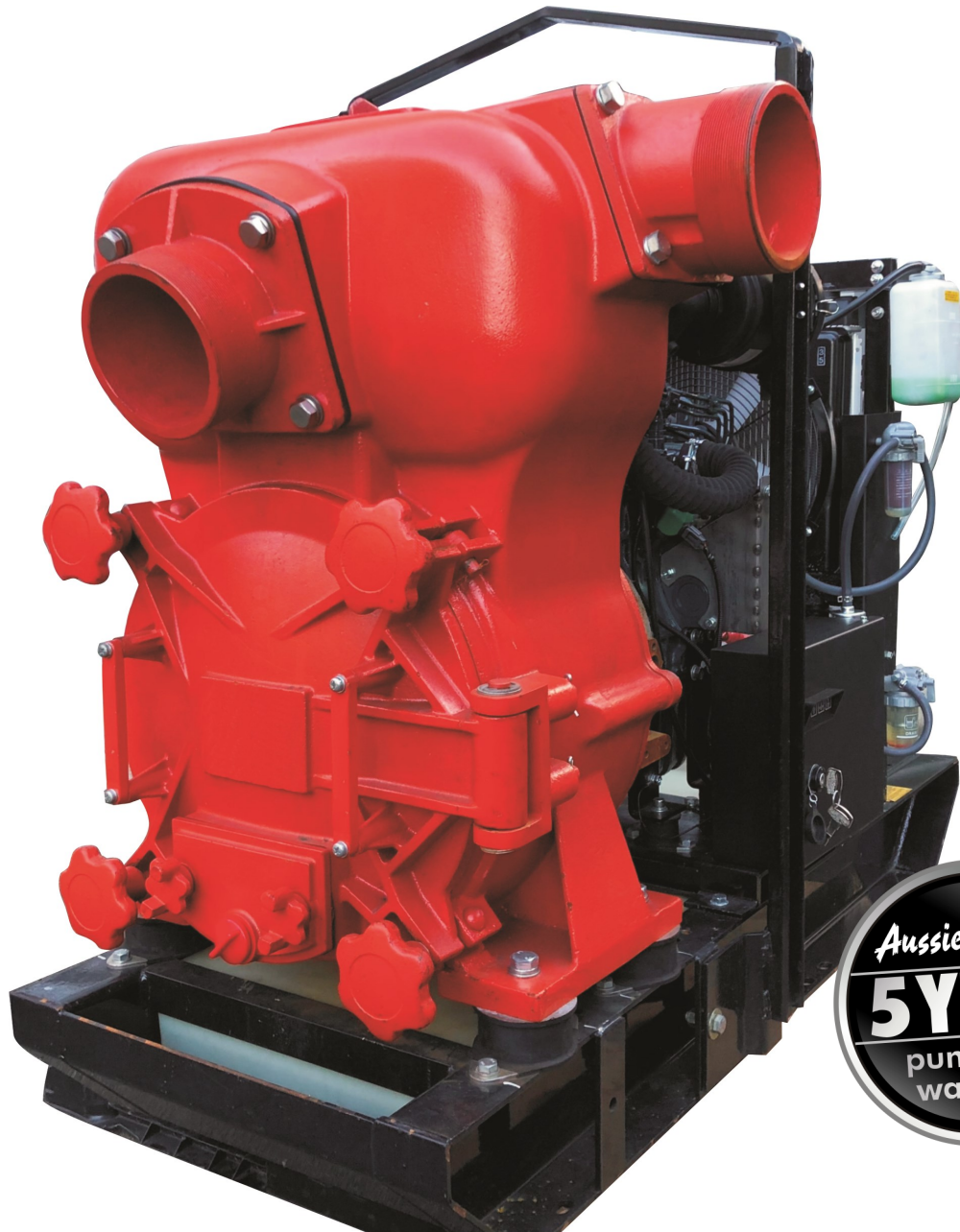


OPERATION & PARTS MANUAL

MODEL QP60TDK SERIES TRASH PUMP (KUBOTA D1105 DIESEL ENGINE)



Revision #0 (Sept 2018)

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

Aussie Pumps

QP60TKD Trash Pump

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DAILY PRE-OPERATION CHECKLIST

Daily Pre-Operation Checklist		✓	✓	✓	✓	✓	✓
1	Check engine oil level.						
2	Fuel level and clean fuel check.						
3	Check cooling fins and air flow.						
4	Check engine battery and cable connections.						
5	Hardware and damage check.						
6	Check vacuum pump seal oil.						
7	Check bearing housing oil level.						
8	Check pump seal.						

FOR YOUR SAFETY AND SAFETY OF OTHERS!

Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the Safety Messages and Operating Instructions could result in Injury to yourself and others.

This manual has been developed to provide complete instructions for the safe and efficient operation of this equipment.



Refer to the engine manufacturer's instructions for data relative to its safe operation.

Before using this equipment ensure that the operating individual has read and understood all instructions in this manual.

SAFETY MESSAGE ALERT SYMBOLS

The three Safety Messages shown below will inform you About potential hazards that could injure you or others. The Safety Messages specifically address the level of exposure to the operator, and are preceded by one of three words: DANGER, WARNING, or CAUTION.

DANGER

You **WILL** be **KILLED** or **SERIOUSLY INJURED** if you

WARNING

You **CAN** be **KILLED** or **SERIOUSLY INJURED** if you

CAUTION

You **CAN** be **INJURED** if you **DO NOT** follow these

HAZARD SYMBOLS

Potential hazards associated with the operation of this equipment will be referenced with Hazard Symbols which appear throughout this manual, and will be referenced in conjunction with Safety Message Alert Symbols

WARNING—LETHAL EXHAUST GAS HAZARDS

Engine fuel exhaust gases contain poisonous carbon monoxide.. This gas is colourless and odourless, and can cause death if inhaled. NEVER operate this equipment in a confined area or enclosed structure that does not provide ample free flow air.

WARNING—EXPLOSIVE FUEL HAZARDS

Fuel is extremely flammable and its vapours can cause an explosion if ignited. DO NOT start the engine near spilled fuel or combustible fluids.

DO NOT fill the fuel tank while the engine is running or hot.

