn off the engine, wait for it to cool, and disconnect its spark plug wire after use. Clean external parts with clean cloth, then store the equipment out of children's reach.

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING:
Turn the Power Switch of the equipment to its "OFF" position, wait for the engine to cool, and disconnect the spark plug cap before performing any inspection, maintenance, or cleaning procedures.

TO PREVENT SERIOUS INJURY FROM EQUIPMENT FAILURE:
Do not use damaged equipment. If abnormal noise, vibration, or excess smoking occurs, have the problem corrected before further use.

Follow all service instructions in this manual. The engine may fail critically if not serviced properly.

Many maintenance procedures, including any not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts about your ability to safely service the equipment or engine, have a qualified technician service the equipment instead.

Cleaning, Maintenance, and Lubrication Schedule

Note: This maintenance schedule is intended solely as a general guide. If performance decreases or if equipment operates unusually, check systems immediately. The maintenance needs of each piece of equipment will differ depending on factors such as duty cycle, temperature, air quality, fuel quality, and other factors.

Note: The following procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the engine and equipment.

Procedure	Before Each Use	After 20 Operation Hour Break-In Period	Monthly or every 25 hr. of use	Every 3 mo. or 50 hr. of use	Every 6 mo. or 100 hr. of use	Yearly or every 300 hr. of use	Periodically
Brush off outside of engine	✓	✓	✓	✓	✓	✓	✓
Check engine oil level	✓	✓	✓	✓	✓	✓	✓
Check air cleaner	✓			✓	✓	✓	✓
Check deposit cup	✓				✓	✓	✓
Change engine oil		✓	✓	✓	✓	✓	✓
Clean/replace air filter			✓*	✓*	✓*	✓*	✓*
Check and clean spark plug			✓	✓	✓	✓	✓
Blow out water filters			✓	✓	✓	✓	✓
Replace fuel Filter				✓	✓	✓	✓
Replace spark plug					✓	✓	✓
1. Clean fuel tank, strainer and carburetor 2. Clean carbon build-up from combustion chamber						✓**	✓**
Apply grease to boom axis-movement points (see Figure K: Lubrication Points on page 18)							✓
Replace fuel line if necessary							✓**

*Service more frequently when used in dusty areas.

**These items should be serviced by a qualified technician.

1. With the Engine running, sit in the Operator Seat and pull the Boom Lever control backward to raise the Main Boom . See Figure G.

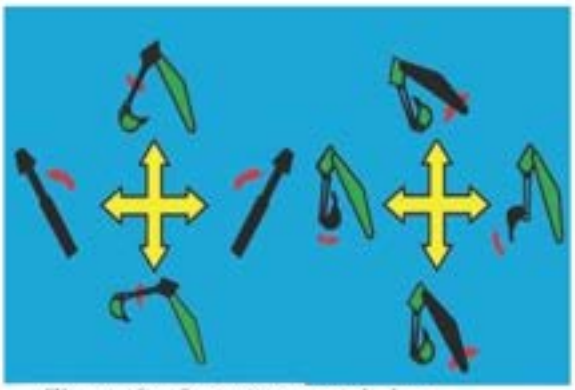


Figure G: Operate controls by pushing in or pulling out.

2. Pull back on the Boom Extension Handle Control to raise the Boom Extension.
3. Push forward on the Bucket Handle Control to open the Bucket Assembly.
4. Push forward on the Boom Handle to lower the Boom until the Bucket reaches the ground.
5. Pull back on the Bucket Lever control until the Bucket scoops up the dirt.
6. Pull back on both the Boom and Boom Extension Control Levers to raise the load.
7. Press in, or push out, the Boom Swing Control Levers to move the Bucket left or right.

Note: The Boom's travel is 70 degrees left and 70 degrees right.

8. Press in on the Bucket control handle to dump the load.

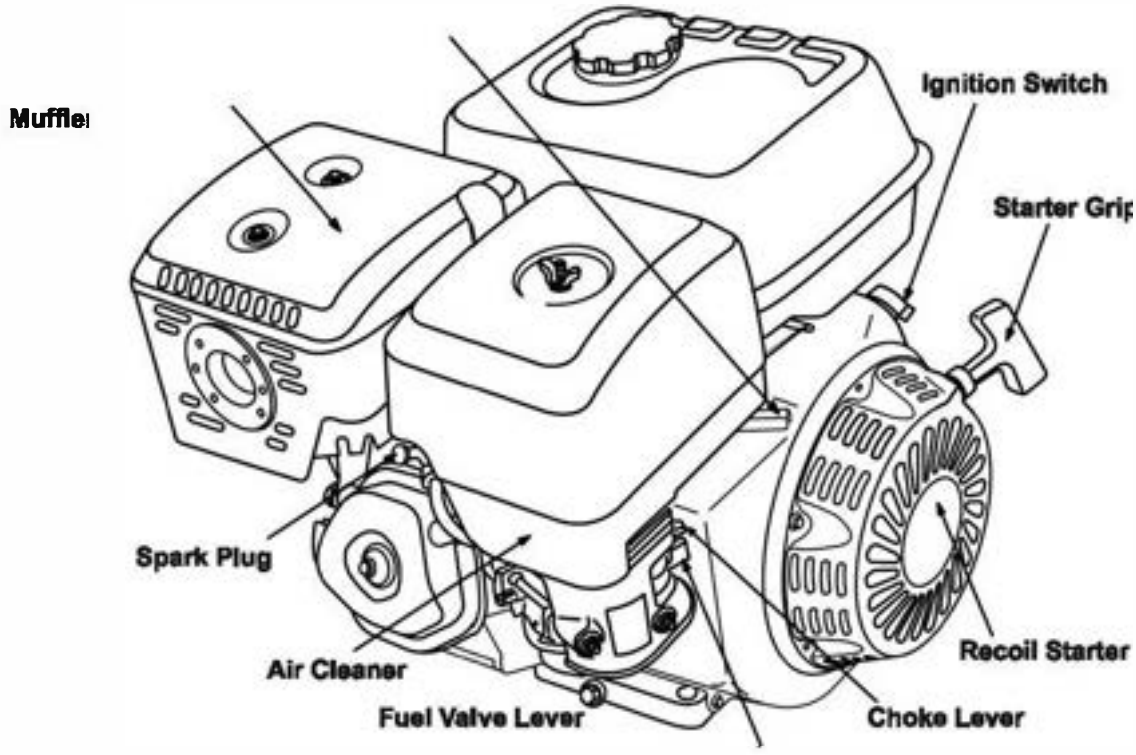
Moving the Trencher

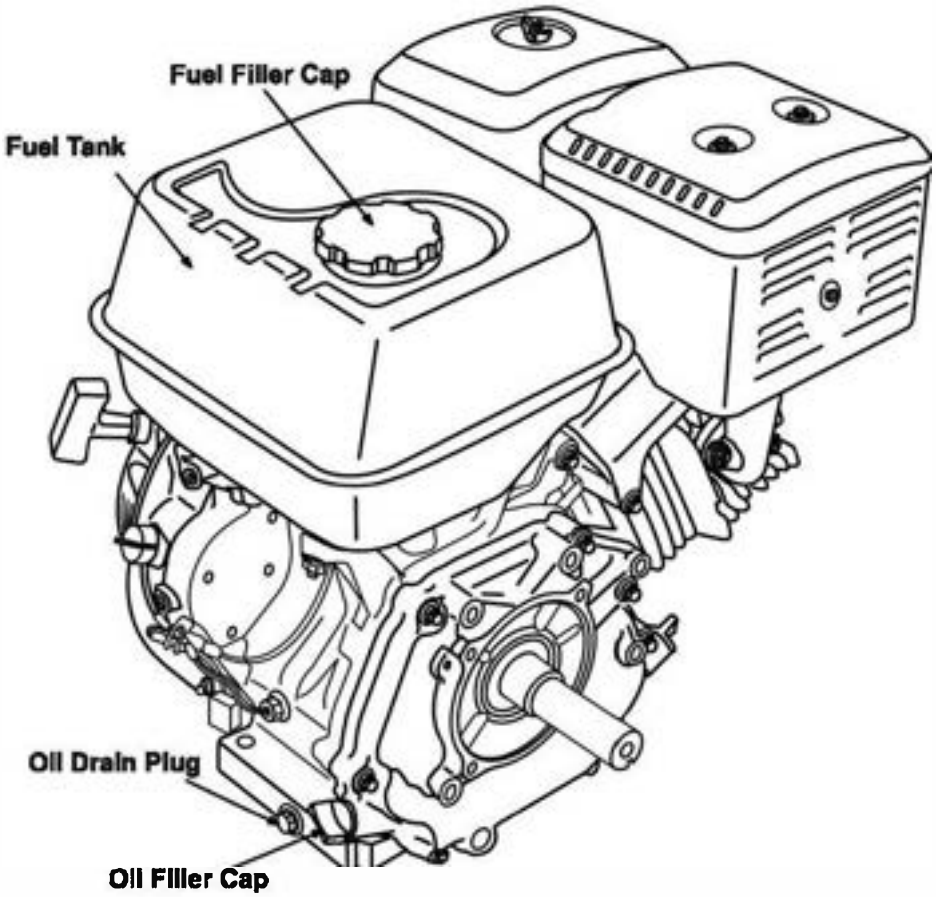
1. One method for moving the Trencher around the work area is by using the Boom to push the Trencher across the ground.

⚠WARNING! This technique can be difficult to control and should only be attempted by an experienced operator. The stability of the Trencher is dependent on the stability of the ground; if you choose to move the Trencher in this way, do so at your own risk. Do not use the Trencher near ditches or drop-offs.

2. Swing the Bucket inward so that the front of the Bucket, not the scoop, is facing downward. Press the Bucket down onto a solid piece of ground and press down hard enough to raise the front legs off the ground.
3. Carefully operate the controls to move the Boom and slowly roll yourself in the desired direction. Be certain that the Tires and the new resting places for the Legs all remain on solid, stable ground.
4. After you have repositioned the Trencher, raise the Boom to lower the Outriggers back onto the ground. The procedure can be repeated to move farther.

Engine Diagrams



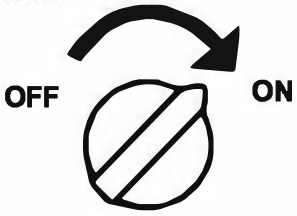


Manual Start

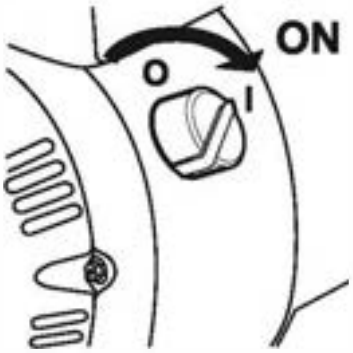
1. Turn the Fuel Valve Lever to its "OPEN" position.

1

2. Turn the Ignition Switch to its ON or RUN position.



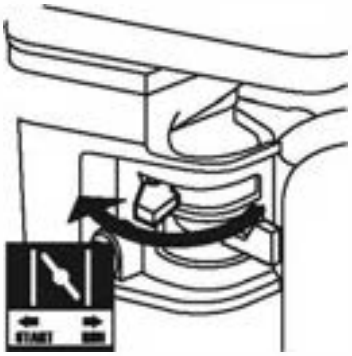
2



Note: If engine does not start, check engine oil level. Engine will not start with low or no engine oil.

3. Then, turn the engine Choke Lever to its "START" position. Set the Choke Lever in the "RUN" position when starting a warm engine.

3



4. Grip the Starter Handle of the Engine loosely and pull it slowly several times to allow the gasoline to flow into the Engine's carburetor. Then pull the Starter Handle gently until resistance is felt. Allow Cable to retract fully and then pull it quickly. Repeat until the engine starts.

Note: Do not let the Starter Handle snap back against the engine. Hold it as it recoils so it doesn't hit the engine.

4

5. Allow the Engine to run for several seconds. Then, if the Choke Lever is in the START position, move the Choke Lever very slowly to its RUN position.

Note: Moving the Choke Lever too fast could stall the engine.

5

6. Slide the Throttle or Speed Control Lever to 1/3 away from the SLOW position (the "turtle"). Adjust as needed.

Note: Some tools have a Speed Control Lever located elsewhere on the tool which functions the same as the Throttle. Use the Speed Control Lever in place of the Throttle when the tool is so equipped.

IMPORTANT: Allow the engine to run at no load for five minutes after each start-up so that the engine can stabilize.

