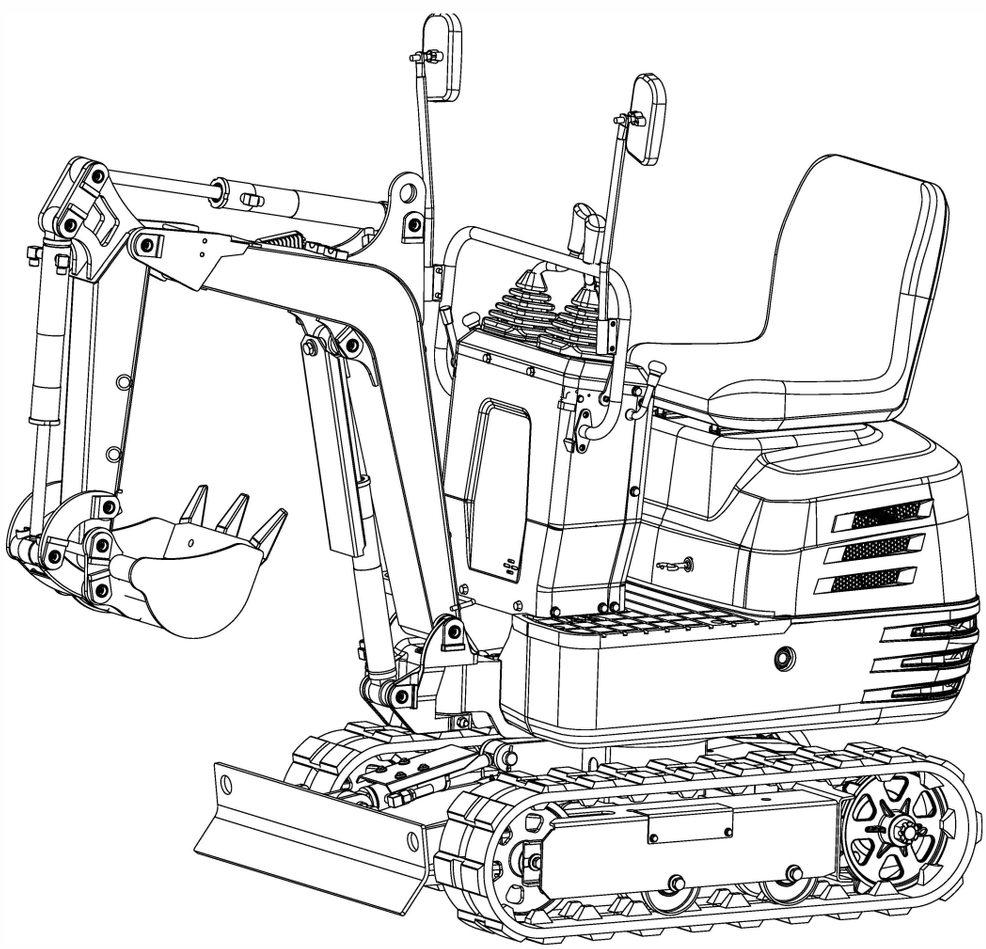
Section 2/2

10HP MINI GAS EXCAVATOR

ITEM# 65076



OWNER'S MANUAL AND SAFETY INSTRUCTIONS

SAVE THIS MANUAL. KEEP THIS MANUAL FOR SAFETY WARNINGS, PRECAUTIONS, ASSEMBLY, OPERATION, INSPECTION, MAINTENANCE AND CLEANING PROCEDURES. WRITE THE PRODUCT'S SERIAL NUMBER ON THE BACK OF THE MANUAL, OR THE MONTH AND YEAR OF PURCHASE IF PRODUCT HAS NO SERIAL NUMBER

FOR QUESTIONS, PLEASE CALL CUSTOMER SERVICE: 909.628.4900

MAINTENANCE

MAINTENANCE INTERVALS

No.	Check points	Intervals	Hour meter indicator														Consequently	Ref. page
			50	100	150	200	250	300	350	400	450	500	550	600	1000	2000		
1.	Fuel	**Check**	**Daily check**															**41**
2.	Engine oil	**Check**	**Daily check**															**42**
		Change	○	○	○	○	○	○	○	○	○	○	○	○	○	○	**every 50 hrs**	**45**
3.	Hydraulic oil	**Check**	**Daily check**															**43**
		Change													○	○	**every 1000 hrs**	**51**
4.	Lubrication points	**Check**	**Daily check**															**43**
5.	Cooling Fan	**Check**	**Daily check**															**44**
6.	Electrical lines	**Check**	**Daily check**															**45**
7.	Air Cylinder / Cooling fin	**Clean**	**Daily check**															**45**
8.	The Whole Machine	**Clean**	**Daily check**															**45**
9.	Battery condition	**Check**	○	○	○	○	○	○	○	○	○	○	○	○	○	○	**every 50 hrs**	**46**
10.	Greasing of swing bearing teeth	**Check**	○	○	○	○	○	○	○	○	○	○	○	○	○	○	**every 50 hrs**	**47**
11.	*Air filter element	**Clean**	○	○	○	○	○	○	○	○	○	○	○	○	○	○	**every 50 hrs**	**48**
		Change				○				○				○	○	○	**every 200 hrs**	**50**
12.	Greasing of swing ball bearings	**Check**		○		○		○		○		○		○	○	○	**every 100 hrs**	**50**
13..	Fuel pipes and hoses	**Check**				○				○				○	○	○	**every 200 hrs**	**50**
		Change															**every 2 years**	**52**
14.	Hydraulic return filter element	**Change**													○	○	**every 1000 hrs**	**51**
15.	Hydraulic suction filter element	**Change**													○	○	**every 1000 hrs**	**51**
16.	Spark Plug	**Check**	○	○	○	○	○	○	○	○	○	○	○	○	○	○	**every 50 hrs**	**49**
		Change										○			○	○	**every 500 hrs**	**52**

* Clean the air filter more frequently if used in dusty conditions.

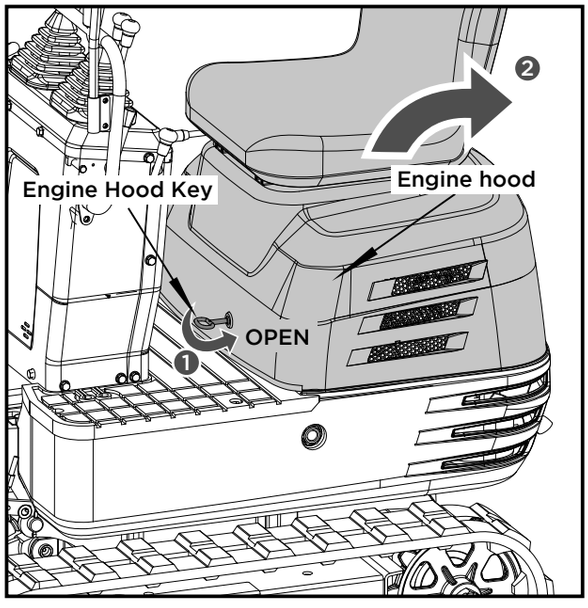
OPENING AND CLOSING OF PARTS

Opening/Closing of the Engine Hood

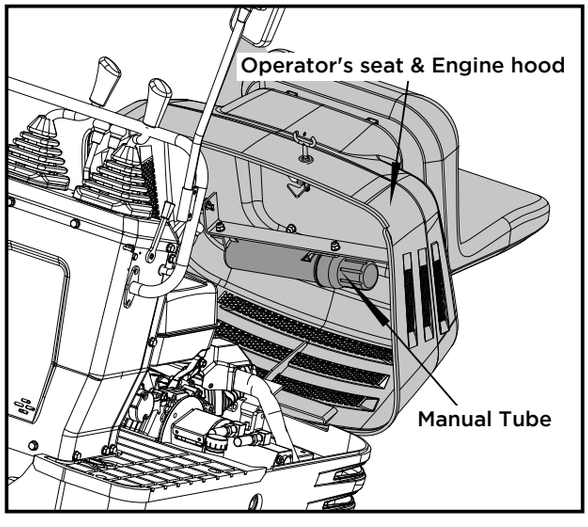
⚠ CAUTION *Do not open the engine hood before stopping engine.*

⚠ CAUTION *Do not touch the exhaust muffler or the exhaust pipe; serious burns can occur.*

Turn the key in the direction indicated by the arrow as shown in the below Figure to open the engine hood.



Keep the Tools and Operator's Manual in the Manual Tube



DAILY CHECKS

For your own safety and to assure the long life span of your machine, a careful check should be made before each operation.

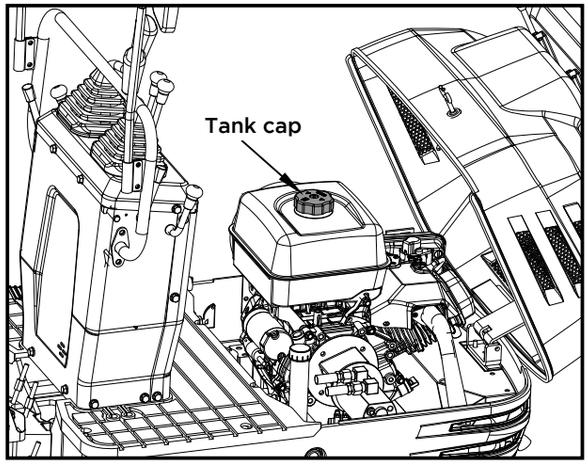
Check Fuel Level

⚠ CAUTION *Stop the engine before fuelling.*

⚠ CAUTION *Do not smoke while fuelling.*

⚠ IMPORTANT *Use unleaded gasoline with a pump octane rating of 86 or higher.*

1. Check the fuel level in fuel tank.
2. Open the tank cap, and fill with fuel.



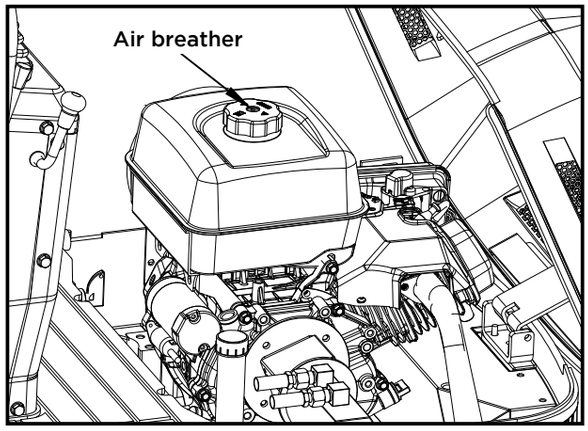
Fuel tank capacity	1.6 GALLONS

⚠ IMPORTANT *Always fill up fuel after a day's work.*

⚠ IMPORTANT *See "PURGING OF THE FUEL SYSTEM" in "OTHER ADJUSTMENTS AND REPLACEMENTS".*

⚠ IMPORTANT *Fuel tank cap has an air breather. Make sure to clean the air breather when filling up with fuel.*

If the air breather is clogged with mud, the fuel tank becomes under-pressurized.

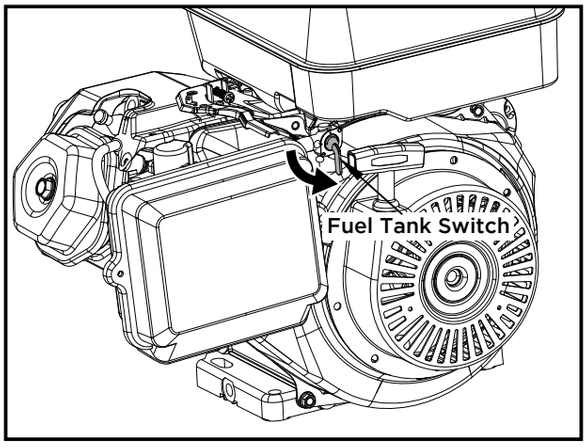


Draining the Water or Air from the Fuel Tank

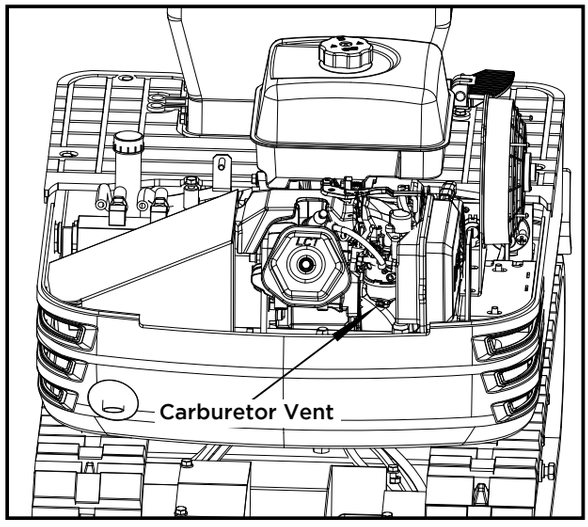
> ⚠ ***DANGER*** ***When draining water or air from the fuel, always keep away from flames.***

If the gasoline engine is not used for a long time, the problem that the engine cannot be started may occur when the engine is just started. The following operations are required:

1. Close the fuel tank switch.



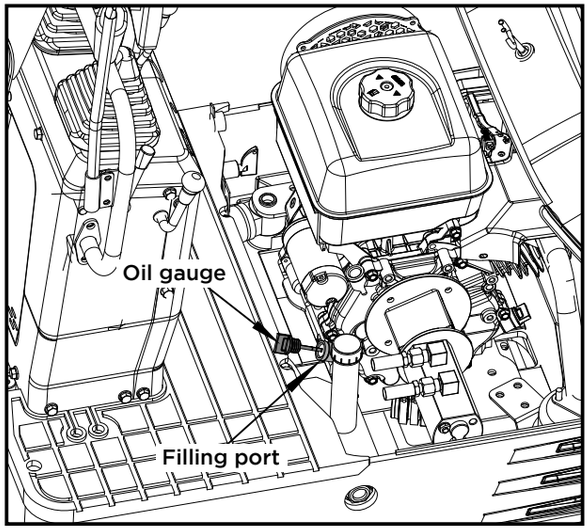
2. Unscrew the bolt at the carburetor vent port to drain the water or gas from the fuel.
3. Close the bolt at the carburetor vent.
4. Turn on the fuel tank switch.
5. Start the engine.



Check Engine Oil Level

> ⚠ ***CAUTION*** ***Stop the engine before checking the oil level.***

Insert the oil gauge rod fully into the prepared opening, remove again and check the oil level; if necessary fill with oil. The machine must be on level ground when checking the oil level.



