



Electronic Hydraulic Pump

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# ***UP-40Hseries***

OPERATION & MAINTENANCE MANUAL



# 1. FOR SAFE USE

This instruction manual uses three types of pictograms to ensure the correct use of the product and to prevent harm to you and others and damage to property. The display and meaning are as follows. Please read the text after fully understanding the contents.

## Danger

This indicates information that may result in imminent death or serious injury to the user if the display is ignored and handled

## Warning

This indicates information that may result in death or serious injury to the user if the display is ignored and handled incorrectly.

## Caution

This indicates contents that may cause injury to the user or physical/property damage if the display is ignored and handled incorrectly.

## Cautions when installed

### Warning

■ Install it stably.

Please do not place it in an unstable place or an slanted place. It may cause injury due to falling.

■ Please prepare the working environment.

Remove any objects (high temperature, fire, moving objects, sharp objects, corroded objects, etc.) that may cause injury or harm to the user's surroundings.

## Caution

- Avoid rain and moisture, please use in a place with as little dust as possible.
- Please avoid direct sunlight in the summer.

There is a risk that the temperature of the hydraulic fluid will rise and cause trouble in processing and equipment.

- For outdoor use in extremely cold regions, replace with hydraulic fluid of appropriate viscosity.

Viscosity increases due to a decrease in the temperature of the hydraulic fluid, which may interfere with processing and equipment.

## Cautions when in use

## Warning

- Take safety measures.

Protect workers with protective equipment, work clothes, safety glasses, etc. when operating hydraulic equipment.

- Pay attention to the allowable pressure of the circuit.

Always check that the maximum allowable working pressure of the pump is below the allowable pressure of other connected hydraulic equipment and below the allowable load.

- Be careful of electric shock.

Do not pull out the power plug with wet hands.

When using, be sure to ground with the grounding clip of the power plug.

Do not place it on the side of the electric welder or on grounded materials or equipment.

## Caution

- The power supply is AC100V / 200V (50 / 60Hz) single phase.

Using the wrong voltage may cause burnout or overheating.

If it is used with the voltage lowered, it may burn out or generate heat. Pay particular attention to the voltage drop when using the generator.

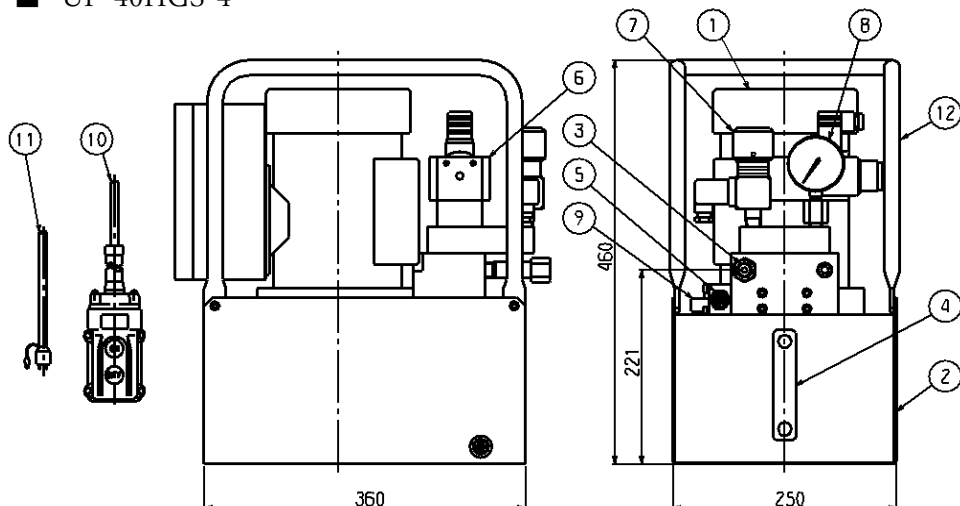
- When unplugging the power from the outlet, be sure to grasp the power plug.

Pulling the cord and disconnecting it from the outlet may cause disconnection or short circuit.