Break-in Period:

a. Breaking-in the engine will help to ensure proper equipment and engine operation.

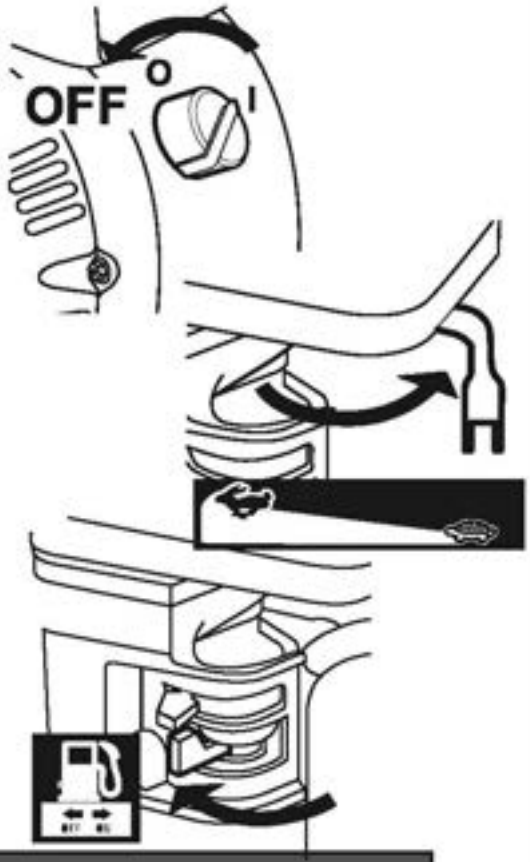
b. The operational break-in period will last about 3 hours of use. During this period:
   - Do not apply a heavy load to the equipment.
   - Do not operate the engine at its maximum speed.

c. The maintenance break-in period will last about 20 hours of use.
   - Change the engine oil after this period.

Under normal operating conditions subsequent maintenance follows the schedule explained in the MAINTENANCE section.

Stopping the Engine

1. To stop the engine in an emergency, turn the Engine Switch off.



2. Under normal conditions, use the following procedure:
   a. Turn the Engine Switch off.
   b. Close the Fuel Valve.

NOTICE

See Long-Term Storage for complete storage instructions.

Fuel Filter Replacement (if equipped)

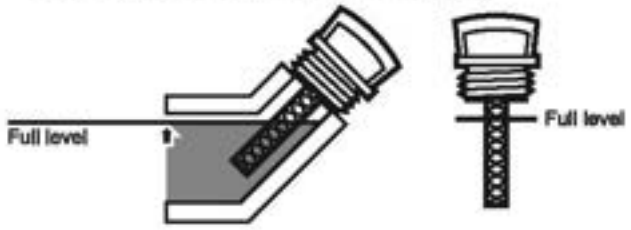
⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE OR EXPLOSION: Fill the fuel tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool. Do not smoke.

1. Wear protective gear including, ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and nitrile gloves.
2. Clean the Fuel Cap and the area around it.
3. Remove Fuel Filter. Reattach Fuel Cap to prevent debris from entering into Gas Tank.
4. Remove Fuel Strainer. Wash with warm water and light detergent. Flush and let dry.
5. Reinstall in the Gas Tank.

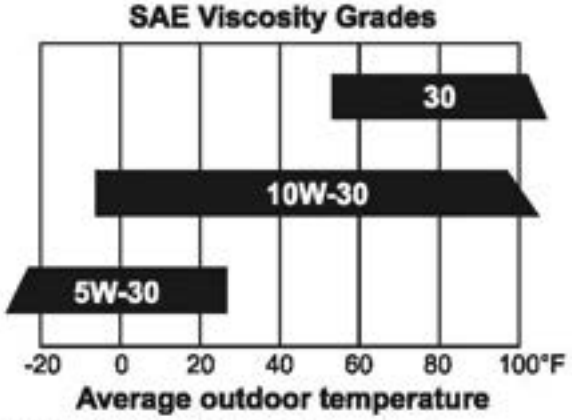
Engine Oil Change

⚠CAUTION! Oil is very hot during operation and can cause burns. Wait for engine to cool before changing oil.

1. Make sure the engine is stopped and is level.
2. Close the Fuel Valve.
3. Place a drain pan (not included) underneath the crankcase's drain plug.
4. Remove the drain plug and, if possible, tilt the crankcase slightly to help drain the oil out. Recycle used oil.
5. Replace the drain plug and tighten it.
6. Clean the top of the Dipstick and the area around it. Remove the Dipstick by turning it counterclockwise, and wipe it off with a clean, lint free rag.



7. Add the appropriate type of oil until the oil level is at the full level. SAE 10W-30 oil is recommended for general use.
   The SAE Viscosity Grade chart shows other viscosities to use in different average temperatures.



8. Thread the dipstick back in clockwise.

NOTICE: Do not run the engine with too little oil. Engine **will not start with low or no engine oil.**

Air Filter Element Maintenance

1. Remove the air filter cover and the air filter elements and check for dirt. Clean as described below.
2. **Cleaning:**
   - For "paper" filter elements:
     To prevent injury from dust and debris, wear ANSI-approved safety goggles, NIOSH-approved dust mask/respirator, and heavy-duty work gloves. In a well-ventilated area away from bystanders, use pressurized air to blow dust out of the air filter.
     If this does not get the filter clean, replace it.
   - For foam filter elements:
     Wash the element in warm water and mild detergent several times. Rinse. Squeeze out excess water and allow it to dry completely. Soak the filter in lightweight oil briefly, then squeeze out the excess oil.
3. Install the cleaned filter. Secure the Air Cleaner Cover before use.

Spark Plug Maintenance

1. Disconnect Spark Plug Cap from end of Plug. Clean out debris from around Spark Plug.
2. Using a spark plug wrench, remove the Spark Plug.
3. Inspect the Spark Plug:
   If the electrode is oily, clean it using a clean, dry rag.
   If the electrode has deposits on it, polish it using emery paper. If the white insulator is cracked or chipped, the Spark Plug needs to be replaced.

Record Spark Plug Number
Here:

NOTICE: Using an incorrect spark plug may damage the engine.

4. When installing a new spark plug, adjust the plug's gap to the specification on the Specifications chart. Do not pry against the electrode; the spark plug can be damaged.
5. Install the new spark plug or the cleaned spark plug into the engine.
   - **Gasket-style**:
     Finger-tighten until the Gasket contacts the Cylinder Head, then tighten about 1/2-2/3 turn more.
   - **Non-gasket-style**:
     Finger-tighten until the plug contacts the Cylinder Head, then tighten about 1/16 turn more.

NOTICE: Tighten the Spark Plug properly.
If loose, the Spark Plug will cause the engine to overheat.
If overtightened, the threads in the engine block will be damaged.

6. Apply dielectric spark plug boot protector (not included) to the end of the Spark Plug and reattach the wire securely.

13. Long-Term Storage

When the equipment is to remain idle for longer than 20 days, prepare the engine for storage as follows:

1. **CLEANING:**
   Wait for engine to cool, then clean engine with dry cloth. **NOTICE: Do not clean using water.** The water will gradually enter the engine and cause rust damage. Apply a thin coat of rust preventive oil to all metal parts.
2. **FUEL:**

   To protect the fuel tank during storage, fill the tank with gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use. Refer to *Checking and Filling Fuel* on page 16.

   ⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE:
   Fill tank in a well-ventilated area away from ignition sources. If the engine is hot from use, shut the engine off and wait for it to cool before adding fuel. Do not smoke.

3. **LUBRICATION:**
   a. Change engine oil.
   b. Clean out area around spark plug. Remove spark plug and pour one tablespoon of engine oil into cylinder through spark plug hole.
   c. Replace spark plug, but leave spark plug cap disconnected.
   d. Pull Starter Handle to distribute oil in cylinder. Stop after one or two revolutions when you feel the piston start the compression stroke (when you start to feel resistance).
4. **BATTERY:**
   Disconnect battery cables (if equipped). Recharge batteries monthly while in storage.
5. **STORAGE AREA:**
   Cover and store in a dry, level, well-ventilated area out of reach of children. Storage area should also be away from ignition sources, such as water heaters, clothes dryers, and furnaces.

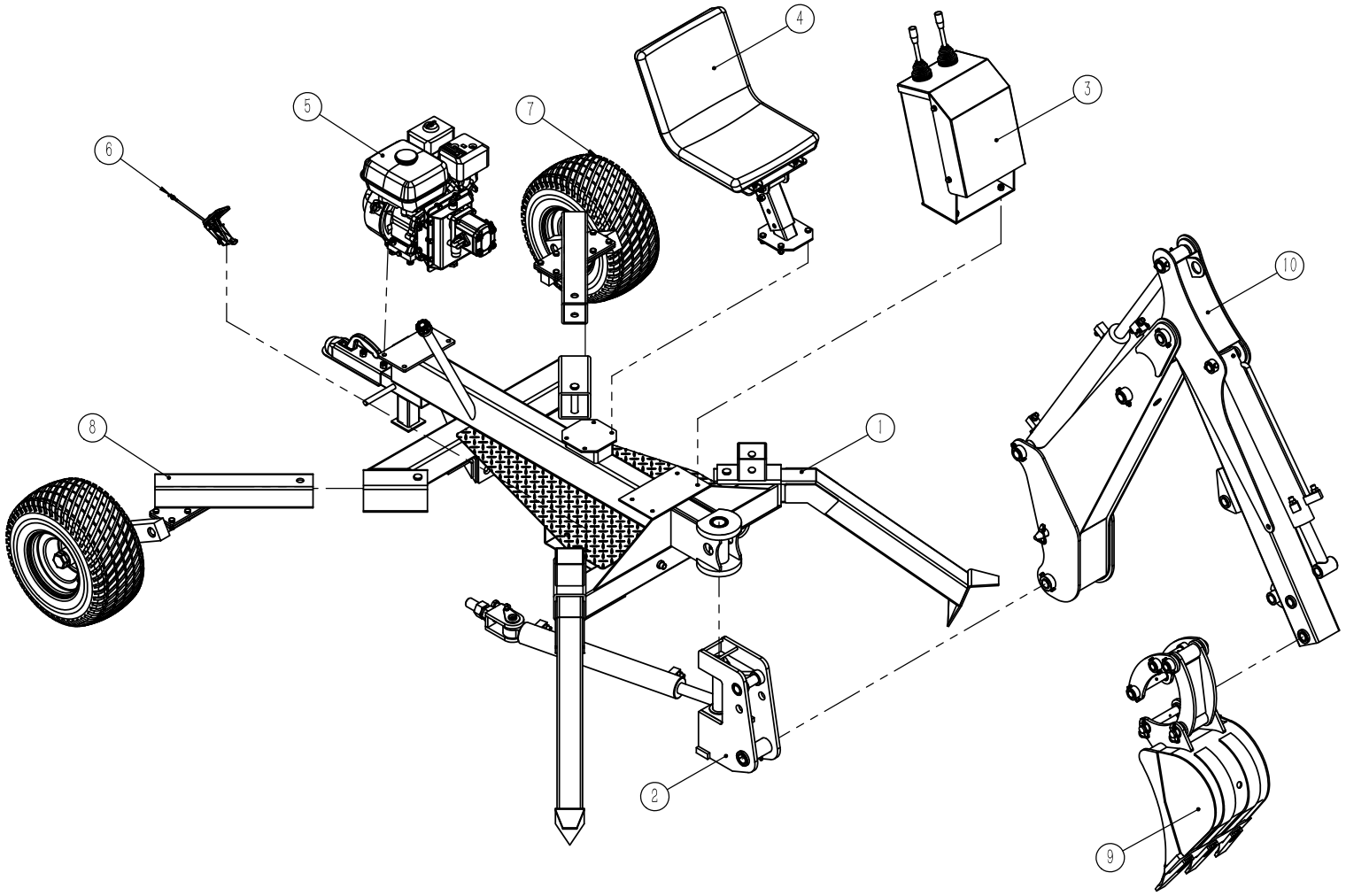
NOTICE: During extended storage periods the Engine must be started every 3 months and allowed to run for 15–20 minutes or the Warranty is VOID.

6. **STARTING ENGINE DURING/AFTER STORAGE:**
   Before starting the Engine during or after storage, keep in mind that untreated gasoline will deteriorate quickly. Drain the fuel tank and change to fresh fuel if untreated gasoline has been sitting for a month, if treated gasoline has been sitting beyond the fuel stabilizer's recommended time period, or if the Engine does not start. For Engine starting instructions refer to Starting the Engine on page 10.

