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# OPERATION MANUAL

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PRODUCT NAME : **AUTOFEED TANK**

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MODEL : (N, E)ALT-5

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(N, E)ALT-5-IS-1

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(N, E)ALT-5-IS-2

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(N, E)ALT-9

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(N, E)ALT-9-IS-1

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(N, E)ALT-9-IS-2

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- READ THIS OPERATION MANUAL CAREFULLY BEFORE USE IT.
- NEVER INSTALL THE PRODUCT UNTIL FINISH READING THIS MANUAL.
- KEEP THIS MANUAL ALL THE TIME FOR YOUR REFERENCE.

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CONTACT ADDRESS: SMC CORPORATION


AKIHABARAUDX 15F, 4-14-1, SOTOKANDA, CHIYODA-KU, TOKYO  
101-0021, JAPAN  
TEL: 03-5207-8271


# 1. PRECAUTIONS FOR SAFETY

Precautions shown here are to ensure the product is used correctly and safely, and to prevent hazard and damage inflicting upon people from occurring. These precautions are divided into three categories, "Caution", "Warning", and "Danger" to indicate the degree of possible hazard and damage, and of urgency.

As all these are important for safety, never fail to follow them in addition of ISO4414, JIS B8370, and other safety regulations.

 Caution : Possible harmful effects are expected to be on people and possible loss is expected only of objects when wrong operation occurred.

 Warning : Possible loss or serious injury of people is expected when wrong operation occurred.

 Danger : Imminent danger that possible loss or serious injury of people is expected without evacuation.

\*1 : ISO 4414 : Pneumatic fluid power-Recommendations for the application of equipment to transmission and control systems.

\*2 : JIS B 8370 : Common regulations for pneumatic systems.

## **Warning**

- ① Suitability of pneumatic equipment should be determined by a designer of the pneumatic system or a person who prescribes its specifications.

Since the product shown here is used in various operating conditions, its suitability to a system should be determined by the pneumatic system designer or the person prescribes its specifications based on necessary analyses and tests. The person who determined the suitability of the system is responsible for the performance at a certain point of time and safety assurance of this system. A system should be constructed by referring to the latest product information and catalogues, discussing all the contents of specifications, and considering possibilities of equipment failure.

- ② Equipment should be handled by those who have sufficient knowledge and experience.

Compressed air could be hazardous if it is handled incorrectly. Assembly, operation and maintenance of machinery and equipment for which pneumatic apparatuses are used should be performed by those who have sufficient knowledge and experience.

- ③ Never handle the machinery or equipment, or never take out the apparatuses until safety is confirmed.

- a. Check and maintenance of machinery or equipment should be performed after it is confirmed that dropping or uncontrollable running prevention measures are taken for the equipment on which the product is mounted.
- b. Apparatuses should be taken out after it is confirmed equipment corresponding to air supply, that is an energy source, should be turned off ; and compressed air in the system should be exhausted.
- c. Re-starting of machinery or equipment should be done with ample care after it is confirmed that prevention measures for sudden movement are taken.

- ④ When the product is used in the following conditions or environment, considerations for safety measures should be given along with consultation to our company.

- a. Outdoor usage, or usage in conditions or environment outside of the specifications indicated.
- b. Usage for nuclear power, railroad, air navigation, vehicle, medical equipment, appliances contacting food and beverage, entertainment apparatuses, emergency shutdown circuits, clutch/break circuits for pressing, and safety devices.
- c. Usage for applications which especially require safety because considerable effects to people and properties are expected.

## Air source

### **⚠ Warning**

- ① Use clean air.  
Do not use compressed air contains chemicals, synthetic oil based on organic solvent, or corrosive gas since it may cause breakage or malfunction of the product.
- ② Install an air dryer, after cooler, etc. Before a filter for air containing a large quantity of drain. Filter with nominal filtration rating less than  $5 \mu\text{m}$  should be selected.

## Operating environment

### **⚠ Warning**

Do not use the product in the following environment.

