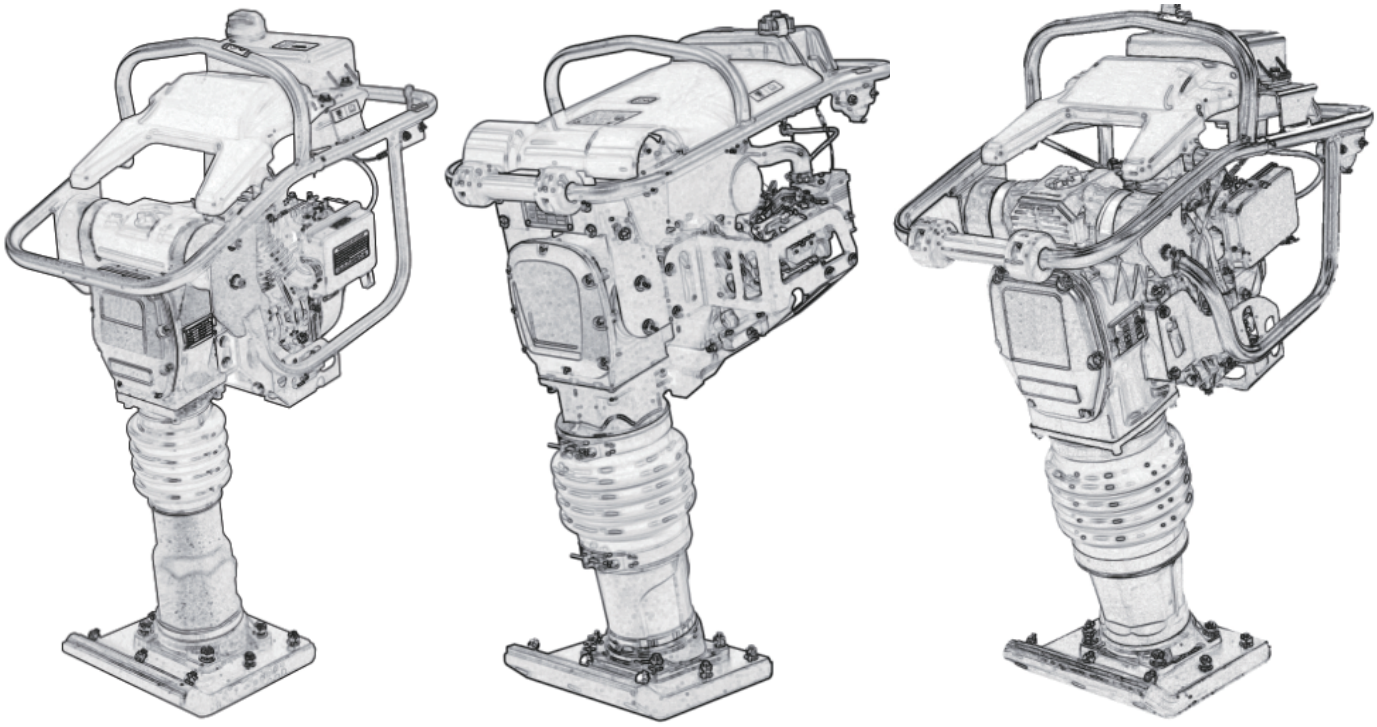
TAMPING RAMMER

Model: TR60H TR90L TR75H

1 YEAR WARRANTY



Operator's Manual

MechMaxx

www.mechmaxx.com

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FOREWORD

This manual provides important information and procedures for the safe operation, inspection, and maintenance of this machine. For your safety and protection from injury, read this manual carefully and ensure that all safety instructions and operating procedures are fully understood before operating the equipment.

This manual, or a copy of it, should be kept with the machine at all times. If this manual becomes lost or damaged, or if an additional copy is required, contact MechMaxx or an authorized service representative.

This machine has been designed with operator safety in mind. However, improper operation, maintenance, or servicing may result in personal injury, equipment damage, or reduced machine performance. Always follow the operating and maintenance instructions provided in this manual.

If any questions arise regarding the operation, maintenance, or servicing of this equipment, contact MechMaxx for assistance.

The information contained in this manual is based on machines in production at the time of publication. MechMaxx reserves the right to modify the machine design, specifications, or this manual at any time without prior notice.

SAFETY INFORMATION

This manual contains DANGER, WARNING, CAUTION, and NOTE callouts which must be followed to reduce the possibility of personal injury, damage to the equipment, or improper service.

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.

CAUTION: Used without the safety alert symbol, CAUTION indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTE: Contains additional information important to a procedure.

OPERATING SAFETY

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

1. **NEVER** operate this machine in applications for which it is not intended.
2. **NEVER** allow anyone to operate this equipment without proper training. People operating this equipment must be familiar with the risks and hazards associated with it.
3. **NEVER** touch the engine or muffler while the engine is on or immediately after it has been turned off. These areas get hot and may cause burns.
4. **NEVER** use accessories or attachments that are not recommended by us. Damage to equipment and injury to the user may result.
5. **NEVER** leave machine running unattended.
6. **NEVER** tamper with or disable the function of operating controls.
7. **NEVER** use choke to stop engine.
8. **NEVER** operate the machine in areas where explosions may occur.

9. **ALWAYS** read, understand, and follow procedures in the Operator's Manual before attempting to operate the equipment.
10. **ALWAYS** be sure that all other persons are at a safe distance from the machine. Stop the machine if people step into the working area of the machine.
11. **ALWAYS** be sure operator is familiar with proper safety precautions and operation techniques before using machine.
12. **ALWAYS** wear protective clothing appropriate to the job site when operating equipment.
13. **ALWAYS** wear hearing protection when operating equipment.
14. **ALWAYS** keep hands, feet, and loose clothing away from moving parts of the machine.
15. **ALWAYS** use common sense and caution when operating the machine.
16. **ALWAYS** be sure the rammer will not tip over, roll, slide, or fall when not being operated.
17. **ALWAYS** turn the engine OFF when the rammer is not being operated.
18. **ALWAYS** guide the rammer in such a way that the operator is not squeezed between the rammer and solid objects. Special care is required when working on uneven ground or when compacting coarse material. Make sure to stand firmly when operating the machine under such conditions.
19. **ALWAYS** Operate the rammer in such a way that there is no danger of it turning over or falling in, when working near the edges of breaks, pits, Slopes. trenches and platforms.
20. **ALWAYS** store the equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.
21. **ALWAYS** close fuel valve on engines equipped with one when machine is not being operated.
22. **ALWAYS** operate machine with all safety devices and guards in place and in working order. DO NOT modify or defeat safety devices. DO NOT operate machine if any safety devices or guards are missing or inoperative.

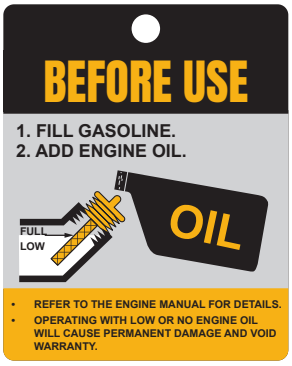
SERVICE SAFETY

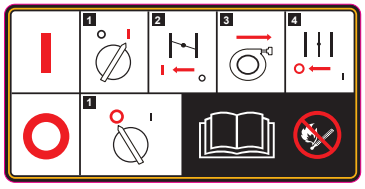
Poorly maintained equipment can become a safety hazard! In order for the equipment to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

1. **DO NOT** attempt to clean or service the machine while it is running. Rotating parts can cause severe injury.
2. **DO NOT** operate the machine without an air cleaner.
3. **DO NOT** remove air cleaner cover, paper element, or precleaner while engine is running.
4. **DO NOT** alter engine speeds. Run the engine only at speeds specified in the Technical Data Section.
5. **DO NOT** crank a flooded engine with the spark plug removed on gasoline- powered engines. Fuel trapped in the cylinder will squirt out the spark plug opening.
6. **DO NOT** test for spark on gasoline-powered engines if the engine is flooded or the smell of gasoline is present. A stray spark could ignite the fumes.
7. **DO NOT** use gasoline or other types of fuels or flammable solvents to clean parts, especially in enclosed areas. Fumes from fuels and solvents can become explosive.
8. **ALWAYS** replace the safety devices and guards after repairs and maintenance.
9. **ALWAYS** keep the area around the muffler free of debris such as leaves, paper cartons, etc. A hot muffler could ignite the debris and start a fire.
10. **ALWAYS** do Periodic Maintenance as recommended in the Operator's Manual.
11. **ALWAYS** clean debris from engine cooling fins.
12. **ALWAYS** replace worn or damaged components with spare parts designed and recommended by MechMaxx.

13. **ALWAYS** disconnect the spark plug on machines equipped with gasoline engines, before servicing, to avoid accidental start-up.
14. **ALWAYS** keep the machine clean and labels legible. Replace all missing and hard-to-read labels. Labels provide important operating instructions and warn of dangers and hazards.

LABEL LOCATIONS

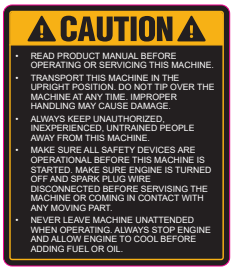
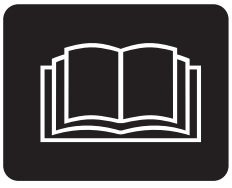




SAFETY LABELS

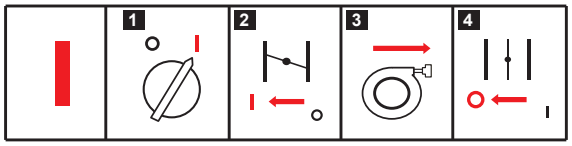
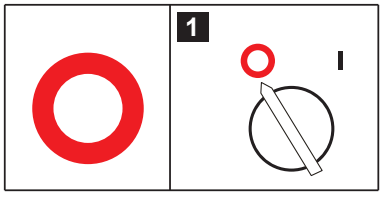
The machines use international pictorial labels where needed. These labels are described below:
NOTE: These molded-in label contains important safety and operating information. If the label becomes illegible, replace it immediately. Contact MechMaxx or an authorized service dealer for replacement labels.