Problem	Possible Causes	Probable Solutions
Engine will not start	FUEL RELATED:	FUEL RELATED:
	1. No fuel in tank or fuel valve closed.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline and open fuel valve. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	2. Choke not in START position, cold engine.	2. Move Choke to START position.
	3. Gasoline with more than 10% ethanol used. (E15, E20, E85, etc.)	3. Clean out ethanol rich gasoline from fuel system. Replace components damaged by ethanol. Use fresh 87+ octane stabilizer-treated unleaded gasoline only. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	4. Low quality or deteriorated, old gasoline.	4. Use fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	5. Carburetor not primed.	5. Pull on Starter Handle to prime.
	6. Dirty fuel passageways.	6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning.
	7. Carburetor needle stuck. Fuel can be smelled in the air.	7. **Gently** tap side of carburetor float chamber with screwdriver handle.
	8. Too much fuel in chamber. This can be caused by the carburetor needle sticking.	8. Turn Choke to RUN position. Remove spark plug and pull the start handle several times to air out the chamber. Reinstall spark plug and set Choke to START position.
	9. Clogged Fuel Filter.	9. Replace Fuel Filter.
	IGNITION (SPARK) RELATED:	IGNITION (SPARK) RELATED:
	1. Spark plug cap not connected securely.	1. Connect spark plug cap properly.
	2. Spark plug electrode wet or dirty.	2. Clean spark plug.
	3. Incorrect spark plug gap.	3. Correct spark plug gap.
	4. Spark plug cap broken.	4. Replace spark plug cap.
	5. Incorrect spark timing or faulty ignition system.	5. Have qualified technician diagnose/ repair ignition system.
	COMPRESSION RELATED:	COMPRESSION RELATED:
	1. Cylinder not lubricated. Problem after long storage periods.	1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again.
	2. Loose or broken spark plug. (Hissing noise will occur when trying to start.)	2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3.
	3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.)	3. Tighten head. If that does not remedy problem, replace head gasket.
	4. Engine valves or tappets mis-adjusted or stuck.	4. Have qualified technician adjust/ repair valves and tappets.
	ENGINE OIL RELATED:	ENGINE OIL RELATED:
	1. Low engine oil.	1. Fill engine oil to proper level. Check engine oil before EVERY use.
	2. Engine mounted on slope, triggering low oil shutdown.	2. Operate engine on level surface. Check engine oil level.

Problem	Possible Causes	Probable Solutions
Engine misfires	1. Spark plug cap loose.	1. Check cap and wire connections.
	2. Incorrect spark plug gap or damaged spark plug.	2. Re-gap or replace spark plug.
	3. Defective spark plug cap.	3. Replace spark plug cap.
	4. Old or low quality gasoline.	4. Use only fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	5. Incorrect compression.	5. Diagnose and repair compression. (Use **Engine will not start: COMPRESSION RELATED** section.)
Engine stops suddenly	1. Fuel tank empty or full of impure or low quality gasoline.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	2. Low oil shutdown.	2. Fill engine oil to proper level. Check engine oil before EVERY use.
	3. Defective fuel tank cap creating vacuum, preventing proper fuel flow.	3. Test/replace fuel tank cap.
	4. Faulty magneto.	4. Have qualified technician service magneto.
	5. Disconnected or improperly connected spark plug cap.	5. Secure spark plug cap.
Engine stops when under heavy load	1. Dirty air filter	1. Clean element.
	2. Engine running cold.	2. Allow engine to warm up prior to operating equipment.
Engine knocks	1. Old or low quality gasoline.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	2. Engine overloaded.	2. Do not exceed equipment's load rating.
	3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems.	3. Have qualified technician diagnose and service engine.
Engine backfires	1. Impure or low quality gasoline.	1. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	2. Engine too cold.	2. Use cold weather fuel and oil additives to prevent backfiring.
	3. Intake valve stuck or overheated engine.	3. Have qualified technician diagnose and service engine.
	4. Incorrect timing.	4. Check engine timing.
After sudden impact, engine will run, but equipment will not operate	Shaft key or other shear pin broken by impact to disconnect engine and limit damage.	Have qualified technician check and replace broken shaft key or other shear pins.
Trencher loses performance	1. Mushy hydraulic operation.	1. Bleed hydraulic system. Replace hydraulic filter/clean strainer.
	2. Oil Leaks.	2. Tighten/replace hose.

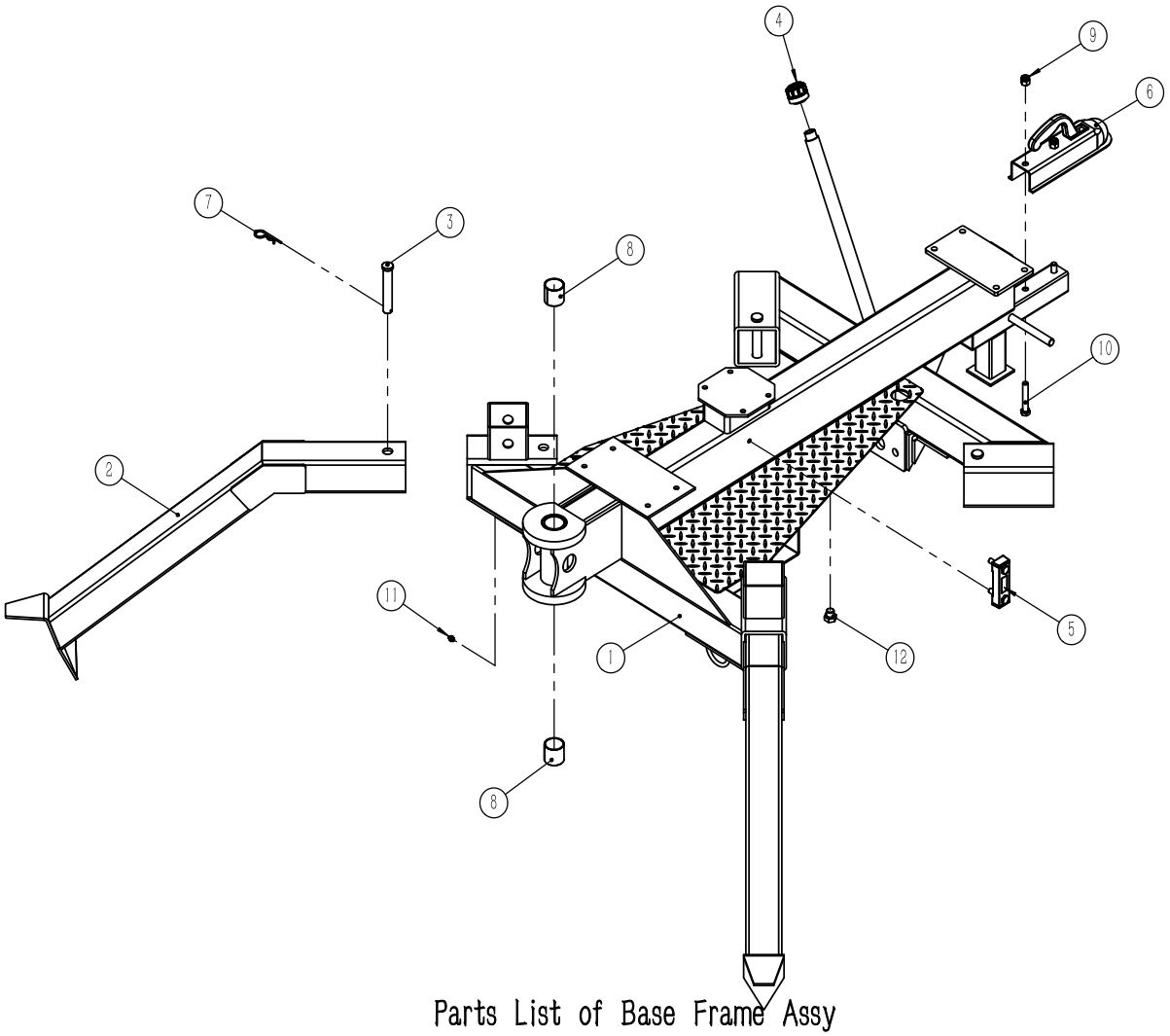
Exploded View of Backhoe—ATBH7



Parts List of Backhoe—ATBH7

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.001	机架总成	Base Frame Assy	1
2	ATBH7.002	摆座总成	Swing Frame Assy	1
3	ATBH7.003	控制台总成	Console Assy	1
4	ATBH7.004	座椅总成	Seat Assy	1
5	ATBH7.005	动力总成	Power Assy	1
6	ATBH7.006	油门踏板总成	Accelerator pedal Assy	1
7	ATBH7.007	左轮胎总成	Wheel Assy, Left Side	1
8	ATBH7.008	右轮胎总成	Wheel Assy, Right Side	1
9	BH195.001	挖斗总成	Bucket Assy	1
10	BH205.002	臂总成	Boom Assy	1

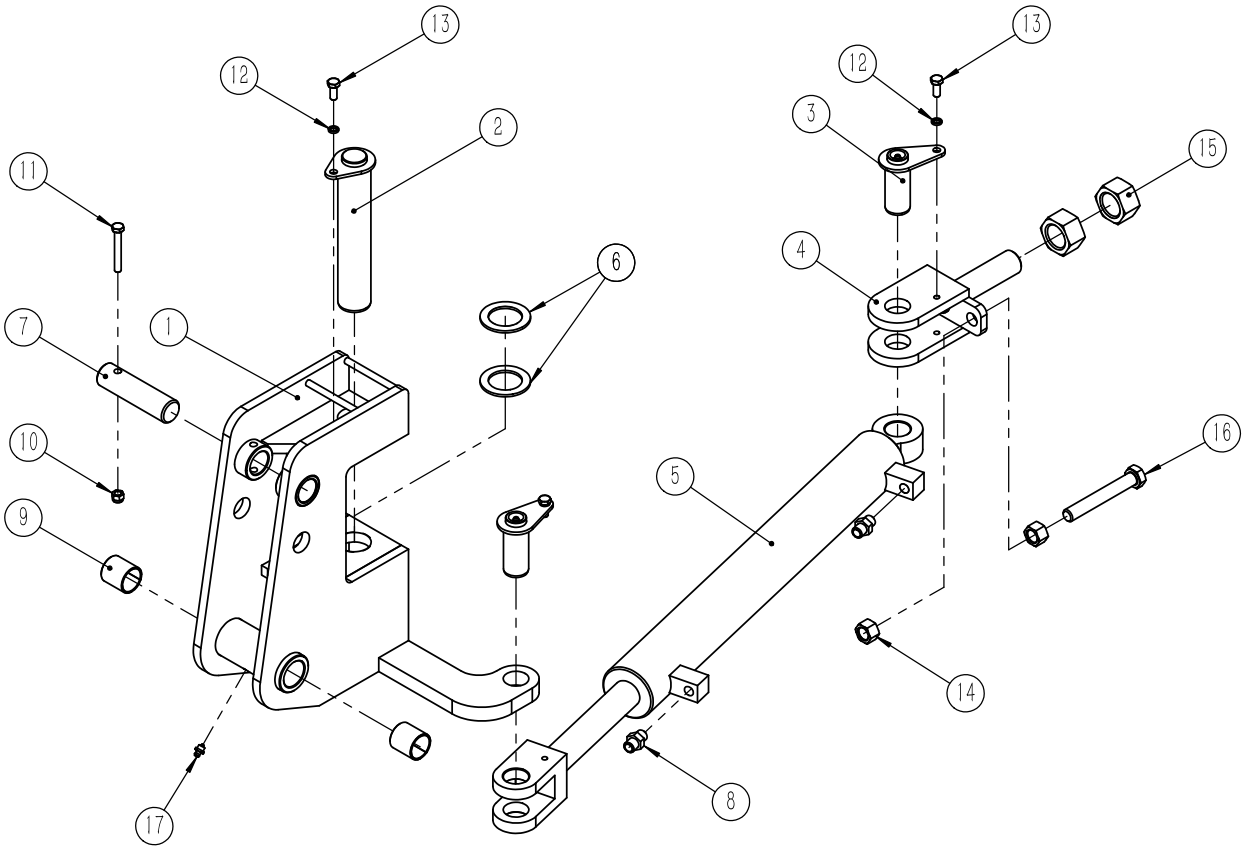
Exploded View of Base Frame Assy



Parts List of Base Frame Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.011	机架焊合件	Base Frame weldment	1
2	ATBH7.017	撑腿焊合件	Stabilizer rod weldment	2
3	ATBH7.101	插销	Pin	4
4	C—M24x2	C型空气滤清器(内螺纹)M24x2	Air filter M24x2	1
5	YWZ—76T	液位计76T	Oil level indicators with thermometer	1
6	QT—50	拖车球头50	Hitch Ball 50	1
7	R Pin—3.2	R销3.2	R Pin 3.2	4
8	SF—2—44x40x40	复合型无油衬套（无肩型）44x40x40	Sleeve 44x40x40	2
9	GB889. 1—M12	锁紧螺母M12	Lock nut M12	2
10	GB5782—M12×70	螺栓M12×70	Bolt M12×70	2
11	JB7940. 1—8	油杯8	Oil cup 8	1
12	JBZQ4451—G3/8	螺塞G3/8	Plug G3/8	1