> ⚠ ***IMPORTANT*** ***Use engine oil with the correct viscosity. (according the outside temperature)***

> ⚠ ***IMPORTANT*** ***After stopping the engine, wait five minutes, then check oil level. (Excavator must be on level ground.)***

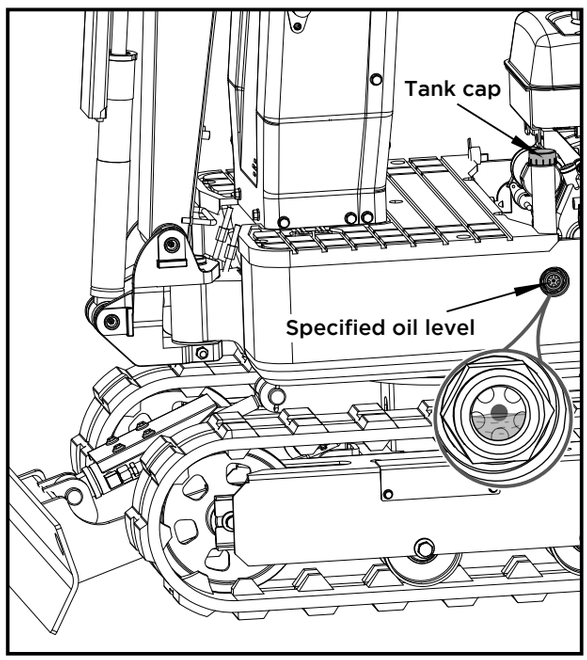
Check Hydraulic Oil Level

⚠ CAUTION ***First lower all attachments on the ground then stop the engine.***

⚠ IMPORTANT ***Before filling with oil, wipe away all sand and dust from around the oil port. Make sure you use an identical type of hydraulic fluid.***

⚠ IMPORTANT ***The excavator has been filled with hydraulic fluid before delivery. See "RECOMMENDED OILS". (Do not mix different makes!)***

1. Move the excavator on to level ground. Extend every cylinder rod up to its centre position, place the bucket in contact with the ground.
2. Check the oil level as to whether it lies on the centre mark under normal temperature 10 to 30 C.
3. Enough oil is present if the oil level lies between the markings.
4. Should the oil level be too low, add enough oil through the oil port before starting the engine. This step is important for the protection of the hydraulic system.



Lubrication Points

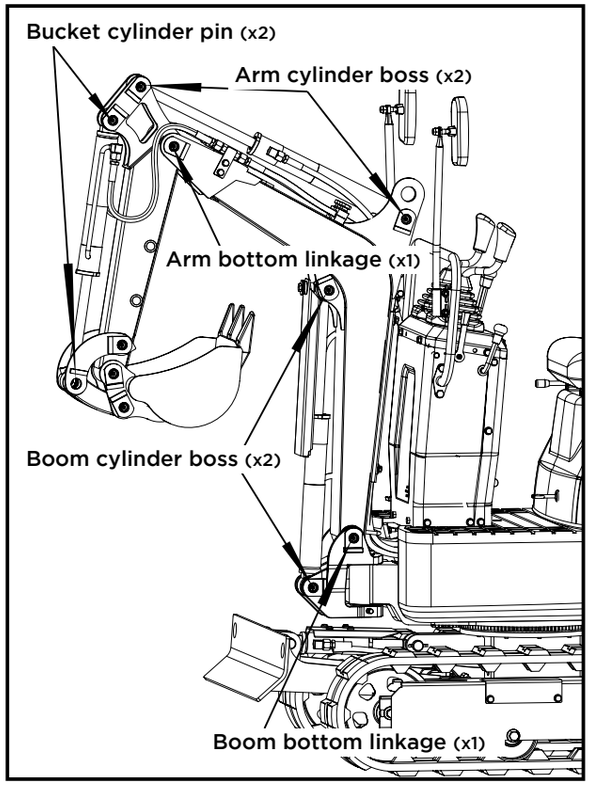
⚠ CAUTION ***First lower all attachments on the ground then stop the engine.***

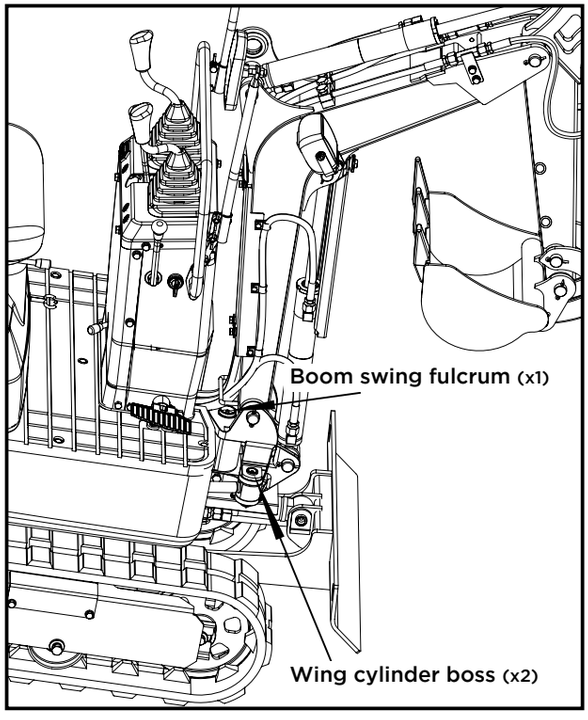
⚠ CAUTION ***While greasing, take care not to step on the bucket teeth.***

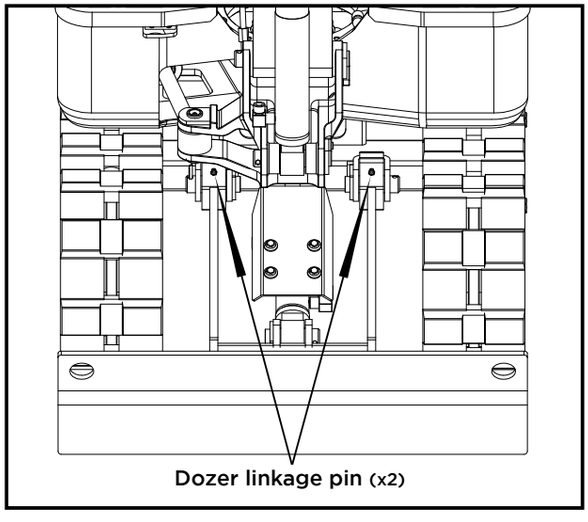
⚠ CAUTION ***When doing excavation work in water, generously grease the following points. After finishing work, grease again.***

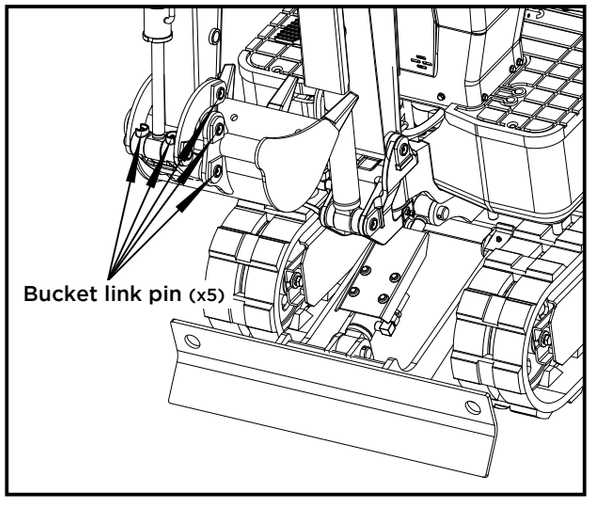
Grease the marked grease nipples shown by arrows in the illustration below:

1. Boom bottom linkage ..... 1 place
2. Arm bottom linkage ..... 1 place
3. Boom cylinder boss ..... 2 places
4. Arm cylinder boss ..... 2 places
5. Bucket cylinder pin ..... 2 place
6. Boom swing fulcrum ..... 1 places
7. Wing cylinder boss ..... 2 place
8. Dozer linkage pin ..... 2 places
9. Bucket link pin ..... 5 places







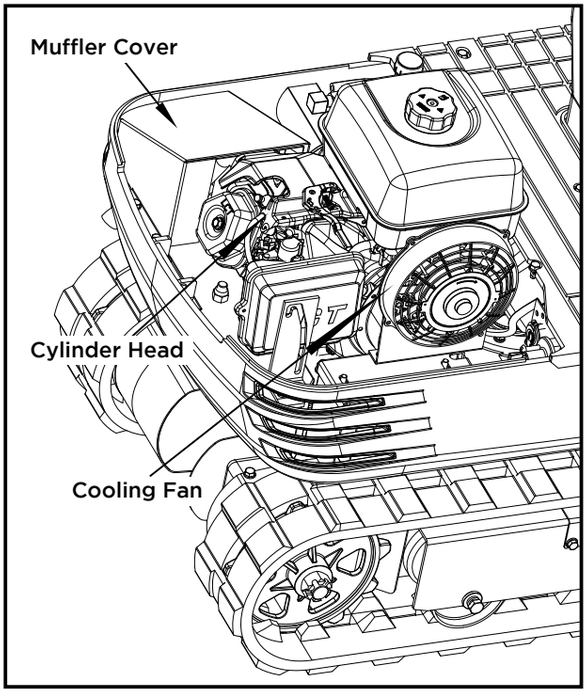


Check Cooling Fan

⚠ CAUTION ***Always stop the engine before checking the Cooling Fan.***

⚠ CAUTION ***Wear eye protection when cleaning with compressed air.***

1. When the weather is hot, check the cooling fan more frequently whether the operation is normal; Check the dust on the cooling fan of the gasoline engine cylinder head. If there is a lot of dust, please use compressed air to clean it.
2. Check whether the muffler chimney and muffler cover have oxidation. Check whether the insulation layer of muffler cover is complete.



⚠ IMPORTANT ***Cooling fan must be clean in order not to overheat the engine and allow free flow of air through the system.***

Cleaning of Engine and Electrical Wiring

⚠ CAUTION ***Always stop the engine before cleaning the wiring, cables and engine.***

Before starting, check whether flammable substances have gathered on the battery, the cables and wiring, the muffler or on the engine. Remove thoroughly.

Checking the Electrical Circuit

Check the electrical circuitry for disconnections, shorts or loose terminals.

Washing the Whole Machine

⚠ IMPORTANT ***Do not wash the excavator with the engine running. Water could enter the air filter and damage the engine. Make sure that the air filter is kept dry.***

REGULAR CHECKS AND MAINTENANCE WORK

EVERY 50 SERVICE HOURS

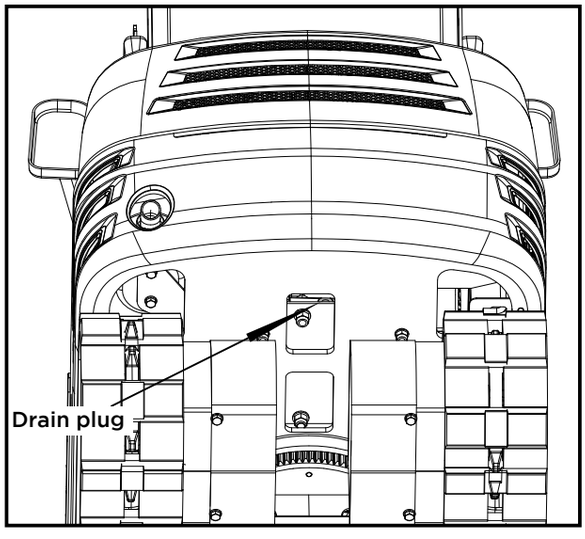
Engine Oil Change

⚠ CAUTION ***First stop the engine and wait long enough for the oil to cool down.***

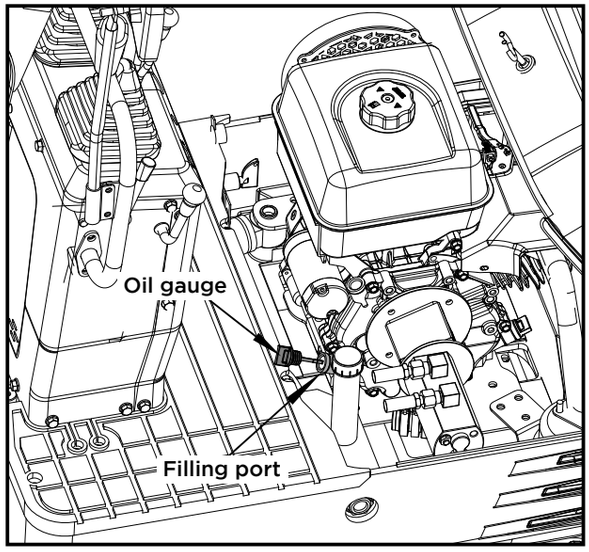
1. Remove the drain plug on the underside of the engine and drain all oil.

⚠ IMPORTANT ***Place a suitable container below the engine to catch the used oil. Dispose of used engine oil according to local laws. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation.***

2. Re-tighten the drain plug.



3. Fill with new oil up to the required level.



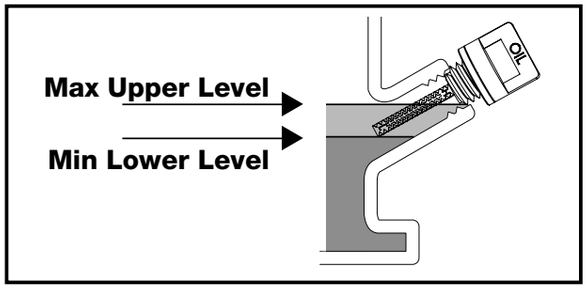
4. Let the engine idle for approx. 5 min. Check the engine oil level. To check the engine oil level, insert the oil gauge completely into the respective port opening and pull out again. If the oil level lies between both markings, no oil must be added.

⚠ IMPORTANT ***Regardless of the service hours, an engine oil change is due every 1 year.***

Engine oil volumes	1.1 L

Engine Oil Capacities:

306cc - 37.2 oz



Note: Total oil capacity could be as much as 4 additional ounces over volumes above due to engine mounting angle and proper draining.

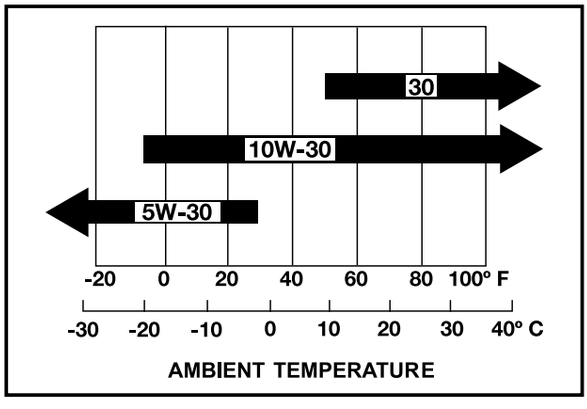
NOTE ***Running the engine with a low oil level can cause engine damage.***

Engine Oil Recommendations

Engine oil affects performance and service life. Use 4-stroke automotive detergent oil.

SAE 10W-30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area warrants.

The SAE oil viscosity and service classification are in the API label on the oil container. Use API SERVICE category SJ engine oil, or higher.



