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DT-500 Radial Power Sprayer
Operating manual

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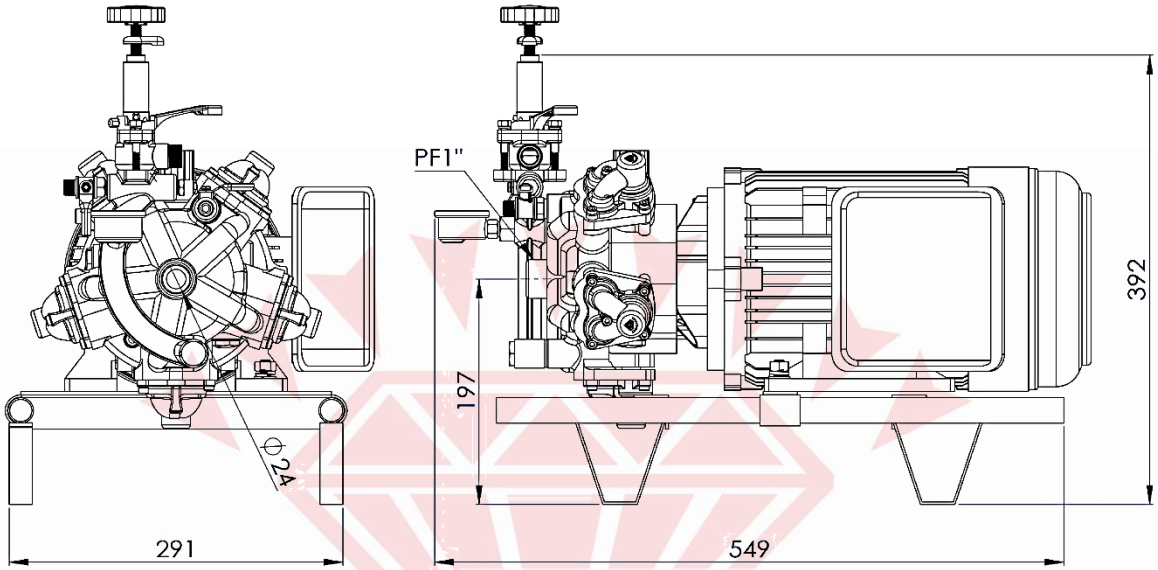
Directory