Label	Meaning
	**DANGER!** Wear appropriate PPE including gloves, eye protection, hearing protection, and safety footwear. Do not touch the engine or muffler during or immediately after operation—hot surfaces may cause burns. Keep hands and feet away from moving parts. Operate only in well-ventilated areas to avoid carbon monoxide exposure.
	**WARNING!** Before use, fill the fuel tank with gasoline and add engine oil to the proper level. Operating the engine with low or no oil will cause permanent engine damage and may void the warranty. Refer to the engine manual for detailed instructions.

Label	Meaning
	**CAUTION!** Read the operator's manual before operating the machine. Transport only in the upright position. Keep unauthorized persons away from the equipment. Ensure all safety devices are in place before starting the engine. Stop the engine and allow it to cool before servicing or refueling. Never leave the machine running unattended.
	**WARNING!** Compressed spring is under tension. Sudden release may cause severe injury. Use proper tools and PPE. Disassemble slowly and in a controlled manner. Keep body parts clear of the spring path.
	**CAUTION / WARNING!** For optimal control, performance, and minimal hand/arm vibration, grasp the handle as shown. Maintain stable footing and keep control of the machine. Use caution when working on uneven ground or near edges to prevent slips, falls, or machine rollover.
	**CAUTION!** Read the operator's manual for machine information.
	**DANGER!** Keep sparks, flames, and hot materials away from the machine.
	**CAUTION!** Lifting point.

OPERATING LABELS

The machines use international pictorial labels where needed. These labels are described below:

Label	Meaning
	START THE ENGINE 1. Turn the engine switch to the ON position 2. Close the choke 3. Pull the recoil starter 4. Open the choke.
	Stop the engine: Turn the engine switch to OFF position.
	Throttle control lever: Turtle = Idle or Slow Rabbit = Full or Fast

TECHNICAL DATA

RAMMER

Model	TR60H	TR75H	TR90L
Engine	Honda GX100	Honda GXR120	Loncin 168F-2H
Engine Type	Single-Cylinder, 4-Stroke, Air-Cooled, OHC Gasoline Engine		Single-Cylinder, 4-Stroke, Air-Cooled, OHV Gasoline Engine
Engine Displacement	98 cc	121 cc	196 cc
Horsepower	2.8 HP (2.1kW) @ 3600 RPM	3.6 HP (2.7kW) @ 3600 RPM	6.5 HP (4.8kW) @ 3600 RPM
Start System	Recoil		
Fuel Tank Capacity	2.64 US qt (2.5L)		
Engine Oil Capacity	0.42 US qt (0.4L)	0.29 US qt (0.28L)	0.63 US qt (0.6L)
Impact Force	2250 lbf (10kN)	3150 lbf (14kN)	2700 lbf (12kN)
Jumping Stroke	1.2 - 2.8 in	1.6 - 3.2 in	1.6 - 3 in
Blows Per Min.	Up to 680		
Plate Size	13.6 x 10.4 in	13.6 x 11.2 in	13.4 x 11 in
Ramming System Lubrication	0.6L SAE 10W-30	0.9L SAE 10W-30	0.9L SAE 10W-30
Overall Dimension (LxWxH)	28 x 14 x 41 in	29 x 15 x 39 in	30 x 17 x 43 in
Weight	137 lbs	168 lbs	159 lbs

SOUND SPECIFICATION (ACCORDING TO 2000/14/EC)

Measured sound power level

105 DB(A)

Guaranteed sound power level

106 DB(A)

Sound power level limit

108 DB(A)

Sound levels may vary depending on operating conditions and environmental factors. Hearing protection is recommended during operation.

VIBRATION MEASUREMENTS

Hand-Arm vibration Specification (According to ISO 5394, EN 1033 and EN500-4): 6.8m/s²

Actual vibration levels during operation may vary depending on soil conditions, machine maintenance, and operator technique.

OPERATION

APPLICATION

Rammers are designed to compact loose soils and gravel to prevent settling and to provide a firm, solid base for the placement of footings, concrete slabs, foundations, and other structures.

RECOMMENDED FUEL

This engine is certified to operate on unleaded gasoline. Use only fresh, clean gasoline. Gasoline containing water or dirt will damage fuel system.

BEFORE STARTING

1. Read safety instructions at the beginning of this manual.
2. Make sure that the gas tank is full.
3. Check engine oil level.
4. Place rammer on loose soil or gravel. **DO NOT** start rammer on hard surfaces such as asphalt or concrete.

TO START

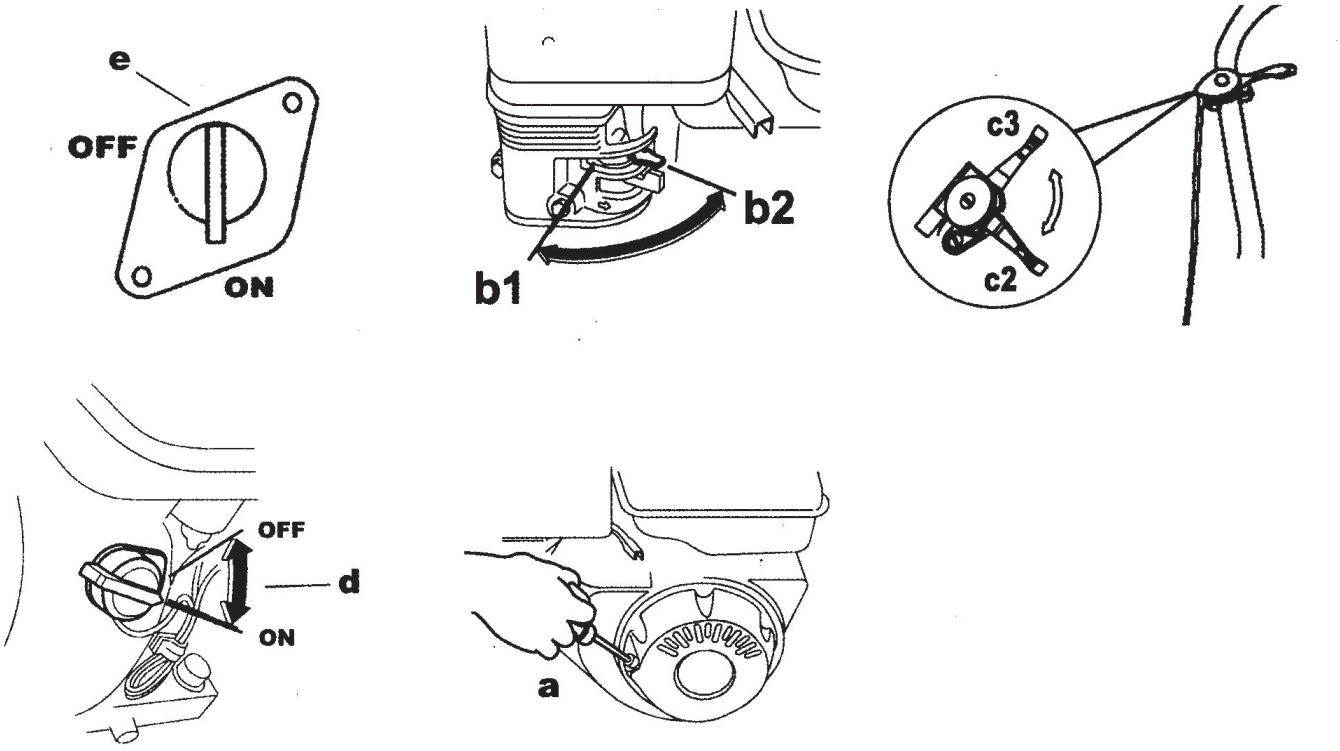


Figure 2

See Figure 2

NOTE: After transporting the rammer horizontally, upright the rammer and allow the oil to drain back through the engine. It may take up to 2 minutes for the oil level to recover.

1. Open fuel valve (e).
2 . Turn engine switch to "ON" (d).

3. If the engine is cold, close choke (b1) on the carburetor.

NOTE: Occasionally, warm engines will need to be choked.

4. With throttle in idle position (c3), pull the starter rope (a) until the engine starts.
5. On engines equipped with the low oil shutoff switch, see section Low oil Shutoff Switch for additional information.

NOTE: First time use, engines recently serviced, run out of fuel or not used for long periods of time may need the rope to be pulled more times to move fuel to the carburetor.

6. Open choke (b2) on the carburetor as the engine warms up.

NOTE: A cold engine should be allowed to warm up at the idle position (c2) for approximately one (1) minute. Failure to open the choke after the engine attempts to start may cause flooding.

CAUTION: Always open choke (b2) with throttle in idle position (c3). Opening choke with throttle not in idle position (c3) may result in rammer motion.

TO STOP

See Figure 2

1. Place throttle in the idle position (c3).
2. Turn engine switch to"OFF" (d).
3. Close fuel valve (e).

LOW OIL SHUTOFF SWITCH (IF EQUIPPED)

The low oil shutoff switch is designed to prevent engine damage caused by an low engine oil level.