Battery Service

⚠ CAUTION ***Batteries contain sulphuric acid which can cause severe burns. Avoid all contact with skin, eyes or clothing. Antidote - External: Rinse with plenty of water. Internal: Drink large quantities of water or milk.***

Call a physician immediately. Eyes: Rinse with plenty of water for 15 minutes and get prompt medical attention. Keep batteries out of the reach of children.

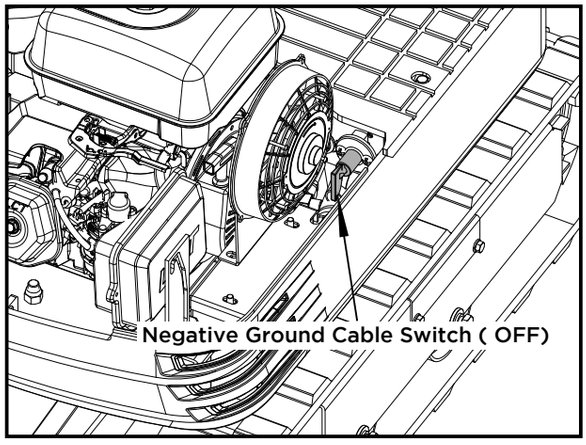
⚠ CAUTION ***Before inspection or dismounting the battery, be sure to turn of the engine and turn the starter switch to the "OFF" position.***

⚠ CAUTION ***When removing the battery, always disconnect the negative ground cable first. The reverse when installing a battery, always connect the ground cable last. This prevents a possible explosion caused by sparks.***

⚠ CAUTION ***Always wear eye protection when working with the battery.***

1. Check whether the battery appearance is deformed.
2. If the battery is deformed, replace it.
3. Clean the battery cover (ventilation hole) without dust.
4. Check whether the battery terminal connection is loose. If it is loose, retighten it. Pay attention to tightening the positive screw , and make sure that the tool that used do not touch the cover.

⚠ WARNING ***Before tightening the positive screw, make sure to turn off the negative ground cable switch first.***



Battery Charging

> ⚠ **CAUTION** ***When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.***

> ⚠ **CAUTION** ***When disconnecting the cable from the battery, start with the negative terminal first.***
>
> ***When connecting the cable to the battery, start with the positive terminal first.***

> ⚠ **CAUTION** ***Do not check battery charge by placing a metal object across the terminals.***

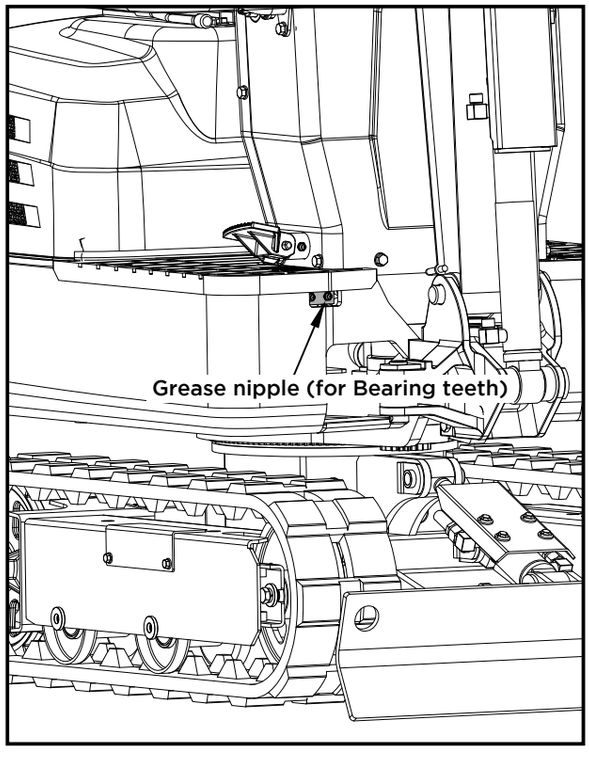
1. To slow charge the battery, connect the battery positive terminal to the charge positive terminal and the negative to the negative, then recharge in the standard fashion.
2. A boost charge is only for emergencies. It will partially charge the battery at a high rate and in a short time.

   When using a boost-charged battery, it is necessary to recharge the battery as early as possible.

   Failure to do this will shorten the battery's service life.
3. When exchanging an old battery for new one, use battery of equal specification.

Greasing of Swing Bearing Teeth

1. Fill with grease through the grease nipple (at the right end side).
2. Grease at each 90 (1.58 rad.) position of the swing frame.
3. Fill with approx. 1.8oz ofgrease (approx. 20 pumps with the grease gun). Distribute the grease over the teeth.



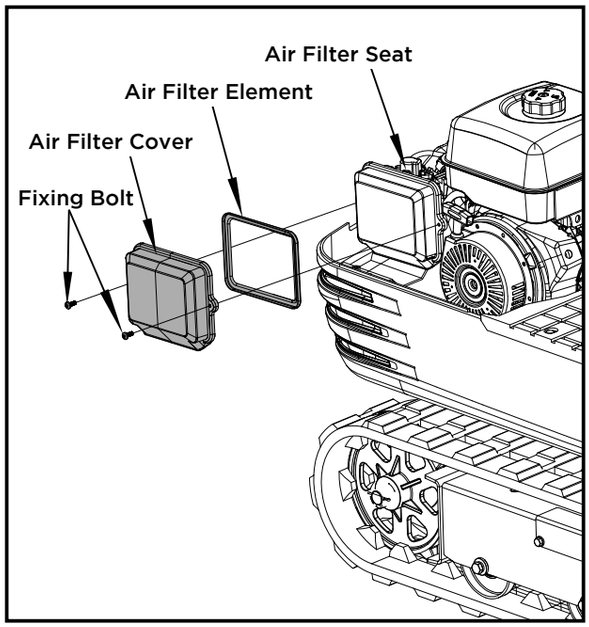
Inspection and Cleaning of the Air Filter Element

Open the engine hood and remove the dustcover. Take out only outer element, clean the element, case interior and reassemble. During reassembly, take care to install the dust-cover so that its TOP mark (arrow) faces upwards. Do not remove the inner element.

⚠ IMPORTANT ***Should the machine be used in extremely dusty areas, the air filter element must be inspected and cleaned more frequently than in the specified maintenance periods.***

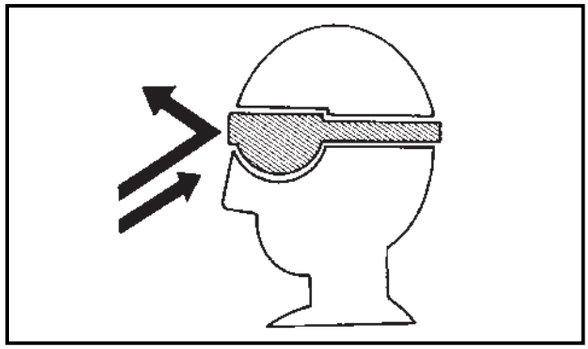
⚠ IMPORTANT ***The air filter has a dry element, keep free from oil.***

⚠ IMPORTANT ***Do not run the engine without the air filter.***



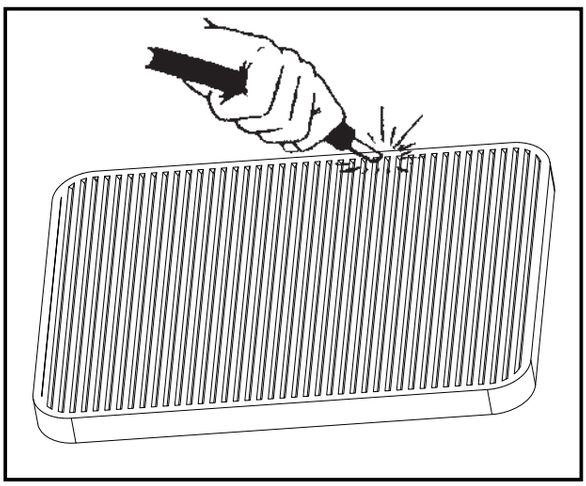
Air Filter Maintenance

⚠ CAUTION ***Wear eye protection.***



Cleaning with compressed air

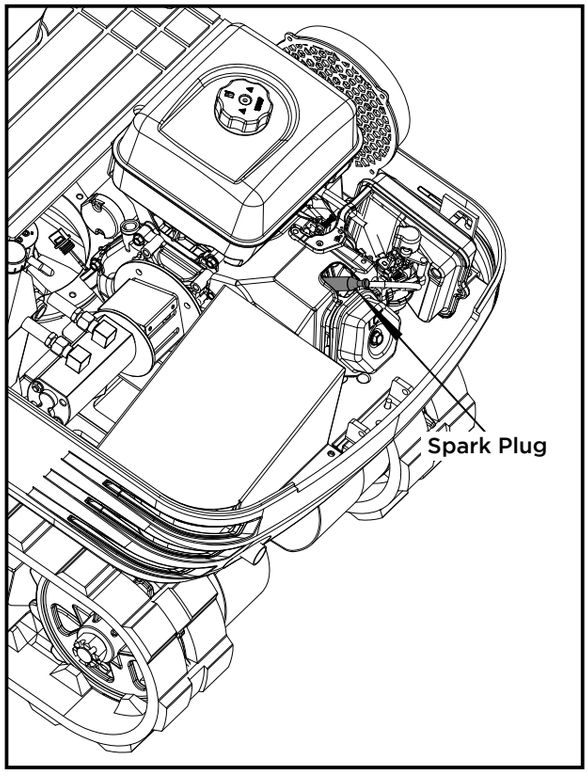
Pressure of compressed air must be under 29.7 PSI, and the cartridge should be blown clean from the inside to the outside until the dust deposits are completely clear.



⚠ IMPORTANT ***If the air suction is still inadequate, or the colour of the exhaust gases is abnormal even after the cleaning, the air filter element must be replaced.***

Checking Spark Plug

Use the special spark plug socket to remove the spark plug and check whether the ignition needle has carbon deposits. If yes, clean the carbon deposits. Replace if defective.



Spark Plug Service

- E6TC (Torch) and E6RTC (Torch) recommended for 79cc and 98cc engines only
- F6TC, F6RTC or F6RTP (Torch) plug recommended

Cross References:

- Champion plug cross reference is: RN9YC (some tables show RN9YCC)
- NGK plug cross reference: BPR6ES
- BOSCH plug cross reference is: WR6DC

⚠ CAUTION ***Using an incorrect spark plug may cause engine damage.***

1. When engine is cool, disconnect the spark plug cap and remove any debris from the spark plug area with high pressure air.
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 or if the insulator is cracked or chipped. Spark plug gap should be set to 0.027 - 0.030 inches.
4. Install the spark plug carefully to avoid cross threading. Screw in spark plug by hand until it stops turning.
5. Tighten the spark plug with a 13/16-inch spark plug wrench. Tighten 1/4 turn after the spark plug seats.

⚠ CAUTION ***A loose spark plug can overheat and damage the engine. Over-tightening the spark plug can damage the threads in the cylinder head.***

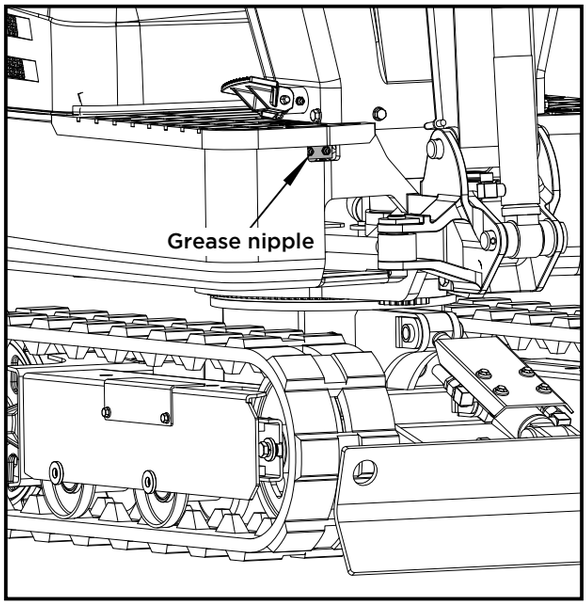
6. Attach the spark plug cap. Ensure spark plug cap snaps into place securely.

EVERY 100 SERVICE HOURS

Do all 50 hour servicing at the same time.

Greasing of the Swing Bearing

1. Grease through the respective grease nipple.
2. Grease at each 90° (1.58 rad.) position of the swing frame.
3. Using the grease gun, apply 5 shots at every position.



EVERY 200 SERVICE HOURS

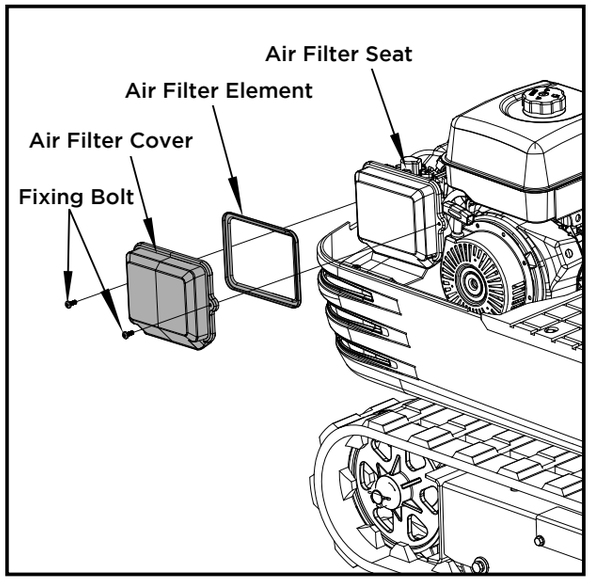
Do all 50 hour and 100 hour servicing at the same time.

Replacing Air Filter Element

Open the engine hood and remove the dustcover.

Remove and replace the outer element and inner element with new elements.

When reassembling, install the dust-cover so that its TOP mark (arrow) faces up-wards.