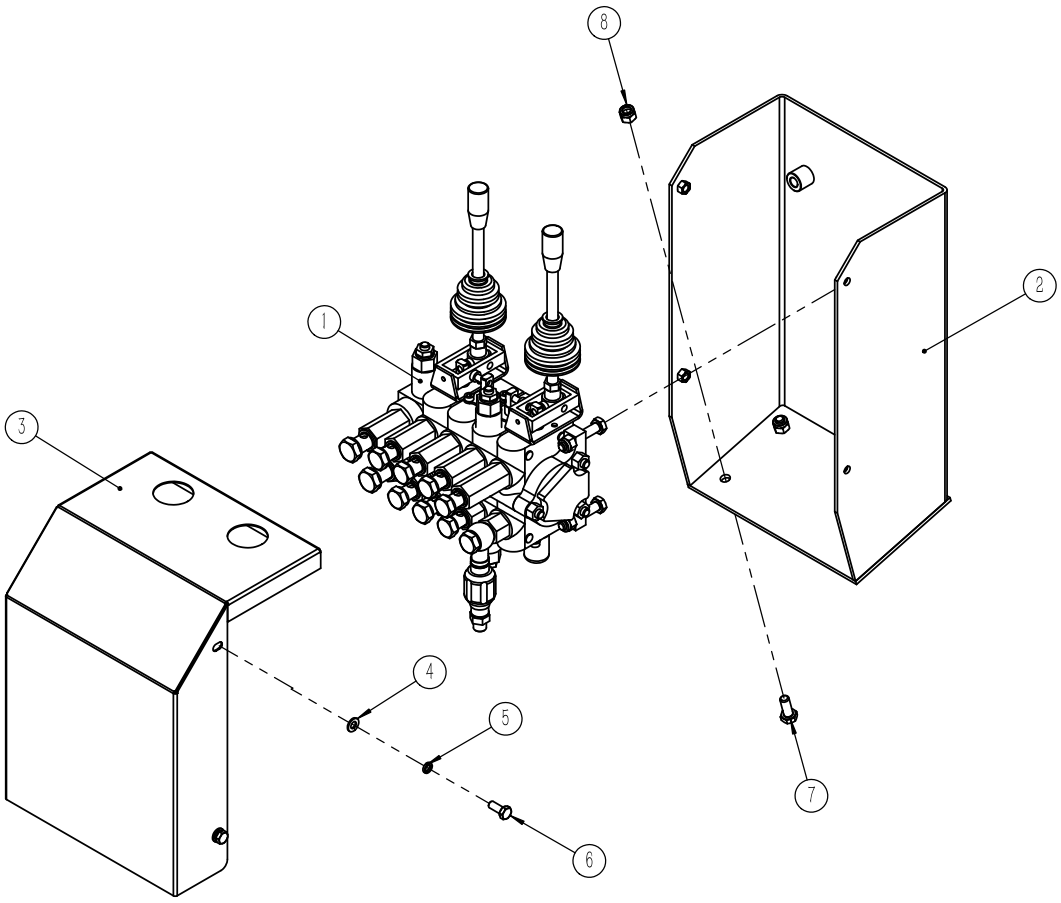
Exploded View of Swing Frame Assy



Parts List of Swing Frame Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.018	摆座焊合件	Swing Frame weldment	1
2	ATBH7.019	摆销焊合件	Fixed rotaty pin weldment	1
3	ATBH7.020	油缸销焊合件	Cylinder pin weldment	2
4	ATBH7.021	油缸座焊合件	Cylinder Frame weldment	1
5	ATBH7.022	摆座油缸	Cylinder, Swing Frame	1
6	BH195.107	垫圈	Washer	2
7	BH195.110	销轴30x112	Pin 30x112	1
8	BH5.60.109	接头14H	Coupling 14H	2
9	SF—2—34x30x35	复合型无油衬套(无肩型)34x30x35	Sleeve 34x30x35	2
10	GB889. 1—M8	锁紧螺母M8	Lock nut M8	1
11	GB5782—M8×60	螺栓M8×60	Bolt M8×60	1
12	GB93—8	弹垫圈8	Spring washer 8	3
13	GB5783—M8×20	螺栓M8×20	Bolt M8×20	3
14	GB6170—M16	螺母M16	Nut M16	2
15	GB6170—M30	螺母M30	Nut M30	2
16	GB5783—M16×110	螺栓M16×110	Bolt M16×110	1
17	JB7940. 1—8	油杯8	Oil cup 8	3

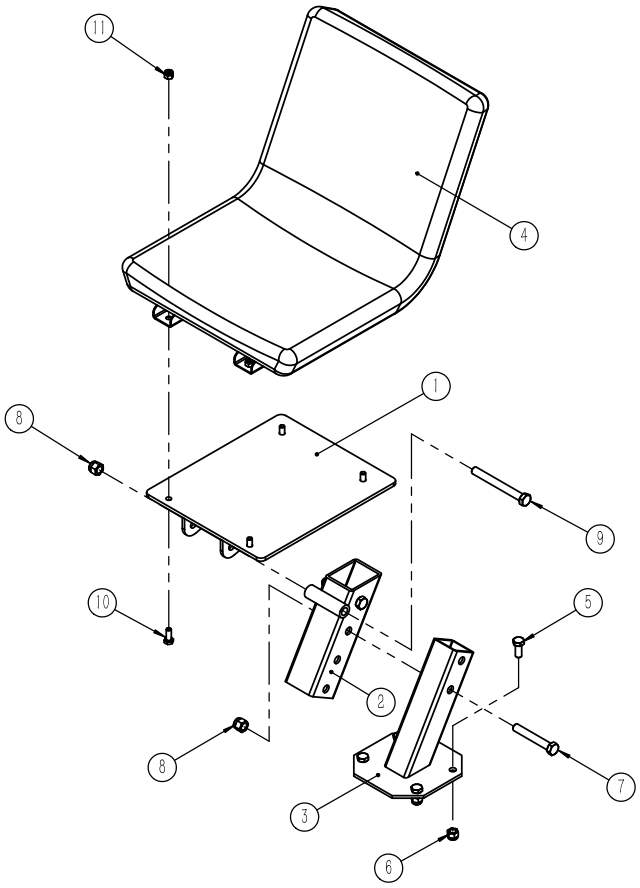
Exploded View of Console Assy



Parts List of Console Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.009	阀总成	Valve Assy	1
2	ATBH7.023	控制台焊合件	Console weldment	1
3	ATBH7.102	盖板	Up cover board	1
4	GB97. 1—8	平垫圈8	Plain washer 8	4
5	GB93—8	弹垫圈8	Spring washer 8	4
6	GB5783—M8×20	螺栓M8×20	Bolt M8×20	4
7	GB5783—M10×25	螺栓M10×25	Bolt M10×25	4
8	GB889. 1—M10	锁紧螺母M10	Lock nut M10	4

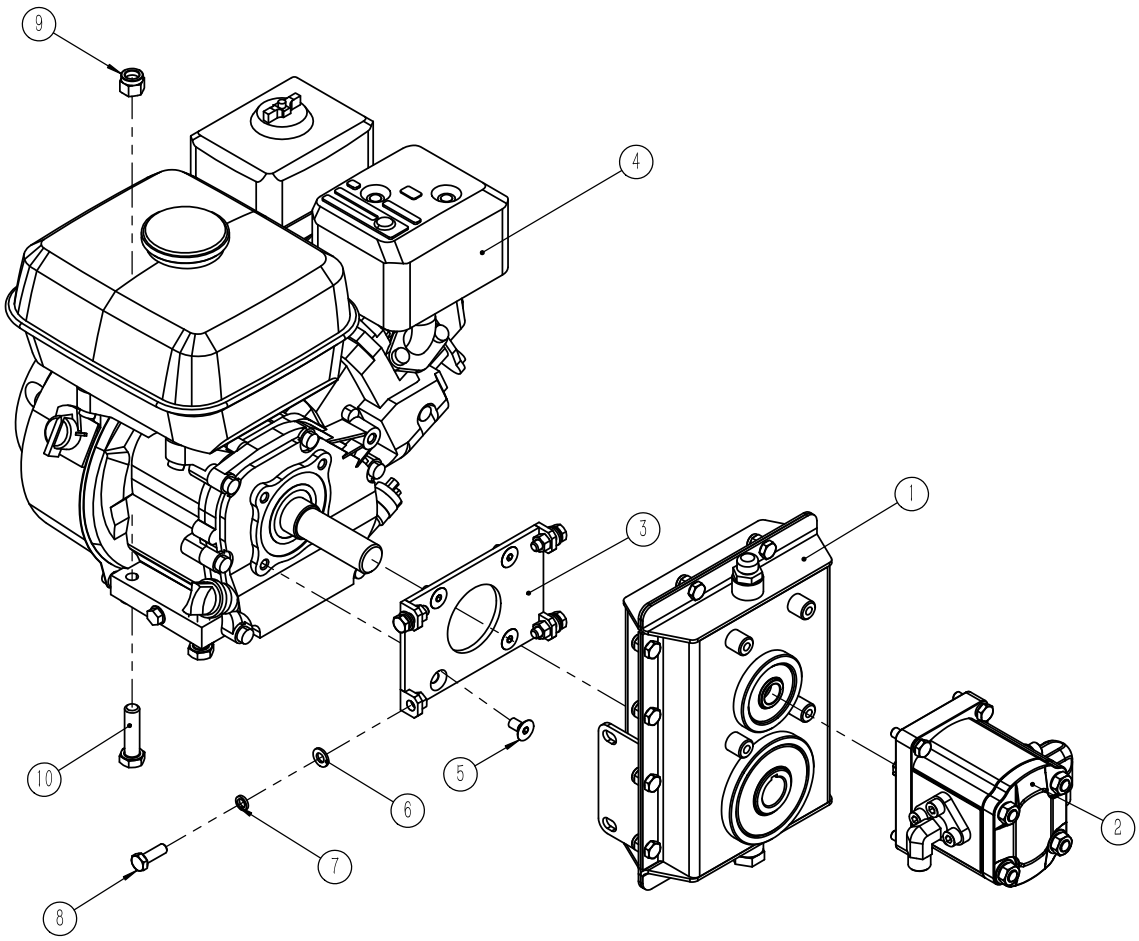
Exploded View of Seat Assy



Parts List of Seat Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.024	座椅连接板焊合件	Seat plate weldment	1
2	ATBH7.025	座椅调节管焊合件	Height adjusting weldment	1
3	ATBH7.026	座椅支撑架焊合件	Seat sustain plate weldment	1
4	BK6N.05.101	座椅	Seat	1
5	GB5783—M10×25	螺栓M10×25	Bolt M10×25	4
6	GB889. 1—M10	锁紧螺母M10	Lock nut M10	4
7	GB5782—M12×80	螺栓M12×80	Bolt M12×80	2
8	GB889. 1—M12	锁紧螺母M12	Lock nut M12	3
9	GB5782—M12×110	螺栓M12×110	Bolt M12×110	1
10	GB5783—M8×20	螺栓M8×20	Bolt M8×20	4
11	GB889. 1—M8	锁紧螺母M8	Lock nut M8	4