- When using an auxiliary cord, use a cord with a thickness of 2mm<sup>2</sup> or more, and keep the length within 10m so that the voltage does not drop.

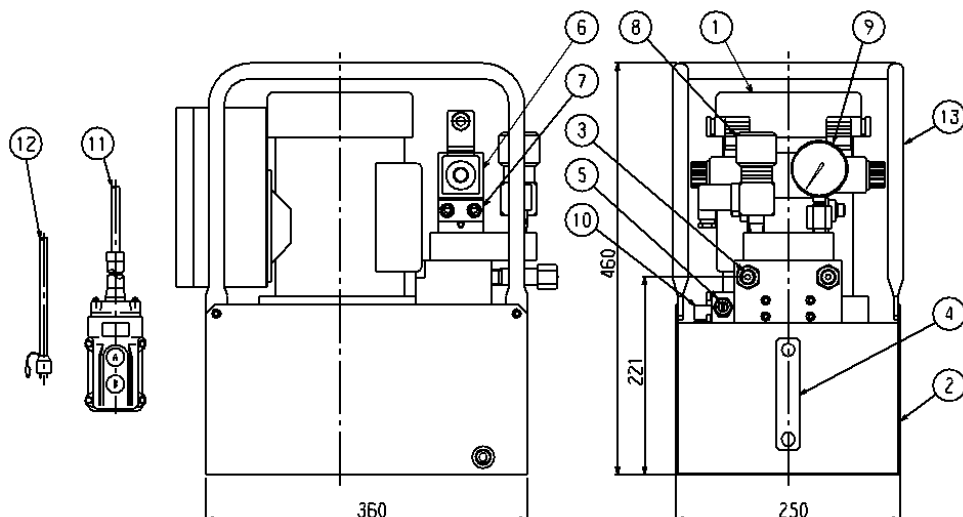
## 2. COMPONENTS' NAMES

### ■ UP-40HGS-4



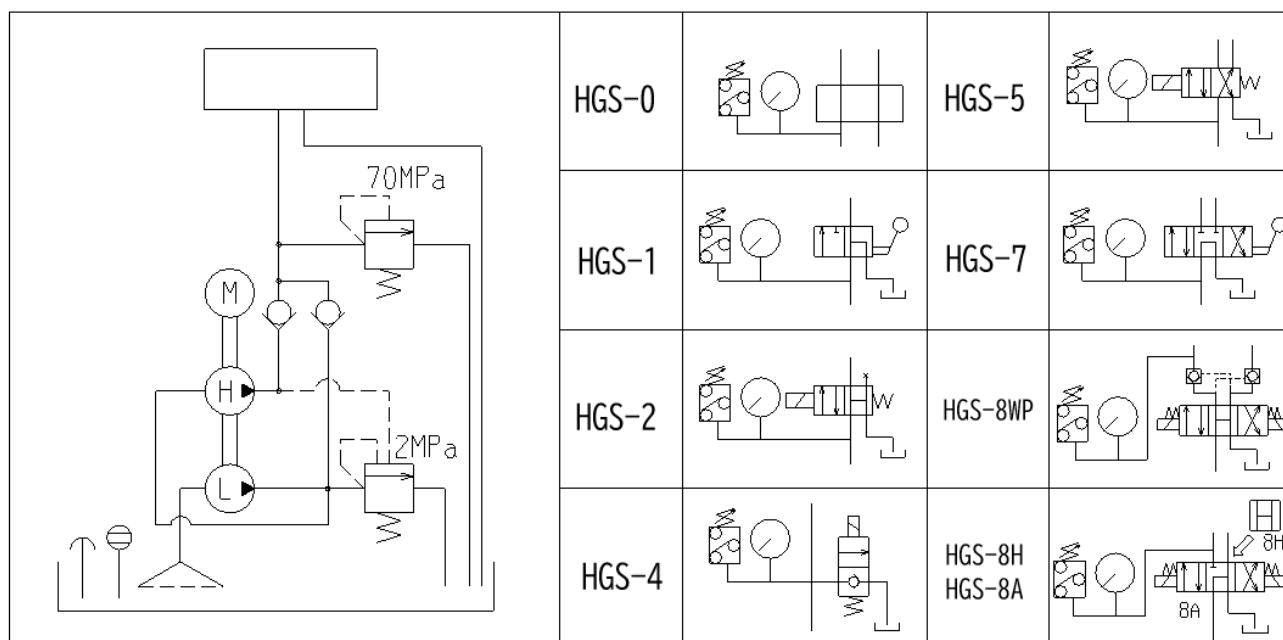
番号	名称
1	Motor
2	Oil tank
3	Port Rc 3/8
4	Oil gauge
5	High Pressure Relief Valve
6	Solenoid Valve
7	Pressure Switch
8	Pressure Gauge
9	Refueling Stopper
10	Pendant Switch
11	Plug and code
12	Pipe frame