1. Specification

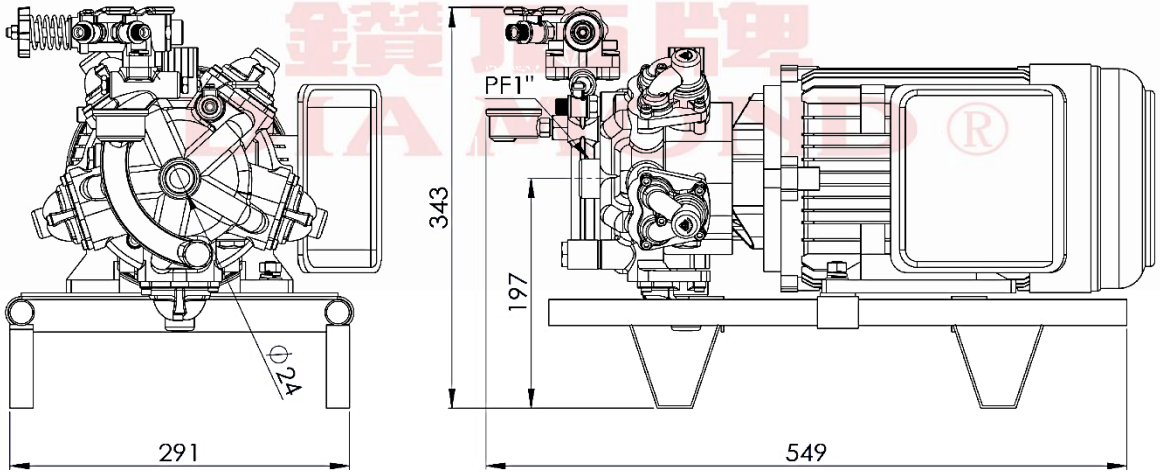
1.1 Dimensions

MOTOR：

Standard type

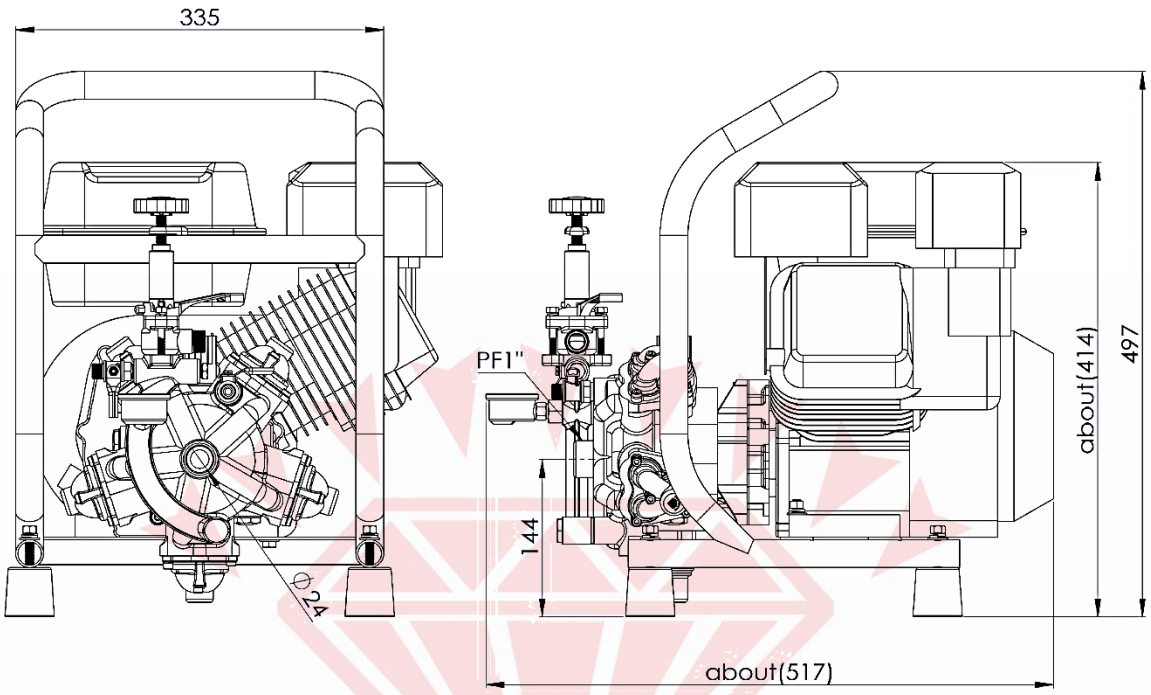


AP-30 type

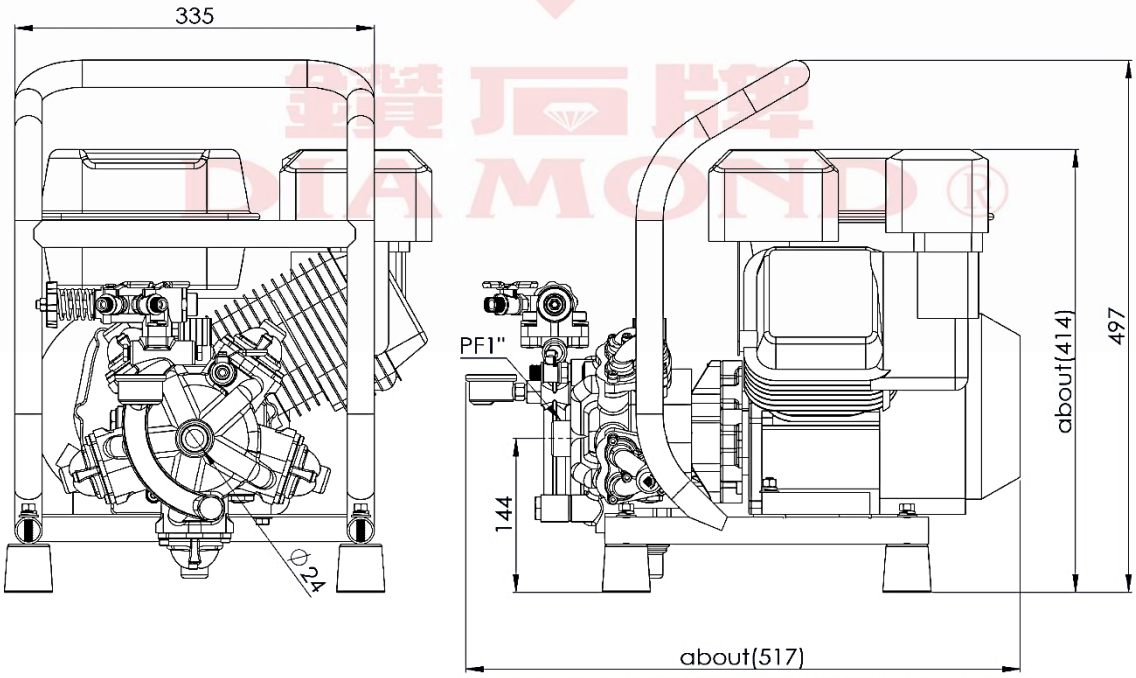


Engine：

Standard type

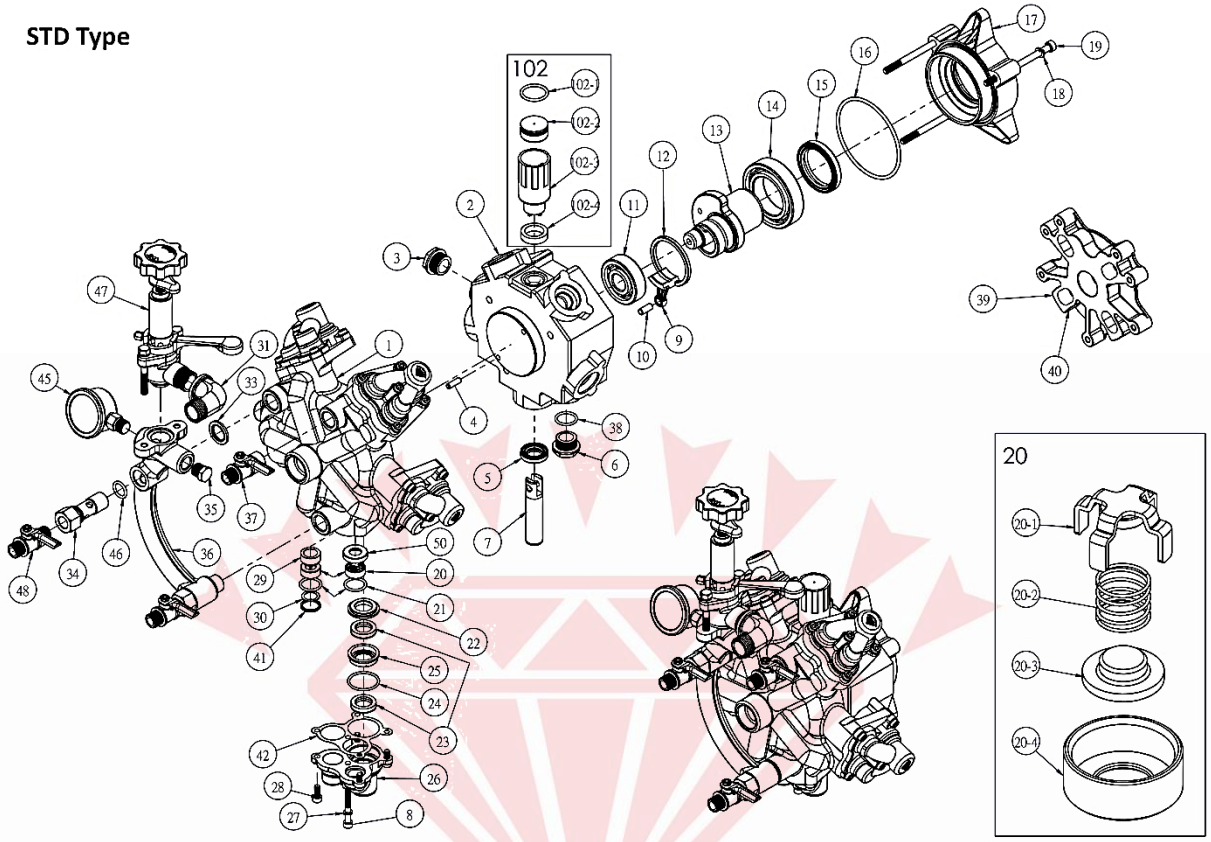


AP-30 type

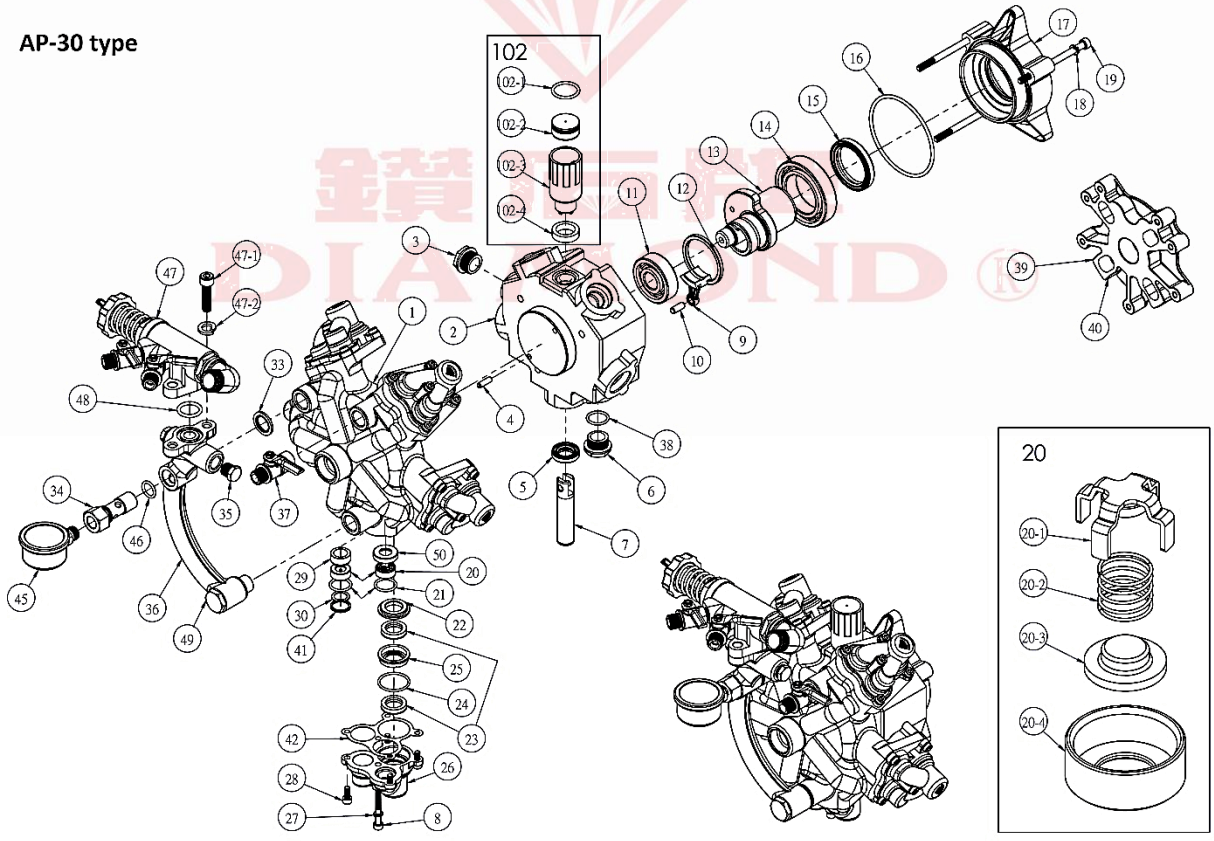


1.2 Part drawing

STD Type



AP-30 type



1.3 Part list

Pos.	Parts NO.	Parts Name	Quantity
1	030-DT50-220	Pump Body	1
2	010-DT50-140	Tank	1
3	925-PT00-001	Oil Gauge	1
4	012-DT50-001	Pin	2
5	130-DT50-000	Oil Seal	5
6	017-DT50-000	Oil Drain Plug	1
7	022-DT50-003	Plunger	5
8	140-0500-003	Bolt	5
9	021-DT50-240	Plunger Shoes	5
10	023-DT50-000	Pin	5
11	024-DT50-001	Bearing	1
12	021-DT50-000	Dragging Ring	1
13	020-DT50-220	Eccentric Shaft	1
14	024-DT50-002	Bearing	1
15	131-DT50-000	Oil Seal	1