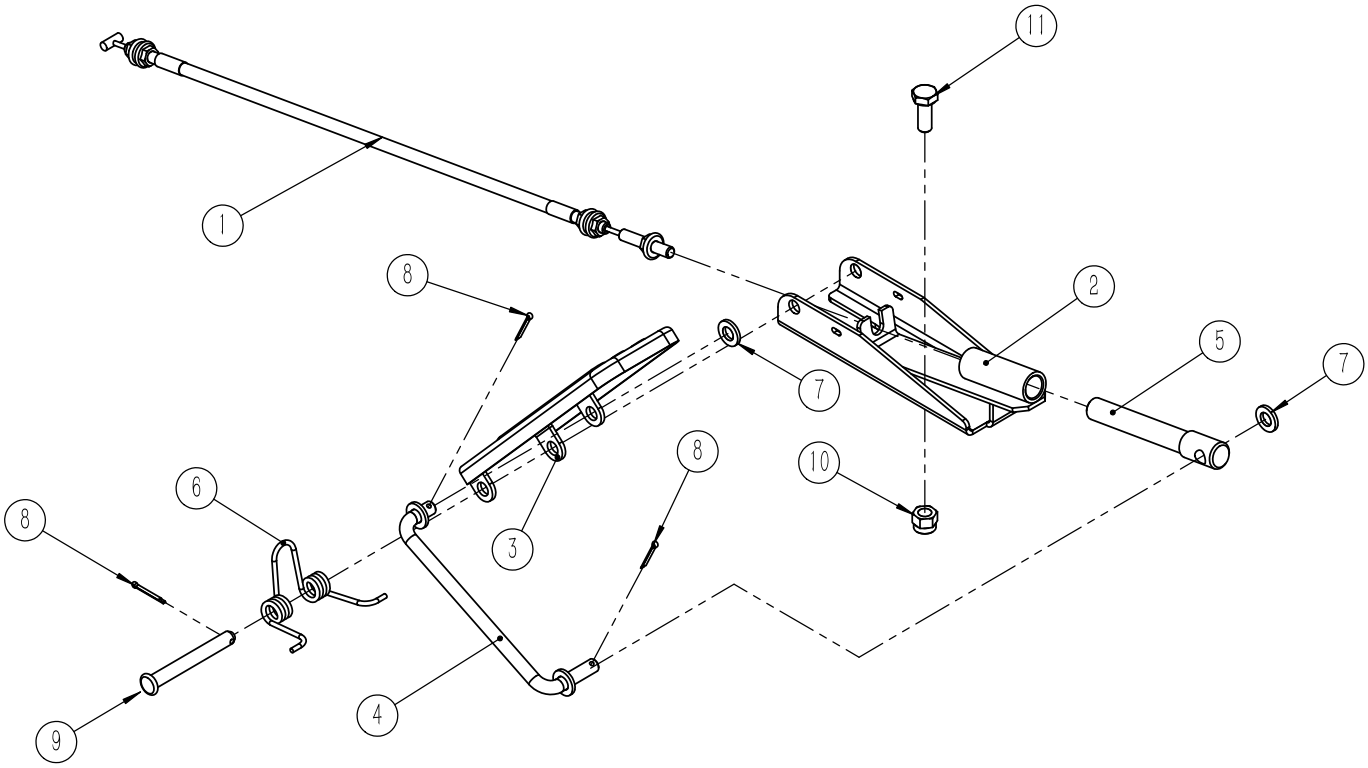
Exploded View of Power Assy



Parts List of Power Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.0010	变速箱总成	Gearbox Assy	1
2	ATBH7.0011	泵总成	Pump Assy	1
3	ATBH7.027	连接座焊合件	The plate fix the Gearbox	1
4	JF270	发动机	Engine	1
5	GB70. 3—M8×16	内六角沉头螺钉M8×16	Hex Socket Flat Countersunk Head Cap Screw M8×16	4
6	GB97. 1—8	平垫圈8	Plain washer 8	4
7	GB93—8	弹垫圈8	Spring washer 8	4
8	GB5783—M8×25	螺栓M8×25	Bolt M8×25	4
9	GB889. 1—M12	锁紧螺母M12	Lock nut M12	4
10	GB5783—M12×45	螺栓M12×45	Bolt M12×45	4

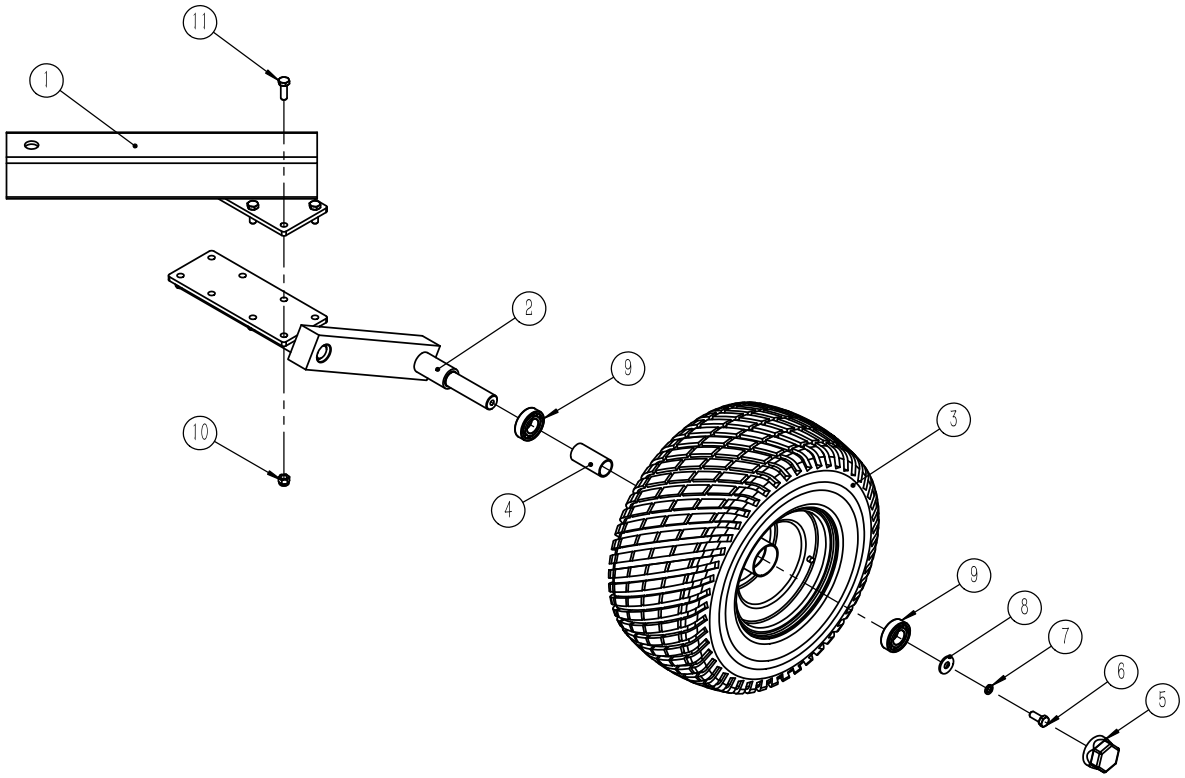
Exploded View of Accelerator pedal Assy



Parts List of Accelerator pedal Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.0012	油门拉索总成	Throttle cable Assy	1
2	ATBH7.030	踏板底座焊合件	Pedal base weldment	1
3	ATBH7.031	踏板焊合件	Pedal weldment	1
4	ATBH7.032	拉杆焊合件	Pull rod weldment	1
5	ATBH7.110	拉轴	Pull shaft	1
6	ATBH7.111	扭簧	Torsion spring	1
7	GB95—6	平垫圈6	Plain washer 6	2
8	GB91—1．6×14	开口销1.6×14	Cotter pin 1.6×14	3
9	GB882—6×50	销轴 B型6×50	Pin B—6×50	1
10	GB889．1—M6	锁紧螺母M6	Lock nut M6	2
11	GB5783—M6×16	螺栓M6×16	Bolt M6×16	2

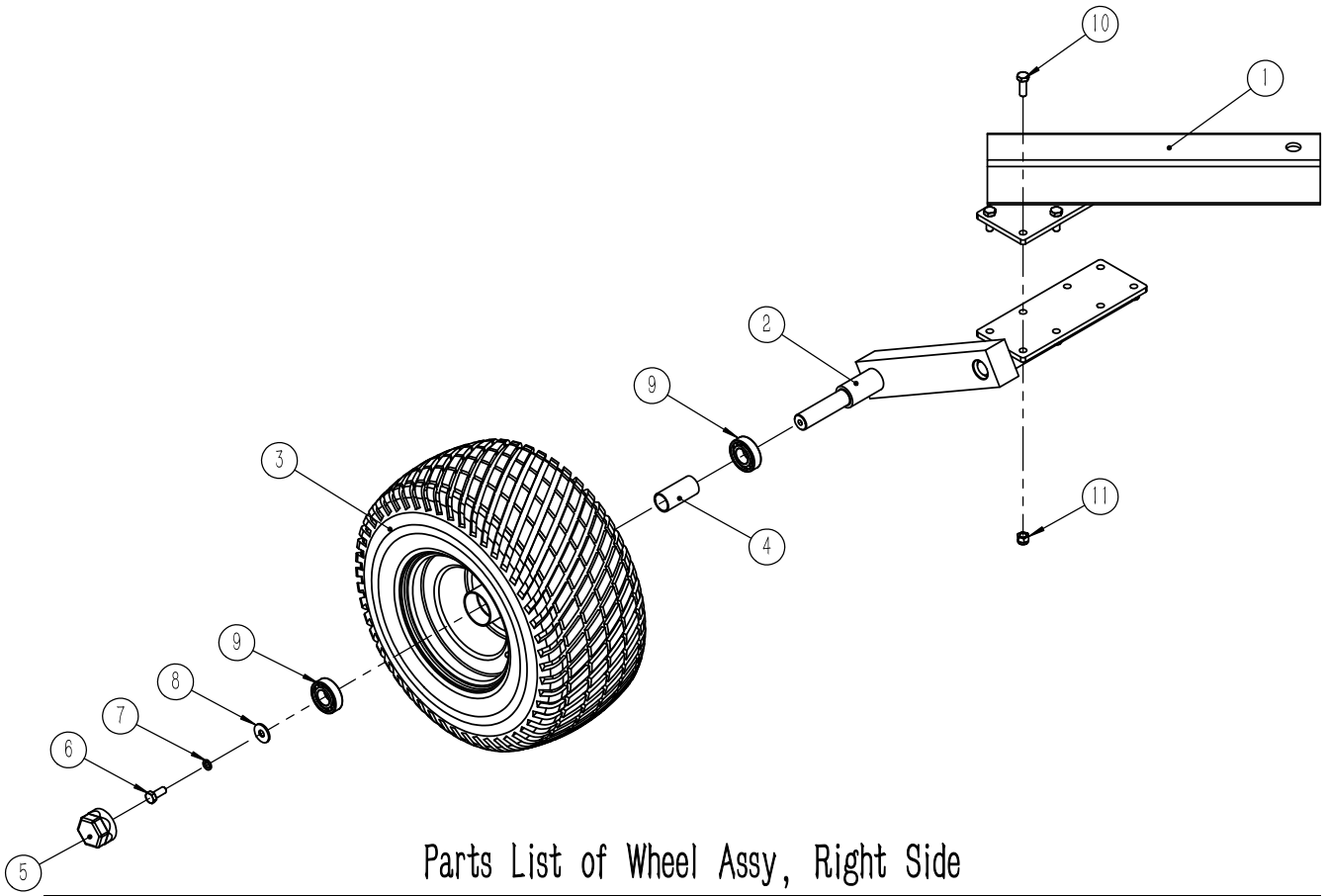
Exploded View of Wheel Assy, Left Side



Parts List of Wheel Assy, Left Side

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.033	左连接座焊合件	Fixed stablizer wheel weldment Left Side	1
2	ATBH7.034	左轮架焊合件	Wheel frame weldment Left Side	1
3	ATBH7.035	轮胎18×8.50-8	Wheel 18×8.50-8	1
4	ATBH7.107	轴承隔套	Bearing spacer	1
5	AT120.122	轴盖	Cover	1
6	GB5783-M10×25	螺栓M10×25	Bolt M10×25	1
7	GB93-10	弹垫圈10	Spring washer 10	1
8	GB96. 2-10	大垫圈10	Large Plain washer 10	1
9	GB283-NUP205E	圆柱滚子轴承NUP 205 E (带防尘盖)	Bearing NUP 205 E	2
10	GB889. 1-M10	锁紧螺母M10	Lock nut M10	6
11	GB5783-M10×30	螺栓M10×30	Bolt M10×30	6