When starting the machine:

- If the warning light flashes quickly once, this indicates the engine oil level is acceptable.
- If the warning light flashes slowly, the engine will start but shut off after 10-12 seconds, this indicates that the engine oil level is low. Add oil to the engine. See Technical Data for oil quantity and type.
- If the warning light stays on continuously, the engine will start and continue to run but the low oil shutoff switch is not functioning properly. Check the switch for proper wire connections. If the light continues to stay on, replace the switch.
- If the warning light does not flash quickly once, and the engine starts and continues to run, the low oil shutoff switch is not functioning properly. Check the switch for proper wire connections and grounding. If the light still does not flash when starting the machine, replace the switch.

PROPER OPERATION

See Figure 3

Keep vibratory rammer clean and dry. Avoid no-load strokes. Never allow the rammer to run full throttle when forcing away material or when lifting the equipment.

For optimal control, performance, and minimal hand/arm vibration, grasp the handle as shown. Hand/arm vibration (HAV) has been optimized for this positioning. Reported HAV levels are measured at position A just in front of the hand position shown in conformance with EN 1033 and ISO 5349.

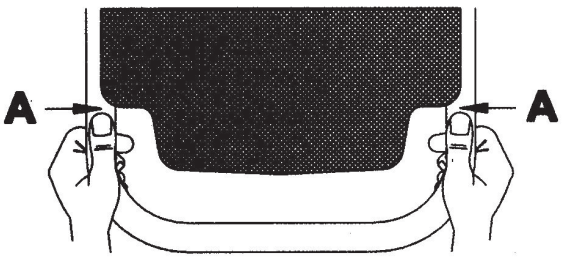


Figure 3

CAUTION: To prevent damage to the rammer, do not allow the rammer to run on its side.

If the rammer should tip on its side, place the rammer in the position shown, then shut off the engine by turning engine switch to "OFF".

PROPER COMPACTION

See Figure 4

1. Run rammer at the full throttle position (a2) for maximum performance.
2. Guide rammer with its handle. Allow the machine to pull itself forward. DO NOT try to over-power the machine.
3. For best compaction, the shoe must hit the ground flat (b), not on its toe or heel. This will save on excessive shoe wear.

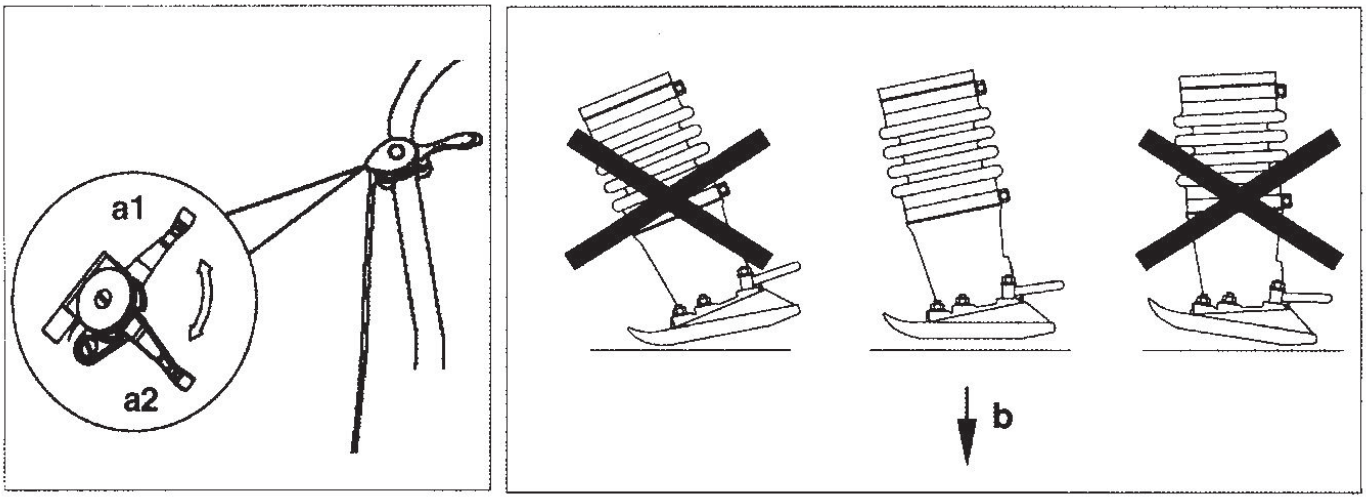


Figure 4

MAINTENANCE

PERIODIC MAINTENANCE SCHEDULE

Regular maintenance is essential for safe and efficient operation of the machine. Follow the maintenance schedule below to ensure reliable performance and long service life.

	Daily before starting	After first 5 hours	Every week or 25 hours	Every month or 100 hours	Every 3 months or 300 hours	Every Year
Check fuel level. Check engine oil level.	●					
Inspect air filter. Replace as needed.	●					
Check oil level in sightglass.	●					
Check fuel line and fittings for cracks or leaks. Replace as needed.	●					
Tighten ramming shoe hardware.		●	●			
Check external hardware.		●	●			
Clean engine cooling fins.			●			
Clean and check spark plug gap.			●			
Change engine oil.				●		
Replace spark plug.				●		
Clean recoil starter.					●	
Change ramming system oil. *					●	
Inspect crane lifting cable for wear, damage, or abuse.					●	
Inspect fuel filter.						●

• Change ramming system oil after first 50 hours of operation.

NOTE: If engine performance is poor, check, clean. and replace air filter elements as needed.

SERVICING AIR CLEANER

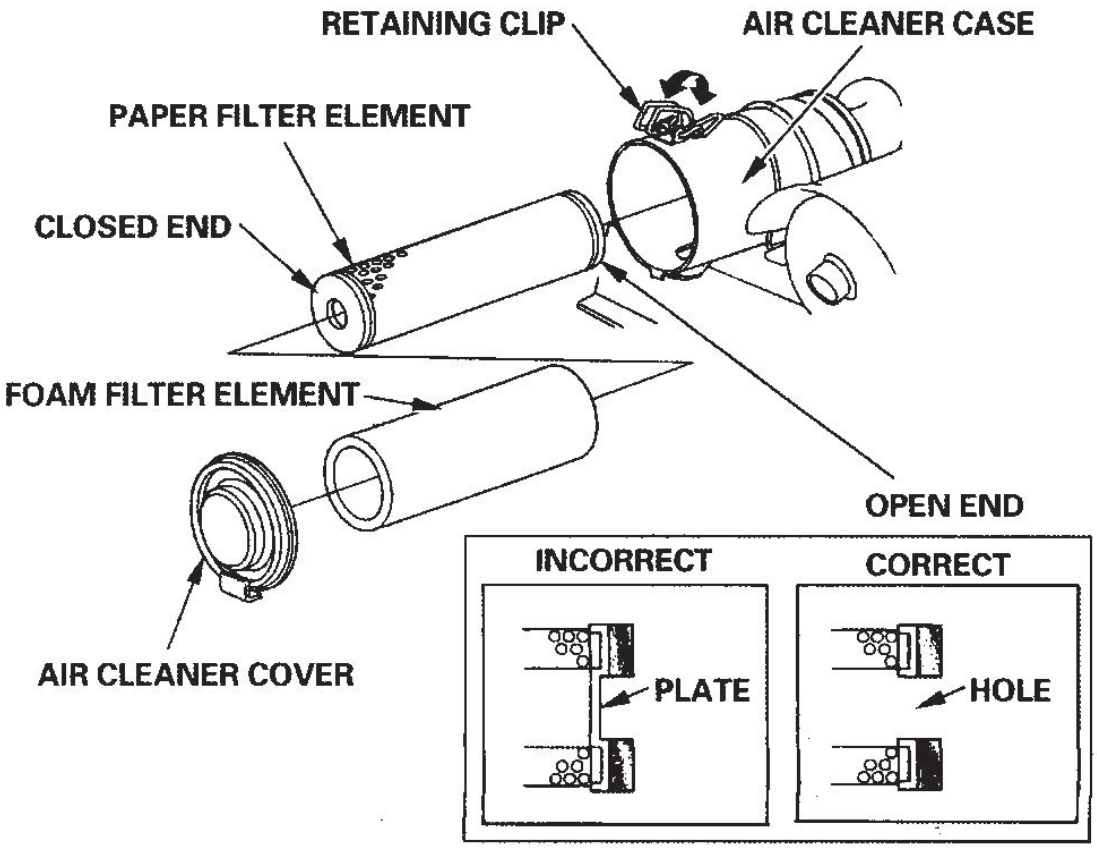


Figure 5

See Figure 5

The engine is equipped with a dual element air cleaner. Service the air cleaner frequently to prevent carburetor malfunction.

CAUTION: NEVER run engine without air cleaner. Severe engine damage will occur.
WARNING: NEVER use gasoline or other types of low flash point solvents for cleaning the air cleaner. A fire or explosion could result.

To service:

1. Release the retaining clip, and remove the air cleaner cover.

2. Remove and inspect the air filter elements. If the air filter element is dirty, clean the air filter elements as described below. Replace damaged filter elements. Always replace the paper air filter element at the scheduled interval.

3. Place the foam air filter element over the paper element, and reinstall the assembled air filter elements. Insert the open end of the air filter elements into the case as shown, so the closed end is toward the air cleaner cover.

4. Hook the bottom edge of the air cleaner cover onto the case, then secure the cover with the retaining clip.

5. Cleaning:

5.1. Clean the air filter elements if they are to be reused.

Paper air filter element: Tap the filter element several times on a hard surface to remove dirt, or blow compressed air[not exceeding 207 kPa (30 psi)] through the filter element from the inside. Never try to brush off dirt ; brushing will force dirt into the fibers.

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

5.2. Wipe dirt from the inside of the air cleaner case and cover, using a moist rag. Be careful to prevent dirt from entering the air duct that leads to the carburetor.