DO NOT overfill tank, since spilled fuel could ignite if it comes into contact with hot engine parts or sparks from the ignition system. Store fuel in approved containers, in well-ventilated areas and away from sparks and flames

WARNING—BURN HAZARDS

Engine components can generate extreme heat. To prevent burns DO NOT touch these areas while the engine is running or Immediately after operation. Never operate the engine with heat shields or heat guards removed

WARNING—RESPIRATORY HAZARDS

ALWAYS wear approved respiratory protection when required



CAUTION—ROTATING PARTS



NEVER operate equipment with covers or guards removed, Keep fingers, hands, hair and clothing away from all moving parts to prevent injury,



CAUTION—OVERSPEED CONDITIONS



NEVER operate equipment with covers or guards removed, Keep fingers, hands, hair and clothing away from all moving parts to prevent injury,



CAUTION—ACCIDENTAL STARTING HAZARDS



ALWAYS place the equipment ON/OFF switch in the OFF position when the equipment is not in use.



CAUTION—EQUIPMENT DAMAGE HAZARDS

Other important messages are provided throughout this Manual to help prevent damage to your equipment, other property, or the surrounding environment.



CAUTION—EYE & HEARING HAZARDS



ALWAYS wear approved eye and hearing protection when required.

WARNING

Failure to follow instructions in this manual may lead to serious injury or even DEATH! This equipment is to be operated by trained and qualified personnel only! This

GENERAL SAFETY

- DO NOT operate or service this equipment before reading this entire manual.
- This equipment should not be operated by persons under 18 years of age.
- NEVER operate this equipment without proper protective clothing, shatterproof glasses, steel-toed boots and other protective devices required by the job.



- NEVER operate this equipment when not feeling well due to fatigue, illness or when under medication.
- NEVER operate this equipment under the influence of drugs or alcohol.
- NEVER disconnect any "emergency or safety devices". These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death! Disconnection of any of these devices will void all warranties.
- NEVER use accessories or attachments that are not recommended by QP-Pump for this equipment. Damage to the equipment and/or injury to user may result. Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties. Whenever necessary, replace nameplate, operation and safety decals when they become difficult read.
- ALWAYS check the equipment for loosened threads or bolts before starting.



- NEVER touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing engine or pump.
- ALWAYS allow the engine to cool before adding fuel or performing service and maintenance functions. Contact with hot components can cause serious burns.
- NEVER operate this equipment in any enclosed or narrow area where free flow of the air is restricted. The engine requires an adequate free flow of cooling air. If the airflow is restricted it will cause serious damage to the equipment or engine, and may cause injury to people and property. Remember, the engine gives off DEADLY gases.
- ALWAYS refuel in a well ventilated area away from sparks and open flames.
- ALWAYS use extreme caution when working with flammable liquids. When refuelling, stop the engine and allow it to cool.
- Do not smoke around or near the equipment. Fire or explosion could result from fuel vapours, or if fuel is spilled on a hot engine.
- NEVER operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe bodily harm or even death.
- DO NOT top-up fuel tank. Topping-up is dangerous as it causes fuel to spill.
- ALWAYS store the equipment in a clean, dry location out of the reach of children.
- NEVER run engine without air filter. Severe engine damage may occur.
- NEVER leave the equipment unattended with the engine running. Turn off engine when unattended.
- CAUTION must always be observed while servicing this equipment. Rotating parts can cause injury if contacted



- **ALWAYS** read, understand, and follow procedures in Operator's Manual before attempting to operate equipment.
- **ALWAYS** be sure the operator is familiar with proper safety precautions and operation techniques before using pump.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children.
- **NEVER** pump volatile, explosive, flammable or low flash point fluids. These fluids could ignite or explode.
- **NEVER** operate the pump in an **explosive** atmosphere.
- **ALWAYS** ensure pump is on level ground before use.
- Become familiar with the components of the pump before operating.
- **ALWAYS** replace any worn or damaged warning decals.
- **NEVER** pump corrosive chemicals or water containing toxic substances. These fluids could create serious health and environmental hazards. Contact local authorities for assistance.
- **NEVER** open the priming plug when pump is hot. Hot water inside could be pressurized much like the radiator of an automobile. Allow pump to cool to the touch before loosening plug. The possibility exists of scalding, resulting in severe bodily harm.
- **NEVER** block or restrict flow from discharge hose. Remove kinks from discharge line before starting pump. Operation with a blocked discharge line can cause water inside pump to overheat.
- **ALWAYS** fill the pump casing with water before starting the engine. Failure to maintain water inside the pump housing will cause severe damage to the pump.
- In winter drain water from pump housing to prevent freezing.
- **ALWAYS** make sure that the pump's trailer is placed on solid level ground so that it cannot slide or shift around, endangering workers. Deploy jack stands for stabilization. Place blocks under the trailer's bumper to make it level (prevents tipping), and use a chocked block underneath the wheels to prevent rolling. Also keep the immediate area free of bystanders.
- Before starting the pump, check that the clean-out cover is securely fastened.
- **NEVER** start the pump with the clean-out cover removed. The rotating impeller inside the pump can cut or sever objects caught in it.

WARNING — Do Not Run the Pump Dry

If the pump loses prime while operating, the remaining water in the casing will reach near-boiling temperatures within approximately 15 minutes. **NEVER** operate the pump without water flowing through the pump. Allow pump casing to cool to the touch before opening the fill or drain caps or before removing any hoses to avoid serious burns and bodily injury to the operator.



TRANSPORTING

- ALWAYS shutdown engine before transporting.
- Tighten fuel tank cap securely and close fuel cock to prevent fuel from spilling.
- ALWAYS make sure pump is correctly secured to the trailer. Check all connections attaching the pump to the trailer and make sure they are tight.

MAINTENANCE SAFETY

- NEVER lubricate components or attempt service a running machine.
- ALWAYS allow the machine a proper amount of time to cool before servicing.
- Keep the equipment in proper running condition.
- Fix damage to the equipment immediately and always replace broken parts.
- Dispose of hazardous waste properly. Examples of potentially hazardous waste are used motor oil, fuel and fuel filters.
- DO NOT use food or plastic containers to dispose of hazardous waste.
- DO NOT pour waste, oil or fuel directly onto the ground, down a drain or into any water source.

EMERGENCIES

- ALWAYS know the location of the nearest fire extinguisher.
- ALWAYS know the location of the nearest **first aid kit**.
- In emergencies, **always** know the location of the nearest phone or **keep a phone** on the job site. Also know the phone numbers of the nearest ambulance, doctor and fire department. This information will be invaluable in case of emergency.