⚠ *IMPORTANT* ***Shorten the replacement period if using in lots of dust or sandy areas.***

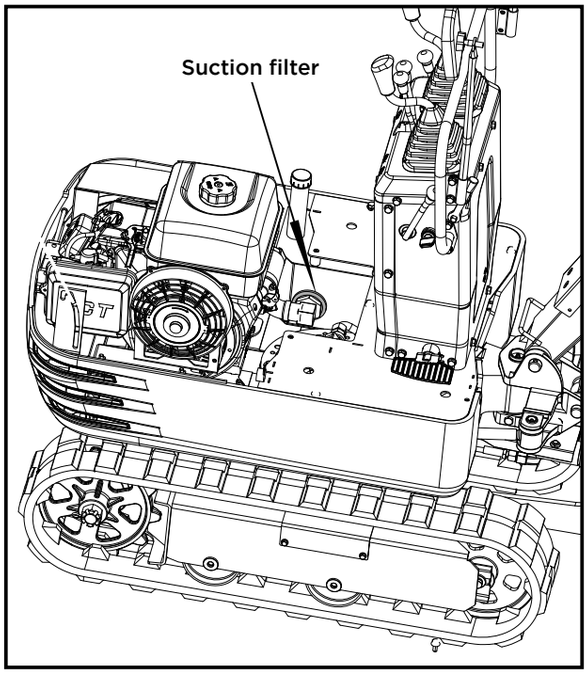
Checking Fuel Line

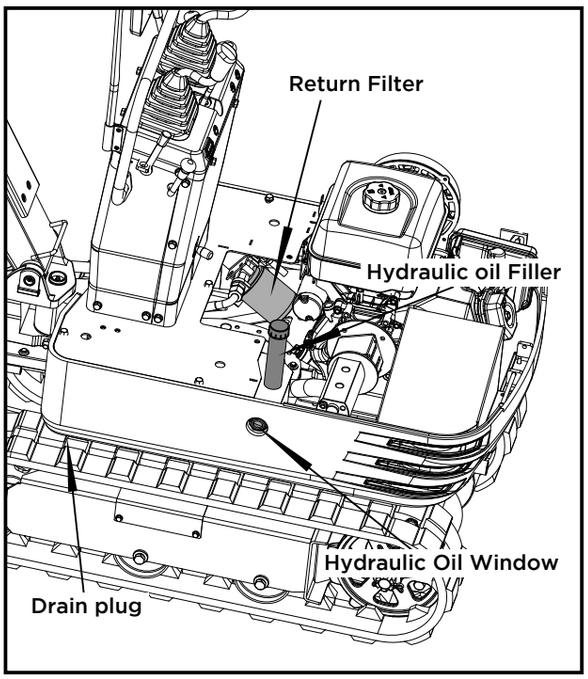
1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.

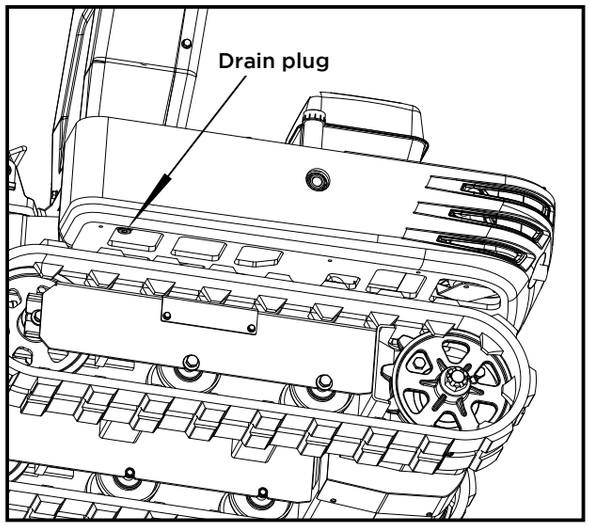
EVERY 1000 SERVICE HOURS

Do all 50, 100, 200 and 500 hour servicing at the same time.

Hydraulic Oil Change (Including Replacing of the Suction Filter and the Return Filter in the Hydraulic Tank)







Check the oil window position of hydraulic oil. If it is lower than 1/3 of the oil window position, add oil.

Hydraulic oil volumes	Hydraulic tank	approx. 2.8 gallons
	Whole oil volumes	approx. 3.7gallons

Hydraulic Oil Check

1. Changing and filling up of hydraulic oil

   (1) Use only the recommended oils mentioned in the operator's manual when changing or topping up oil.

   (2) When filling up oil, do not mix oils of different makes.

2. Changing the return filter and oil

   (1) The filter must be changed more often because of contamination resulting from the frequent assembly and disassembly of the hoses.

   (2) Use the correct replacement filter.

   (3) Oil change according to operating hours.

	Hydraulic oil Return Filter	Suction Filter
Normal excavator work	every 1000 Hrs.	1000 Hrs.

ANNUAL SERVICING

Electrical Wiring and Fuses

Check the terminals periodically for proper connections. Loose wiring or damaged cables can cause improper functioning of the electrical system. Short circuiting, electrical leaks and other expensive problems could arise. Check wiring and replace damaged components immediately. If a fuse blows out soon after having been replaced, contact your nearest dealer. Never use a fuse other than specified.

Replacing Spark Plug

Do replacement after 1 year or 500 hours of use.

BIENNIAL SERVICING

Replacing Fuel Hose

Replace the hoses and clamps.

(See "Checking Fuel Line" every 200 hours maintenance.)

OTHER ADJUSTMENTS AND REPLACEMENTS

ADJUSTMENT OF CRAWLERS

To loosen the crawlers, follow the following procedure:

> ***CAUTION*** ***Do not crawl under the excavator.***

1. Remove the side plate cover and loosen the nut M20 inside with a 30mm plum wrench.
2. Adjust the hexagonal bolt M20x120 and rotate it clockwise to tighten the track; The track becomes loose when it rotates counterclockwise.
3. After adjustment, fix the nut M20 with a plum spanner.

> ***NOTE*** ***Tighten torque must be between 98 to 108 Nm (10 to 11 kgf-m)***

4. Install the side plate cover.

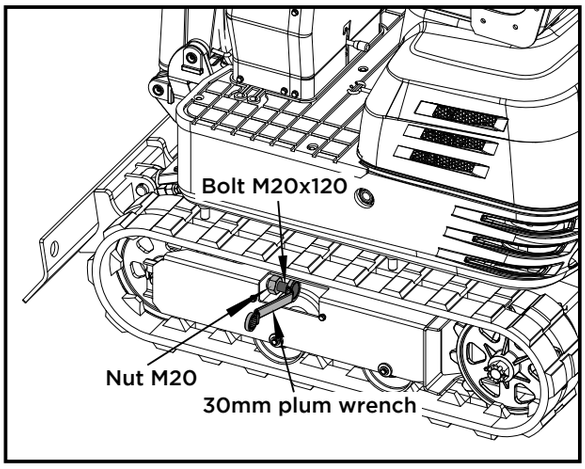
> ***IMPORTANT*** ***If the crawlers are too tight, wear is increased.***

> ***IMPORTANT*** ***If the crawlers are too loose, the crawler shoes may collide with the sprocket, and wear is increased.***
>
> ***The crawler may dislocate or come off.***

> ***IMPORTANT*** ***Clean the crawler after every use.***

> ***IMPORTANT*** ***Should the crawler tension be heightened due to mud sticking, lift the crawler with the help of the boom, arm and bucket, idle the engine and remove the mud from the crawler, especially from the openings of the link plate, carefully.***

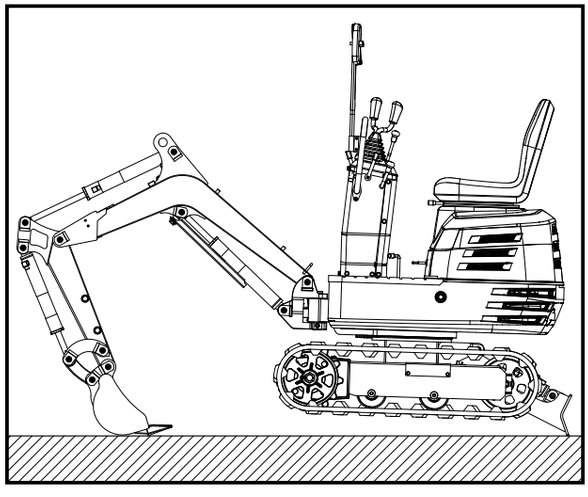
Tension the crawlers as specified:

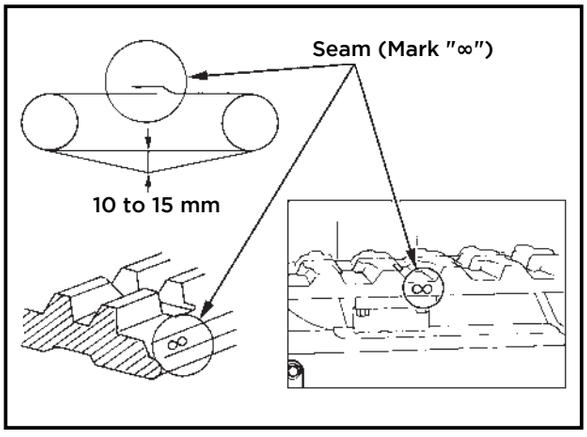


1. Tension the crawler in the lifted position, so that the distance (clearance between the track roller and the inside surface of the crawler) is 10 to 15 mm (see illustration), (In this case, the crawler seam is positioned on the top centre between the idler and the sprocket.

> ***DANGER*** ***Do not work under the machine in this condition.***

> ***DANGER*** ***For your safety do not rely on hydraulically supported devices, they may leak down suddenly drop or be accidentally lowered.***





⚠ IMPORTANT *Make sure that no obstacles, such as stones, are caught in the crawler. Remove such obstacles before adjusting the crawler tension.*

⚠ IMPORTANT *Crawler seam*

The ends of the rubber crawler are joined with a seam. When adjusting the crawlers, the seam must be positioned on the top centre between the idler and the sprocket.

If the seam is positioned incorrectly, the crawlers will be tensioned to loosely, and a further readjustment will be necessary.

⚠ IMPORTANT *Rotate the crawler after adjustment one to two times to check the tension.*

⚠ IMPORTANT *Additionally the following points are to be observed when adjusting rubber crawlers.*

(1) If the crawler slackens more than 0.98 in. (25 mm), readjust them.

(2) Check crawler tension 30 hours after initial use and readjust if necessary. Check and adjust thereafter every 50 service hours.

Special Information when Using Rubber Crawlers

1. When turning, preferably make a slow swing turn. Avoid spin turns to lessen lug wear and ingress of dirt.
2. If too much dirt and sand clog the crawlers. In this case move the machine for a short distance straight backwards to let the earth and sand fall off, then a turn can be made.
3. Avoid using rubber crawler on riverbeds, stony underground, ferro-concrete and iron plates. The rubber can be damaged as well as crawler wear increasing.

CHANGING THE BUCKET

⚠ CAUTION *When the coupling pins are removed or installed, chips may come off. Always use gloves, goggles and a helmet.*

⚠ CAUTION *When the change of the equipment must be performed with the engine running, always work as a 2-person team.*

One person sits in the operator's seat and the other works on the machine.

⚠ CAUTION *Do not use your fingers to center the holes, since they may be injured or even cut in case of sudden or uncontrolled movements.*

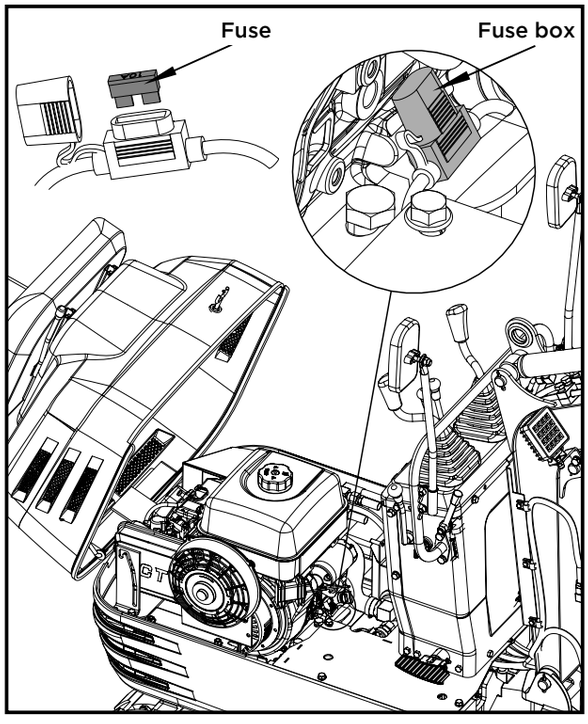
⚠ CAUTION *Read the manual of the attachment to do a correct operation safely when other attachments are installed.*

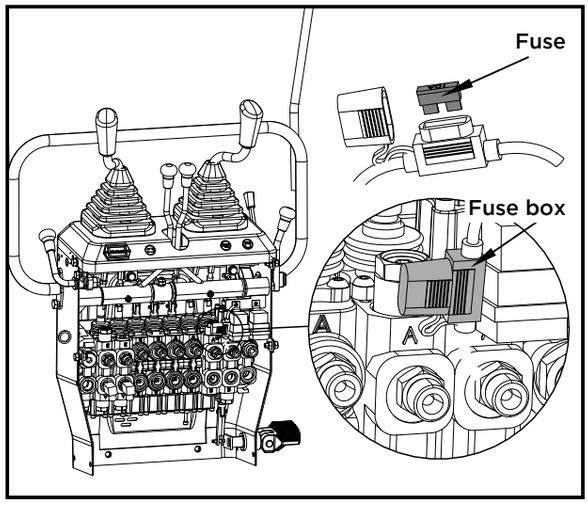
FUSES

Replacing Fuses

Slow blow fuse is provided to protect the electrical circuits. If the fusible link is blown, check the electrical circuits for problems and then replace with a new compatible slow blow fuse.

1. Remove the cover of the fuse box.
2. Replace the burn out fuse with the new fuse having the same capacity





Fuse Capacities and Circuits

No.	Capacity	Circuit
1.	10A	Working relay fuse
2.	10A	Working lamp, Horn, Hour meter fuse

TROUBLESHOOTING

If the excavator does not give the desired performance, or when problems arise, refer to the table below and take appropriate measures.

Trouble		Cause	Countermeasure
Engine	Starting difficulties	The fuel cock closed	Make sure that the fuel cock is in the "Open" position.
		Air or water in the fuel system	See the instruction in section " Remove the water or air from the fuel tank" to remove the water and air.
		Oil viscosity is too high so that the engine funs sluggishly in winter	Use the hydraulic oil for Winter use.
		Battery is almost dead; Starter motor doesn' t work	Do recoil start to recharge the battery
		The spark plug doesn't ignite.	Replace the spark plug
		Low Engine oil level	Add the engine oil
	Insufficient engine power	Low fuel level	Check fuel and add if necessary
		Clogged air cleaner	Clean the air filter element
	Engine suddenly stops	Low fuel level	Check fuel and add if necessary Purge the fuel system
	Abnormal exhaust gas colour	Poor fuel	Use high quality fuel
		Too much engine oil	Drain engine oil to prescribed oil level
		Choke lever closes the choke valve in the carburetor	Open the choke valve
Hydraulic system	Boom, arm, bucket, drive, swing and dozer power is too low	Hydraulic oil level too low	Add oil
		Leakages of hoses and / or joints	Replace hose or joint
	Non- function of swing motor	Swing lock pin is in lock position	Remove swing lock pin in unlock position
Drive system	Deviation of drive direction	Blocked through stones	Remove
		Crawler too loose or too tight	Adjust accordingly

OPERATION IN COLD WEATHER CONDITIONS

PREPARATION FOR OPERATION IN COLD WEATHER

1. Replace engine oil and hydraulic oil with those of viscosities suitable for cold weather.
2. In cold weather, battery power drops, and the battery fluid may freeze if the battery is not sufficiently charged. To prevent the battery fluid from freezing, be sure to keep the battery charged at least 75% or more of its capacity after operation. To ease next starting, it is recommended to keep the battery stored in closed or heated rooms.