ENGINE OIL

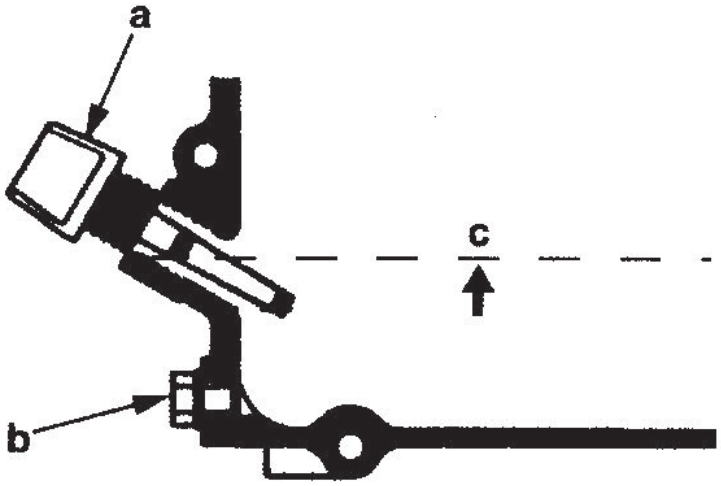


Figure 6

See Figure 6

1. Drain oil while engine is still warm.

NOTE: In the interests of environmental protection, place a plastic sheet and a container under the machine to collect any liquid which drains off. Dispose of this liquid in accordance with environmental protection legislation.

2. Place the rammer so it is resting on its shoe on a level surface.
3. Remove the oil fill plug (a) and drain plug (b) to drain oil.
4. Install the drain plug (b).
5. Fill the engine crankcase with recommended oil up to the level of the plug opening (c). Do not thread in the dipstick to check the level. See Technical Data for oil quantity and type.
6. Install the oil filler plug (a).

LUBRICATION

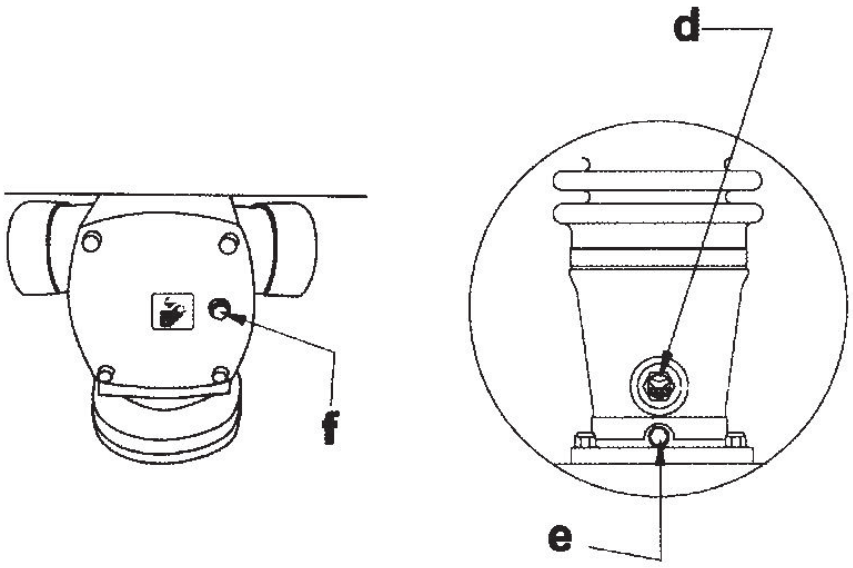


Figure 7

See Figure 7

Ramming system

Check the oil level:

1. Place the rammer so it is resting on its shoe on a level surface.
2. Check the oil level through oil sightglass (d). Proper ramming system lubrication is indicated when approximately 1/2-3/4 of the sightglass is full.
3. If the oil is not visible, oil must be filled through the oil filler port (f), use SAE 10W-30 engine oil or equivalent.
4. Wrap the filling oil plug with Teflon tape. Install the filling oil plug (f). Torque to 9 Nm.

OIL CHANGE

5. Unscrew the oil drain plug (e) located below the oil sightglass.
6. Tip the rammer back until it is resting on its handle and allow oil to drain.

NOTE: In the interests of environmental protection, place a plastic sheet and a container under the machine to collect any liquid which drains off. Dispose of this liquid in accordance with environmental protection legislation.

7. Screw in the oil drain plug (e). Torque to 54 Nm.
8. Remove filling oil plug (f) and fill with oil. See Technical Data for oil quantity and type. Wrap the filling oil plug with Teflon tape. Install the filling oil plug (f). Torque to 9 Nm.

SHOE HARDWARE

See Figure 8

On new machines, or after replacing shoe, check and tighten the shoe hardware (a) after the first 5 hours of operation. Inspect hardware every week thereafter.

Torque hardware as specified.

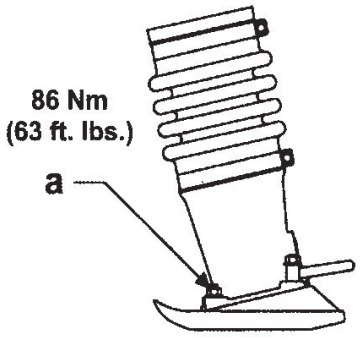


Figure 8

LONG-TERM STORAGE

1. Drain fuel from tank.
2. Start engine and run until remaining fuel is used.
3. Remove spark plug. Pour approximately 30 ml (1 oz.) of clean SAE 10W-30 engine oil into cylinder through spark plug opening.
4. Pull starter rope slowly to distribute oil in engine.
5. Reinstall the spark plug.

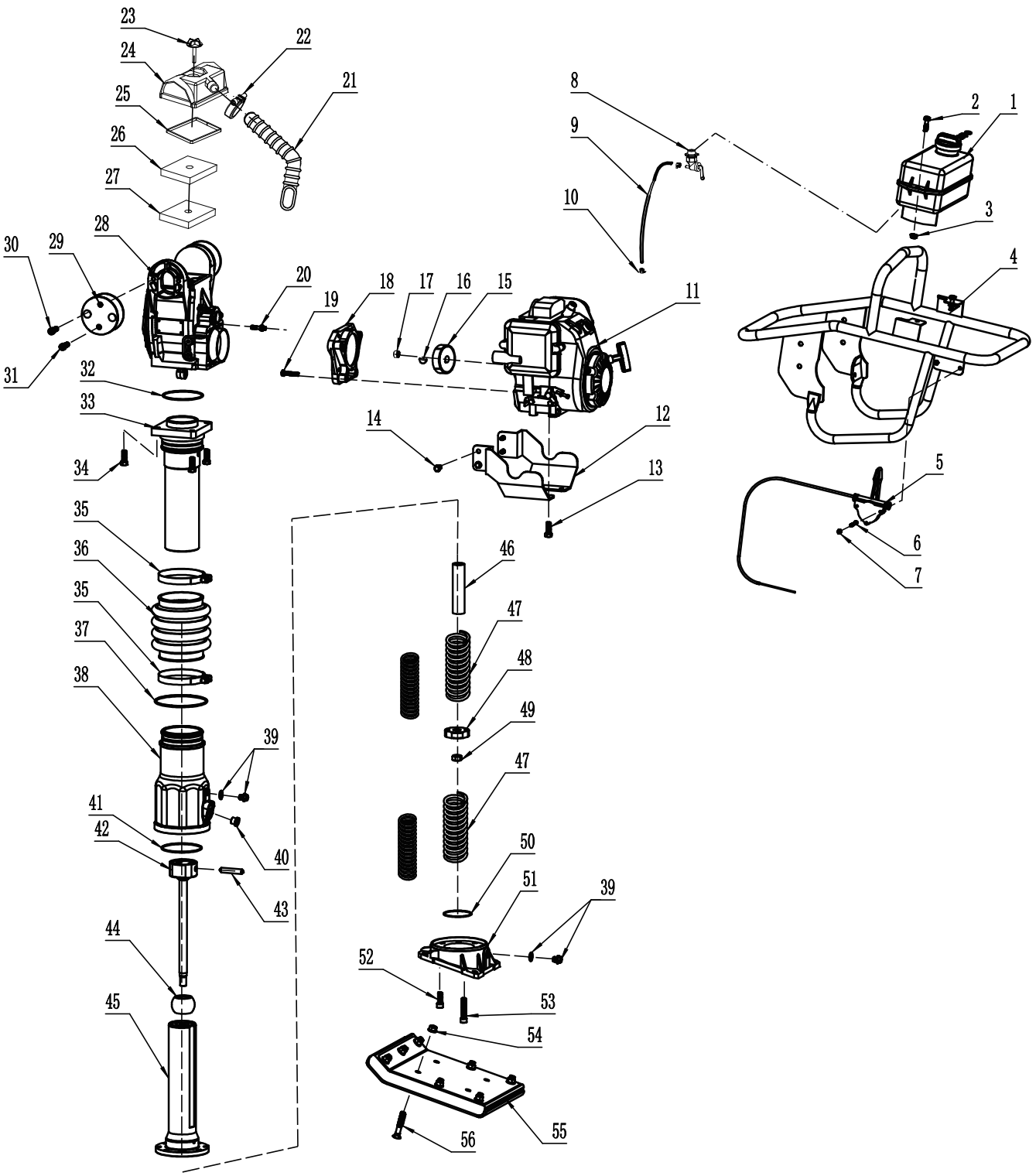
TRANSPORTATION

1. Shut down the engine before transportation.
2. For transportation, tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
3. Drain the fuel when transporting the machine over long distances or rough roads.
4. Secure machine firmly to prevent it from moving or tipping.
5. Rammer should be transported in such position as it is placed on level ground. If the rammer must be laid down for transportation, drain fuel tank as well as carburetor and make sure that oil plug is tightened securely.
6. The rammer must be laid down so that the air cleaner faces upward. After laying it, make sure that there is no leak of oil or residual fuel.
7. Make sure lifting device has enough capacity to hold machine (see identification plate on machine for weight). Use central lifting point (a) when lifting machine).