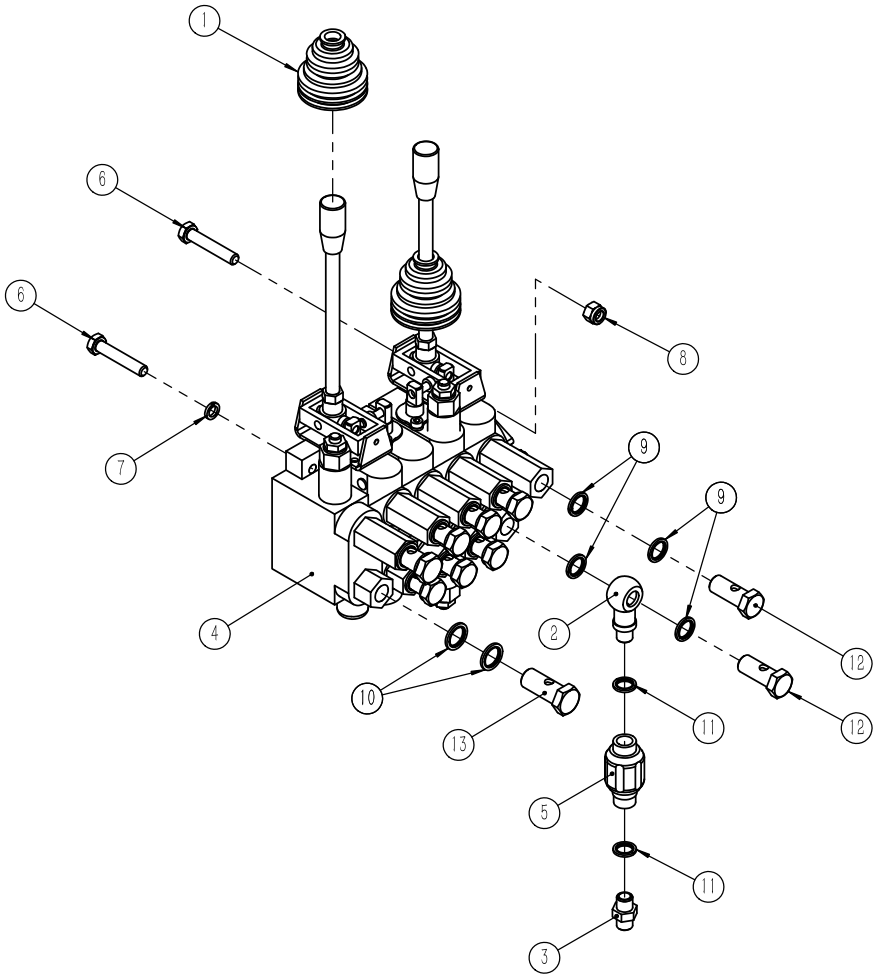
Exploded View of Wheel Assy, Right Side



Parts List of Wheel Assy, Right Side

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.036	右连接座焊合件	Fixed stablizer wheel weldment Right Side	1
2	ATBH7.037	左轮架焊合件	Wheel frame weldment Right Side	1
3	ATBH7.035	轮胎18×8.50-8	Wheel 18×8.50-8	1
4	ATBH7.107	轴承隔套	Bearing spacer	1
5	AT120.122	轴盖	Cover	1
6	GB5783-M10×25	螺栓M10×25	Bolt M10×25	1
7	GB93-10	弹垫圈10	Spring washer 10	1
8	GB96. 2-10	大垫圈10	Large Plain washer 10	1
9	GB283-NUP205E	圆柱滚子轴承NUP 205 E (带防尘盖)	Bearing NUP 205 E	2
10	GB5783-M10×30	螺栓M10×30	Bolt M10×30	6
11	GB889. 1-M10	锁紧螺母M10	Lock nut M10	6

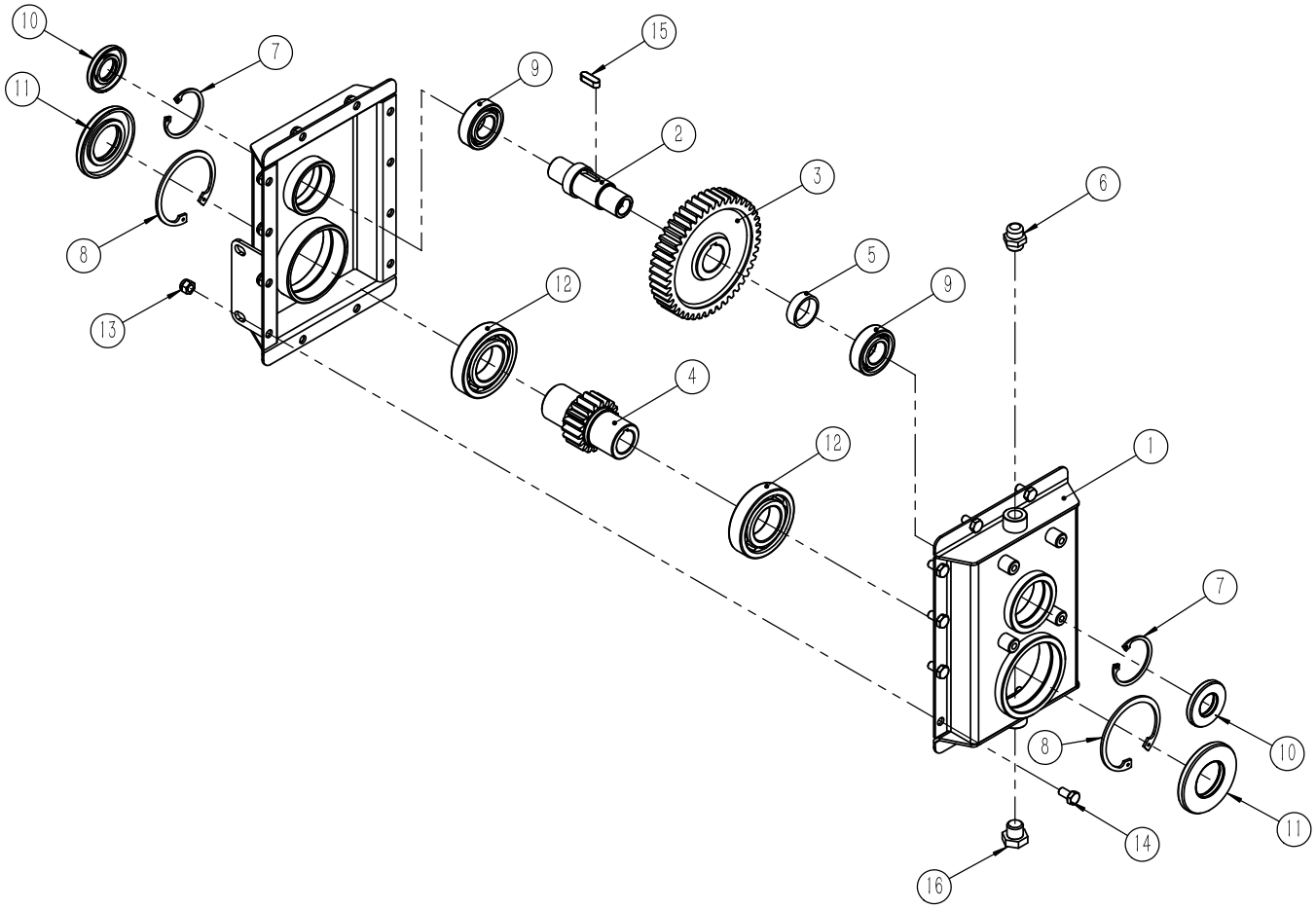
Exploded View of Valve Assy



Parts List of Valve Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	BH5.50.102	护套	Rubber cover	2
2	BH5.60.108	球接头	Ball Coupling	1
3	BH5.60.109	接头14H	Coupling 14H	1
4	VALVE—4	四联阀总成	Valve	1
5	MK—6	单向节流阀MK—6	Throttle valve MK—6	1
6	GB5782—M10×55	螺栓M10×55	Bolt M10×55	3
7	GB93—10	弹垫圈10	Spring washer 10	1
8	GB889. 1—M10	锁紧螺母M10	Lock nut M10	2
9	GB982—16	组合密封垫圈16	Bonded washer 16	16
10	GB982—18	组合密封垫圈18	Bonded washer 18	4
11	GB982—14	组合密封垫圈14	Bonded washer 14	2
12	JB999—M16x1.5	空心螺栓M16x1.5	Hollow bolt M16x1.5	8
13	JB999—M18x1.5	空心螺栓M18x1.5	Hollow bolt M18x1.5	2

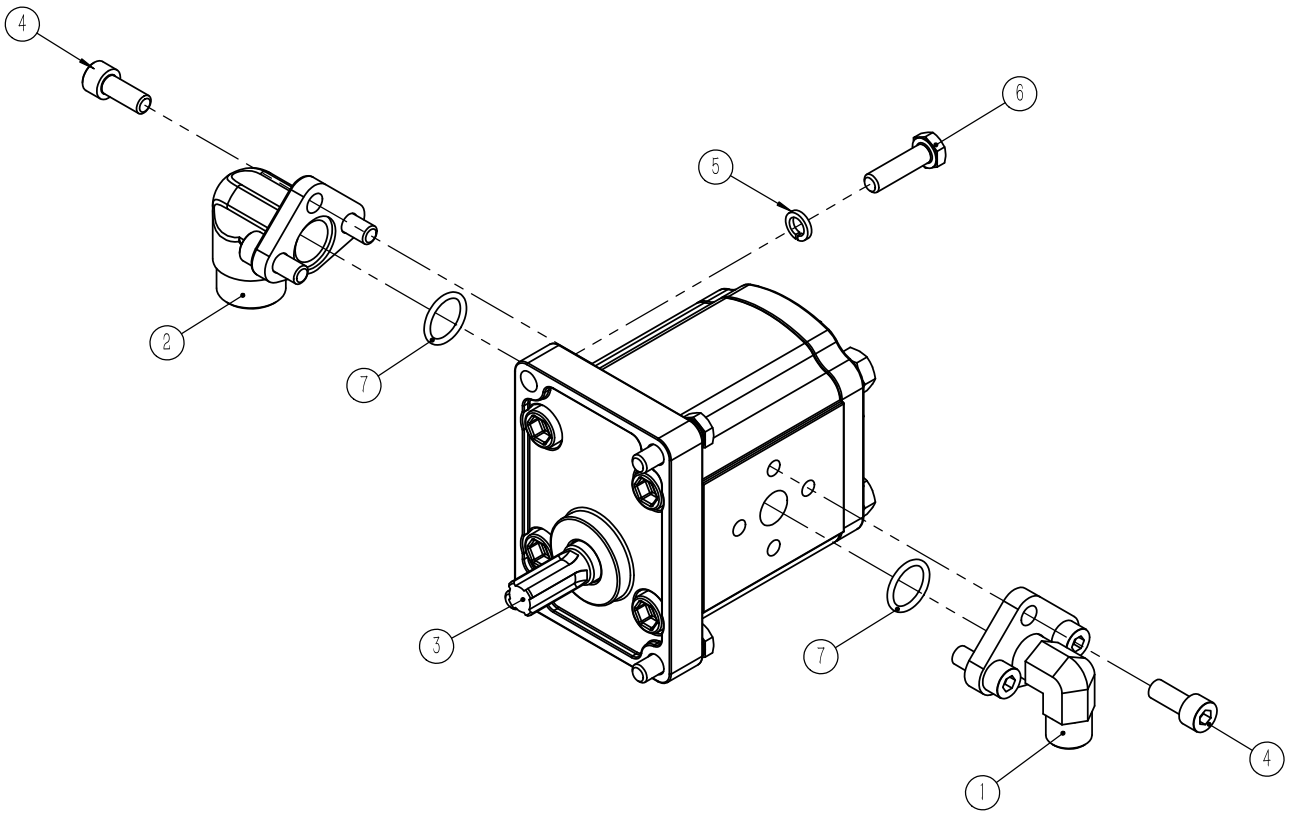
Exploded View of Gearbox Assy



Parts List of Gearbox Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.038	配对变速箱	Gearbox	1
2	ATBH7.103	从动轴	Driven shaft	1
3	ATBH7.104	从动齿轮	Driven gear	1
4	ATBH7.105	主动齿轮	Driving gear	1
5	ATBH7.106	隔圈	Spacer	1
6	Vent—G3／8	排气螺栓G3/8	Vent G3/8	1
7	GB893. 2—52	孔用弹性挡圈52	Circlip for hole 52	2
8	GB893. 2—80	孔用弹性挡圈80	Circlip for hole 80	2
9	GB276—6205	深沟球轴承6205	Bearing 6205	2
10	GB13871. 1—FB25x52x7	油封FB25x52x7	Oil seal FB25x52x7	2
11	GB13871. 1—FB40x80x8	油封FB40x80x8	Oil seal FB40x80x8	2
12	GB276—6208	深沟球轴承6208	Bearing 6208	2
13	GB889. 1—M8	锁紧螺母M8	Lock nut M8	12
14	GB5783—M8×16	螺栓M8×16	Bolt M8×16	12
15	GB1096—8×25	平键8×25	Key 8×25	1
16	JBZQ4451—G3／8	螺塞G3/8	Plug G3/8	1