PROCEDURE AFTER WORK CARRIED OUT

Clean the excavator thoroughly after work and wipe dry. Otherwise mud and earth on the crawlers could freeze if the temperature drops below the 0 C mark. Operation of the excavator is then not possible. Store the excavator in a dry place; if not possible, store on wooden planks or on mats. If the excavator is kept on damp or muddy ground, the crawlers could freeze overnight. Operation of the excavator is then not possible.

Additionally, the hydraulic cylinders piston rods must be rubbed dry. Otherwise severe damage could occur if dirty water seeps through the seals.

LONG STORAGE

⚠ CAUTION ***Do not clean the excavator with the engine running.***

⚠ CAUTION ***To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.***

⚠ CAUTION ***When storing, remove the key from the starter switch to avoid unauthorized persons from operating the excavator and getting injured.***

Should the Excavator be Stored for a Longer Period of Time, Observe Following Procedures:

1. The whole excavator should be cleaned thoroughly and in all cases stored indoors. If the excavator has to be kept outdoors, lay out wooden planks on even ground, place the excavator on the planks and cover completely.
2. Do an oil change and grease the excavator.
3. Heavily grease the visible sections of the piston rods.
4. Remove the battery and store indoors.

⚠ IMPORTANT ***Wash the excavator after stopping the engine.***

If you wash the excavator while running the engine, water may get into the air cleaner through the intakes causing engine problems.

Carefully, wash but do not splash water over the air cleaner.

Observe Following Procedures when the Machine is to be Operated after Long Storage.

1. Wipe off the grease from the hydraulic cylinder rods.
2. Turn on the engine and activate the attachments and the drive mechanisms without load in order to circulate the hydraulic oil . (If the machine is stored for longer than one month, undertake steps (1) and (2) once every month)

Periodic replacement of important component parts

To ensure safety in operation, you are strongly requested to inspect and service the machine at regular intervals. For added safety, ask your dealer to replace the following important component parts.

These parts are prone to degradation in material or subject to wear and tear with time. It is difficult to judge how much they have been affected at regular inspection. It is therefore necessary to replace them with new ones, whether wear is visible or not after a specified time of use.

If any of them is found worn even before the specified use, it must be repaired or replaced the same way as other parts.

If any of the hose clamps is found deformed or cracked, the hose clamp must also be replaced.

For the hydraulic hoses other than the ones to be replaced periodically, inspect them for the following points. If found unusual, tighten them up, replace them.

When replacing the hydraulic hoses, change their O rings and sealings with new ones.

For replacement of the important parts, contact your dealer.

At the following periodic inspections, check the fuel hoses and hydraulic hoses as well.

Inspection Interval	Check Points
Daily Checks	Oil leak at fuel and hydraulic hose connections and points
Every month	Oil leak at fuel and hydraulic hose connections and points Damages at fuel and hydraulic hose (cracks, chafing)
Every year	Oil leak at fuel and hydraulic hose connections and points Interference, deformation, degradation, twist and other damages (cracks, chafing) of fuel and hydraulic hoses

List of important component parts

No.	Component Parts	Used Place	Q'ty	Period
1	Hydraulic hose (suction)	Main pump	1	Every 2 years or 4000 hours
2	Hydraulic hose (delivery)	Main pump-Control valve	2	
3	Hydraulic hose (Boom cylinder)	Control valve-Boom cylinder	2	
4	Hydraulic hose (Arm cylinder)	Control valve-Arm cylinder	2	
5	Hydraulic hose (Bucket cylinder)	Control valve-Bucket cylinder	2	
6	Hydraulic hose (Swing cylinder)	Control valve-Swing cylinder	2	
7	Hydraulic hose (Dozer cylinder & Track cylinder)	Control valve-Rotary joint	4	
		Rotary joint-Dozer cylinder	4	
		Rotary joint-Tank cylinder	2	
8	Hydraulic hose	Control valve-Joint	1	
		Joint-Return pipe	1	
9	Hydraulic hose (Swivel motor)	Control valve-Swivel motor	2	

To prevent serious damage to the hydraulic system, to use only a hydraulic hose approved by dealer.

RECOMMENDED OILS

FUEL RECOMMENDATIONS

Use unleaded gasoline with a pump octane rating of 86 or higher. These engines operate best on unleaded gasoline.

Do NOT use stale or contaminated gasoline or an oil/gasoline mixture. Avoid getting dirt or water in the fuel tank. Use only proper fuel containers that are properly marked.

Maximum recommended ethanol content: 10%.

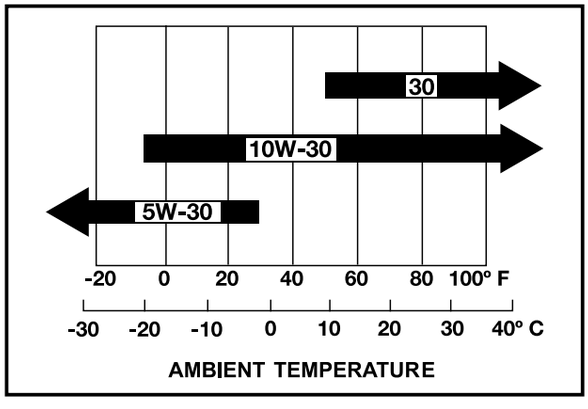
This is not compatible with E15.

ENGINE OIL RECOMMENDATIONS

Engine oil affects performance and service life. Use 4-stroke automotive detergent oil.

SAE 10W-30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area warrants.

The SAE oil viscosity and service classification are in the API label on the oil container. Use API SERVICE category SJ engine oil, or higher.



HYDRAULIC OIL RECOMMENDATIONS

IMPORTANT ***Before delivery, the hydraulic oil used was an ISO 32 viscosity grade.***

The recommended hydraulic oil type:

10W AW32

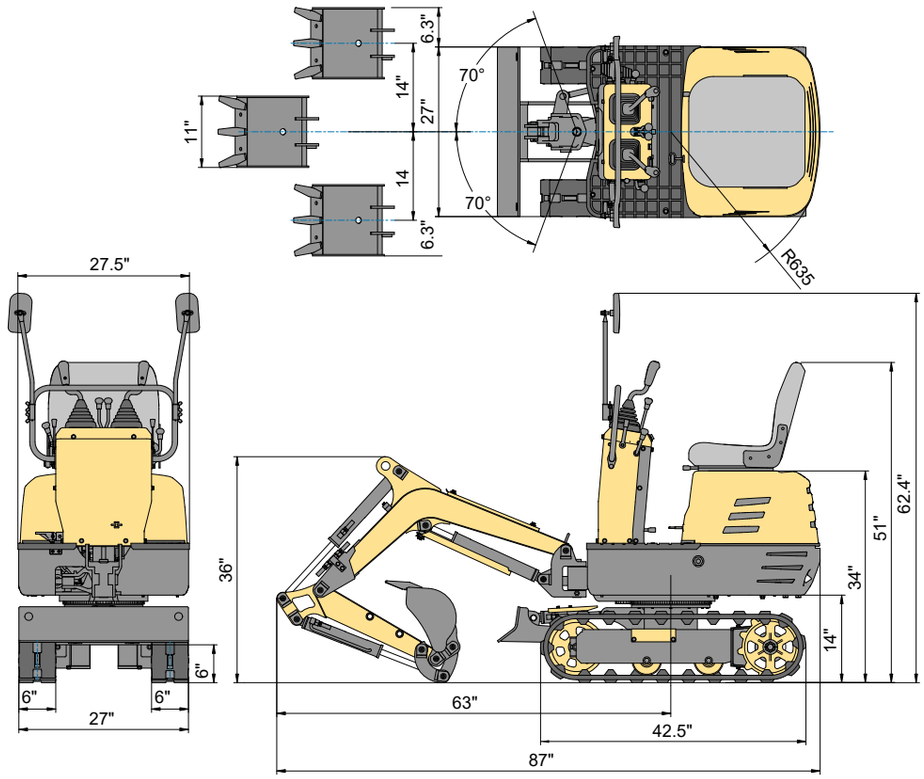
ASLE H-150

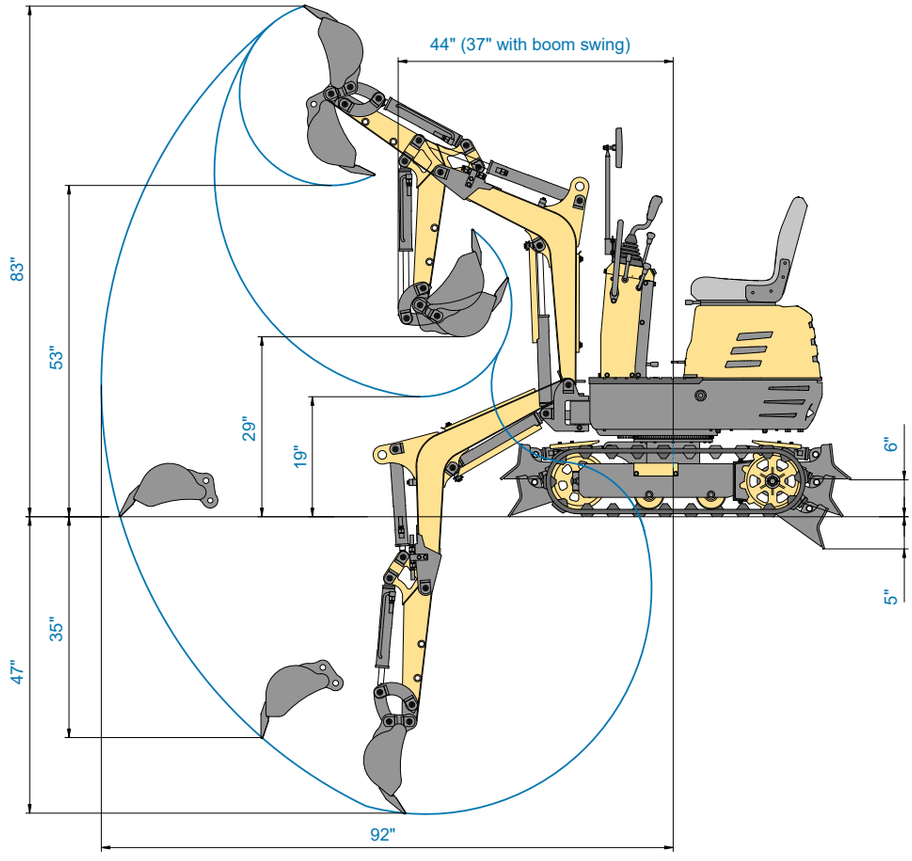
ISO 32

GREASE RECOMMENDATIONS

Application	Shell	Mobil	Exxon
Grease	Shell Alvania EP2	Mobilux EP2	BEACON Q2

MAIN DIMENSIONS





LIFTING CAPACITY

1. The lifting capacities are based on ISO 10567 and do not exceed 75% of the static tilt load of the machine or 87% of the hydraulic lifting capacity of the machine.
2. The strokes are as follows.

   (1) The load point corresponds to the front bolt part of the arm.

   (2) The machine positions are (i) over-front (Blade up), (ii) over-front (Blade down), and (iii) overside.

   (3) The operating cylinder is the boom cylinder.
3. The bucket of the excavator, the hook, the sling and other lifting accessories are taken into consideration for the loads.

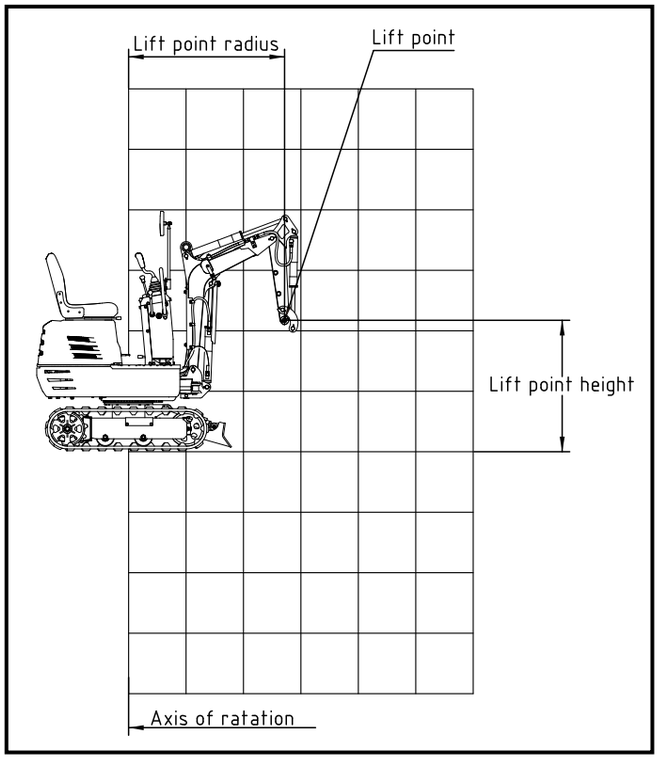
Machine conditions:

No bucket, all others according to standard regulations.

⚠ WARNING ***It is forbidden to lift loads greater than those values mentioned in the lifting capacity tables.***

⚠ WARNING ***A The values mentioned in the table are valid only on even, hard ground. When lifting on soft ground, the machine 'can tilt over due to the fact that the load is concentrated only on one side of the machine.***

The table values are calculated at the end of the arm without the bucket. In order to find the allowable loads for machines with bucket, the bucket weight must be subtracted from the values in the table.