TROUBLESHOOTING

Problem/Symptom	Reason/Remedy
Engine does not start, or stalls.	·No fuel in the tank. ·Check engine oil level. ·Spark plug fouled. ·Fuel valve closed. ·Engine switch is in the "OFF" position.
Engine does not accelerate, is hard to start, or runs erratically.	·Spark plug fouled. ·Crankshaft seals are leaking. ·Check air cleaner. ·Check engine oil level.
Engine overheats.	·Clean cooling fins and fan blades.
Engine runs, rammer does not tamp.	·Inspect clutch for damage. Replace if necessary. ·Broken connecting rod or crankshaft. ·Low engine performance due to compression loss.
Engine runs, rammer operation is erratic.	·Oil/grease on clutch. ·Broken/worn springs. ·Soil buildup on ramming shoe. ·Broken parts in ramming system or crankcase. ·Engine operating speed is too high.
On machines equipped with the low oil shutoff switch, the warning light flashes slowly, the engine starts but shuts off after 10-12 seconds.	·Engine oil level is low. Add oil to the engine. See Technical Data for oil quantity and type.
On machines equipped with the low oil shutoff switch, the engine starts and continues to run but the low oil warning light stays on continuously.	·Check the switch for proper wire connections. ·Switch is not functioning properly. Replace the switch.
On machines equipped with the low oil shutoff switch, the engine starts and continues to run, but the low oil warning light did not flash quickly once.	·Check the switch for proper wire connections and grounding. ·Switch is not functioning properly. Replace the switch.

PARTS DIAGRAM (TR60H WHOLE ASSEMBLY)

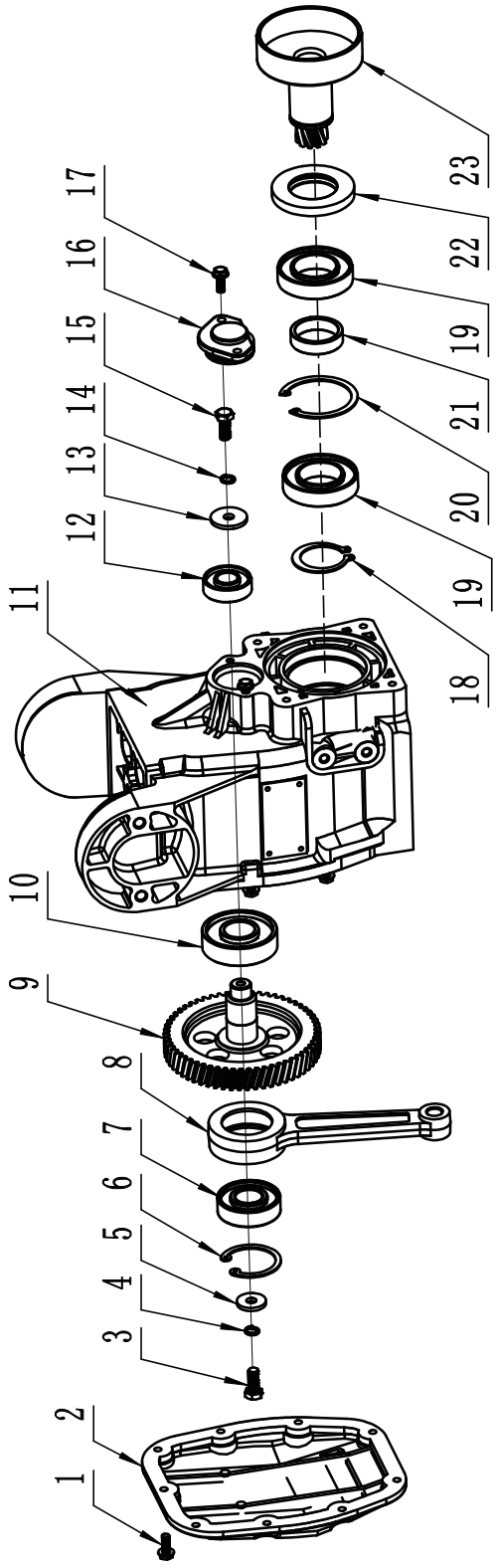


PARTS LIST (TR60H WHOLE ASSEMBLY)

No.	Description	Specification	Qty.
1	Tank Assemble （GERMAN)		1
2	Flange bolt	M6*25	2
3	Flange nut	M6	2
4	Protective frame		1
5	Throttle lever assembly		1
6	Flange nut	M6	2
7	Inner hexagonal bolt	M6*30	2
8	Fuel cock		1
9	Fuel tube		1
10	Clamp for fuel tube		2
11	Engine		1
12	Left/Right protective cover		1
13	Flange bolt	M8*16	4
14	Flange bolt	M8*16	4
15	Clutch assembly		1
16	Key	4*16	1
17	Nut	M12*1.25	1
18	Engine flange		1
19	Flange bolt	M8*40	4
20	Double-ended bolt	M8*50	4
	Nut gasket	M8	4
21	Hose		1
22	Clamp		2
23	Tightened bolt		1
24	Built-in filter cover		1
25	Rubber gasket for air filer cover		1
26	Thick air filter element		1
27	Thin air filter element		1
28	Gear box		1

No.	Description	Specification	Qty.
29	shock absorber for handle		2
30	Inner bolt and spring gasket	M10*20	4
31	Inner bolt and spring gasket	M10*20	4
32	“O” ring	78.8*3.1	1
33	Outside cylinder		1
34	External bolt and spring gasket	M10*40	4
35	Clamp for bellow		2
36	Bellow		1
37	“O” ring	95*3.5	2
38	Protection Sleeve		1
39	Oil plug	M12*1.25	2
40	Oil lever gauge		1
41	“O” ring	83.8*3.1	1
42	Connecting Rod		1
43	Piston pin and Nylon plug		1
44	Spherical Rubber Bushing		1
45	Inside cylinder		1
46	Column Rubber Bushing		1
47	Big and small spring		2
48	Piston cap		1
49	Thin thread nut	M16*1.5	1
50	“O” ring	103*4	1
51	Foot plate		1
52	Inner bolt and spring gasket	M10*25	4
53	Inner bolt and spring gasket	M10*40	4
54	Locker nut	M12	4
55	Bottom plate		1
56	Countersunk square neck bolt	M12*70	4

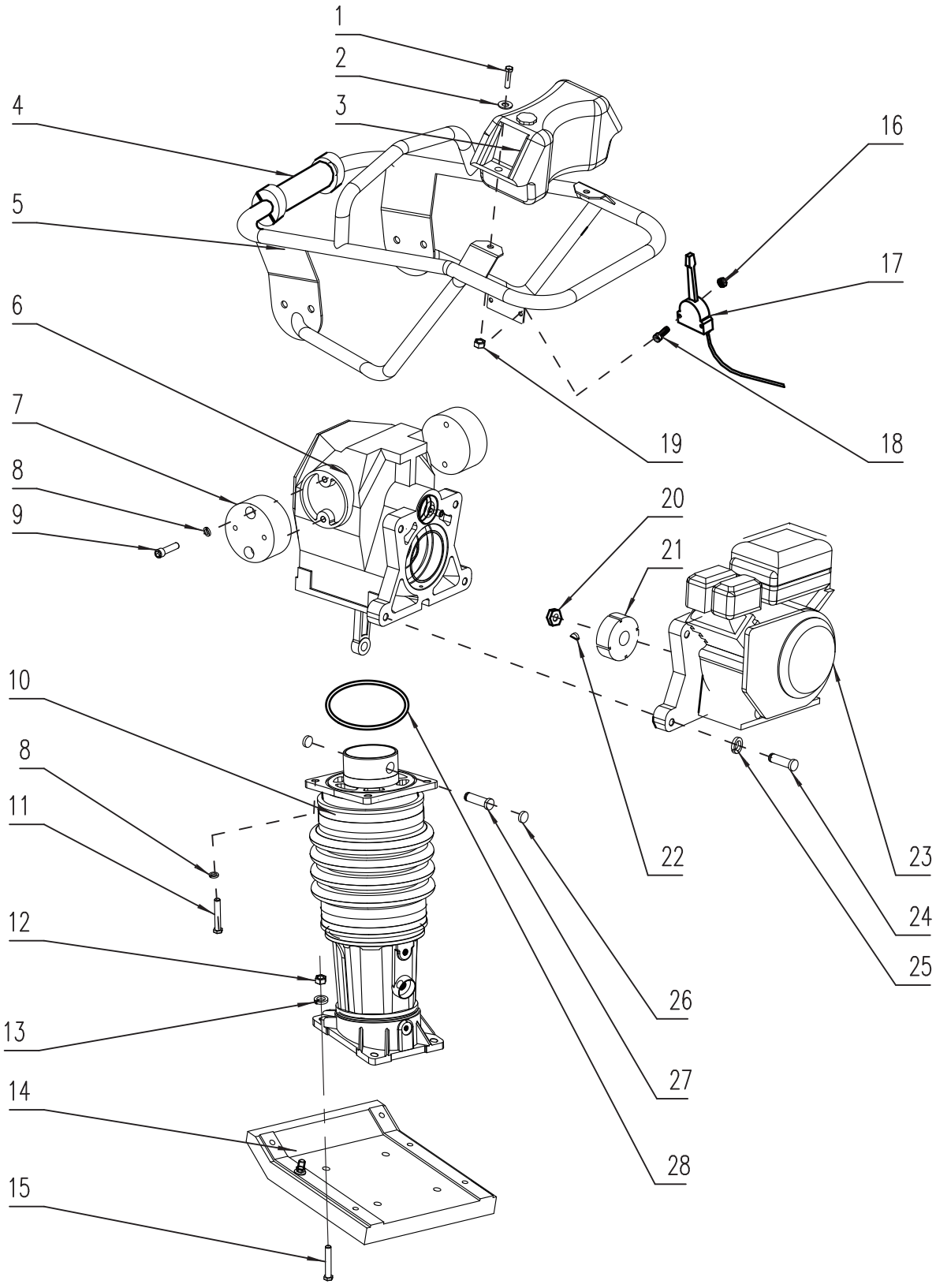
PARTS DIAGRAM (TR60H GEAR BOX ASSEMBLY)