BATTERY SAFETY (FOR ELECTRIC START)

- The battery contains acids that can cause Injury to the eyes and skin. **ALWAYS** wear safety glasses to avoid eye irritation.
- **ALWAYS** wear well-insulated gloves when picking up the battery.
- **ALWAYS** keep the battery charged. If the battery is not charged, a build up of combustible gas will occur.
- **DO NOT** charge battery if frozen. Battery can explode. When frozen, warm the battery to at least 61°F (16° C).
- **ALWAYS** make sure battery terminals are properly connected. Inadequate battery connections may cause poor starting of the equipment and create other malfunctions.
- **ALWAYS** keep battery cables in good working condition. Repair or replace all worn cables.
- **ALWAYS** recharge the battery in an vented air environment, to avoid risk of a dangerous concentration of combustible gases.
- **ALWAYS** disconnect the negative battery terminal before performing service on the equipment.
- If the battery liquid (dilute sulfuric acid) comes in contact with clothing or skin, rinse skin or clothing immediately with plenty of water.
- If the battery liquid (dilute sulfuric acid) comes in contact with your EYES, rinse eyes immediately with plenty of water and contact the nearest doctor or hospital to seek medical attention.

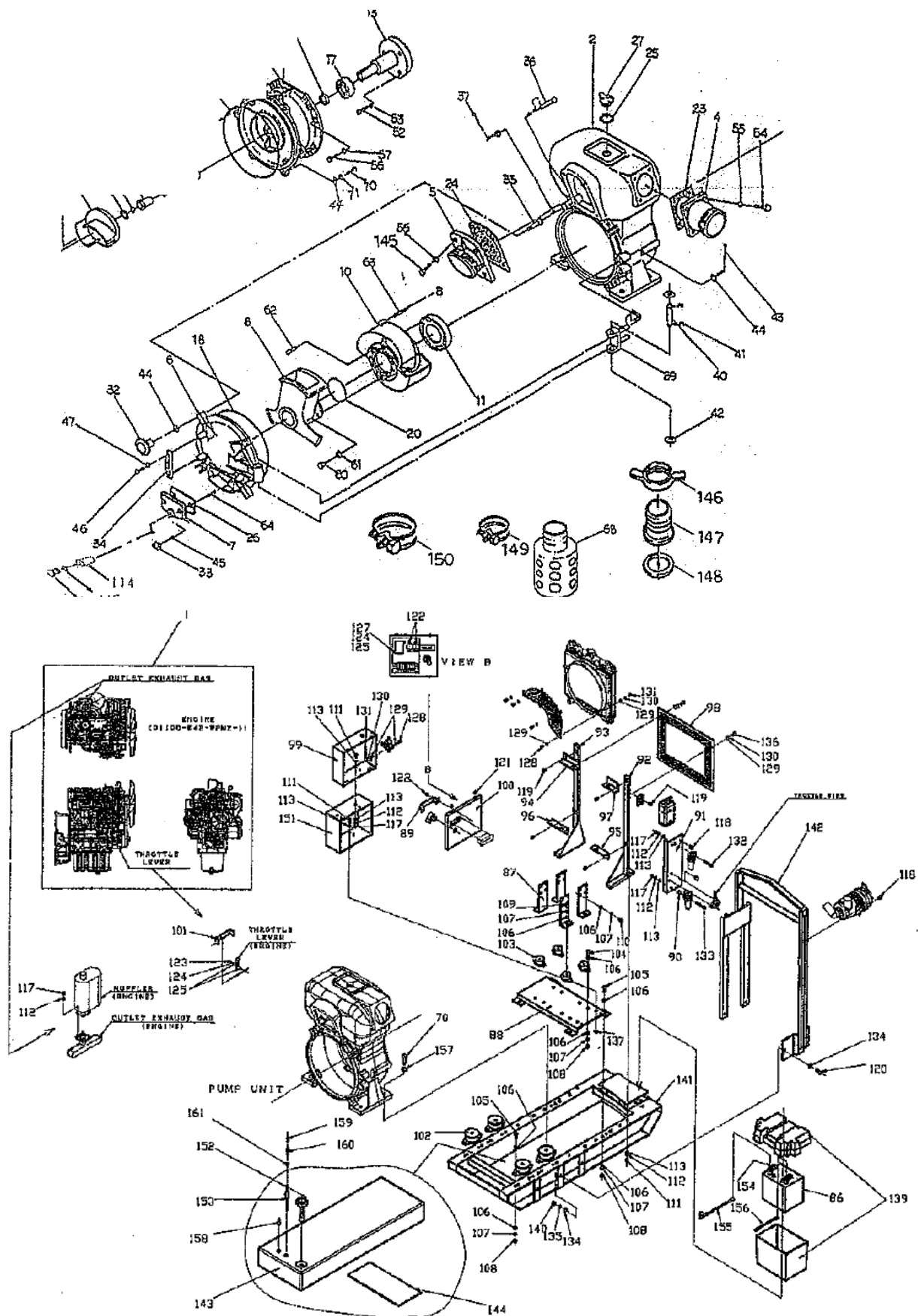
DANGER

The risk of an explosion exists when performing service on the battery. To avoid severe injury or DEATH:

DO NOT drop the battery There is the possibility of risk that the battery may explode.

DO NOT expose the battery to open flames, sparks, cigarettes, etc. The battery contains combustible gases and liquids. If these gases and liquids come in contact with a flame or spark, an explosion could occur.

