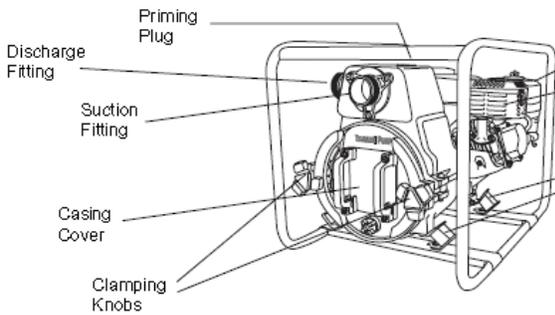




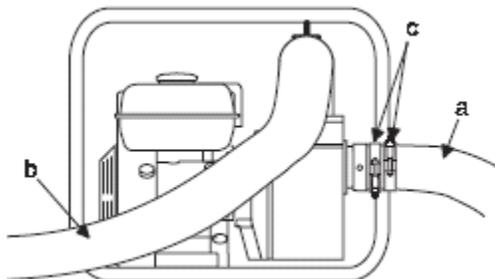
## DO NOT RUN DRY

Familiarize yourself with the operation of this equipment. Know how to quickly shut off in case of an emergency.



### Preparing the Pump

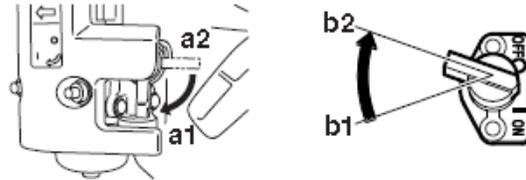
1. Connect suction and discharge hoses. Make sure suction hose is fitted with a strainer.
2. Remove priming plug from top of pump and fill chamber with water.



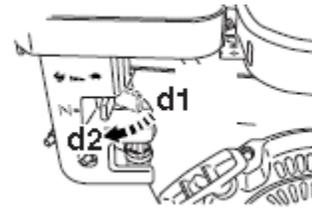
#### Notes:

- Suction hoses (a) must be rigid enough not to collapse when pump is operating.
- Discharge hoses (b) are usually thin-walled collapsible hoses. Rigid hoses similar to those used as suction hoses may also be used as discharge hoses.
- Two clamps (c) are recommended for connection of suction hoses to inlet coupling. **This connection is important.** Even a small air leak on the suction side of pump will prevent the pump from priming.
- For other hose connections, one T-bolt or worm-gear type clamp is usually sufficient to hold hoses in place. In some cases, slight variances in hose diameters may make it necessary to add more clamps in order to maintain tight connections.

### Starting the Engine



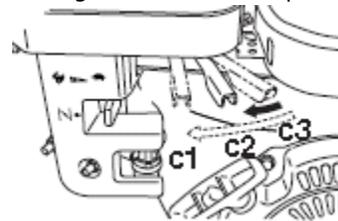
1. Open Fuel Valve by moving lever down (a1).



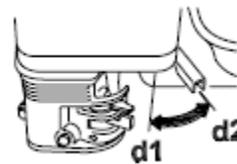
2. If engine is cold, move the Choke Lever to the CLOSED position. (d2)

Note: Leave the Choke Lever in the OPEN position to restart a warm engine. (d1)

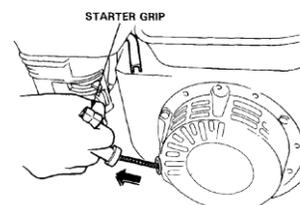
3. Turn the Engine Switch to ON position. (b2)



4. Open throttle by moving slightly left (c2).



5. Pull the starter grip lightly until you feel resistance, return to original position and pull briskly. **NOTE:** Do not allow starter grip to snap back against the engine. Return it gently to prevent damage to the starter.



6. Operate the engine at idle (low) speed for 3 to 5 minutes then gradually open throttle fully (high) to operate.
7. If the Choke Lever was moved to the CLOSED position to start the engine, gradually move it to the OPEN position as the engine warms up.

When high speed operation not required, slow engine to idle by moving speed control lever, to save fuel and extend engine life.

### STOPPING THE ENGINE

To stop the engine in an emergency, turn the Engine Switch to the OFF position. Under normal conditions, use the following procedure:

1. Reduce engine RPM to idle by moving throttle compete to right (c3).
2. Turn Engine Switch to OFF position (b1).
3. Close Fuel Valve (a2).

### Refueling

Always allow the engine to cool prior to refueling. Be sure to refuel in a well-ventilated area with the engine stopped. Do not fill above the upper limit line. To refuel:

1. With the pump on a level surface, remove the fuel tank cap and check the fuel level.

**⚠ WARNING**

Gasoline is highly flammable and explosive.

You can be burned or seriously injured when handling fuel.

- Stop the engine and keep heat, sparks, and flame away.
- Refuel only outdoors.
- Wipe up spills immediately.

2. Add fuel as required. Do not fill beyond the upper limit line.
3. Reinstall the fuel tank cap securely.

### Troubleshooting

Fault	Probable Cause	Remedy
Pump does not pump.	Insufficient priming water. Mechanical seal chipped or broken. Check valve damaged. Suction hose damaged or strainer clogged. Air leaks caused by O-ring damage.	Add more water through priming plug. Replace mechanical seal. Replace check valve. Replace hose. Clean strainer. Replace O-rings.
Discharge flow or pump pressure too low.	Air leaks caused by O-ring damage. Suction hose or strainer clogged.  Excessive impeller clearance.  Engine rpm too low. Lift head too high.	Replace O-rings. Replace hose. Clean strainer. Disassemble to obtain casing cover and impeller. Determine clearance and re-shim as required (refer to Replacement of Mechanical Seal). Check rpm and reset throttle as required. Lower lift head.
Pump primes too slowly.	Insufficient priming water. Mechanical seal chipped or broken. Check valve damaged. Suction hose damaged or strainer clogged. Air leaks caused by O-ring damage. Engine rpm too low. Lift head too high.	Add more water through priming plug. Replace mechanical seal. Replace check valve. Replace hose. Clean strainer. Replace O-rings. Check rpm and reset throttle as required. Lower lift head.
Noise or vibration.	Faulty mounting.	Pump/engine attaching parts loose. Tighten as required. Damaged vibration isolation mounts. Replace mounts.