16	120-7985-000	O-ring	1
17	011-DT50-220	Bearing Block	1
18	144-0104-001	Spring Washer	3
19	140-0600-015	Bolt	3
20	080-DT50-000	Valve	10
20-1	081-DT50-000	Valve Hood	10
20-2	086-DT50-000	Valve Closing Spring	10
20-3	082-DT50-000	Valve Disc	10
20-4	083-DT50-000	Valve Seat	10
21	120-1722-001	O-ring	10
22	045-DT50-001	Tightening Washer	5
23	043-DT50-005	Water Seal	10
24	120-2327-000	O-ring	5
25	044-DT50-001	Packing Seat	5
26	040-DT50-220	Cylinder	5
27	144-0500-001	Spring Washer	25
28	140-0500-007	Bolt	20
29	083-DT50-001	Valve (Input)	5
30	081-DT50-000/1	Washer	5

Pos.	Parts NO.	Parts Name	Quantity	Remark
31	059-C201-010	90˚ Connector	1	STD Type
33	124-AGV30-001	Tightening Washer	2	
34	204-DT30-001	Bolt	2	STD Type
	204-DT30-001	Bolt	1	AP-30 Type
35	053-2800-001	Plug	1	STD Type
	053-2800-001	Plug	2	AP-30 Type
36	050-DT50-230	Direct Connection Seat	1	STD Type
	050-DT50-233	Direct Connection Seat	1	AP-30 Type
37	051-2800-001	Cock	1	
38	120-1722-000	O-ring	1	
39	018-DT50-220	Engine Transfer Plate	1	
40	018-DT50-221	Engine Transfer Plate	1	
41	125-1916-000	Packing	5	
42	013-DT00-000	Gasket	5	
45	055-2200-103	Pressure Gauge	1	
46	120-1318-000	O-ring	2	
47	930-2800-000	Over Flow Assembly	1	STD Type
	940-AP30-001	AP Unloader Valve	1	AP-30 Type
47-1	144-0516-001	Spring Washer	2	AP-30 Type
47-2	140-0516-014	Bolt	2	AP-30 Type
48	051-2800-000	Cock	2	STD Type
	120-1824-000	O-ring	1	AP-30 Type
49	204-DT30-000	Bolt	1	AP-30 Type
50	030-DT00-000	Valve Seat	5	
102	923-DT00-001	Vent Pipe	1	
102-1	120-1924-000	O-ring	1	
102-2	014-DT50-001	Vent Cap	1	
102-3	014-DT50-000	Outtake	1	
102-4	125-DT00-000	Packing	1	