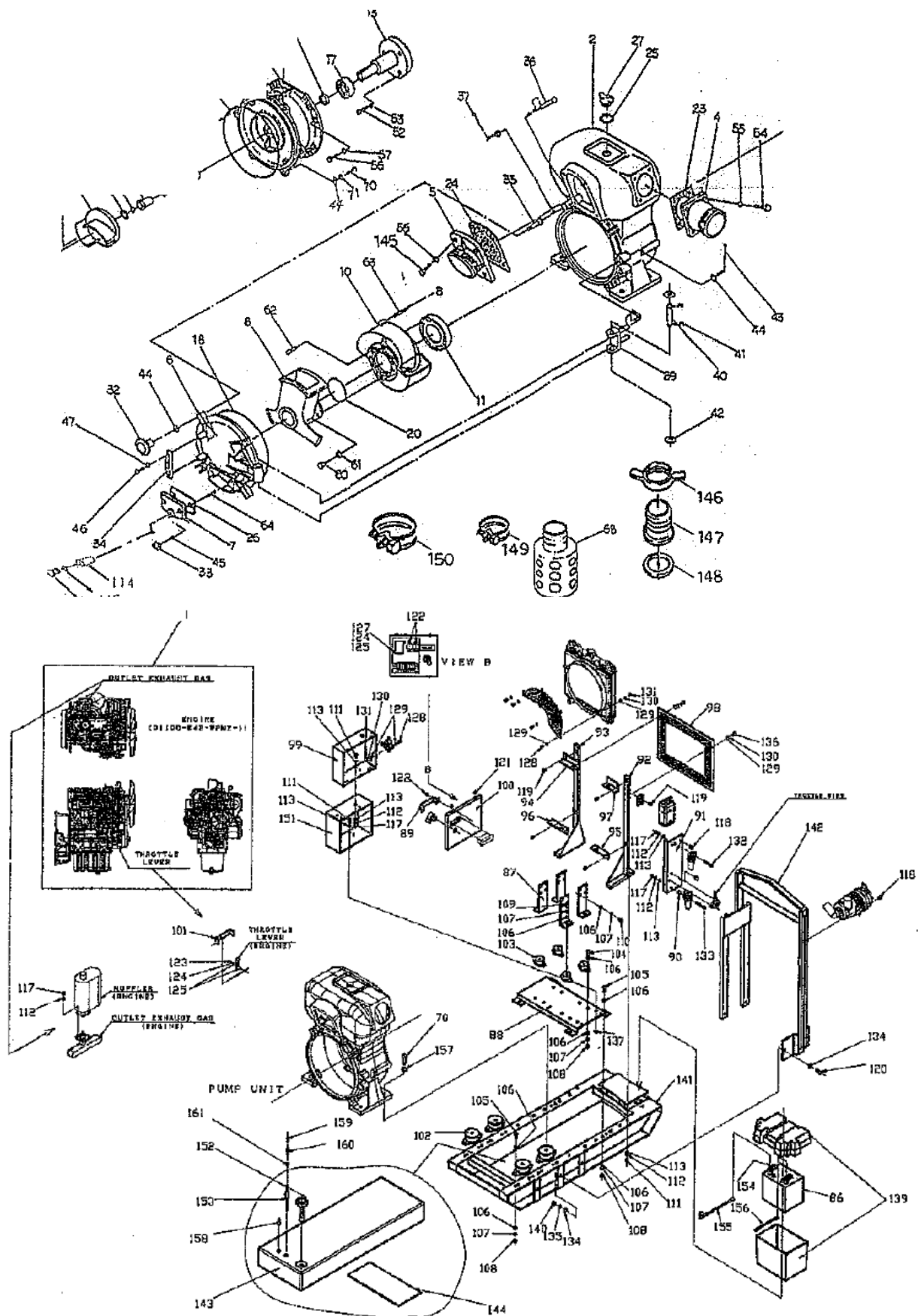
PARTS LIST & EXPLODED DRAWING (QP60TD) PART 1



PARTS LIST & EXPLODED DRAWING (QP60TD) PART 2

NO.	PARTS NO.	PARTS NAME	QTY	MATERIAL
1	D1105-E4B-WPME-1	ENGINE D1105	1	
2	2601-000010-0001	CASING	1	FC
3	2620-000024-0001	CASING COVER	1	FC
4	4601-000090-0001	DELIVERY COVER	1	FC
5	4601-000160-0001	SUCTION COVER	1	FC
6	2608-000170-0001	DRAIN COVER	1	FC
7	2601-000210-0001	DRAIN COVER-B	1	FC
8	2601-000800	SUCTION CASE	1	FC
9	2647-000030	IMPELLER	1	FC
10	2620-000130	VOLUTE CASING	1	FC
11	4607-000700	WEAR PLATE	1	FC
12	4607-000751	MECHANICAL SEAL HOUSING	1	FC
13	4607-221012	PUMP SHAFT	1	S45C
14	080133-4545	MECHANICAL SEAL	1	WCxWC
15	081138-4576	MECHANICAL SEAL SLEEVE	1	SUS
16	086245-6209	OIL SEAL	1	NBR+SS400
17	067002-6209	BALL BEARING	1	SUJ
18	048360-4300	O-RING (CASING, DRAIN COVER)	2	NBR
19	048035-0380	O-RING (MECHANICAL SEAL SLEEVE)	1	NBR
20	048057-1400	O-RING (VOLUTE CASING)	1	NBR
21	048220-1000	O-RING (MECHANICAL SEAL HOUSING)	1	NBR
23	1601-330360	PACKING (DELIVERY COVER)	1	NBR
24	1601-350350	CHECK VALVE	1	NBR+SS400
25	074132-0503	PACKING (FLOODING CAP)	1	NBR
26	1601-330380	PACKING (DRAIN COVER-B)	1	NBR
27	063121-1202-0002	FLOODING CAP	1	ABS
29	086285-6439	ADJUST LINER	3	BSP
30	4607-201240-0011	IMPELLER WASHER	1	SS400
31	051108-1054	KEY	1	S45C
32	2601-000190-0001	DRAIN COVER SET HANDLE	4	FC
33	2601-000220-0001	DRAIN COVER SET-B SET HANDLE	2	FC
34	1247-100250-0001	DRAIN COVER HANDLE	2	ADC
35	2601-200270-0001	HINGE BOLT	4	SS400
36	2601-200280-0001	HINGE PIN	4	SS400
37	064140-0430	SPLIT PIN	4	SWRM
39	2601-200260-0001	DRAIN COVER SET HINGE	1	SS400
40	2601-200300-0001	HINGE SET PIN	1	SS400
41	046272-1915	E-RING	2	SK5
42	040145-0200	WASHER	2	SS400
43	064230-0528	SPLIT PIN	2	SWRM
44	040145-0160	WASHER	12	SS400
45	040145-0120	WASHER	2	SS400
46	014105-0825	SCREW (DRAIN COVER HANDLE)	4	SS400
47	045125-0080	SPRING WASHER	4	SWRH
48	010509-0820	BOLT (MECHANICAL SEAL HOUSING)	4	SUS
49	045129-0080	SPRING WASHER	4	SUS
50	010509-1225	BOLT (IMPELLER)	1	SUS
51	045129-0120	SPRING WASHER	1	SUS
52	019116-0538	BOLT	6	SS400
53	045125-0080	SPRING WASHER	6	SWRH
54	010505-1645	BOLT (SUCTION COVER, DELIVERY COVER)	4	SS400
55	045125-0160	SPRING WASHER	8	SWRH
56	019116-0632	BOLT (CASING COVER)	8	SS400
57	045125-0100	SPRING WASHER	8	SWRH
58	010505-2030-0001	BOLT (OIL CAP)	3	SS400
59	4607-287110	OIL CAP WASHER	3	BSP
60	010509-1030	BOLT (SUCTION CASE)	2	SUS
61	045129-0100	SPRING WASHER	2	SUS
62	013119-1020	CAP SCREW (WEAR PLATE)	3	SUS
63	015116-1035	STUD BOLT (VOLUTE CASING)	2	S45C
64	015116-1230	STUD BOLT (DRAIN COVER-B)	2	SS400
65	045822-0100	SEAL WASHER	2	SUS+NBR
67	020446-0100	U-NUT	2	SS400
68	074221-1150	STRAINER	1	AC
70	010505-1655	BOLT	10	SS400
71	045125-0160	SPRING WASHER	6	SWRH
86	096120-5052D	BATTERY	1	75D23R
87	2647-204320-C014	ENGINE BRACKET	4	SS400F
88	2647-214020-C014	ENGINE BASE	1	SS400P
89	2647-204360-C014	FUSE BRACKET	1	SPHC