- ① Places where vibration or impact will be generated.
- ② Avoid exposure to sunlight by protection cover.
- ③ Shield radiation heat when heat source is nearby.

## Installation

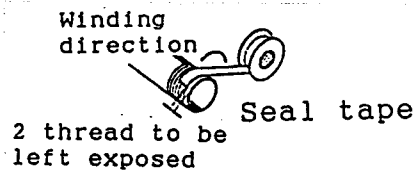
### **⚠ Warning**

- ① Air inlet on the cam handle side. Wrong connection may result in malfunction.
- ② Oil outlet should be connected to an oil distributor or the oil port at the lower part of a Autofeed lube.
- ③ Number of ports of the oil distributor should be the same as those of the Autofeed Lube to be used.
- ④ The maximum number of Autofeed Lube per Autofeed Tank is 16. Over this number may result in a shortage of oil.
- ⑤ When Float Switch is mounted, it should be used within the contact capacity. If not, malfunction of the switch may be the result.

## Piping

### ⚠ Warning

- ① Sufficient air blow (flushing) or cleaning shall be done before piping in order to remove chips, cutting oils and dusts in pipes. These may cause malfunctions.
- ② When screw in piping or fitting, avoid entering of chips and sealing materials from piping screws into the inside of equipment. When use sealing tapes, leave two threads of a screw and starts taping.



## Maintenance/check

### ⚠ Warning

- ① Turbine oil of class 1 (ISO VG32) should be used. Other oils will result in damage or malfunction.
- ② Conduct the regular inspection to detect crack, flaw and other deteriorations on the bowl. When any crack, flaw and other deteriorations are found, replace the bowl with the brand new bowl since they will be a cause of damage.
- ③ Regularly check blemish of the bowl. When any blemish is found, it should be replaced with a brand new bowl. For cleaning the bowl, household neutral detergent should be used to avoid damage.
- ④ Drain cock can open with counterclockwise and close with clockwise. It should be operated by manual since the use of tooling for open and close may result in breakage.

### ⚠ Caution

#### 1. Feeding Method

- ① Oil feeding during operation can be performed by removing the cam handle. When the cam handle is turned more than  $90^\circ$ , pressure in tank will be zero. The handle can be removed by turning further. Refill the clean oil.
- ② feeding amount should be up to the upper oil level.
- ③ Tighten the cam handle until the collar at the lower part of the handle contacts with the upper face of the top cover after feeding.

## 2. APPLICATION

This product is to supply oil to Autofeed Lube (ALF series).

## 3. FEATURE

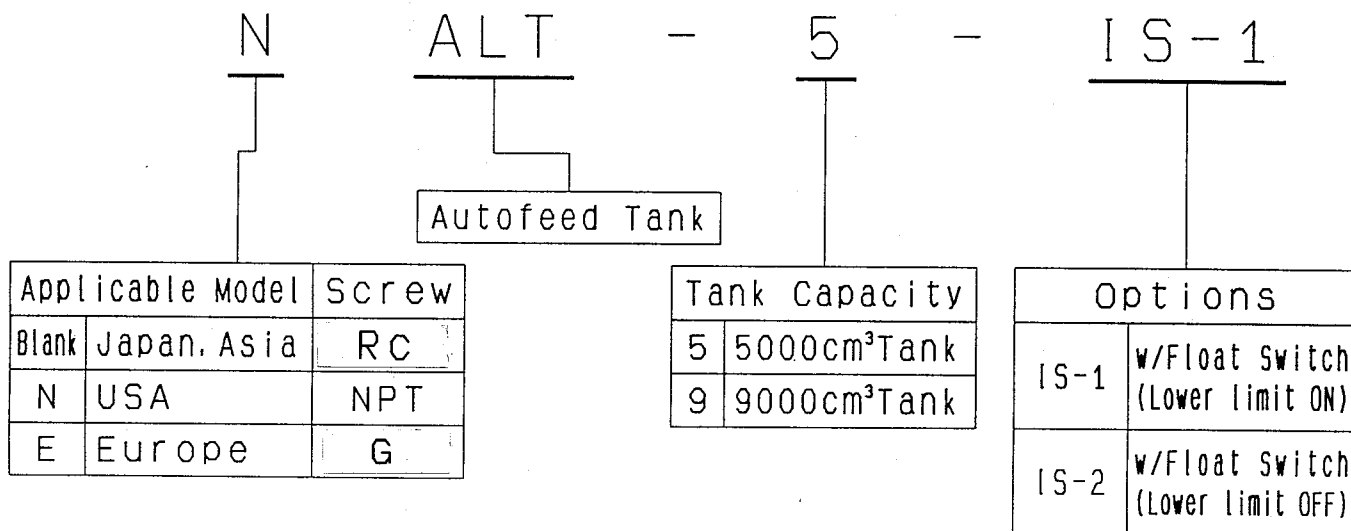
- 1) Integrated control is possible.
- 2) It is possible to easily refill by opening/closing the cam handle (refill port) without stopping air line.