PARTS LIST (TR60H GEAR BOX ASSEMBLY)

No.	Description	Specification	Qty.
1	Flange bolt	M6*18	9
2	Side cover（with embossed)		1
3	External hexagonal bolt	M8*20	1
4	Spring	Ø8	1
5	Quenched flat washer	8*24	1
6	Clip	Ø52	1
7	Deep grove ball bearing	6304-2Rs	1
8	Connecting rod		1
9	Big gear		1
10	Deep grove ball bearing	6305-2RS	1
11	Gear box		1
12	Deep grove ball bearing	6203-2RS	1
13	Quenched flat washer	8*24	1
14	Spring	Ø8	1
15	External hexagon bolt	M8*20	1
16	Alu closed cover		1
17	Flange bolt	M6*18	2
18	Clip	Ø35	1
19	Deep grove ball bearing	6007-2RS	2
20	Clip	Ø62	1
21	Bearing bushing		1
22	Oil seal	TC40*68*8	1
23	Small gear for support drum		1

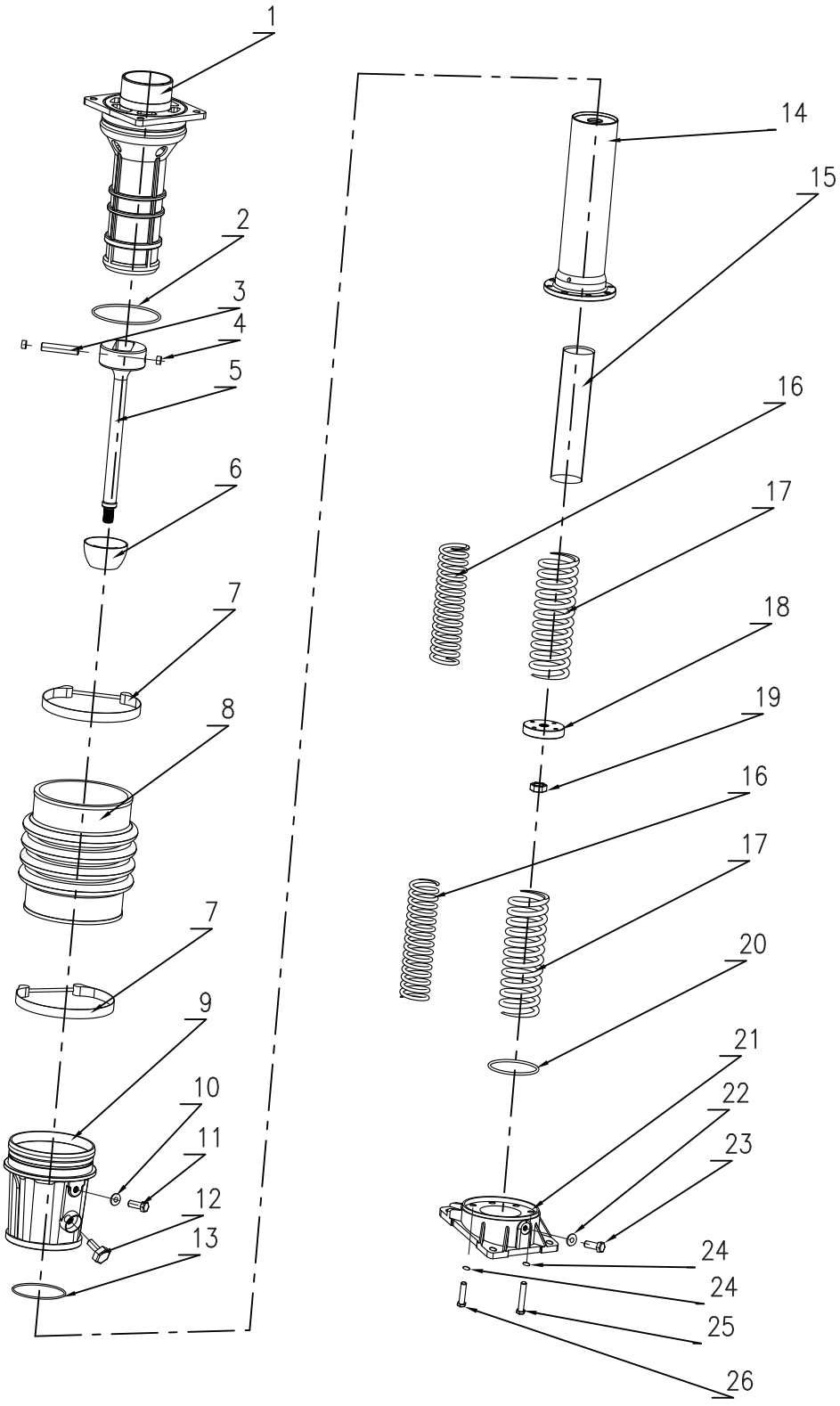
PARTS DIAGRAM (TR75H WHOLE ASSEMBLY)



PARTS LIST (TR75H WHOLE ASSEMBLY)

No.	Description	Specification	Qty.
1	Flange bolt	M8*25	2
2	Medium flat washher	Ø8*24	2
3	Fuel tank assembly		1
4	Plastic handle		1
5	Protective frame		1
6	Crank case assembly		1
7	Shock Absorber		2
8	Spring gasket	ø10	12
9	Inner hexagon bolt	M10*25	8
10	Cylinder assembly		1
11	Inner hexagon bolt	M10*35	4
12	Locker nut	M12	4
13	Flat gasket	ø12	4
14	Tamping Plate		1
15	Countersunk square neck bolt	M12*70	4
16	Locker nut	M6	2
17	Throttle lever assembly		1
18	Inner hexagon bolt	M6*30	2
19	Flange nut	M8	2
20	Thin thread nut	M12*1.25	1
21	Clutch assembly		1
22	Key	Ø13*4*5	1
23	Engine		1
24	External hexagon bolt	M10*60	4
25	Spring gasket	ø10	4
26	Nylon stopper		2
27	Connecting rod pan		1
28	"O"RING	Ø160*6.5	1

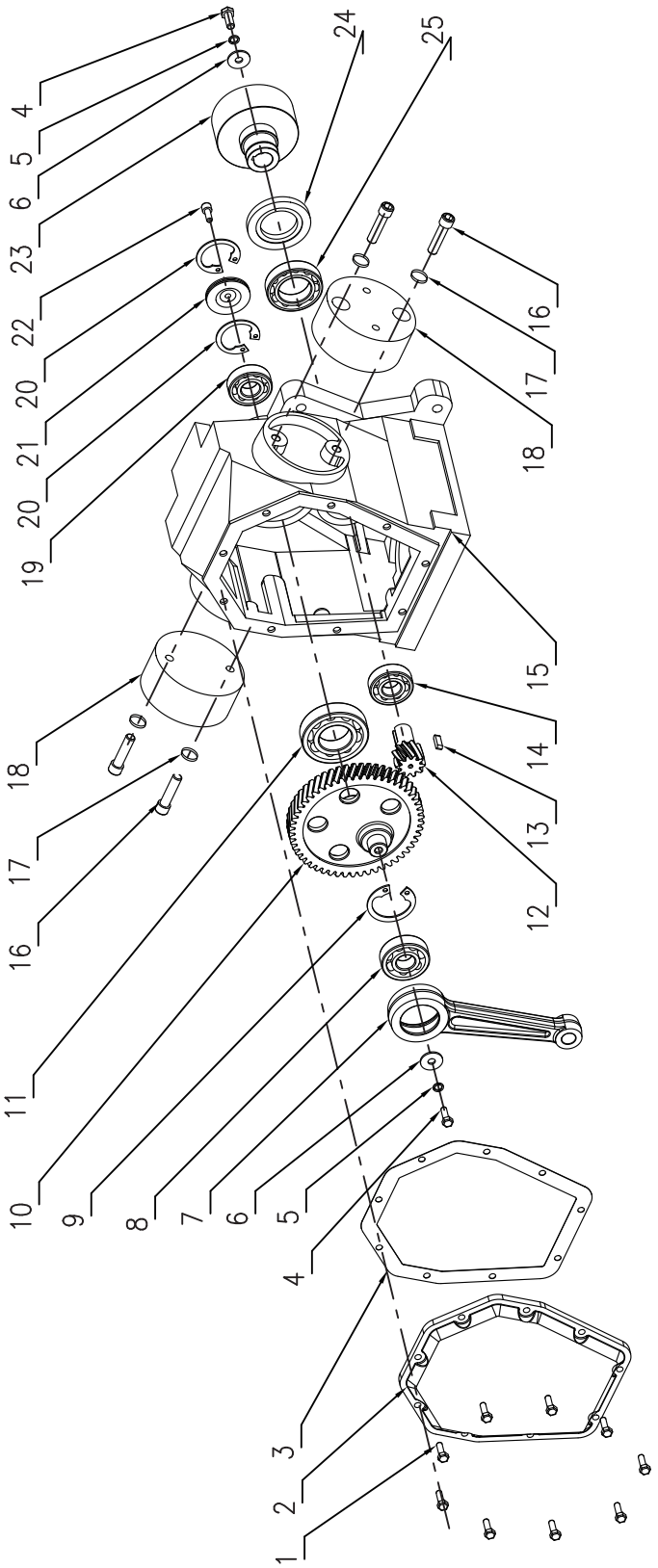
PARTS DIAGRAM (TR75H CYLINDER)