PARTS LIST & EXPLODED DRAWING (QP60TD) PART 3



PARTS LIST & EXPLODED DRAWING (QP60TD) PART 4

NO.	PARTS NO.	PARTS NAME	QTY	MATERIAL
90	2647-200680-C014	FILTER COLLAR	1	SS400B
91	2647-204380-C014	FILTER SET PLATE	1	SPHC
92	2647-214180-C014	RADIATOR BRACKET 1	1	STKMR, SPHC
93	2647-214180-C014	RADIATOR BRACKET 2	1	STKMR, SPHC
94	2647-204800-C014	RADIATOR BRACKET 3	1	SPHC
95	2647-204810-C014	RADIATOR BRACKET 4	1	SPHC
96	2647-204820-C014	RADIATOR BRACKET 5	1	SPHC
97	2647-204830-C014	RADIATOR BRACKET 6	1	SPHC
98	2647-214140-C014	RADIATOR GUARD	1	SS400F
99	2647-212610-C014	CONTROL BOX	1	SPHC
100	2647-212600-C014	CONTROL BOX COVER	1	SPHC
101	2647-207060-C014	THROTTLE BRACKET	1	SPHC
102	072330-5010	CUSHION REBBER	4	NBR+SS400
103	072330-2750	CUSHION REBBER	4	NBR+SS400
104	010505-1025	BOLT	8	SS400
105	010505-1030	BOLT	12	SS400
106	040145-0100	WASHER	60	SS400
107	045125-0100	SPRING WASHER	40	SS400
108	020545-0100	NUT	20	SS400
109	010505-1020	BOLT	4	SS400
110	010709-1025	BOLT	16	SS400
111	010505-0820	BOLT	14	SS400
112	040125-0080	SPRING WASHER	16	SS400
113	040145-0080	WASHER	20	SS400
114	082122-0820	ZINC STICK	1	Zn
115	074430-0261	PACKING	1	NBR
116	063122-1106	DRAIN CAP	1	AL
117	020545-0080	NUT	10	SS400
118	010508-0820	HEXAGON HEAD SCREW W/CAPTIVE WASHER	4	SS400
119	010506-0616	HEXAGON HEAD SCREW W/CAPTIVE WASHER	12	SS400
120	010505-1235	BOLT	4	SS400
121	014309-0510	TRUSS HEAD SCREW	4	SS400
122	010508-0510	HEXAGON HEAD SCREW W/CAPTIVE WASHER	4	SS400
123	014105-0512	SCREW	1	SS400
124	045125-0050	SPRING WASHER	3	SS400
125	040145-0050	WASHER	3	SS400
127	010505-0535	BOLT	2	SS400
128	010505-0616	BOLT	6	SS400
129	040145-0060	WASHER	12	SS400
130	045125-0060	SPRING WASHER	6	SS400
131	020545-0060	NUT	6	SS400
132	010505-0865	BOLT	1	SS400
133	010505-0880	BOLT	1	SS400
134	040145-0120	WASHER	8	SS400
135	045125-0120	SPRING WASHER	4	SS400
136	010505-0820	BOLT	4	SS400
137	020915-0080	FLANGE NUT	4	SS400
139	7508-806200	BATTERY BOX	1	ABS
140	020545-0120	NUT	4	SS400
141	2647-214030	SKID BASE	1	SS400
142	2647-214150	LIFTING VEIL	1	SS400
143	2647-800900	FUEL TANK	1	FRP
144	2647-338500	RUBBER PLATE	6	NBR
145	010505-1655	BOLT(SUCTION COVER)	4	SS400
146	074111-0150	HOSE COUPLING	2	AC
147	074124-0150	HOSE JOINT	2	AC
148	074132-1501	HOSE COUPLING PACKING	2	NBR
149	093225-0160	WIRE HOSE BAND	1	SWRM
150	093225-6000	WIRE HOSE BAND	2	SWRM
151	2647-213950-C014	CONTROL BOX STAND	1	SPHC
152	2647-801040	FUEL CAP	1	PP
153	2647-801060	PIPE FOR FUEL (SUCTION)	1	SS400
154	096903-3000	BATTERY TERMINAL	1	BRASS
155	097890-9800	BATTERY CORD (PLUS)	1	—
156	097209-9720	BATTERY CORD (MINUS)	1	—
157	045125-0160	SPRING WASHER	4	SWRH
158	2647-266320	HOSE NIPPLE	1	BRASS
159	074428-7211	REDUSER JOINT	1	AL
160	094206-1012	FUEL HOSE	1	NBR
161	093720-0008	HOSE BAND (φ6.5)	1	SS400
162	2647-996800	HARNESS SET	1	—

[Model] QP-60TDK / D1105

[Type] Self-priming Centrifugal Trash Pump

1. Specification of pump

1	Total Head inclusive suction lift [Max]	35 m
2	Capacity [Max]	4200 l/min.
3	Required Revolution	3000 r.p.m.
4	Liquid for Pumping	Water / Muddy water contained sands under 10%
5	Liquid temperature	0~40℃
6	Liquid-Specific Gravity	1.0
7	Suction lift	6~7m
8	Impeller structure	Open type
9	Solid-dia to be passed through (Spherical)	Less than 40mm
10	Diameter of Suction & Discharge	Suction: 6Inch/150mm Del: 6Inch/150mm
11	Pipe Thread Standard	Suc & Delivery: PF-PipeThread Parallel
12	Delivery outlet	• Four(4) bolted flange type
13	Suction inlet	• Four(4) bolted flange type
14	Oil bath (Mechanical seal)	Turbine oil (viscosity ISO32) 360cc to be filled in
15	Setting of engine / pump	Direct coupling type
16	Mounting Scheme of Pump & Prime Mover	Pump set with rubber mounted to steel base
17	Standard Accessories (for a unit)	2xHose couplings, 3xWire hose bands, 1x Metal Strainer
8	Dimension of a completed unit [L x W x H]	2146 x 968 x 1527 (mm) with tires & supporting stand
19	Packing Dimension [L X W X H]	1850 x 1165 x 1880 (mm) in wooden crate
20	Net Weight	680 kg
21	Gross Weight (in package)	790 kg
22	Standard paint	Pump: Orange Steel base: Black