LIFTING CAPACITY

MODEL	65076

(i) OVER FRONT (BLADE UP)

lbs

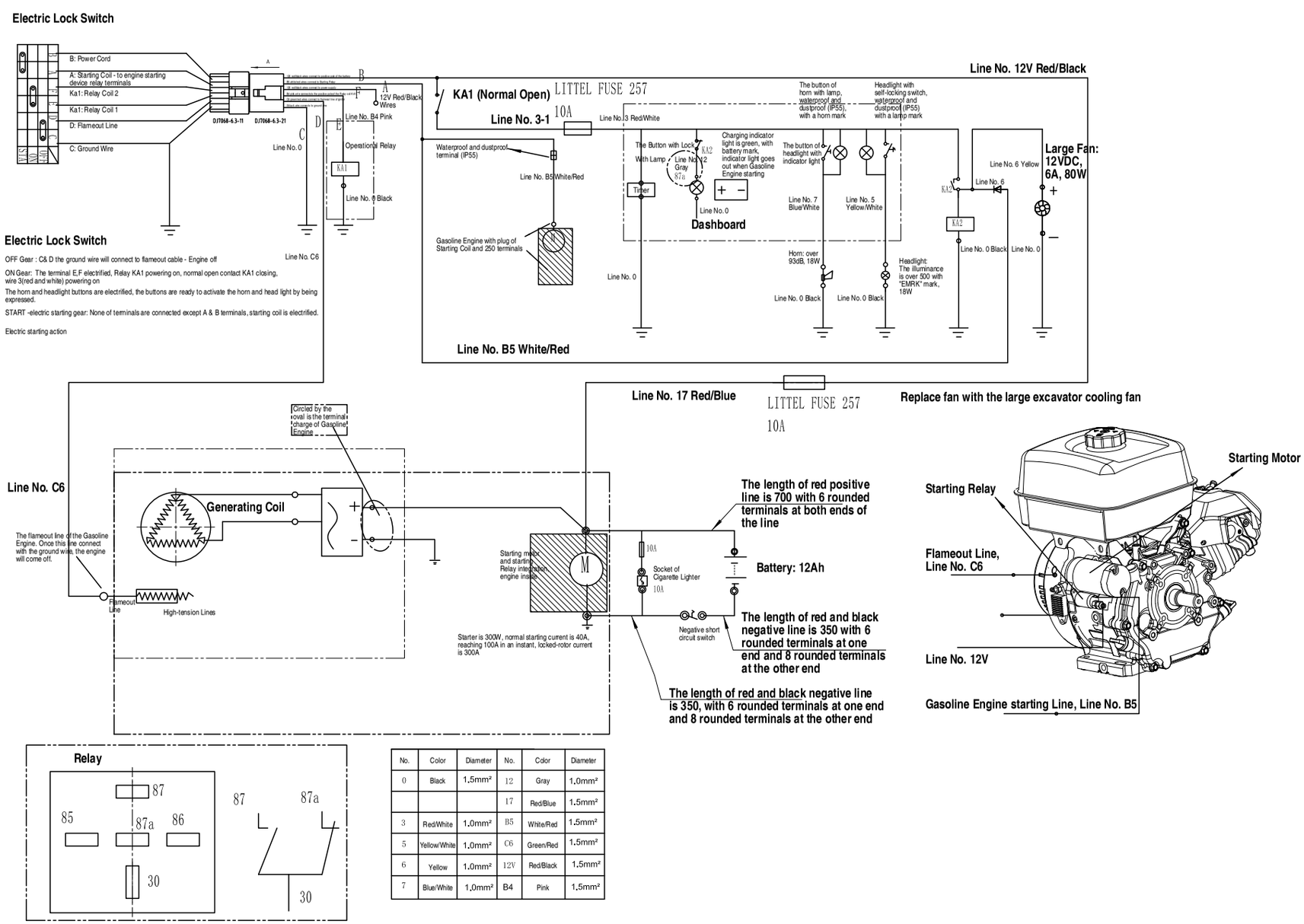
HEIGHT (in)	LOAD RADIUS (mm)						
	0	15	30	45	60	75	90
95							
79							
63					242		
1.57					242		
1.24				375	242	176	
16				375	242	176	
0				375	242		
16			705	375	242		
31.50				375			
47.24							

(ii) OVER FRONT (BLADE DOWN)

lbs

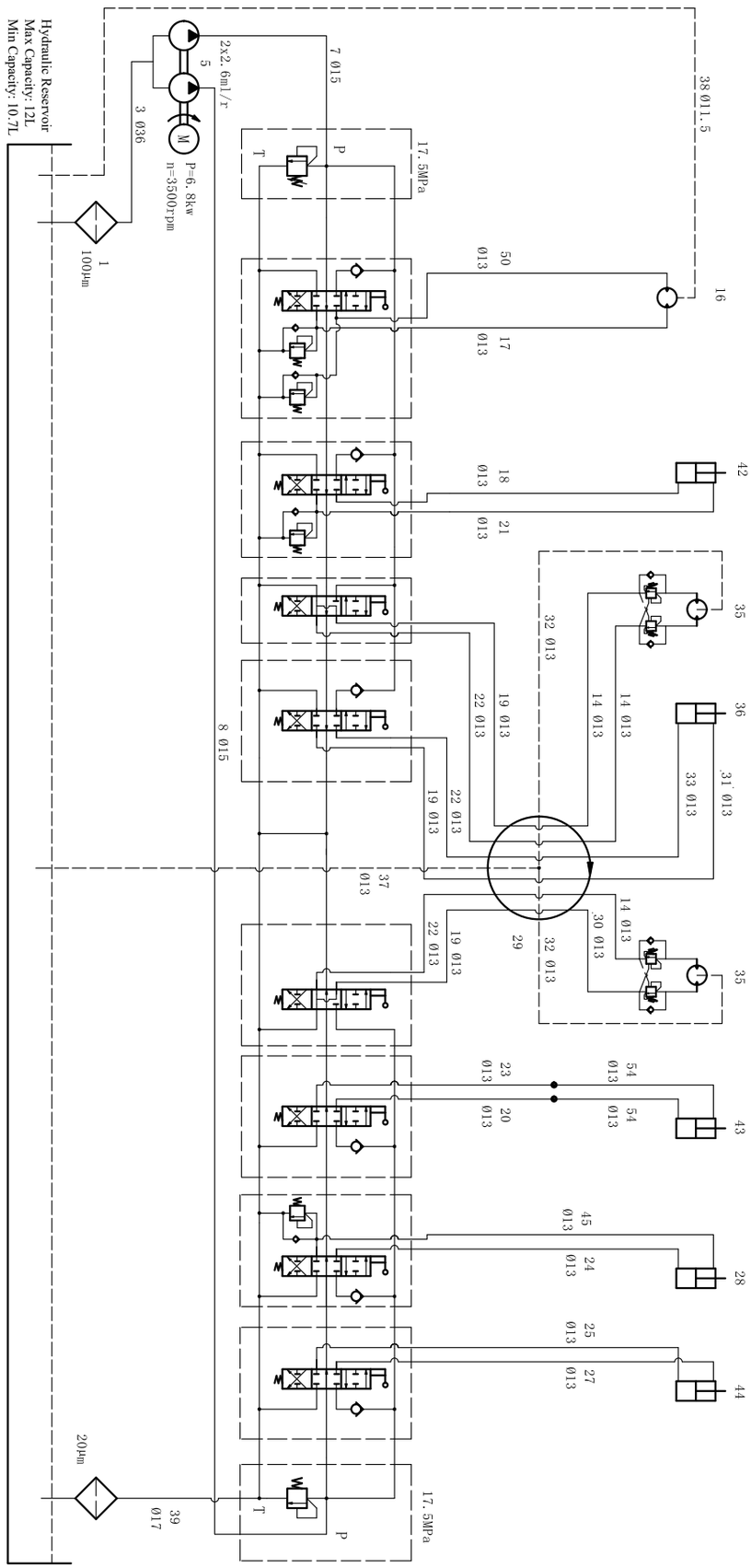
HEIGHT (mm)	LOAD RADIUS (in)						
	0	15	30	45	60	75	90
95							
79							
63					309		
1.57					309		
1.24				485	353	309	
16				661	419	331	
0				683	441		
16			705	595	375		
31.50				287			
47.24							

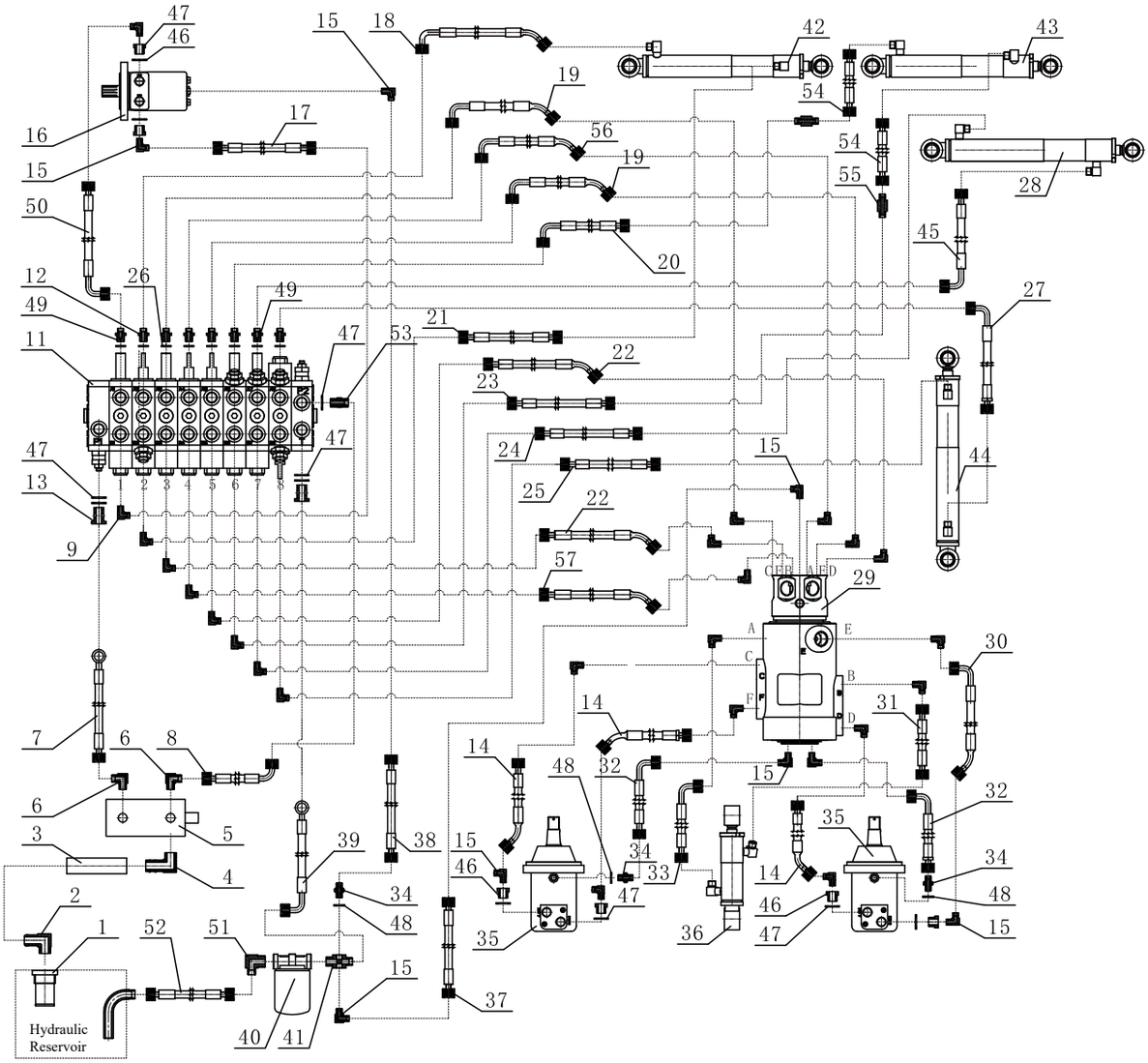
WIRING DIAGRAM



No.	Color	Diameter	No.	Color	Diameter
0	Black	1.5mm²	12	Gray	1.0mm²
			17	Red/Blue	1.5mm²
3	Red/White	1.0mm²	B5	White/Red	1.5mm²
5	Yellow/White	1.0mm²	C6	Green/Red	1.5mm²
6	Yellow	1.0mm²	12V	Red/Black	1.5mm²
7	Blue/White	1.0mm²	B4	Pink	1.5mm²

HYDRAULIC SYSTEM DIAGRAM



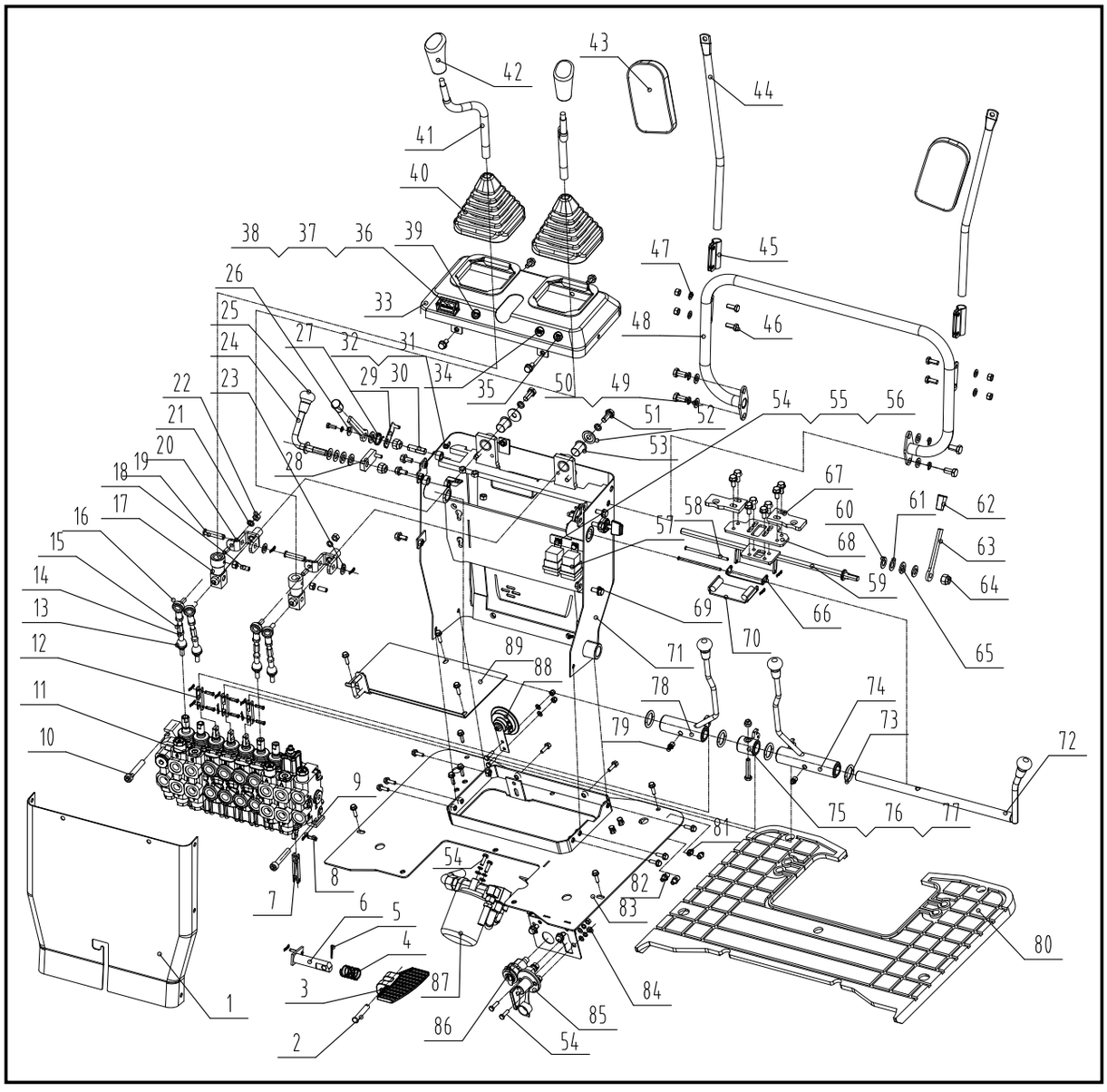

Hydraulic
Reservoir

Parts List

No.	Description	Q'ty
1	Oil Filter	1
2	Oil Suction Angle Connector	1
3	Oil Suction Pipe	1
4	Pump Inlet Angle Connector	1
5	Double Gear Pump	1
6	Angle Connector	2
7	Pump Front Outlet Hose	1
8	Pump Rear Outlet Hose	1
9	Transition Joint G3/8-M14x1.5	8
10	Angle Connector	2
11	Multi-way Valve Assembly	1
12	Straight Connector	6
13	G1/2 Hollow Bolt	2
14	Travel Motors Oil Hose	3
15	Angle Connector	20
16	Rotary Motor	1
17	Rotary Motor Oil Hose	1
18	Oil Hose 1 for Bucket Arm Cylinder	1
19	Valve-Swivel Joint Oil Hose (C,E)	2
20	Bucket Cylinder Oil Hose 1	1
21	Oil Hose 2 for Bucket Arm Cylinder	1
22	Valve-Swivel Joint Oil Hose (D,F)	2
23	Bucket Cylinder Oil Hose 2	1
24	Boom Cylinder Oil Hose 2	1
25	Side Swing Cylinder Oil Hose 2	1
26	Bonded Washer	8
27	Side Swing Cylinder Oil Hose 1	1
28	Boom Cylinder	1