1.4 Product Specification Sheet

Model	DT-500 Radial Power Sprayer	
Max. Pressure psi (kgf/cm^2)	569/1000 psi (40/70 kgf/cm^2)	
Flow rate (L/min)	• 23.2 L/min(1450 rpm) • 28.0 L/min(1750 rpm)	
Revolution of Pump (RPM)	1450 / 1750 RPM	
Power Supply	Motor	110V/220 V 50/60 Hz
	Engine	6.5 Hp
Dimensions L×W×H (mm)	Motor	STD Type: 549×291×392 mm AP-30 Type: 549×291×343 mm
	Engine	517×335×497 mm
Weight (kg)	Pump ≈ 9.5 kg Motor type ≈ 37 kg / Engine type ≈ 22 kg	
Standard equipment	1. Motor / Engine 2. Flat frame 3. Pressure regulating valve 4. Strainer 5. Suction hose 6. Over flow hose	
Other feature	• Specialized flat frame for large size and easy handling.	
Special considerations	⚠ DANGER	It's forbidden to use this machine in the rain.

2. Matters Needing Attention

⚠ DANGER It indicates that an unfair use can cause possible death or sustain serious injury.

⚠ WARNING It indicates that an unfair use may highly cause possible death or sustain serious injury.

⚠ CAUTION It indicates that an unfair use may highly wound the user and/or damage the product, also is possible to bring out an unpredictable event.

2.1 Safety Instruction

⚠ DANGER

2.1.1 Before operating the machine, it is forbidden to use the machine without carefully reading the manual to avoid danger due to improper operation.

2.1.2 Please turn off the power before maintenance and repair to prevent electric shock.

2.1.3 It's forbidden to use this machine in the rain.

2.1.4 Please place it in a dry place to prevent short circuit.

2.1.5 Do not handle or move the unit if the hands are wet or the feet are not wearing shoe.

2.1.6 It is absolutely forbidden for children or non-operators to use the unit. When the temperature is below 0 °C in winter, the water will freeze. Do not use this machine (or add anti-caries agent).

2.2 Warning notice

⚠ WARNING

2.2.1 Please install the power supply according to the voltage (V), current value (A) and frequency (Hz).

2.2.2 It is absolutely forbidden to operate in the absence of water to maintain the life and safety of the machine

2.2.3 Before using, please confirm whether the lubricating oil is added to the pump.

2.2.4 Before using, please check whether all wires, connectors, contacts and grounding are normal or loose or damaged before starting the machine.

2.2.5 Please use the specified spray pressure below 1000 psi (70kg/cm^2), do not overpressure.

2.2.6 Please make sure that the machine is grounded before use.

2.3 Attentions for operation

⚠CAUTION

2.3.1 Put suction and over flow hose into water tank and make sure the overflow hose doesn't influence the suction function. (The over flow may force air getting into suction hose if they get too close.)

2.3.2 Loosen pressure regulator and then start the power of motor or engine.

2.3.3 Wait for few seconds for water fully coming in of power sprayer and suction hose. (Please be aware that machine should remain waterless inside when first time use or not use for a long time. It is recommended not to install high pressure hose in advance and let machine operates for few seconds. Then turn on the ball cock manually in order to let the air come out of the cylinder rapidly. Close the ball cock when it starts spraying and then install high pressure hose later.

2.3.4 Switch the spray gun manually several times for exhausting the extra air of machine when start operating.

2.3.5 When water comes out normally, adjust required pressure and then start spraying if the pressure is stable.

2.3.6 When finish the operation, please adjust the pressure to zero kg/cm^2 and put the suction strainer out of water. Let the pump operates for few seconds for exhausting all remaining water inside the pump. Otherwise, the pump may explode in certain cold areas because of iced remaining water.

※ **We highly recommend that let sprayer operate with clean water for 20-30 sec in order to drain the pesticide/herbicide whenever finishing the operation.**