2. Specification of prime mover

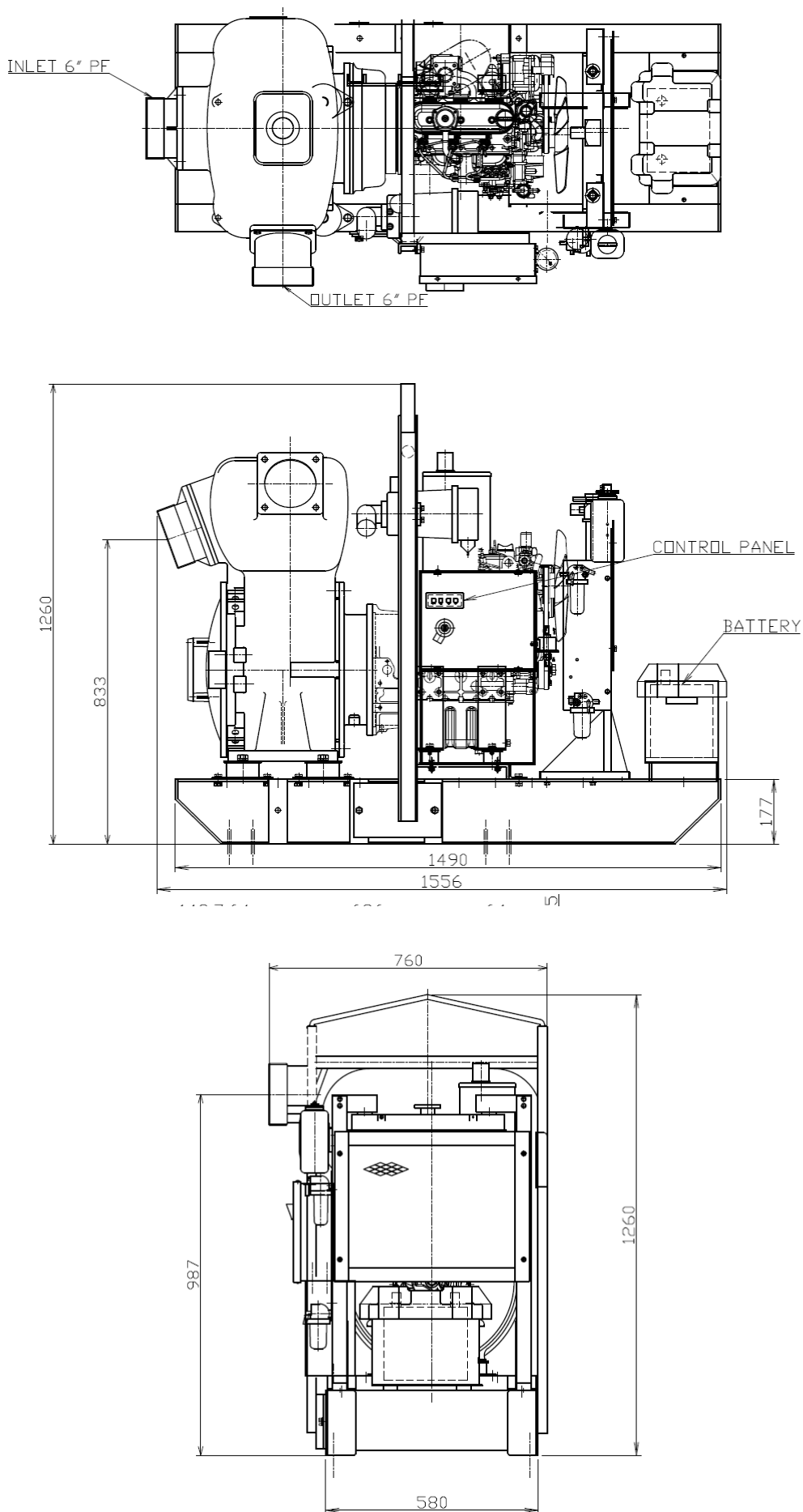
1	Manufacturer	KUBOTA CO.,LTD.-Japan
2	Type & Model	4 cycle water cooled 3-cylinder diesel engine Model : D1105
3	Cylinder arrangement: bore stroke	37.8 x 78.4 (mm)
4	Total displacement	1.123(L)
5	Continuous rated Output/revolution	18.5 kW / 24.8 HP / 3000 r.p.m.
6	Dry weight	93 (kg)
7	Dimensions [L XW XH]	498 x 396," 609 (mm)
8	Engine oil	API more than class CD
9	Lubricating oil quantity	5.1(L)
10	Fuel	Diesel fuel (ASTM No.2-D)
11	Fuel Tank Capacity	60 (L)
12	Operation time	Approx. 10 hr.
13	Fuel Supply System	Electric fuel pump
14	Cooling System	Water Cooled
15	Starting System	Electric starting with cell starter

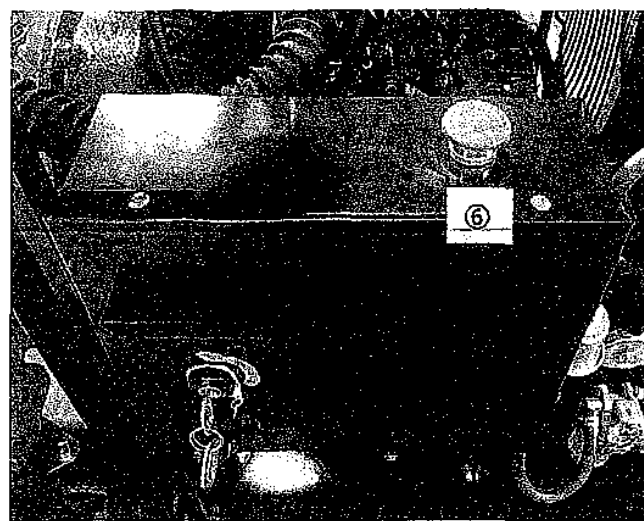
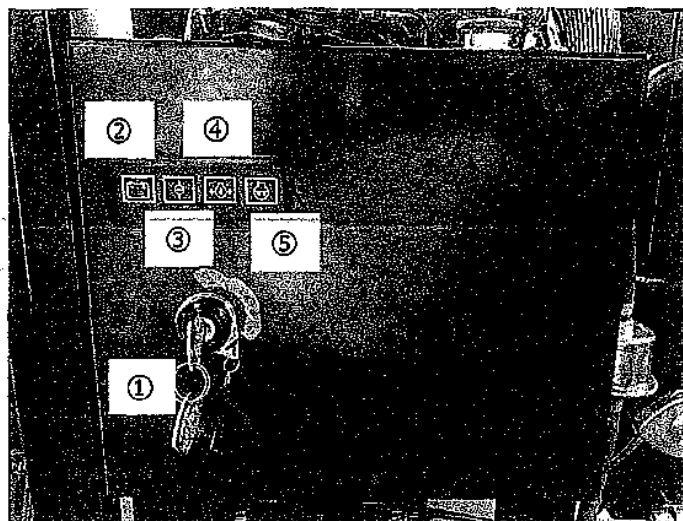
3. Pump material