## 4. SPECIFICATIONS

Model	(N, E)ALT-5	(N, E)ALT-5-IS- $\frac{1}{2}$	(N, E)ALT-9	(N, E)ALT-9-IS- $\frac{1}{2}$
Port Size	Air IN :1/4 Oil OUT:3/8			
Proof Pressure	A	1.5MPa		
Max. Operating Press.	A	1.0MPa		
Reservoir Capacity (cm <sup>3</sup> )	5000	5000	9000	9000
Capacity Betw Levels	(4400)	(3400)	(7800)	(6400)
Recommended Oil	Turbine oil of class 1(ISO VG32)			
Ambient & Fluid Temp.	-5~60°C (Should be no freezing)			

Capacity Betw Levels : In bowl of "w/Float Switch", effective capacity between the upper and lower detection limits of the float switch.

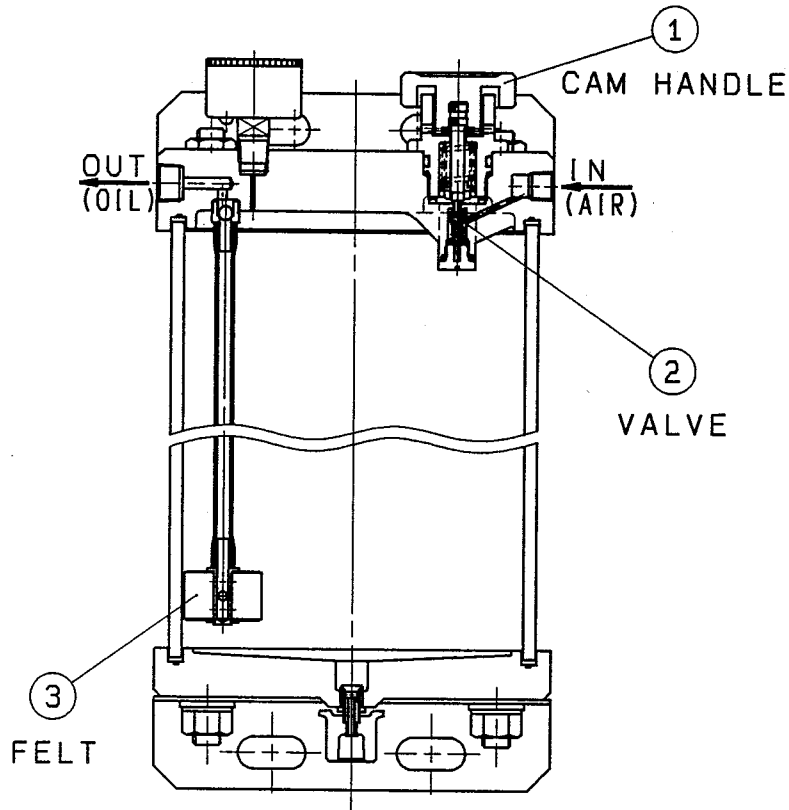
## 5. HOW TO ORDER



※ Float Switch cannot be added (N, E)ALT-5, ALT-9 afterward.