2.4 Attentions for the use of a brand-new power sprayer

2.4.1 Replace airtight cap with vent cap and make sure that enough oil has been filled into the power sprayer.

2.4.2 Make sure the voltage and frequency of electric power for motor is correct.

2.4.3 Make sure that engine has been filled proper and adequate oil.

2.4.4 Make sure that suction、delivery hose, strainer, outlet ports and other accessories are completed.

2.5 Attentions for product application

2.5.1 The pump must be mounted firmly onto a base, and make sure all screws are tightened.

2.5.2 Engine must fill enough fuel, yet not too much.

2.5.3 If some fuel spill out, please clean it immediately.

2.5.4 Get away of buildings or other equipment for at least 3 feet during operating.

2.5.5 Get rid or any fire no matter stand still or operating.

2.5.6 No matter linked to what kind of power source, the operation pressure should not exceed 70 bar.

3. Trouble Shooting List

Problem	Problem cause		Solution
NO or very few water get out of power sprayer	• Damaged parts. • Foreign object inside.	• Valve spring break. • Valve get stuck by foreign object. • The strainer is blocked.	• Clean all foreign object. • Clean or change valve.
	Failed installation.	• Suction hose leakage. • Insufficiency water supply due to air inside the suction hose.	• Check the gasket in house coupling. • Open the cock and let go the air inside the pump. • Reinstall the suction hose.
	Water supply failure	• Low water level. • Restricted inlet size.	• Raise the water level. • Enlarged inlet size.
Unstable output pressure	Performance not in order	• Operating pressure is too high. • Motor is over heat due to high surrounding's temperature.	• Adjust pressure regulator and lower pressure. • Increase ventilation or stop motors.
	Damaged parts	• Broken eccentric shaft or plunger shoes. • Damaged bearing.	• Change eccentric shaft or plunger shoes • Change bearing.
	Installation or use does not meet the requirements	• Over friction caused by moving parts due to unsatisfactory lubrication.	• Refill or change oil.
Abnormal noise or vibration	Insufficiency performance	• Cavitation	• Eliminate cavitation by check all piping system.
	Damaged parts	• Bended eccentric shaft. • Unbalance or damaged bearing. • Bad lubrication or dirty oil. • Bad valves caused by broken springs or valve get stuck.	• Change shaft. • Change bearing. • Clean and change oil. • Change valves.
Abnormal leakage with water or oil	Damaged parts	• Packings, seals, O-rings wear out or are not in right spec. • Eccentric shaft and/or plunger wear down	• Change packings, seals, O-rings. • Change Eccentric shaft and/or plungers and find the root causes.
	Incorrect Use or installation	• Loosen nut or cock.	• Tighten up all nuts and cocks.

4. Maintenance

4.1 Daily maintenance

4.1.1 With oil mentioned below, the maximum medium temperature is under 55˚C.

4.1.2 Please consult to manufacturer for operating in surroundings with too high or too low temperature.

4.1.3 Insufficiency of oil may cause abnormal noise and damage the pump seriously.

4.2 Periodic Check and Inspection

4.2.1 We strongly recommend our customers to use DPO 100 oil assigned by Tanong for radial power sprayers.

4.2.2 While pump operation pressure is higher than 5kg/cm^2 and use our assigned DPO 100 oil, we suggest that the oil need to be changed after first 25 hours. After that, regularly change the oil for every 50 hours operation. Oil volume should be no less than 230 ml. However, please be noticed that adding excessive oil will cause bubbling around the vent cap.

4.2.3 If customers don't use DP0100 oil, we strongly suggest that the oil level should be at least SAE 50 or equivalent. The frequency of changing oil should be more than what we suggest above for DP0100 oil. Oil volume should be no less than 230 ml. However, please be noticed that adding excessive oil will cause bubbling around the vent cap.

4.2.4 While pump operation pressure is less than 5kg/cm^2, the interval of changing oil could be extended. But we still suggest the interval should not be longer than 300 hour at most.

4.2.5 Please be noticed that the viscosity of some oil inferior to SAE 50 on the market exist insufficient stickiness, it may cause slight leakage of oil seal under high RPM and temperature operation environment. Moreover, for long-term usage, it may damage pump internal parts due to insufficient lubrication.

4.3 Half year maintenance

4.3.1 Check, calibrate all screws within power sprayer, motor and/or engine.

4.3.2 Drain out all oil inside the pump, clean it and refill fresh oil.

4.3.3 Inspect all lines for damage and clean or replace as needed.

4.4 Spare parts

4.4.1 The user need to keep certain spare parts for maintenance. The quantity depends on how often the power sprayer is used, and how bad the using condition can be. In order to keep power sprayer in good situation, Users can purchase some suggested spare parts while buying the power sprayer.

4.4.2 Suggested Spare parts：All sealing parts including packing, seal and O-ring, plunger, bearing, suction & delivery hose and strainer.

4.5 Long-term storage

4.5.1 Long-term storage definition

The new machine has not been used within six months since the date of shipment of the company, or has not been used for more than three months after use.

4.5.2 Impact during storage

4.5.2.1 Due to poor temperature and humidity conditions, corrosion of parts and bearings may occur, and the quality of the seal may deteriorate.

4.5.2.2 Because the oil will be oxidized when exposed to air and moisture, the butter will dry out for a long time, which may cause corrosion of the parts and bearings, and deterioration of the quality of the seal.

4.5.2.3 Because the parts, bearings and seals have not been actuated for a long time, the deformation may be caused.

4.5.2.4 Other aging phenomena caused by problems such as light, dust, ionizing radiation and packaging.

4.5.3 Long-term storage conditions

4.5.3.1 Temperature and Humidity: Store at 25°C and 50% relative humidity.

4.5.3.2 Oil: After the oil is drained for long-term storage, spray or apply anti-rust oil evenly on all parts and bearings, and re-apply anti-rust oil after every three months.

4.5.3.3 Seal: It is made of rubber. It will be aging due to environmental and time factors. It is recommended to replace it after storage for more than six months.