1	Pump Case (Casing)	Cast Iron
2	Pump back plate (Casing cover)	Cast Iron
3	Impeller	Cast Iron
4	Inner case (Volute casing)	Cast Iron
5	Inlet port (Suction cover)	Cast Iron
6	Outlet port (Delivery cover)	Cast Iron
7	Wear plate	Ductile Cast Iron (Hardening)
8	Mechanical Seal	WE x WE (Tungsten carbide)
9	O-Rings	NBR
10	Fittings	Inner fittings used: Stainless steel Other fittings used: Steel

4. Remark

This product does not have an electrical works equipped with the preservation parts such as brakes, blinker. Please use the traction equipment as assistance to move a pump in operation-fields





No.	Indicator light	Indicator	Colour	Function	Equipped
①	-	Ignition Key	-	To use for engine starting/stopping and glow plug heating	apply
②		Battery recharge indicator light	Red	Lights up when the battery is not recharging. It lights up at "ON" position of ignition, the light should be off while engine running providing the battery is charging	apply
③		Coolant water temp indicator light	Red	Lights up when the temperature of the coolant water is abnormally high . (over heat conditions) Engine will stop automatically if this lamp lights up.	apply
④		Oil pressure indicator light	Red	Lights up when oil pressure is low. It lights up at "ON" position of ignition, after then it should be off while engine running providing the oil pressure is not low.	apply
⑤		Glow plug heating indicator light	Red	It indicates "pre-heating" time". It lights up at "GL" position of ignition, after 5 seconds light goes off. *1 After light off, turn ignition to "ST" position. *2 Note; *1. This step is not necessary if engine is warm enough. *2. Stay in "GL" position for longer than 5 seconds if ambient temp under -5°C	apply
⑥		Emergency stop button	-	Engine stopped immediately by pushing down button in an emergency. To release, return the ignition to "OFF" position and turn emergency button in direction of arrow on button.	apply

The **QP60TD** trash pump is a self-priming trash pump powered by a 25 horsepower air-cooled, 3-cylinder, four cycle KUBOTA diesel engine. Both the intake (suction) and Discharge ports on the pump incorporate a 6-inch diameter opening, which allows the pump to discharge at a rate of approximately 1,109 gpm or 4,200 lpm.

This is a self-priming pump design, the pump casing must be filled with water before the pump can be used. The engine drives a rotating disc with two (or more vanes) called an impeller that creates an area of low pressure inside the pump. Priming is accomplished when all air is purged from the pump and suction line allowing water to flow continuously into the pump.

TRASH PUMP

Trash pumps derive their name from their ability to handle a greater amount of debris and solids than standard centrifugal pumps. This pump can handle solids up to 1.6 inches(40mm). Also trash pumps are capable of handling water with 10% solids by weight.

The advantage of using a trash pump is that it can be quickly and easily disassembled in the field to remove debris in the event the pump becomes clogged.

SUCTION LIFT

This pump has a maximum suction lifts up to 25 feet (7.6 meters) at sea level. At elevations above sea level suction lift decreases at a rate of 1 foot of suction lift per 1,000 feet of elevation. Therefore, when this pump is being used at an elevation of 5,000 feet the maximum suction lift is reduced to 20 feet. It is recommended that the pump be located as close to the source as possible to minimize suction lift.

PUMP SUPPORT

NEVER place the pump on soft soil. The pump should always be placed on solid stationary ground in a level position. To prevent the trailer from tipping, place blocks under the trailer's bumper. In addition, place chock blocks behind each wheel to prevent the trailer from rolling.

ELEVATION

Elevations over 3,000 feet will effect the performance of the pump. Due to less atmospheric pressure at higher altitudes, pumps DO NOT have the priming ability that they have at sea level.

A general rule of thumb is that for every 1,000 feet of elevation above sea level a pump will lose one foot of priming ability.

For example, in Flagstaff, Arizona where the elevation is approximately 7,000 feet, the pump would have a suction lift of only 18 feet rather than the 25 feet at sea level.

PUMP CLEAN-OUT

The clean-out cover on the pump has been design for easy removal that allows for easy access to the wear plate and impeller for cleaning and servicing.

HOSES

Suction and discharges hoses or pipe connection should always be checked for tightness and leaks. A small suction leak in the hose or fittings could prevent the pump from priming.

MECHANICAL SEAL LUBRICATION

The pump uses a oil lubricated mechanical seal to prevent water from seeping into the engine. The oil in the seal chamber lubricates the seal and prevents it from over heating. Never operate the pump without water in the casing as this may cause the seal to fail. (See section on seal maintenance).

ENGINE SAFETY

Internal combustion engines present special hazards during Operation and fuelling! Failure to follow the safety guidelines described in the Rules for Safe Operation section of this manual and the KUBOTA Engine Operator's Manual could result in severe injury or death.

ACCESSORIES

QP-Pump offers a complete line of fittings, hoses, and clamps to properly connect the pump to match various job conditions. Refer to the part list in section 2 of this manual for a complete list of accessories

Figure 2 below shows a typical application using the trash pump. Please note that this pump is intended for the removal of clean water and water containing some debris and solids.

Maximum size of solids should not exceed 2 inches (51 mm) in diameter.

DO NOT set strainer on bottom of water bed. Placing the strainer above the water bed will prevent the pump from drawing in excessive amounts of sand and foreign debris.