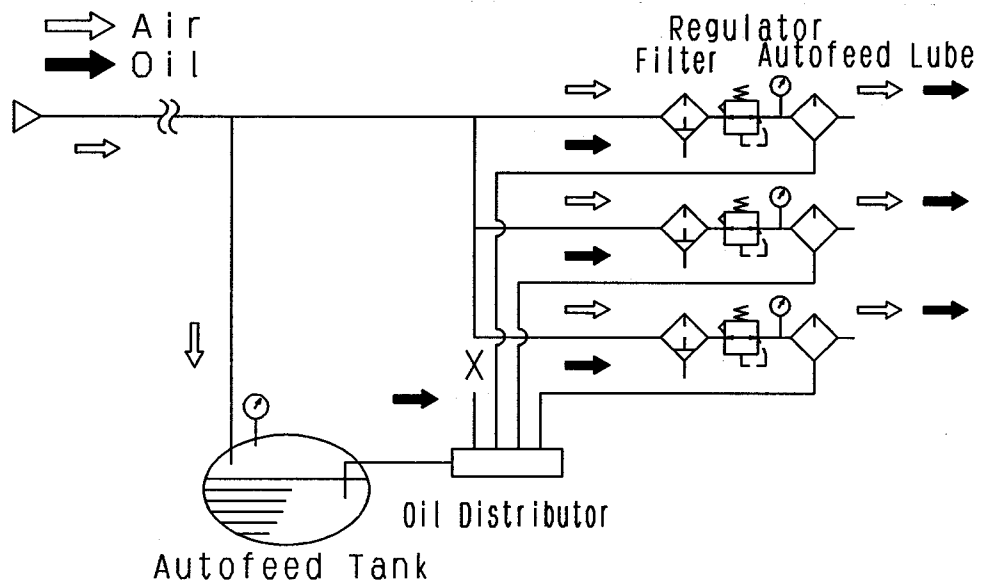
## 6. OPERATION PRINCIPLE

By turning the cam handle ① 90° clockwise, the valve ② opens so that the air from IN side is led to the tank. The oil in the tank goes to OUT side after passing the felt ③ by the air pressure. When the cam handle ① is turned 90° counterclockwise, the air from IN side stops so that the oil supply stops.



## 7. PIPING

An example of piping before and after this product:

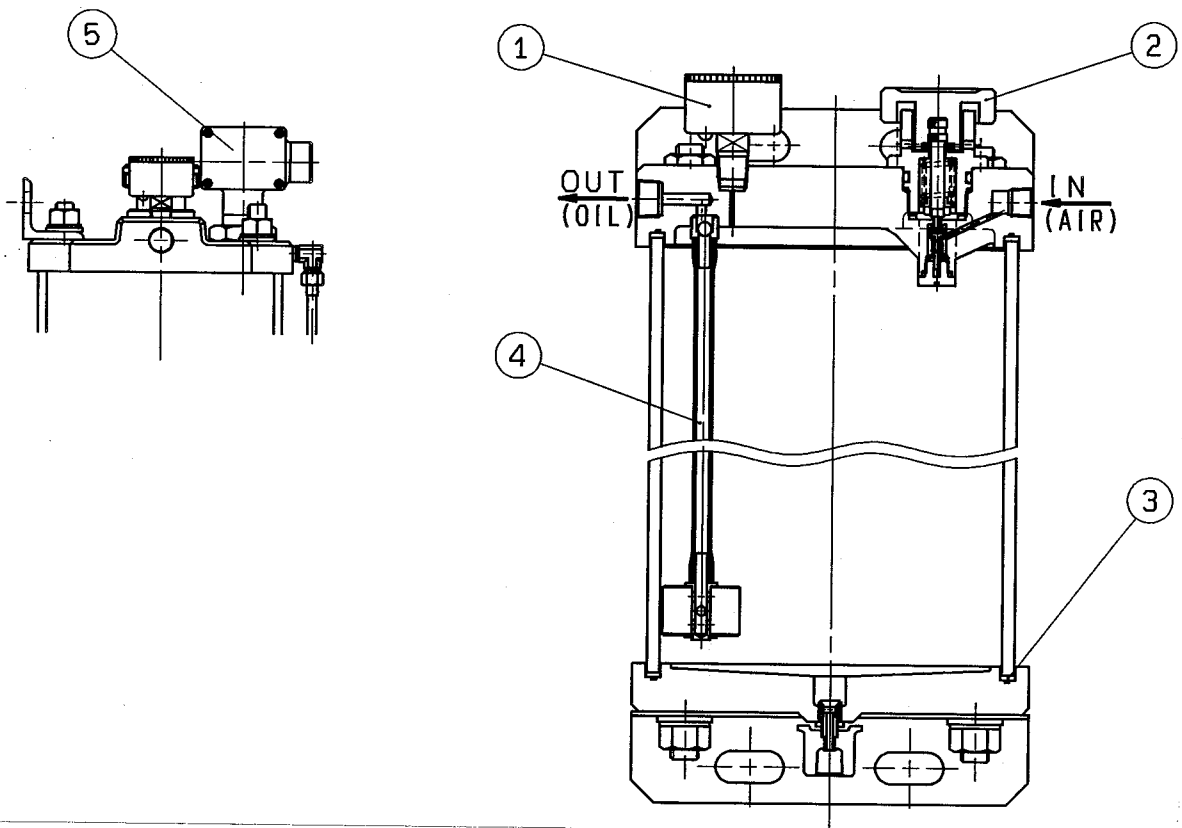




## 8. TROUBLESHOOTING

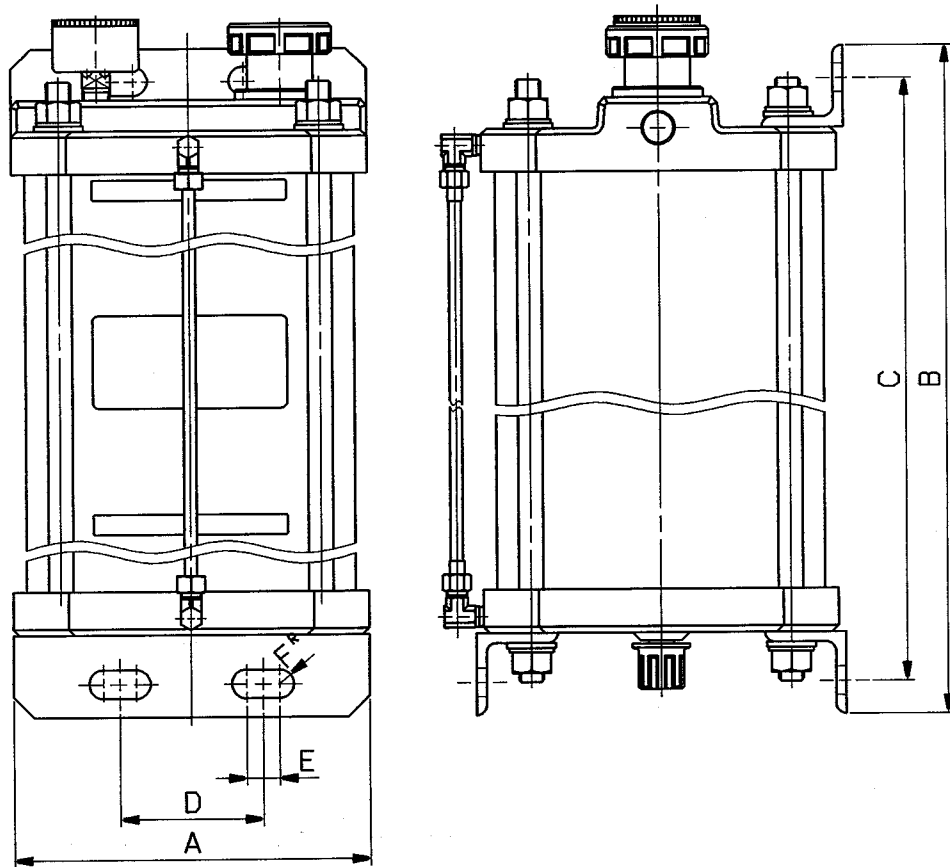
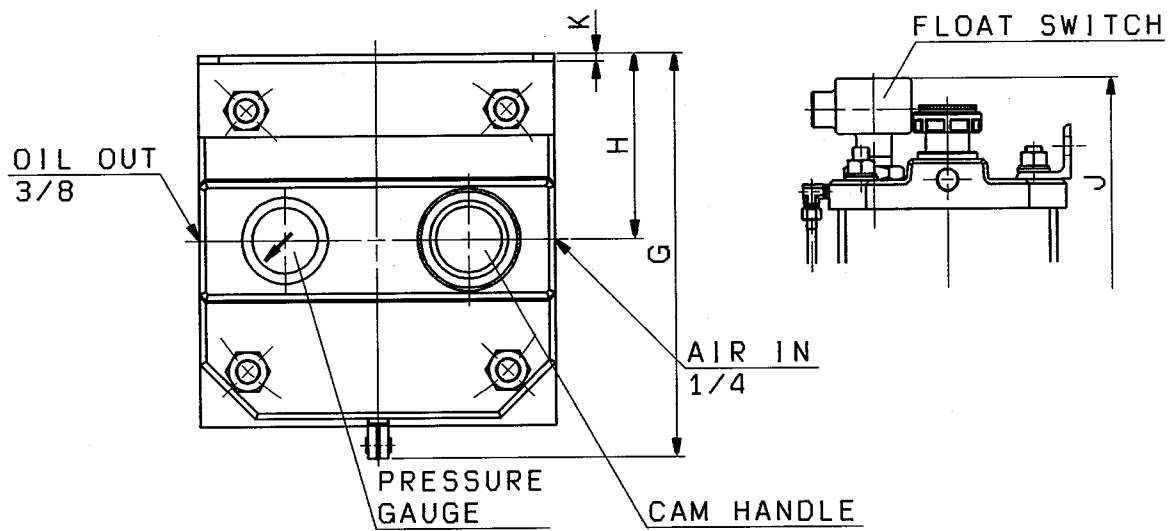
TROUBLE	POSSIBLE CAUSE	REMEDY
Oil cannot be supplied by pressurizing.	1. IN and OUT are opposite. 2. Oil amount is small. 3. Pressure shortage. 4. Tightening of cam handle is not enough.	1. Mount the product correctly. 2. Refill oil up to the upper limit. 3. Rise the pressure. 4. Turn the cam handle clockwise.
Air is mixed in the oil	1. Oil amount is small.	1. Refill oil up to the upper limit.

## 9. SPARE PARTS



	DWG. NO.	(N, E)ALT-5	(N, E)ALT-5-IS- $\frac{1}{2}$		(N, E)ALT-9	(N, E)ALT-9-IS- $\frac{1}{2}$
NO	Description	Part Number		Qty	Part Number	
1	Pressure Gauge	G46-10-02(NIL, E) G46-P10-N02(N)		1	G46-10-02(NIL, E) G46-P10-N02(N)	
2	Cam Handle Assembly	12374AP		1	12374AP	
3	Packing	12377		2	<span style="border: 1px solid black; padding: 2px;">B</span>	12384
4	Siphon Tube Assembly	123712A		1	123712A	
5	Float Switch	—	IS410- $\frac{1}{2}$	1	—	IS410- $\frac{1}{2}$

# 10. DIMENSIONS



Model	A	B	C	D	E	F <sup>R</sup>	G	H	J	K
(N, E) ALT-5	174	414	382	70	16	7	197	91	—	5
(N, E) ALT-5-IS- $\frac{1}{2}$	174	414	382	70	16	7	197	91	449	5
(N, E) ALT-9	234	472	422	108	30	7	258	122	—	5
(N, E) ALT-9-IS- $\frac{1}{2}$	234	472	422	108	30	7	258	122	482	5