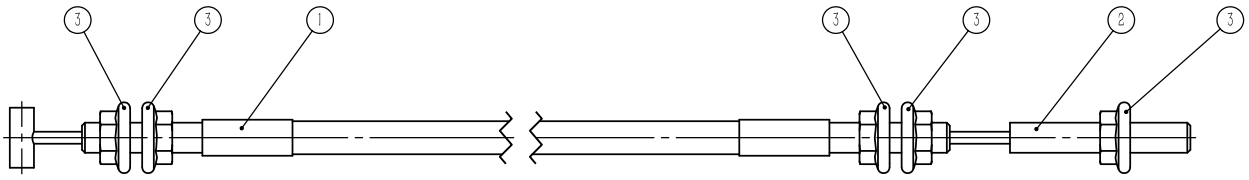
Exploded View of Pump Assy



Parts List of Pump Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	BHM95.030	法兰直角接头18H	IN OIL CONNECTOR 18H	1
2	BHM95.109	法兰直角接头27H	OUT OIL CONNECTOR 27H	1
3	CBN-F320LL	齿轮泵	Pump	1
4	GB70. 1-M8×20	内六角圆柱头螺钉M8×20	Hex socket head cap screw M8×20	6
5	GB93-8	弹垫圈8	Spring washer 8	4
6	GB5783-M8×30	螺栓M8×30	Bolt M8×30	4
7	JBZQ4224-22x2.4	O型圈22x2.4	O-ring 22x2.4	2

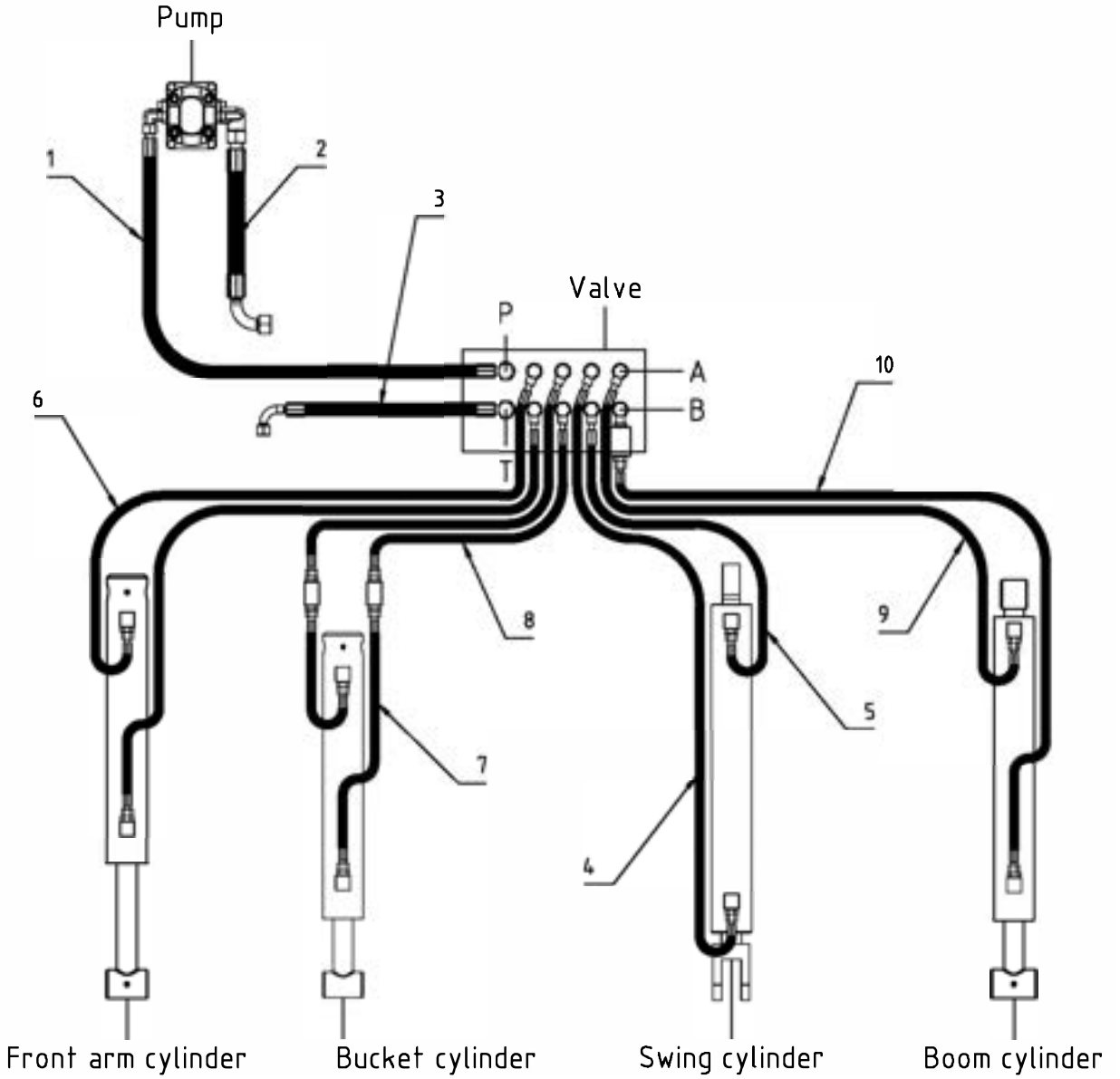
Exploded View of Throttle cable Assy



Parts List of Throttle cable Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.108	拉索外套	Cable jacket	1
2	ATBH7.109	拉索	Cable	1
3	GB6177. 1—M5	六角法兰面螺母M5	Hex Flange Nuts M5	5

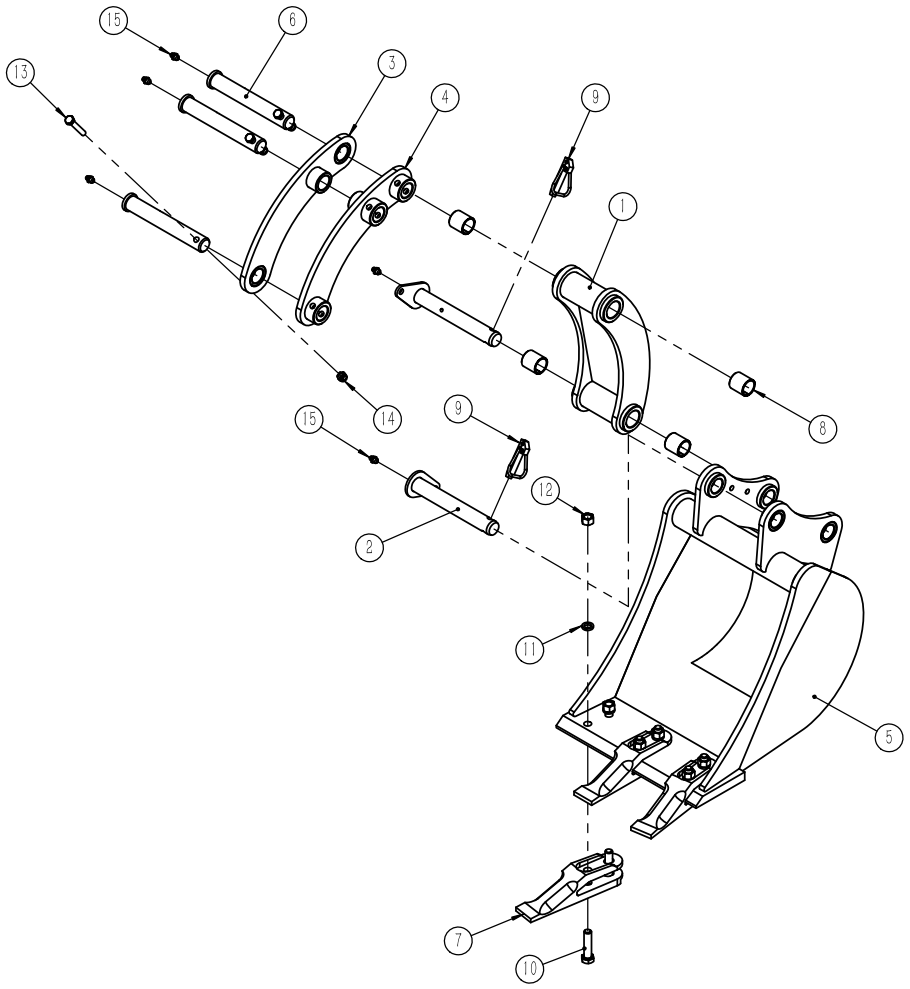
Hydraulic Assy



Parts List of Hydraulic Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	ATBH7.040	泵进油管	Hose, Pump, in	1
2	ATBH7.039	泵—阀油管	Hose, Pump to Valve	1
3	ATBH7.041	阀出油管	Hose, Valve, out	1
4	ATBH7.042	转向油管(短)	Hose, Swing cylinder, short	1
5	ATBH7.043	转向油管(长)	Hose, Swing cylinder, long	1
6	BH195.049	小臂油管	Hose, Front arm cylinder	2
7	BH195.044	挖斗前油管	Hose, Bucket cylinder, front	2
8	BH195.042	挖斗后油管	Hose, Bucket cylinder, rear	2
9	BH195.043	大臂油管1	Hose, Boom cylinder Ⅰ	1
10	BH195.045	大臂油管2	Hose, Boom cylinder Ⅱ	1