### ■ UP-40HGS-8WP



番号	名称
1	Motor
2	Oil tank
3	Port Rc 3/8
4	Oil gauge
5	High Pressure Relief Valve
6	Solenoid Valve
7	Pilot Valve
8	Pressure Switch
9	Pressure Gauge
10	Refueling Stopper
11	Pendant Switch
12	Plug and code
13	Pipe frame

### ■ General Hydraulic Circuit and each valve type



## 3. PREPARATION BEFORE WORKING

### 3-1) Confirmation of the product

Check for damage during transportation and oil leaks.

### 3-2) Confirmation of the refueling stopper

#### ⚠ Caution

The refueling stopper port is blocked during transportation. When using, replace the supplied air breather. If it is used with refueling stopper port sealed, it will not discharge or the pressure will not increase.

### 3-3) Confirmation of power supply

#### ⚠ Warning

The power supply is AC100V / AC200V (50 / 60Hz) single phase. For maximum current, refer to the current indication on the nameplate of each motor and connect from a power supply with sufficient capacity. Be sure to take the ground when using.

### 3-4) Confirmation of hydraulic oil

#### ⚠ Warning

## 4. HOW TO OPERATE

### 4-1) Operation

#### ■ For Single Acting

##### UP-40HS-0

Activate the single acting cylinder. Valve is not included.

The discharge block has a discharge port and a return port.

When the operation switch is pressed, the motor rotates and oil is discharged from the discharge port.

##### UP-40HS-1

Single-acting cylinder is operated by manual 3-way valve.

Rotate the lever of the manual valve to the right from the center (stop at 45°), and press the operation switch ON to rotate the motor and advance the cylinder.

Return the manual valve lever to its original position (front) and the cylinder will return.

#### **UP-40HS-4**

A single-acting cylinder is operated by a solenoid valve.

When the operation switch is pressed, the motor rotates and the cylinder moves forward.

When you release the switch button, the motor and cylinder will stop and hold pressure.

Press the operation switch OFF to return the cylinder.

\* The cylinder returns only when the operation switch is pressed OFF.

#### **UP-40HS-2**

A single-acting cylinder is operated by a solenoid valve.

When the operation switch is pressed, the motor rotates and the cylinder moves forward.

When you release the switch button, the motor stops and the cylinder returns.

#### **■ For Double Acting**

##### **UP-40HS-7**

A double acting cylinder is operated by a manual 4-way valve.

When the motor start select switch in the electrical box is turned on, the motor rotates.

The cylinder moves forward when the lever of the manual valve is rotated counterclockwise from the center (stopped at 45°).

The cylinder returns when the manual valve lever is rotated clockwise from the center (stopped at 45°).

##### **UP-40HS-8SP/8WP**

A double-acting cylinder is operated by a solenoid valve.

When the motor start select switch in the electrical box is turned on, the motor rotates.

When A of the operation switch is pressed, the A solenoid valve operates and the cylinder moves forward. When you release the switch button, the cylinder stops.

When B of the operation switch is pressed, the B solenoid valve operates and the cylinder returns.

A port pressure can be maintained with a stacked single pilot. In the case of 8WP (double pilot), the A and B port pressures can be maintained.