No.	Description	Q'ty
29	Centre Swival Joint	1
30	Right Travel Motor Oil Hose	1
31	Dozer Cylinder Oil Hose 2	1
32	Travel Motor Oil Drain Hose	2
33	Dozer Cylinder Oil Hose 1	1
34	Straight Connector	3
35	Hydraulic Motor	2
36	Dozer Cylinder	1
37	Swival Joint Oil Drain Hose	1
38	Rotary Motor Oil Drain Hose	1
39	Oil Return Hose	1
40	Oil Return Filter	1
41	Four-way Joint	1
42	Bucket Arm Cylinder	1
43	Bucket Cylinder	1
44	Side Swing Cylinder	1
45	Boom Cylinder Oil Hose 1	1
46	G1/2-G1/4 Through-core connector	6
47	Bonded Washer	11
48	Bonded Washer	3
49	Straight Connector (with shutoff)	2
50	Rotary Motor Oil Hose	1
51	Angle Connector	1
52	Oil Return Hose	1
53	Straight Connector	1
54	Bucket Cylinder Oil Hose	2
55	Extended Nipple	2
56	Valve-Swivel Joint Oil Hose (A)	1
57	Valve-Swivel Joint Oil Hose (B)	1

PARTS DIAGRAM



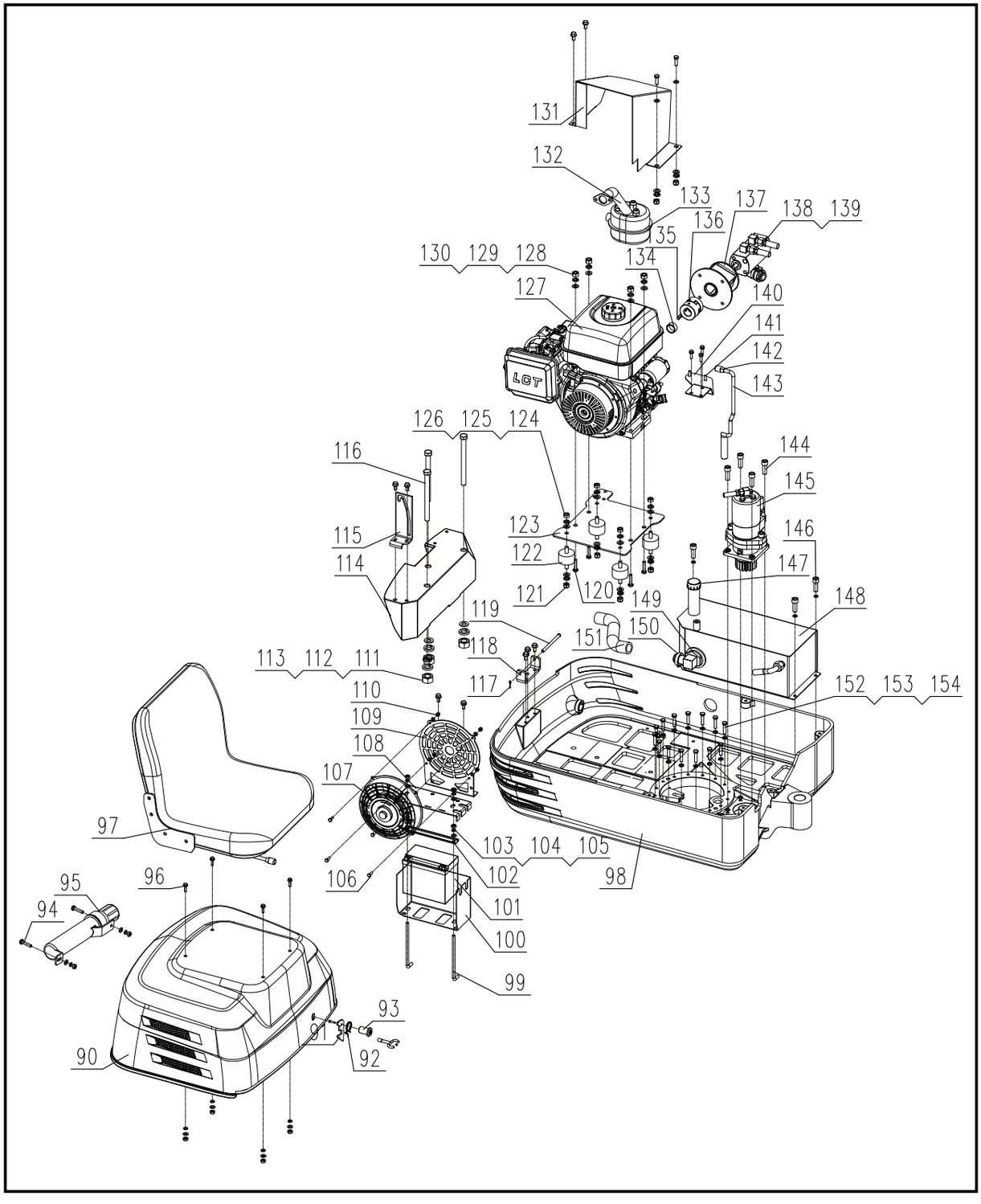
Parts List

No.	Description	Q'ty
1	Control Cabinet- Rear Plate	**1**
2	Pedal Pin Shaft D10x55	**1**
3	Boom Swing Pedal	**1**
4	Pedal Shaft Spring	**1**
5	Pedal Pin Shaft - Cotter Pin D2x16	**1**
6	Boom Swing Pedal-Shaft Weldment	**1**

No.	Description	Q'ty
7	Valve Bottom Connecting Rod	**1**
8	Connecting Rod- Shaft Pin D5x18	**7**
9	Connecting Rod- Cotter Pin D1.5x16	**11**
10	Screw M10x60	**2**
11	Multi-Way Valve Assembly	**1**
12	Connecting Rod	**3**

No.	Description	Q'ty
13	Straight Joint Bearing M8	2
14	Nut M8	4
15	Connecting Rod M8x80	4
16	Elbow Lever Knob Joint Bearing SQ8-RS JB/T5306	2
17	Operating Control Lever-Direction Block	2
18	Screw M8x25	4
19	Universal Support Pin Shaft 10x45	2
20	Operating Control Lever-Universal Joint Weldment	2
21	Spring Washer D8	12
22	Nut M8	8
23	Flat Washer D10	6
24	Cable Lever Weldment	1
25	Dozer Ball Knob	4
26	Big Washer D6	1
27	Choke Torsion Spring	1
28	Throttle Cable Plate Weldment	1
29	Choke Cable Plate Weldment	1
30	Choke Lever Shaft	1
31	Lock Nut M5	1
32	Bolt M5x10	1
33	Control Cabinet- Top Plate Wedment	1
34	Horn Button	1
35	Headlamp Button	1
36	Timer	1
37	Screw M4x14	2
38	Lock Nut M4	2
39	Power Indicator Light	1
40	Drive Lever Sleeve	2
41	Left/Right Drive Lever	2
42	Operating Ball Knob	2
43	Rearview Mirror	2
44	Rearview Mirror- Supporting Tube	2
45	Rearview Mirror- Frame	2
46	Bolt M8x25	6
47	Flat Washer D8	4
48	Handle Weldment	1
49	Flat Washer D10	4
50	Spring Washer D10	6
51	Bolt M10-20	6

No.	Description	Q'ty
52	Large Washer A4	2
53	Copper Sleeve	2
54	Bolt M6x16	9
55	Spring Washer D6	9
56	Flat Washer D6	9
57	Electric Relay	2
58	Pin D5x100	2
59	Lever Lock Rotating Shaft Weldment	1
60	Anti-Slip Wear Washer	4
61	Washer D12	4
62	Locking Handle	2
63	Locking Lever	2
64	Lock Nut M12	3
65	Wave Spring Washer D12	2
66	Lock Plugboard-MiddleConnecting Plate	1
67	Left/Right Lock Plugboard	2
68	Locking Plate for Operating Lever	1
69	Flange Bolt M8x16	37
70	Lock Plugboard Weldment	1
71	Operation Dashboard- Front Guard Plate	1
72	Rotating Shaft Weldment	1
73	O-Ring 34x4	4
74	Right Handle Weldment	1
75	Dozer Shaft Sleeve Weldment	1
76	Bolt M8x45	1
77	Lock Nut M8	1
78	Left Handle Weldment	1
79	Grease Cup M6X1	2
80	Rubber Pads	1
81	Grease Cup M10	2
82	PD610 Straight Fitting	2
83	Control Cabinet- End Plate Wedment	1
84	Nut M6	2
85	Battery Negative Switch	1
86	Cigarette Lighter Socket	1
87	Oil Filter	1
88	Horn (DC12V 105dB high)	1
89	Engine Cover Plate Weldment	1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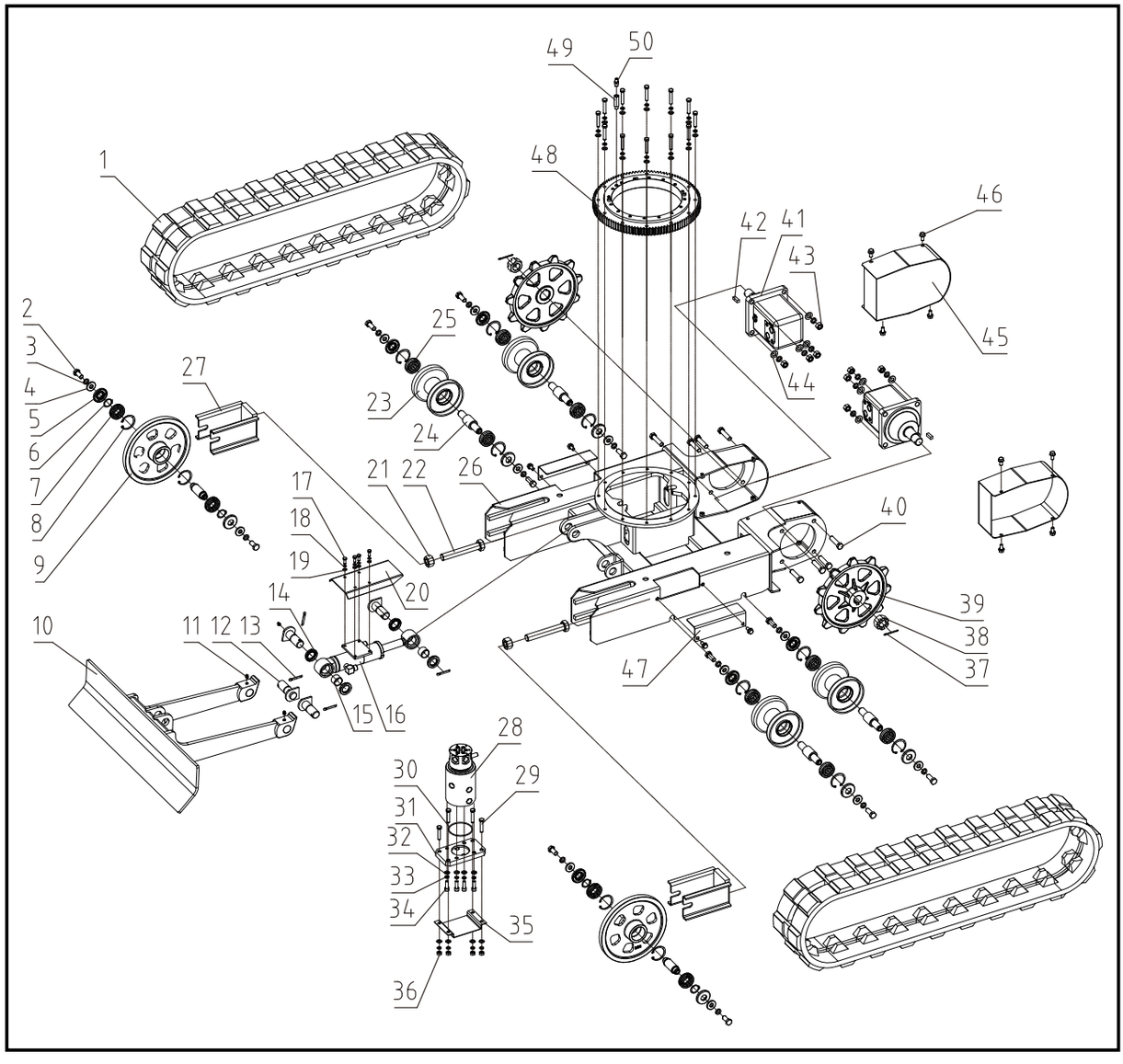
No.	Description	Q'ty
90	Engine Cover Weldment	1
91	Lock Hook	1
92	Torsion Spring	1
93	40mm Triangle-Lock Core With Key	1
94	Bolt M8x25	2
95	Manual Storage Cylinder	1
96	Bolt M8x16	16
97	Excavator integrated seat (with slide)	1
98	Swing Unit Platform	1
99	Battery Lock Hook	2
100	Battery Mounting plate	1
101	Battery	1
102	Battery Fixing Plate	1
103	Spring Washer 8	31
104	Flat Washer 8	33
105	Nut M8	15
106	Screw M6x14	4
107	Fan	1
108	Battery Cover Wedment	1
109	Cooling Fan Mounting Frame	1
110	Lock Nut M6	4
111	Nut M14	3
112	Flat Washer 14	3
113	Spring Washer 14	3
114	Counter Weight	1
115	Motor Cover Turnover Support	1
116	Bolt M14x170	3
117	Cotter Pin 2x16	1
118	Motor Cover Mounting Base	1
119	Pin 8x110	1
120	Bolt M12x35	4
121	All Metal Lock Nut M10	4