# 11. FLOAT SWITCH

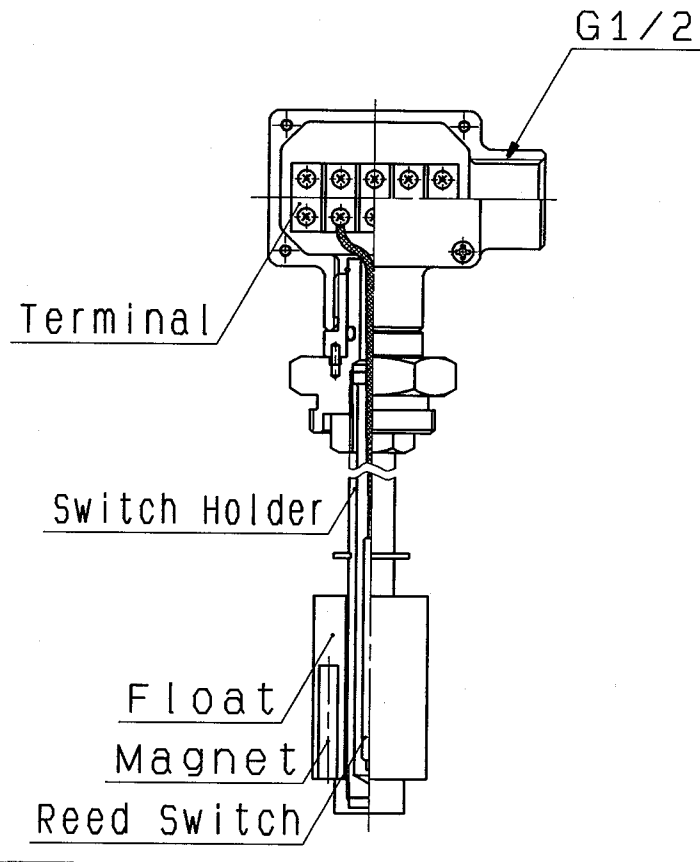
## 1) Specifications

Contact Capacity AC15VA , DC15W

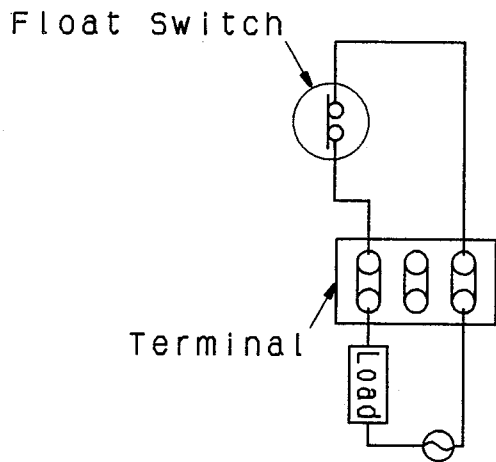
Contact Configuration 1a , 1b

## 2) Operation Principle

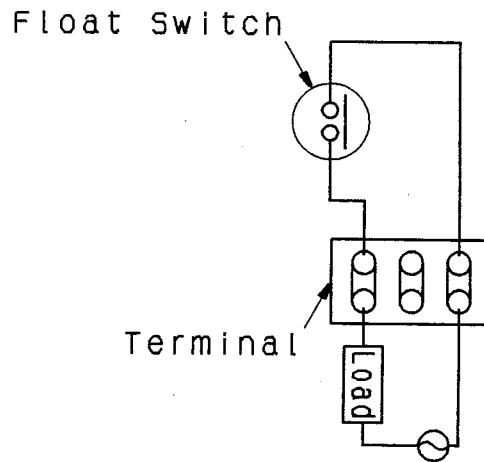
When the magnet incorporated in the float approaches to the reed switch incorporated in the switch holder by oil level change, magnetic force of the magnet works and the contact of the reed switch opens/closes.