##### **UP-40HS-8R**

A double-acting cylinder is operated by a solenoid valve.

When the motor start select switch of the electrical box is turned on, the motor rotates.

When A of the operation switch is pressed, the A solenoid valve operates and the cylinder moves forward.

When you release the switch button, the cylinder stops.

When B of the operation switch is pressed, the B solenoid valve operates and the cylinder returns.

The pressure of A and B port can be adjusted by the laminated double relief valve.

The pressure is not held. However, pressure can be maintained by installing a stacked pilot check valve.

# 5. MAINTENANCE

## 5-1) Hydraulic working oil

### ① Type

Hydraulic OIL ISO 32

### Temperature

Appropriate operating temperature of hydraulic fluid is 55 °C or less. If the oil temperature rises above the proper temperature, stop the work until the oil temperature falls to the proper temperature.

If continuous operation is unavoidable, install an oil cooler.

### ② Oil change

#### ⚠ Caution

The hydraulic oil will deteriorate, so replace it regularly. The replacement time should be 300 hours or 3 months as a guide.

When replacing, remove the oil filler plug, drain the oil by tilting the pump, and put it in the middle of the oil gauge, taking care not to allow impurities such as dust to enter.

There are three points to note when replacing.

Change the oil with the cylinder fully returned.

Never add different types of oil, even in small quantities.

When refueling, be careful not to mix foreign matter.

### ③ Others

#### ⚠ Warning

If oil gets into your eyes, rinse with clean water. Get medical attention immediately.

If oil gets into the skin such as a wound, wash it off with soapy water and consult a doctor immediately after hemostasis.

## 5-2) Pressure and piping

### ① Components of hydraulic equipment system

#### ⚠ Warning

When configuring hydraulic equipment by combining pumps, high-pressure hoses, cylinders, couplers, valves, etc., make sure that the maximum operating pressure of each equipment is the same. If one of the lowest operating pressures is used, adjust the pump pressure to the lowest operating system pressure.

### ② Pressure Gauge

Attach a pressure gauge so that the pressure can always be checked, or set it immediately.

### ③ Piping

#### ⚠ Caution

When piping a taper pipe thread to a hose, or when connecting various valves and couplers, wrap seal tape. Take care not to over-tighten, referring to the taper screw tightening torque table.

## 5-3) High pressure hose

### ① Hose installation

#### ⚠ Warning

The high-pressure hose expands and contracts slightly when pressurized, so install it with some margin. Also, be careful not to rub against other hard objects.

Do not clamp the high pressure hose.

The high pressure hose moves to become straight and straight when pressure is applied.

In particular, if you clamp at the bent part, an excessive force is applied during pressurization. It may cause damage.

If the high-pressure hose is not handled properly, its life will be extremely shortened.

The high pressure hose is vulnerable to fire (high temperature), extreme bending and twisting.

Also, do not use in a high-temperature environment or below the minimum bending radius or twisted.

### ② Hose handling

#### ⚠ Danger

Never drop objects on the high-pressure hose.

The impact of falling objects may cause the high-pressure hose to rupture and cause a serious accident.

Avoid contact with fire or high temperature objects such as welding near the high pressure hose.

Do not pull the high pressure hose with a strong force.

Dragging or carrying a pump, cylinder, etc. with a high-pressure hose can cause damage to the high-pressure hose and cause a serious accident.

## 5-4) Coupler

### ① Connection

Before connecting, check that there is no dust or sand on the coupler connection.

After connecting, pull the high pressure hose to check the connection.



## ② Coupler handling

### ⚠ Warning

Be sure to connect the cylinder when applying pressure with the coupler attached to the tip of the high-pressure hose.

If the coupler is damaged, it will cause a serious accident.

When pressure is applied after removing the coupler for unavoidable operation, avoid the direction where the coupler may pop out.

Do not attach or detach the coupler in a pressurized state.