TERMS TO KNOW

The following terms are usually used when referring to lift or head:

1. Static Suction Lift - The vertical distance from

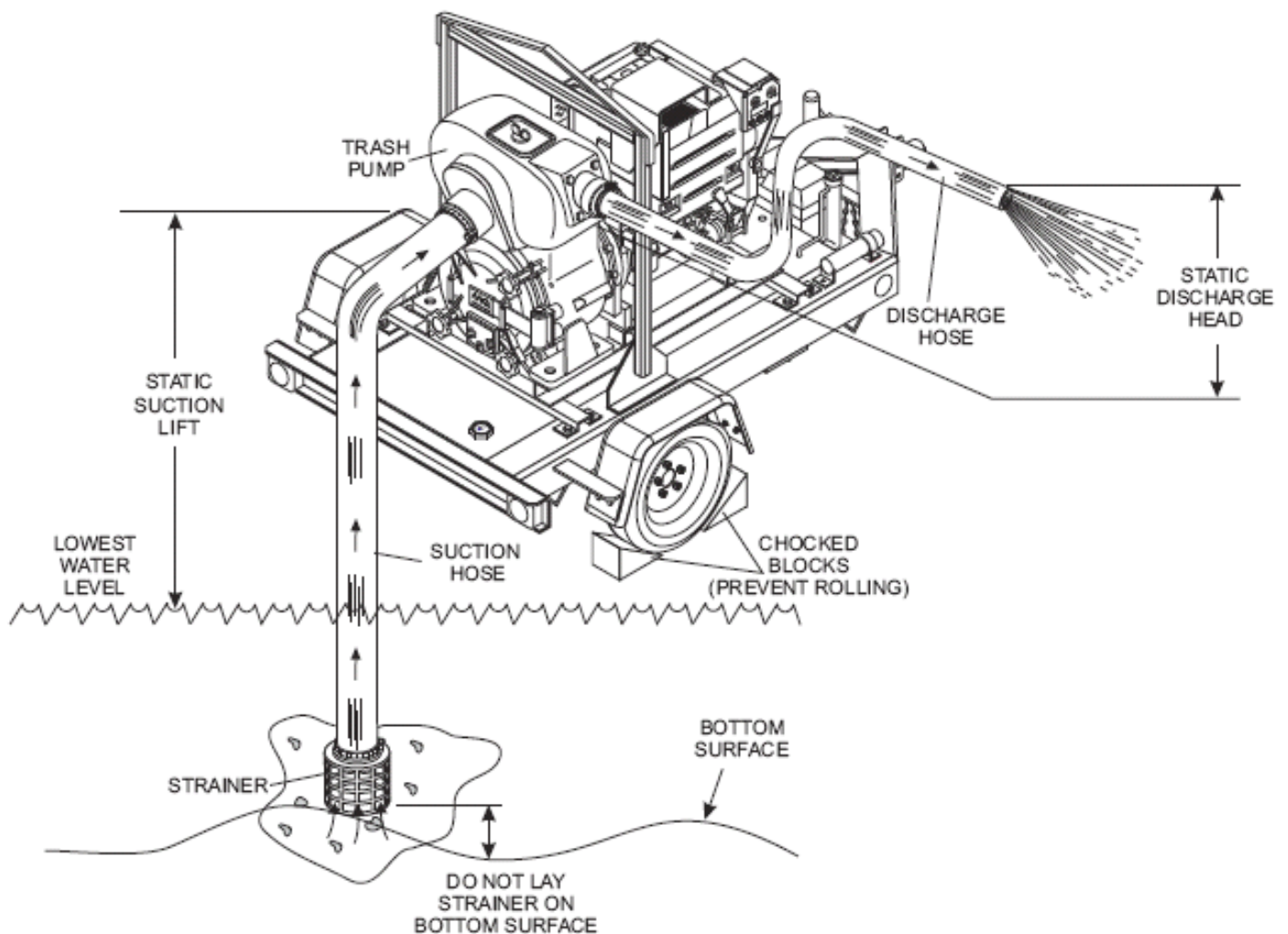
the water line to the centre of the impeller.

2. Static Discharge Head - The vertical distance from the discharge outlet to the point of discharge or liquid level when discharging into the bottom of a water tank.

3. Dynamic Suction Head - The static suction lift plus the friction in the suction line. Also referred to as total suction head.

4. Dynamic Discharge Head - The static discharge head plus the friction in the discharge line. Also referred to as total discharge.

5. Total Dynamic Head - The Dynamic Head Suction Head plus the Dynamic Discharge Head. Also referred to as total head.



Practically all break downs can be prevented by proper handling and maintenance inspections, but in the event of a breakdown, please take a remedial action following the diagnosis based on the Trouble shooting (Tables 11 and 12) information shown below and on the next pages.

If the problem cannot be remedied, please leave the unit just as it is and consult our company's business office or service plant.

PUMP TROUBLESHOOTING

SYMPTOM	POSSIBLE PROBLEM	SOLUTION
Pump does not take on water.	Not enough priming water in the housing?	Add water.
	Engine speed too low?	Increase throttle.
	Strainer plugged?	Clean strainer
	Suction hose damaged?	Replace or repair hose, and clamps
	Air leak at suction port?	Check that fittings are tight and properly sealed.
	Pump is located too high above water line?	Move pump closer to water.
	Debris collecting in pump housing?	Clean pump housing.
	Too much distance between impeller and wear plate.	Adjust clearance by adding shims or replace impeller. Min. .010" -Max. .020
	Water leaking out weep hole between pump and engine?	Check condition of mechanical seal and gas-kets, between pump end and engine housing.
	Suction lift or dis-charge head too high.	Check hose/pipe installation.
Pump takes in water, little or no discharge.	Engine speed too low?	Increase throttle speed
	Suction strainer partially plugged?	Clean strainer
	Impeller/Wear Plate worn?	Adjust clearance by adding shims or replace impeller/wear plate.
Suction hose leaks at inlet	Fittings/clamps are not sealed properly?	Tighten, replace or add clamp. (Keep extra seals on pump)
	Hose diameter is too large?	Use smaller diameter hose or replace hose
Discharge hose does not stay on coupling.	Pressure too high?	Check pressure, add additional clamp.
	Hose kinked or end blocked?	Check hose.
Impeller does not turn, pump is hard to start.	Impeller jammed or blocked?	Open pump cover and clean dirt and debris from inside housing.
	Impeller and wear plate binding?	Adjust clearance by removing shim from behind impeller.
	Defective engine?	See Kubota Engine Owners Manual.

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Australian Pump Industries Pty Ltd

7 Gladstone Road, Castle Hill NSW 2154

Ph: (02) 02 8865 3500 Fax: (02) 9894 4240

www.aussiepumps.com.au info@aussiepumps.com.au