4.5.3.4 Cleaning: Avoid vibration or high dust when storing, and regularly clean the internal and external attachments.

4.5.3.5 Illumination: Avoid direct sunlight or ultraviolet light to avoid early aging of components.

4.5.3.6 Radiation: Avoid the environment of ionizing radiation, so as to avoid early aging of components.

4.5.3.7 Deformation: could happen in storage in improper environment or long-term unused condition. Please rotate the mandrel in order to change the position of components, bearing and sealed parts whenever regular maintenance.

4.5.3.8 Packaging: Storage should be properly packaged to isolate the effects of temperature, humidity, vibration, dust, light, etc., and be regularly maintained and repackaged.

4.6 The time to change oil and attention

Question	Reason	Method
The effect of oil selection, time of change and working environment on machine.	• For changing the oil, it should follow the regulation of using hour or regular interval. Overdue or expired will cause components damage because of lack of lubricity.	• Change oil regularly or whichever occurs first. (see Chapter 4.7)
	• 1. Using improper or inferior quality oil (e.g. recycle oil) cannot achieve proper lubricant function and components protection. • 2. If used oil is not drained completely whenever changing oil, the left impurities of used oil will be dissolved in new oil. That will accelerate the oil deterioration. • 3. Please do not mix up with different group oil because their chemical composition and additives are different. Mixed oil could cause deterioration. • 4. Please avoid using PAG oil. a. Most common rubber and plastics are closed to polarity that will be affected by PAG, led to swell or shrinkage. b. The paint will be eroded and then peeled off by PAG oil. c. Light metals (e.g. Aluminum alloy) will be eroded or cracked by PAG under the effect of stress. d. PAG oil is hydrophilic; thus, water cannot be filtered out by filtering system.	• 1.1 Please choose good quality oil sold from us or other qualified brands. Please avoid using inferior oil such as recycled oil. • 2.1 Whenever the time of changing oil, please ensure the used one is as drained as possible for the quality of new oil. • 3.1 For replacing oil with different group oil, the used one needs to be drained completely and then washing the oil tank with replaced oil before refill it. • 4.1 Please avoid using PAG oil.

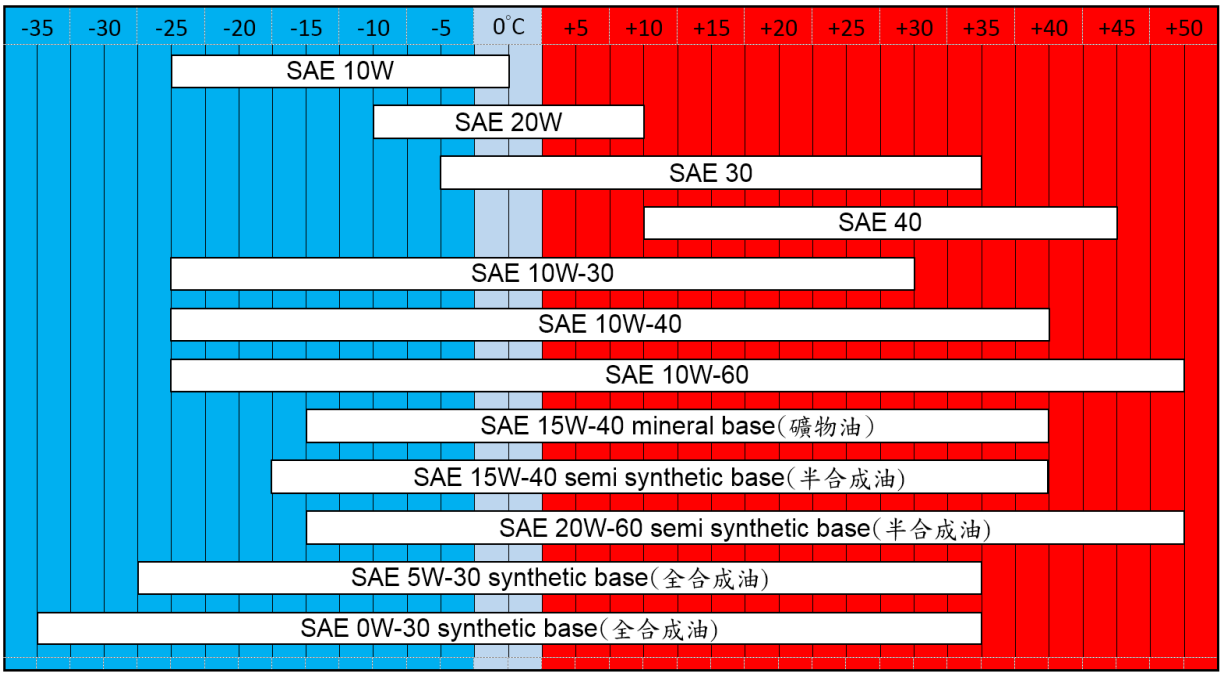
Question	Reason	Method
The effect of oil selection, time of change and working environment on machine.	1. The interval between the highest and the lowest temperature will directly affect the liquidity and lubricity of oil. 2. Under wretched work environment (e.g. heat, stuffy, directly exposed under sunlight or rain, dusty, high humidity, bad air quality), the selection of oil and time of changing oil will directly affect the maintenance and lubricity of the machine.	• 1.1 Please select the oil with adequate viscosity according to workplace environment in order to have best lubricity and protection. (see Chapter 4.8) • 2.1 The time of changing oil is based on regular operation. Operator should consider the affection of workplace, temperature and humidity for increasing or decreasing the interval of changing oil, and should also shorten the interval, depending on the condition of the liquidity, impurity, odor and deterioration.
	1. If the operator uses the machine under constant overpressure, it will lead to losing of oil lubricity rapidly. 2. If the machine is left unused for long time or only used rarely. It will lead to oil deterioration by oxidation, or even cause internal components rusted.	• 1.1 If operational condition is strict such as operation in constant overpressure, then the interval of changing oil should be shortened. ※ The performance of machine is limited. Overpressure operation will lead to component damage and then reduce life of machine. Please follow the instructions of pressure specification for the sake of long- term use. • 2.1 Please change the oil regularly when the machine remains unused for long time. • 2.2 If the machine needs to be used after long-term unused status, please check the internal components and also change oil. • 2.3 If the components are rusty, please do not use it and return it to the manufacturer.