### 5-5) Air Inclusion

If the pump is operated with the oil level extremely low (When connecting a new cylinder or hose, or when replacing hydraulic oil, etc.), air may enter the pump and prevent discharge, or pressure drop may occur.

In this case, if the pump is idle intermittently for 2 ~ 3 minutes with no load applied, the air will automatically come out and return to the normal condition.

### 5-6) Relief valve adjustment

To set the relief pressure, loosen the relief valve lock nut and turn the relief screw to adjust the set pressure.

Turn the knob clockwise to increase the pressure and counterclockwise to decrease the pressure.

The standard product can be adjusted within the pressure range of 58.8 to 68.6Mpa (600 to 700kg / cm<sup>2</sup>).

If you use less than that, you will need to replace the spring.

## 6. TROUBLE SHOOTING GUIDE

Trouble	Possible cause	Counter measure
Motor does not run	No power current is flowing	Check the power supply
	Bad connection	Replacement
	Operation switch failure	Replacement
	Broken operation cord	Replacement
	Motor burnout	Repair or replacement
Abnormal motor sound	Pump or motor failure	Repair or replacement
	Bearing damages	Repair or replacement
The motor rotates but the cylinder does not operate	Solenoid valve failure	Repair or replacement
	Oil shortage	Refill oil
	Forget to replace the filler port	Replace with air breather
	Air entering the pump and cylinder	Empty the air
	Suction strainer clogging	Cleaning the strainer
	Failure of the pump body	Repair
	Relief valve failure	Repair or adjustment
	The cylinder works but there is no pressure.	Failure of the solenoid valve
Air entering the pump		Empty the air
Failure of the pump body		Repair
Decrease or failure of set pressure of relief valve		Adjustment of set pressure or Repair
The cylinder works but slow	Failure of the solenoid valve	Repair or replacement
	Air entering the pump	Empty the air
	Increase in oil temperature	Cool(55 °C or lower)
	Failure of the pump body	Repair
The cylinder does not return	Failure of the solenoid valve	Repair or replacement
	Cylinder spring failure or coupler failure	Repair or replacement
	Contact failure of solenoid valve operation switch	Repair or replacement
Oil leak	Seal failure of each part	Tightening or replacement of packing
Short circuit	Cord damage	Replacement
	Poor insulation of electrical parts	Repair or replacement

The cylinder might be broken, so please check it.

# 7. WARANTEE

## 7-1) WARANTEE PERIOD

Within 365 days from the last day of production month for general defect / failure.

i.e. If a customer purchases a pump on January 1, 2019, the warranty period is until January 31, 2020.

## 7-2) WARANTEE

All NITTOH products and parts, with the exception mentioned below, are warranted against defects in materials and workmanship, which results in damage to products and parts. This warranty shall cover repair and/or replacement of the products or components/parts free of charge. To qualify for warranty consideration, return the NITTOH product, freight prepaid, to a NITTOH factory. Or contact us by email.

## 7-3) EXCLUSIONS FOR WARRANTY

No warranty claim will be accepted for damage or breakdown arising for any of the following reasons.

“Abuse or improper use, fair wear and tear, faulty or negligent operation, improper storage, chemical/ electrical influences or climatic or other effects which cannot be related specially to faults in manufacture”

No liability is accepted for packing seals, springs, and/ or the like, and the following:

- ◎ Alterations or remodeling on the products undertaken by the purchasers without any prior notice and agreement to NITTOH.
- ◎ Severe and very highly frequent use, deviating from product specifications.
- ◎ Damage due to faulty installation or assembly by purchasers or third parties.
- ◎ Damage from natural disaster.
- ◎ Damage from such accidents as fire, submersion, dropping, etc.

## NITTOH ZOHKI CO., LTD.

Tokyo Sales Office : 2-4-10 Kamezawa, Sumida Ku, Tokyo 130-0014 Japan

Tel: +81-3-3625-6551

Fax: +81-3-3625-6553

Head Office and factory : 585 Takashi, Mobara City, Chiba Pref. 297-0029

Japan

Tel: +81-475-26-5361

Fax: +81-475-274660