PARTS LIST (TR75H CYLINDER)

No.	Description	Specification	Qty.
1	Out side cylinder		1
2	"O"ring	160*4	2
3	Piston rod pin		1
4	Nylon stopper		2
5	Connecting Rod		1
6	Bowl Rubber Bushing		1
7	bellow clamp		2
8	GERMAN bellow		1
9	Protectioin Sleeve		1
10	Copper gasket	ø12	1
11	hexagon bolt	M12*1.25	1
12	Oil lever gague	M16*1.5	1
13	"O"ring	102*3	1
14	Inside cylinder		1
15	Column Rubber Bushing		1
16	Small Spring	Ø6.5*56*230	1
17	Big Spring	Ø9*76.5*230	1
18	Piston cap		1
19	Piston cap nut	M18*1.5	1
20	"O"ring	95*4	1
21	Foot Plate		1
22	Copper gasket	ø8	1
23	External hexagon bolt	M8*10	1
24	Spring gasket	ø10	8
25	Inner hexagon bolt	M10*40	4
26	Inner hexagon bolt	M10*25	4

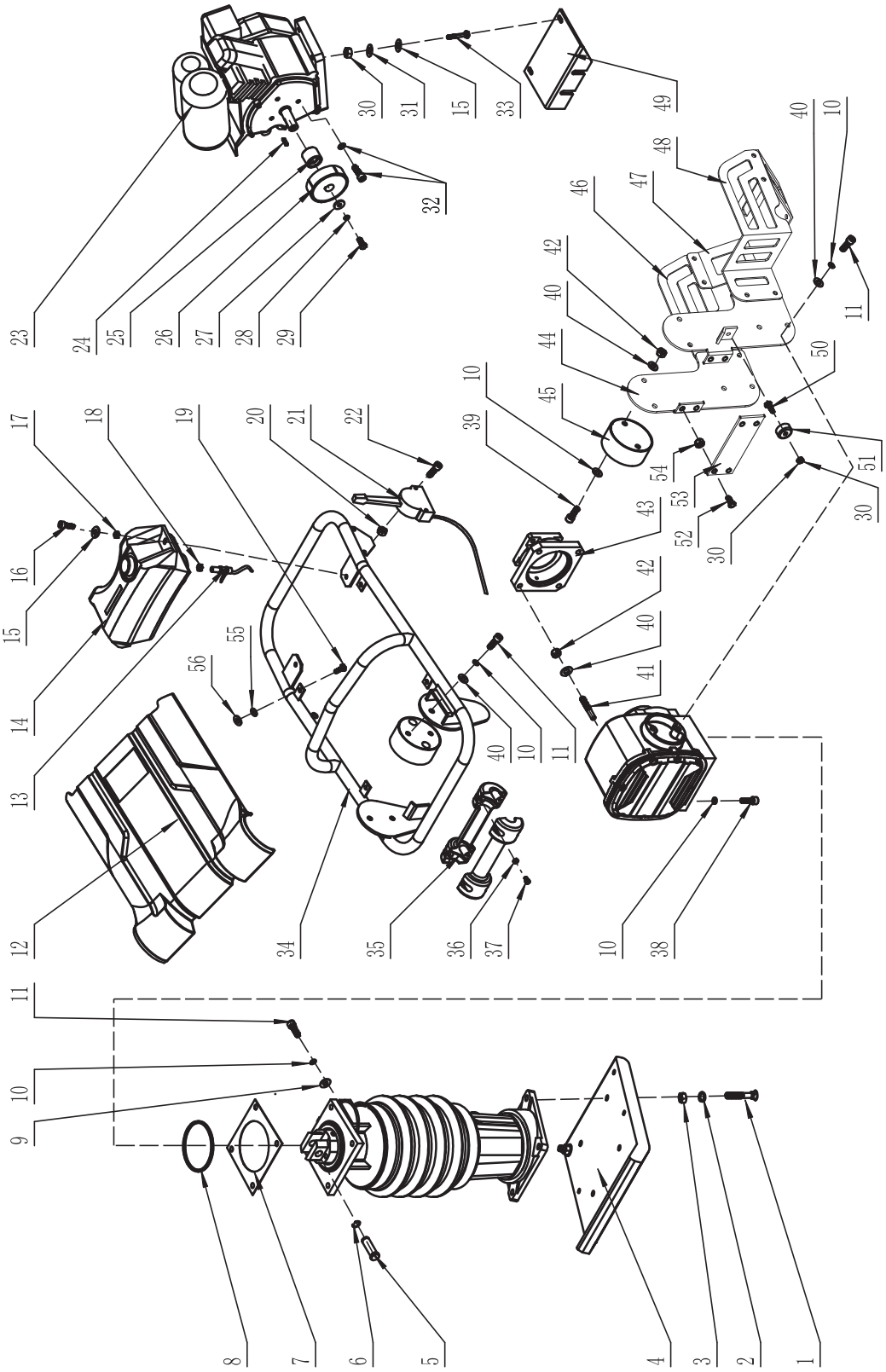
PARTS DIAGRAM (TR75H GEAR BOX ASSEMBLY)



PARTS LIST (TR75H GEAR BOX ASSEMBLY)

No.	Description	Specification	Qty.
1	flange bolt	M6*18	8
1	flange bolt	M6*25	1
2	Crank case cover		1
3	Paper gasket	0.5mm	1
4	External hexagon bolt	M8*16	3
5	Spring gasket	ø8	3
6	Quenched Flat washer	Ø8*24	3
7	Connecting Rod		1
8	Deep grove ball bearing	6304	1
9	CLIP	ø52	1
10	Big gear		1
11	Deep grove ball bearing	6207	1
12	Small gear		1
13	key	5*20	1
14	Deep grove ball bearing	6204-RS	1
15	Crank case		1
16	Inner hexagon bolt	M10*20	4
17	Spring Gasket	ø10	4
18	Shock absorber		2
19	Deep grove ball bearing	6204	1
20	Clip	ø47	2
21	Aluminum closed cover	“O”	1
22	Inner hexagon bolt	M6*30	1
23	Clutch support drum		1
24	Oil seal	TC40*68*8	1
25	Deep grove ball bearing	6007	1

PARTS DIAGRAM (TR90L WHOLE ASSEMBLY)



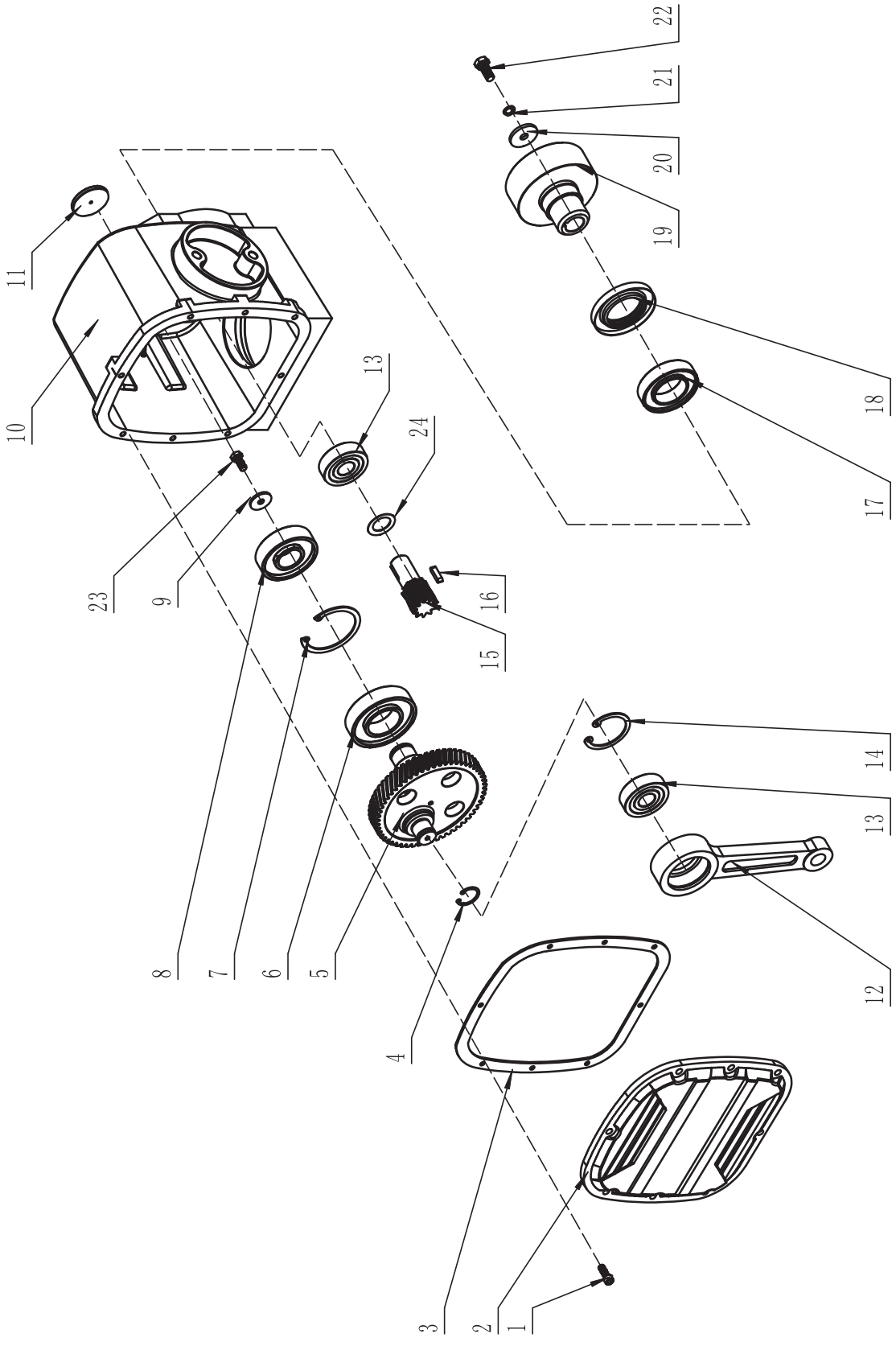
PARTS LIST (TR90L WHOLE ASSEMBLY)