No.	Description	Q'ty
122	Shock Absorber	4
123	Engine Mounting Plate Wedment	1
124	Nut M10	4
125	Flat Washer 10	8
126	Spring Washer 10	12
127	Engine	1
128	Nut M12	4
129	Spring Washer 12	4
130	Spring Washer 12	4
131	Engine Guard Plate	1
132	Connecting Hose Wedment For Muffler	1
133	Muffler - Inside Tank	1
134	Coupler Sleeve	1
135	Key 7x7x23	1
136	Coupler KSP24	1
137	Gear Pump Frame	1
138	Gear Pump	1
139	Bolt M8x150	2
140	Muffler Frame	1
141	Bolt M6x16	2
142	Locking Pin Handlebar sleeve	1
143	Locking Pin Weldment	1
144	Screw M10x35	4
145	Rotary Motor Assy	1
146	Screw M8x25	3
147	Hydraulic Oil Tank Cover	3
148	Hydraulic Oil Tank Wedment	1
149	Oil suction filter	1
150	Hose Clamp	2
151	Suction Hose	1
152	Bolt M8x45	16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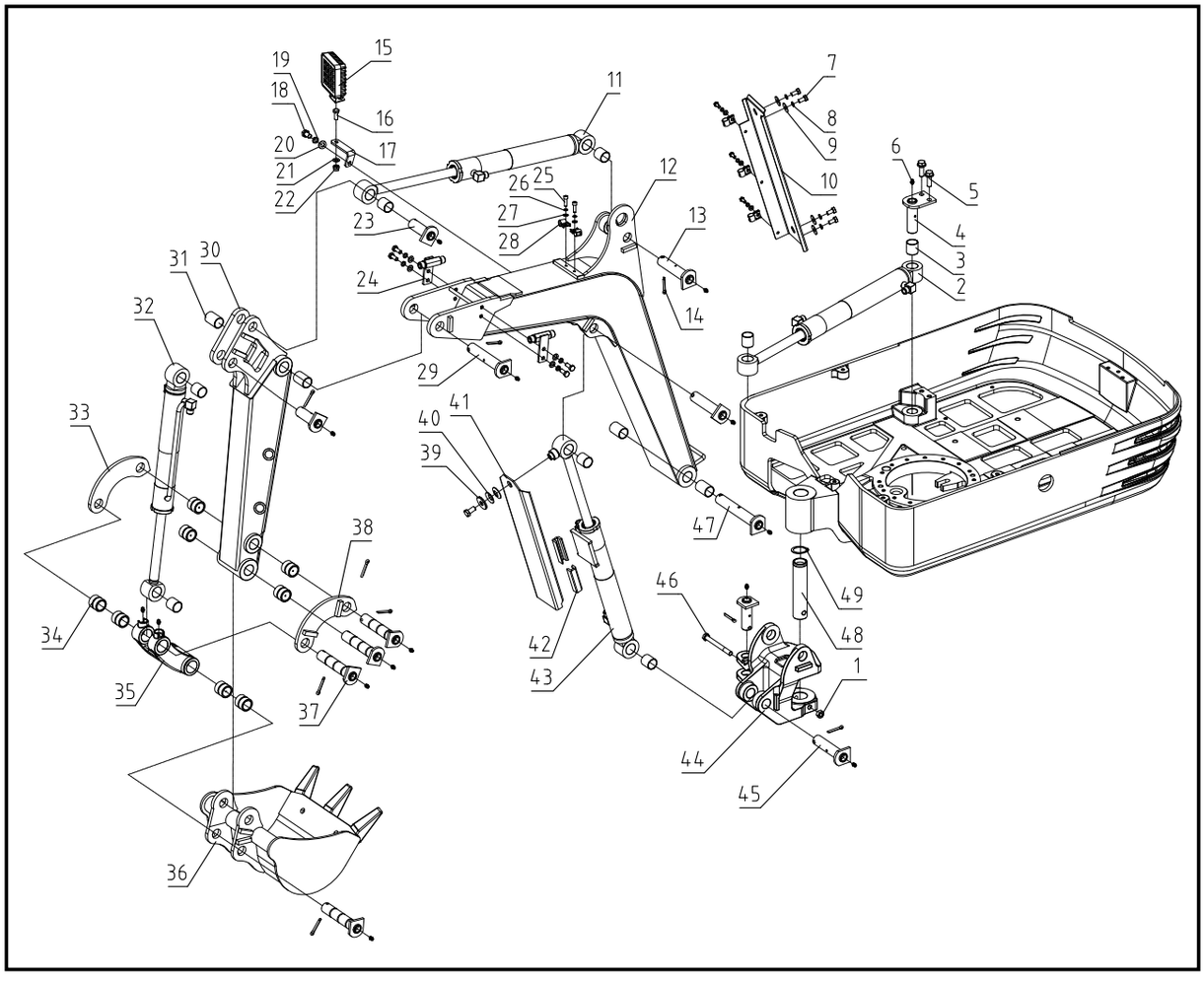
No.	Description	Q'ty
1	Rubber Track 150x72x32	**2**
2	Bolt M12x30	**12**
3	Spring Washer 12	**28**
4	Washer	**12**
5	Seal B20x47x7	**12**
6	Circlip A25	**4**
7	Bearing 6005-2Rs	**4**
8	Circlip A47	**12**
9	Front Idler	**2**
10	Dozer	**1**
11	Oil Cup M6x1	**2**
12	Dozer Pin Shaft Weldment	**4**
13	Cotter Pin 5x35	**4**
14	Seal B25x40x7	**4**
15	RCB-20 Boundary Lubricating Bearing	**2**
16	Dozer Cylinder	**1**
17	Bolt M6x16	**17**
18	Spring Washer 6	**26**
19	Flat Washer 6	**20**
20	Dozer Cylinder Guard Plate	**1**
21	Nut M20	**2**
22	Hex Bolt M20x130	**2**
23	Supporting Roller	**4**
24	Supporting Roller Axle	**4**
25	Bearing 6204-2Rs	**8**

No.	Description	Q'ty
26	Base Weldment	**1**
27	Front Idler Fixing Frame	**2**
28	Central Swivel	**1**
29	Bolt M8x45	**32**
30	O-Ring D72x3.1	**1**
31	Central Swivel Mounting Plate	**1**
32	Flat Washer 8	**58**
33	Spring Washer 8	**58**
34	Screw M8x25	**11**
35	Central Swivel Guard Plate	**1**
36	Nut M8	**28**
37	Cotter Pin 4x45	**2**
38	Axle Nut 1-20UNEF	**2**
39	Drive Sprocket	**2**
40	Bolt M12x45	**8**
41	Hydraulic Motor	**2**
42	Arch Key ϕ25.4x7	**2**
43	Hexagon Lock Nut M12	**8**
44	Flat Washer 12	**23**
45	Motor Cover Weldment	**2**
46	Flange Bolt M8x16	**69**
47	Track-tension Adjusting Hole Cover	**2**
48	Central Swing Circular Support	**1**
49	Central Swing Circular Support-Lubricating Joint	**1**
50	Straight Fitting PD610(With Neck Bush)	**4**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No.	Description	Q'ty
1	Lock Nut M10	**1**
2	Boom Swing Cylinder	**1**
3	RCB-20 Boundary Lubricating Bearing 28x25x35	**8**
4	Boom Swing Cylinder-Rear Pin Weldment	**1**
5	Flange Bolt M8x16	**2**
6	Oil Cup M6	**16**
7	Blot 8x16	**4**
8	Spring Washer 8	**8**
9	Flat Washer 8	**4**
10	Boom Upper-hose Cover-Plate Weldment	**1**
11	Arm Cylinder	**1**
12	Boom Weldment	**1**
13	Boom Pin Shaft Weldment	**2**
14	Cotter Pin 5x35	**12**
15	Work Light	**1**
16	Bolt M8x20	**7**
17	Light Mounting Plate	**1**
18	Bolt M10x20	**2**
19	Spring Washer 10	**1**
20	Flat Washer 10	**1**
21	Flat Washer 8	**5**
22	Lock Nut M8	**1**
23	Arm Cylinder Pin Shaft Weldment	**3**
24	Transition Fitting	**2**
25	Bolt M6x20	**5**

No.	Description	Q'ty
26	Spring Washer 6	**5**
27	Flat Washer 6	**5**
28	Connecting Pipe Clamp R-type	**5**
29	Arm Cylinder Pin Shaft Weldment	**1**
30	Arm Weldment	**1**
31	RCB-20 Boundary Lubricating Bearing 28x25x40	**4**
32	Bucket Cylinder	**1**
33	Arm Rocker-Right	**1**
34	Bucket Shaft Sleeve	**8**
35	Connecting Rod	**1**
36	Shovel Weldment	**1**
37	Shovel Pin Weldment	**4**
38	Arm Rocker-Left	**1**
39	Flat Washer 10	**1**
40	Wing Spring	**2**
41	Boom Cylinder-Guide Plate	**1**
42	Guide Plastic Block	**2**
43	Boom Up&Down Cylinder	**1**
44	Boom Swing Frame	**1**
45	Boom Swing Frame- Pin Shaft Weldment II	**1**
46	Bolt M10x100	**1**
47	Boom Swing Frame- Pin Shaft Weldment I	**1**
48	Boom Swing Frame Pin Shaft 35x155	**1**
49	Circlip A35	**1**

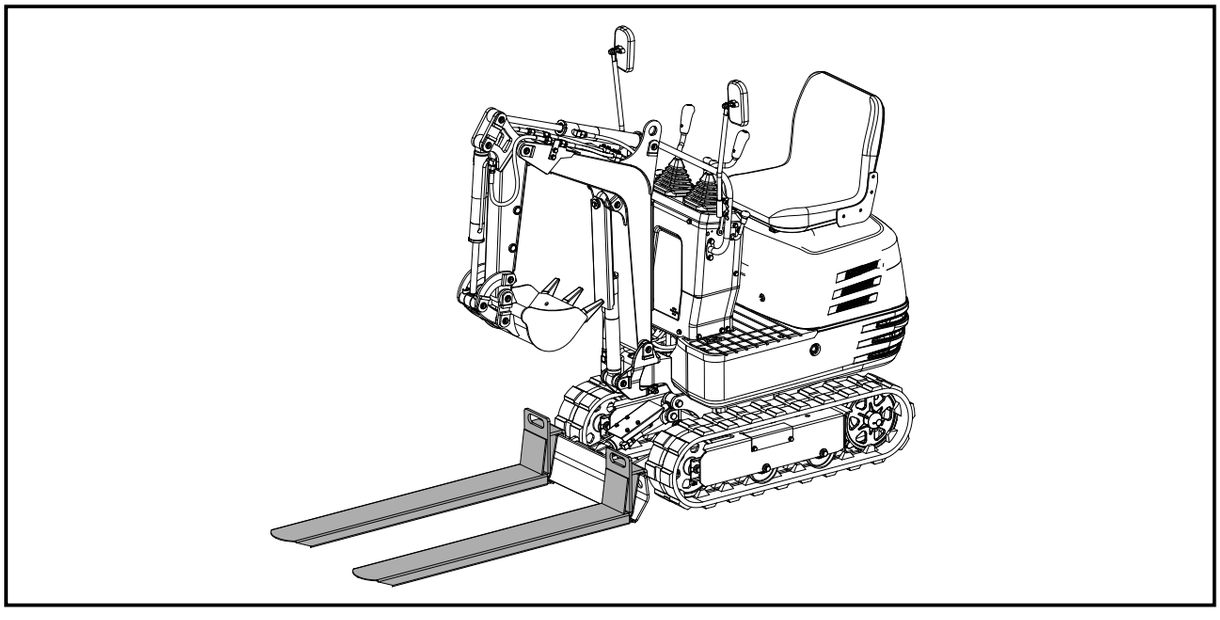
ATTACHMENTS (SOLD SEPARATELY)

The simple construction of these attachments allows one person to install them on excavators for quick job changeovers.

With the help of attachments, your excavator can become many additional tools for a wider variety of jobs, which makes the machine more efficient.

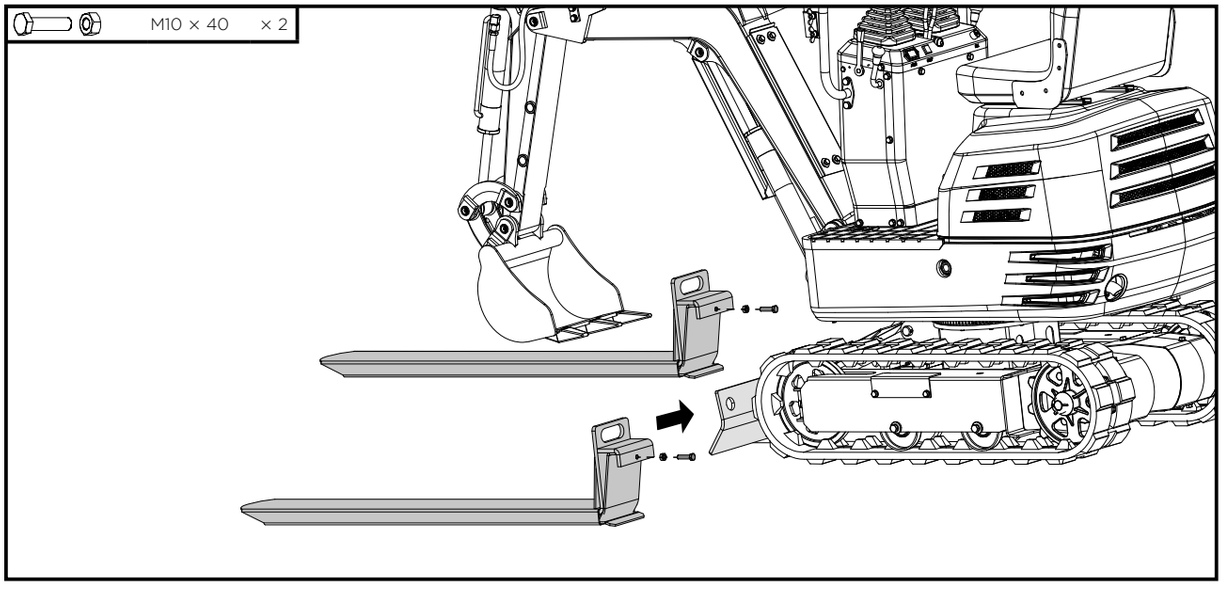
PALLET FORKS (SOLD SEPARATELY)

The pallet forks are connected to the dozer blade, which can transport, load and unload various materials with pallets.



Pallet Forks Installation

Stop the machine and lower the bucket to the ground. Slightly loosen the bolts M10x40 and nuts attached to the pallet forks. Lift the dozer blade a little and hook the two pallet forks to it. Tighten the bolts to secure the connection.



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