4.7 Oil Changing Interval (hours or months)

Oil Type / Interval / Frequency	Above SAE40 Mineral base	Above SAE40 Semi synthetic base	Above SAE40 synthetic base	Remark
First time use	50 hr. or 1 month	50 hr. or 1 month	50 hr. or 1 month	• First time use is for component running in period result in scraps. It is important to change oil.
Monthly average 8 hr. /days above	500 hr. or 2 months	600 hr. or 2.5 months	700 hr. or 3 months	• For reference only. The affection of workplace and environmental elements also should be considered.
Monthly average 2 hr. /days above	300 hr. or 1.5months	400 hr. or 2 months	500 hr. or 2.5 months	• For reference only. The affection of workplace and environmental elements also should be considered.
Monthly average 8 hr. /days below or only use occasionally	100 hr. or 1 month	200 hr. or 1.5 months	300 hr. or 2months	• For reference only. The affection of workplace and environmental elements should be considered.
Left unused for long time	Once every 2 months	Once every 3 months	Once every 4 months	• If the machine is left unused for long time. It will lead to oil deterioration by oxidation, or even causes internal components rusted. • If the machine needs to be used after long-term unused status, please check the internal components and change the oil. If the internal components are rusty, please do not use it and then return to the manufacturer.

4.8 Oil Selection

Please select the oil with adequate viscosity according to workplace environment in order to have best lubricity and protection



5. Warranty

5.1 Warranty Project

※ **This warranty involves any failure parts produced or supplied by manufacturer when failure part caused any abnormal performance. During warranty period, the manufacturer offer free maintenance.**

5.1.1 No service charge and expense of replaced part are required with warranty.

5.1.2 Warranty period：One year after delivery.

5.2 Non-guaranteed items

5.2.1 A serious lack of foreseen maintenance.

5.2.2 Damages caused by the nature disaster such as earthquake.

5.2.3 Modifications or intervention that are not authorized by the manufacturer.

5.2.4 Non-normative uses that contrary to the specific.

5.2.5 The use of non-original spare parts and assigned oil for the pump.

5.2.6 Natural aging situation such as rust on surface caused by time.

5.2.7 Not inquire to factory or your local distributor when damage occurs.

5.2.8 If the maintenance does not follow the standard instruction or do not apply regular maintenance, unusual noise or vibration in operation could happen but can still reach the performance as it should be. In this case, it won't be included in warranty.

5.2 Non-guaranteed cost items

5.3.1 Losing of failure parts during warranty application.

5.3.2 Any direct and/or indirect lose comes from warranty items.

5.3.3 Regarding to warranty, all seals, packings, O-rings and oil are excluded.

Quality Assurance Certificate

Name： **Radial Power Sprayer**

Model： **DT-500**

Serial Number：

Date of purchase：　　年　　月　　日

1. This product is made through strict quality management and inspection process.
2. When there is an abnormality in this product, free after-sales service can be obtained within 1 year after installation.
3. Even if the quality guarantee period is not exceeded, the following items will still be charged for the service (repair fee + parts fee + travel fee, etc.)
   - Failure caused by improper maintenance and repair.
   - Natural disasters (fire, flood and others).
   - Failure or damage caused by falling, etc. after installation.
   - The life of the part itself is exhausted (filter, etc.)
   - Unspecified matters, as stated in the warranty terms.
4. This warranty must be presented when repairs are required.

Service Application

1. Before contacting, please reconfirm the usage method in the instruction manual and the inspection items at the time of failure.
2. If the abnormality still exists after confirmation, please stop using it and consult the sales office or the company.

合格 TANONG 大農精密科技股份有限公司 品保部

Qualification chapter：_____　Quality assurance supervisor：_____

Note：

Note：

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