No.	Description	Specification	Qty.
1	Countersunk square neck bolt	M12*70	2
1.1	Countersunk square neck bolt	M12*80	2
1.2	Handle on plate		1
2	Flat washer	ø12	4
3	Locker nut	ø12	4
4	Tamping Plate	340*280	1
5	Connecting rod pan		1
6	Clip	ø16	1
7	Paper Gasket	1mm	1
8	"O"RING	108*4	1
9	Enlarged Flat washer	Ø10*35	2
10	Spring Washer	ø10	14
11	Inner hexagon bolt	M10*20	2
12	Top cover		1
13	Fuel cock and oil pipe		1
14	German tank assemble		1
14.1	German tank cap		1
15	Medium flat washher	Ø6*22	6
16	Flange bolt	M6*25	2
17	Flange nut	M6	6
18	Thin thread nut	M10*1.25	1
18.1	Rubber stamper	10x1.25	2
19	External hexagon bolt	M8*16	4
55	Gasket	Ø8	4
56	Gasket	Ø8	4
20	Flange nut	M6	2
21	Throttle lever assembly		1
22	Inner hexagon bolt	M6*30	2
23	Engine		1

No.	Description	Specification	Qty.
24	Key	5*28	1
25	Clutch support drum		1
26	Japanese clutch		1
26.1	Clutch disc		2
27	Quenched flat washer	Ø8*24	1
28	Spring Washer	ø8	1
29	External hexagon bolt	M8*20	1
30	Locker nut	M8	10
31	Flat washher	ø8	8
32	Double-end bolt	M8*30	4
32.1	Spring washer	M8	4
33	Inner hexagon bolt	M8*40	4
34	Protective frame		1
35	Plastic handle		1
36	Locker nut	M5	2
37	Inner hexagon bolt	M5*16	2
38	Inner hexagon bolt	M10*40	4
39	Inner hexagon bolt	M10*25	4
40	Flat washher	ø10	12
41	Double-end bolt	M10*55	4
42	Locker nut	M10	8
43	Connecting flag	ø20	1
44	Bracket		1
44.1	Bracket		1
45	Frame absorber		2
46	Frame cover (right)		1
46.1	E xternal Hexagon bolt (M8x20)	M8*20	1
47	Junction panel		1
48	Frame cover (left)		1
49	Engine supporting plate		1
50	Flat cross bolt	M8*25	2
51	Handle upper absorber	35*15	2

No.	Description	Specification	Qty.
52	Flange bolt	M8*20	4
53	Connecting Plate		1
54	Flange nut	M8	4

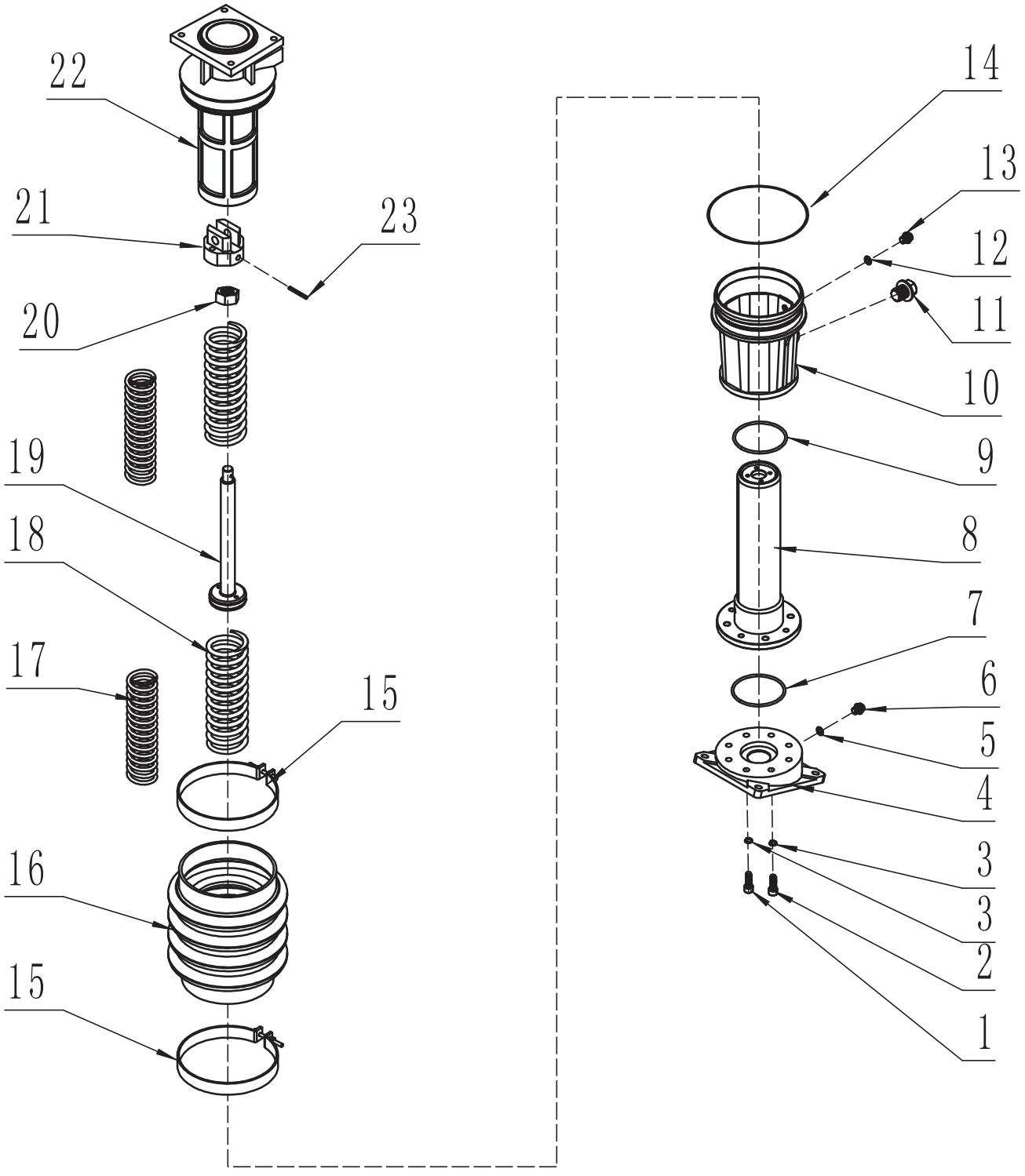
PARTS DIAGRAM (GEAR BOX ASSEMBLY)



PARTS LIST (TR90L GEAR BOX ASSEMBLY)

No.	Description	Specification	Qty.
1	flange bolt	M6*22	6
1	flange bolt	M6*20	2
2	Crank case cover		1
3	Paper gasket	0.5mm	1
4	Clip	ø20	1
5	Big gear		1
6	Deep grove ball bearing	6207	1
7	Clip	ø62	1
8	Deep grove ball bearing	6305-RS	1
9	gasket	Ø8*30*5	1
10	Crank case		1
11	Nylon closed cover		1
12	Connecting Rod		1
13	Deep grove ball bearing	6204	2
14	Clip	ø47	1
15	Small gear		1
16	Key	5*20	1
17	Deep grove ball bearing	6007	1
18	Oil seal	TC40*68*8	1
19	Clutch support drum		1
20	Quenched Flat Washer	Ø8*24	1
21	Spring Gasket	ø8	1
22	External hexagon bolt	M8*20	1
23	Countersunk Internal hexagon bolt	M8*20	1
24	Copper gasket	20*29*0.5	1

PARTS DIAGRAM (TR90L CYLINDER)



PARTS LIST (TR90L CYLINDER)

No.	Description	Specification	Qty.
1	Inner hexagon bolt	M10*25	4
2	Inner hexagon bolt	M10*45	4
3	Spring washer	ø10	8
4	Foot Plate		1
5	Cooper gasket	Ø12	2
6	Hexagonal oil plug	M12*1.25	2
7	O ring	103*4	1
8	Inside cylinder		1
9	O ring	102*3 BAI-55	1
10	Protectioin Sleeve		1
11	Oil lever gague		1
11.1			1
12	Copper gasket	ø16RM90	1
13	Hexagon bolt	M16*1.5 RM90	1
14	"O"ring	160*4	2
15	Bellow clamp		2
16	German Bellow	ø170*260	1
17	Small Spring		2
18	Big Spring		
19.20.21	Connecting Rod+Piston cap+bolt（whole set）	M18*1.5	1
22	Outside cylinder		1
23	Spring column pin	6*40	1

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