## 3) Wiring Example



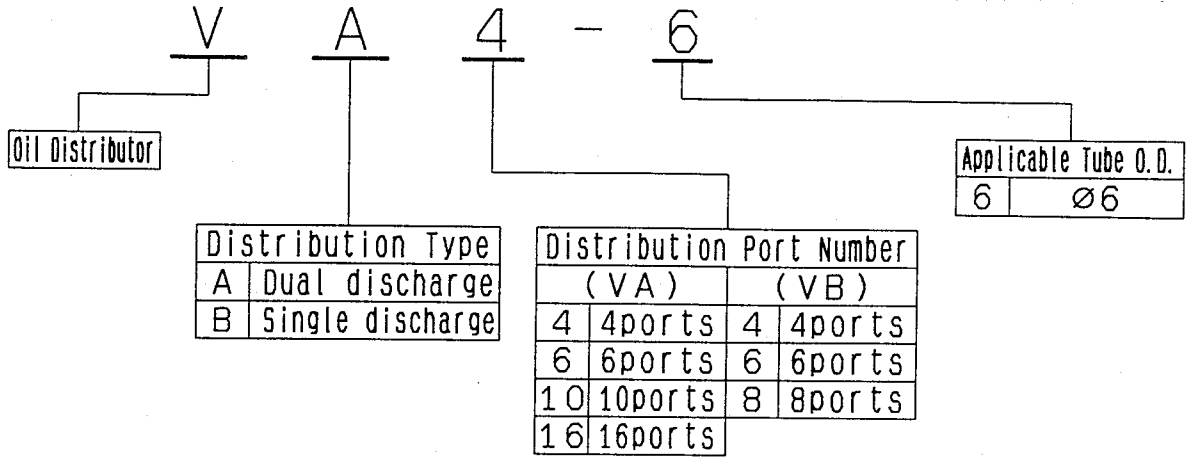
When oil is below the lower level  
(IS410-1)



When oil is below the lower level  
(IS410-2)

# 12. OIL DISTRIBUTOR

- 1) Application  
This is to distribute oil from Autofeed Tank.
- 2) How To Order



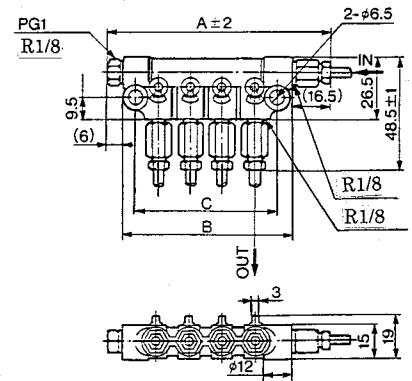
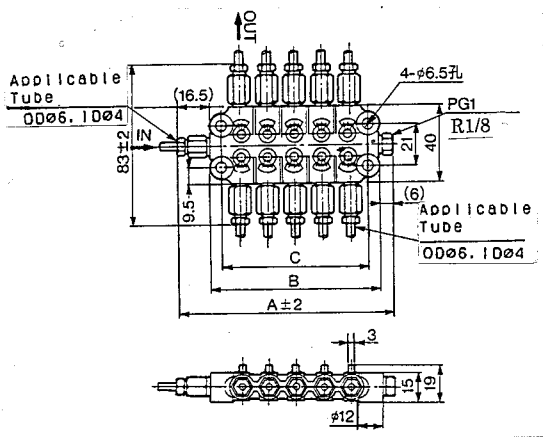
### 3) Appearance and Dimensions

Type VA\*-6

Type VB\*-6

Model	Port NO.	A	B	C	Applicable Tube
VA4-6	4	—	36.5	—	Ø6
VA6-6	6	82.5	60	48	
VA10-6	10	110.5	88	76	
VA16-6	16	152.5	130	118	

Model	Port NO.	A	B	C	Applicable Tube
VB4-6	4	96.5	74	62	Ø6
VB6-6	6	124.5	102	90	
VB8-6	8	152.5	130	118	



\* Screw in Seal Plug (PG1) for unused ports.