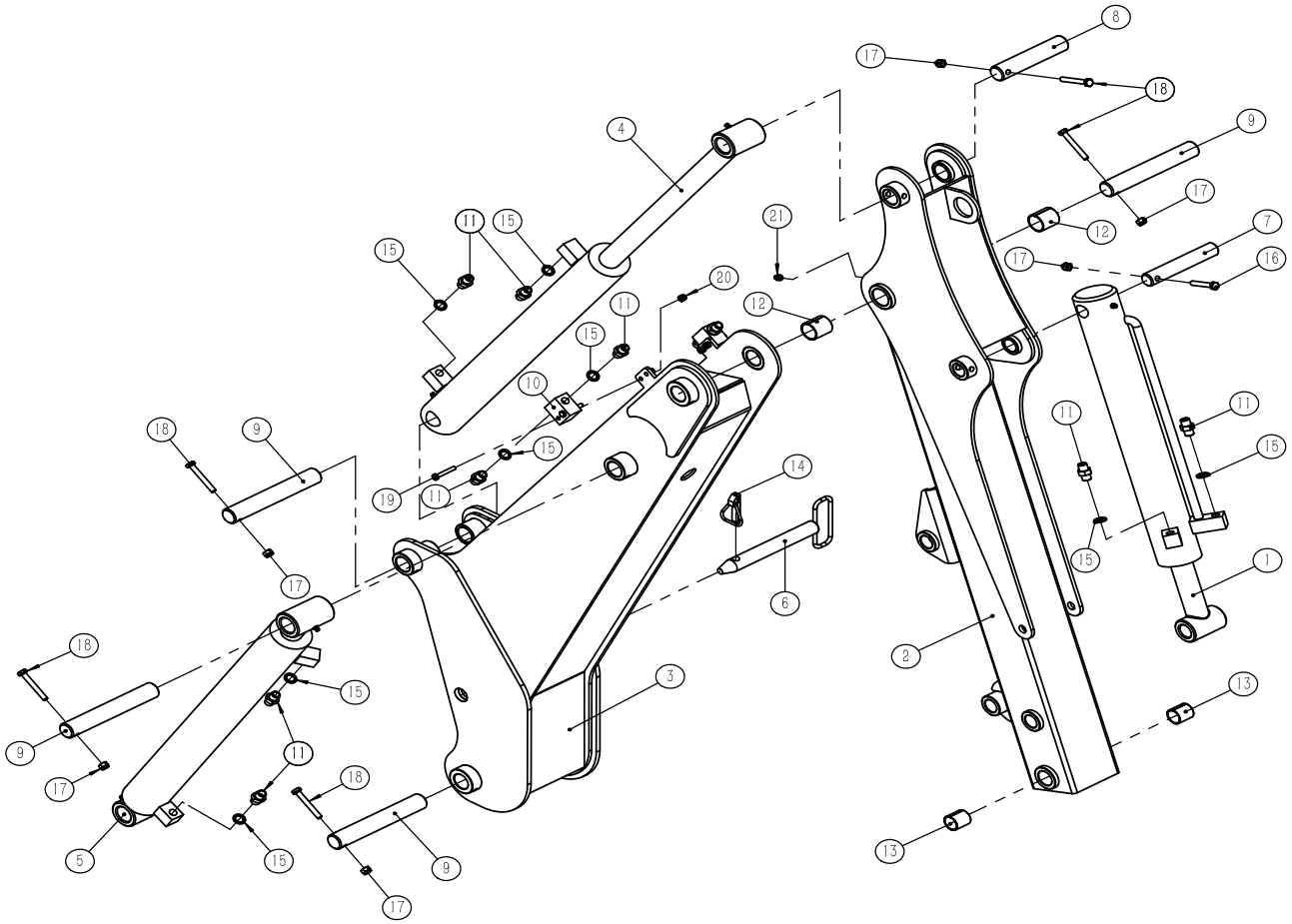
Exploded View of Bucket Assy



Parts List of Bucket Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	BH195.012	内连板焊合件	Bucket adaptor weldment	1
2	BH195.013	挖斗销焊合件	Pin shaft for bucket	2
3	BH195.015	左连板焊合件	Moon plate weldment left	1
4	BH195.016	右连板焊合件	Moon plate weldment right	1
5	BH195.017	挖斗焊合件 (12寸)	Bucket weldment	1
6	BH195.101	连扳销	Pin	3
7	BK6N.01.105	挖斗铲齿	Blade	3
8	SF-2-29x25x30	复合型无油衬套(无肩型)29x25x30	Sleeve 29x25x30	4
9	Lock Pin-12	锁销12	Lock Pin 12	2
10	GB5782-M12×50	螺栓M12×50	Bolt M12×50	6
11	GB93-12	弹垫圈12	Spring washer 12	6
12	GB6170-M12	螺母M12	Nut M12	6
13	GB5782-M8×50	螺栓M8×50	Bolt M8×50	3
14	GB889.1-M8	锁紧螺母M8	Lock nut M8	3
15	JB7940.1-8	油杯8	Oil cup 8	5

Exploded View of Boom Assy



Parts List of Boom Assy

NO.	PART NO.	名称	Name & Specifications	QTY
1	BH205.018	挖斗油缸	Bucket cylinder	1
2	BH205.019	小臂焊合件	Front arm weldment	1
3	BH205.020	大臂焊合件	Boom weldment	1
4	BH205.021	小臂油缸	Front arm cylinder	1
5	BH195.022	大臂油缸	Boom cylinder	1
6	BH195.039	大臂锁销焊合件	Boom locking pin weldment	1
7	BH195.102	销轴25x146	Pin 25x146	1
8	BH195.103	销轴30x144	Pin 30x144	1
9	BH195.104	销轴30x190	Pin 30x190	4
10	BH195.121	油管连接块	Adapter base	2
11	BH5.60.109	接头14H	Adapter 14H	10
12	SF—2—34x30x35	复合型无油衬套(无肩型)34x30x35	Sleeve 34x30x35	2
13	SF—2—29x25x30	复合型无油衬套(无肩型)29x25x30	Sleeve 29x25x30	2
14	Lock Pin—12	锁销12	Lock Pin 12	1
15	GB982—14	组合密封垫圈14	Bonded washer 14	10
16	GB5782—M8×50	螺栓M8×50	Bolt M8×50	1
17	GB889. 1—M8	锁紧螺母M8	Lock nut M8	6
18	GB5782—M8×60	螺栓M8×60	Bolt M8×60	5
19	GB5782—M6×40	螺栓M6×40	Bolt M6×40	4
20	GB889. 1—M6	锁紧螺母M6	Lock nut M6	4
21	JB7940. 1—8	油杯8	Oil cup 8	1

Pow'R'kraft

Parts Request Form

Fax to 541-895-2756

Name: _____

Address: _____

City State Zip: _____

Phone: _____

E-mail: _____

Model Number: _____

Serial Number: _____

Purchased From: _____

Purchase Date: _____

Item No.	Description	Qty	Price	Amount

Comments:

BETSTCO, FARMER-HELPER, POWRKRAFT, VALUE-LEADER

LIMITED 1-YEAR WARRANTY

Unless otherwise stated on purchase invoice, Betstco warrants to original Purchaser that its products are free from major defects in material under normal use and service for a period of one (1) Year from the date the product is purchased or shipped, whichever is later. Commercial use 60 days. Use at address that is not yours, is considered commercial use. Warranty does not cover Consumable, Expendable, Wear Items (Examples:Rubber & plastic parts, hydraulic hoses, belts, tires, cables, blades, tines, wedges, teeth, tips, chains, pins, brushes, filters, etc.) and cracked hydraulic pumps, bent or broken cylinder rods are not covered under this warranty. Warranty does not cover items that have been modified, damaged by abuse or usage not in accordance with design or maintenance.

Betstco obligation under this warranty is to repair or replace defective product upon approval by; Betstco, 83371 Melton Rd. N., Creswell OR 97426 that Warranty Claim is Valid. Product shall be returned upon request of Betstco. Transportation charges to be prepaid by buyer. Replacement parts are subject to the supply conditions at the time of repair or replacements, which may directly affect our ability to obtain material and/or replacements parts. Gasoline or diesel engines used to power products are covered by the warranty of the appropriate engine manufacture and Purchaser must look to the engine manufacture for all issues relating to engine operation.

Betstco assumes no responsibility for outside labor.

PERMISSIBLE BY APPLICABLE LAW, BETSTCO HEREBY DISCLAIMS ALL WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, ANY IMPLIED WARRANTIES WITH RESPECT TO THE PRODUCT PURCHASED, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, BETSTCO HEREBY EXPRESSLY DISCLAIMS ALL LIABILITY FOR PRODUCT DEFECT OR FAILURE, CLAIMS THAT ARE DUE TO NORMAL WEAR, PRODUCT MISUSE, ABUSE, PRODUCT MODIFICATION, IMPROPER PRODUCT SELECTION, NON-COMPLIANCE WITH ANY CODES, OR MISAPPROPRIATION.• BETSTCO MAKES NO WARRANTIES TO THOSE DEFINED AS "CONSUMERS" IN THE MAGNUSON-MOSS WARRANTY-FEDERAL TRADE COMMISSION IMPROVEMENTS ACT. THE FOREGOING EXCLUSIONS OF IMPLIED WARRANTIES DO NOT APPLY TO THE EXTENT PROHIBITED BY LAW. PLEASE REFER TO YOUR LOCAL LAWS FOR ANY SUCH PROHIBITIONS

THIS WARRANTY SHALL NOT BE INTERPRETED TO RENDER BETSTCO, OR ANY AUTHORIZED AGENT LIABLE FOR INJURY OR DAMAGES OF ANY KIND OR NATURE, DIRECT, CONSEQUENTIAL, OR CONTINGENT, TO PERSON OR PROPERTY ARISING OUT OF THE SALE OR USE OF ANY PRODUCTS SOLD BY BETSTCO OR AN AGENT THEREOF. BETSTCO MAKES NO WARRANTIES, EXPRESS OR IMPLIED, (INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS OF THE PRODUCTS FOR ANY PURPOSE) WITH RESPECT TO THE PRODUCTS COVERED BY THIS AGREEMENT EXCEPT AS IN THIS PARAGRAPH OTHERWISE EXPRESSLY PROVIDED.

THIS IS THE SOLE AND ONLY WARRANTY OF BETSTCO, FARMER-HELPER, POWRKRAFT OR VALUE-LEADER PRODUCTS, NO OTHER WARRANTY IS APPLICABLE, EITHER EXPRESSED OR IMPLIED, IN FACT OR BY LAW.

The sole and only remedy in regard to any defective products shall be the repair or replacement thereof as herein provided. Betstco, agent(s) of Betstco shall not be liable for any consequential, special, incidental or punitive damages resulting from or caused by any such defects.

Betstco reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligations to owners of units previously sold.

WARRANTY VOID IF REGISTRATION IS NOT RECEIVED OR RECORDED ONLINE WITHIN 30 DAYS OF PURCHASE DATE OR SHIP DATE, WHICHEVER IS LATER.

REGISTRATION

Item_____Model # _____ Purchase Date_____/_____/_____

Purchased From: _____Gift □ □Inv#/Order# _____

Owner Name: _____ Serial # (if Applicable)_____

Owner Address: _____

City: _____ County: _____ ST: _____ Zip Code: _____

Phone: _____ Email: _____

Acceptance of responsibility:
I (Purchaser) have read operators manual and Limited Warranty or someone has read/and explained all instructions to me. I understand this warranty does not cover any labor and that all disputes will be settled by binding arbitration. Binding arbitration is conducted by the Better Business Bureau (BBB) located at 4004 SW Kruse Way Place Ste 375 Lake Oswego OR 97035 or the current BBB location closest to Betstco, I acknowledge my Limited Warranty is void if any attempt to repair or replace defective parts has been made by unauthorized personnel. I acknowledge receipt of my Operators Manual and have read the Safe Operation Section. I acknowledge understanding maintenance and safe operation requirements, item specifications, operation, controls, and storage requirements. **I understand that I alone am responsible for proper maintenance, care and safe operation of this Pow'R'kraft item. I understand that this warranty DOES NOT cover supplier equipment such as engines.**

___ Received and read Operators Manual, Specifically Safe Operation Section. ___ Specifications Accepted

___ Controls Understood ___Maintenance Requirements Understood ___ Proper Storage Understood

I (Purchaser) agree that persons not familiar with the operation of this item should not be allowed to use it. Children especially should not operate or be near Power Products when in use. ANYONE OPERATING POW'R'KRAFT PRODUCTS SHOULD HAVE READ OPERATIONS MANUALS AND SAFETY MANUALS.

Owners Signature: x _____ Date: ___/___/___

You must sign this warranty and mail or Email to Betstco, 83371 Melton Rd, Creswell OR 97426. Email: Cservice@betstco.com. This warranty is not effective unless the Purchaser completes Registration and Warranty Form within 30 days of purchase date or ship date whichever is later.

NOTE: We may refuse warranty of any kind unless Betstco, receives a completed, legible and signed warranty registration. It is the responsibility of the purchaser to assure that registration document is received by Betstco.

Online Registration available at Betstco.com

Pow'R'Kraft
Branded Products

Year Extended Warranty amends to original Recorded Warranty Registration the time period of described coverage. Extended Warranty does not apply to Consumable and Expendable Items as described in Product Warranty Registration.

This Amendment does not affect any other part of recorded Warranty Registration or Policy.

No one is authorized to alter, modify, or enlarge this Amendment to original recorded warranty registration.

EXTENDED REGISTRATION & PAYMENT MUST BE RECEIVED WITHIN 30 DAYS OF PURCHASE DATE

EXTENDED WARRANTY REGISTRATION

Product & Model # : _____
Serial #: _____ if applicable
Owner Name: _____
Sellers Invoice/Order # _____

Acceptance of responsibility:
I (Purchaser) have Read and understand the Extended Warranty or someone has read/and explained all the above to me. I understand this extended warranty does not cover any labor. I have filed my Original Warranty Registration and fully understand my requirements. I understa nd that I alone am responsible for proper maintenance, care and safe operation of this equipment.
I (purchaser) also understand that persons not familiar with the operation of this equipment should not be allowed to use it. Children especially should not operate or be near equipment. ANYONE OPERATING EQUIPMENT SHOULD HAVE READ ALL EQUIPMENT OPERATIONS MANUALS AND SAFETY MANUALS..

Owners Signature: x _____
Date: _____

You must sign this extended warranty and mail copy to Betstco, 83371 Melton Rd, Creswell OR 97426. This extended warranty is not effective unless the Purchaser faxes or mails this Registration Form within 30 days of purchase. NOTE: The Manufacturer may refuse warranty of any kind unless Betstco receives a completed, legible and signed extended warranty registration. It is the responsibility of the purchaser to assure that this registration document is received by Betstco.

To determine Payment for Extended Warranty Call: Betstco @ 541-895-3083