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**HOSHIZAKI
DRAFT BEER TOWER**

MODEL CFD-AS61A

SERVICE MANUAL

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I. GENERAL INFORMATION

1. SAFETY INSTRUCTIONS

The following instructions contain important safety precautions and should be strictly observed. The terms used here are defined as follows:

WARNING: There is a possibility of death or serious injury to the service person and a third party or the user due to improper service operations or defects in serviced products.

CAUTION: There is a possibility of injury to the service person and a third party or the user or damage to their property* due to improper service operations or defects in serviced products.

* The term "damage to their property" here refers to extensive damage to household effects, houses and pets.

WARNING

1. Always ask the user to keep children away from the work area. They may be injured by tools or disassembled products.
2. When there is no need to energize the unit during disassembly or cleaning, be sure to unplug the unit or disconnect the main power supply before servicing the unit to prevent electric shocks.
3. If the unit must be energized for inspection of the electric circuit, use rubber gloves to avoid contact with any live parts resulting in electric shocks.
4. Keep the following in mind when making electrical connections:
 - (1) Check for proper grounding connections, and repair if necessary to prevent electric shocks.
 - (2) Always use service parts intended for the applicable model for replacement of defective parts. Use proper tools to secure the wiring. Otherwise abnormal operation or trouble may occur and cause electric leaks or fire.
 - (3) Check for proper part installations, wiring conditions and soldered or solderless terminal connections to avoid fire, heat or electric shocks.
 - (4) Be sure to replace damaged or deteriorated power cords and lead wires to prevent fire, heat or electric shocks.
 - (5) Cut-off lead wires must be bound using closed end connectors or the like, with their closed ends up to avoid entrance of moisture that could lead to electric leaks or fire.

(6) After servicing, always use a megohmmeter (500V DC) to check for the insulation resistance of at least 1 megohm between the live part (attachment plug) and the dead metal part (grounding terminal).

(7) Do not service the electrical parts with wet hands to prevent electric shocks.

(8) The capacitors used for the compressor and other components may be under high voltage and should be discharged properly before servicing.

5. Keep the following in mind when servicing the CO2 gas or beer circuit:

(1) Check that CO2 gas cylinders are installed or stored away from direct sunlight at a temperature of 40°C or less. They should also be kept in an upright position with a chain to prevent tipping. Correct any problems, and instruct the user.

(2) To prevent gas leaks resulting in lack of oxygen, always turn off the main valve of the CO2 gas cylinder before servicing.

(3) Before servicing the CO2 gas circuit, make sure that the internal CO2 gas line has been completely evacuated.

(4) Make sure that there is no open flame in the vicinity before discharging CO2 gas into the atmosphere.

(5) Flush the beer circuit before servicing to prevent beer from dripping into the water tank and freezing up.

(6) To prevent gas or water leaks, be sure to use the specified service parts only and specified tools for hose clamps.

(7) To prevent gas or water leaks, replace any damaged or deteriorated hoses.

CAUTION

1. After servicing, follow the instructions below:

(1) Check each joint for water or gas leaks by using a neutral detergent diluted with water. Wipe off any residue afterwards. To prevent cracked hoses resulting in gas or water leaks, do not use soap and water that are used to check a refrigeration circuit.

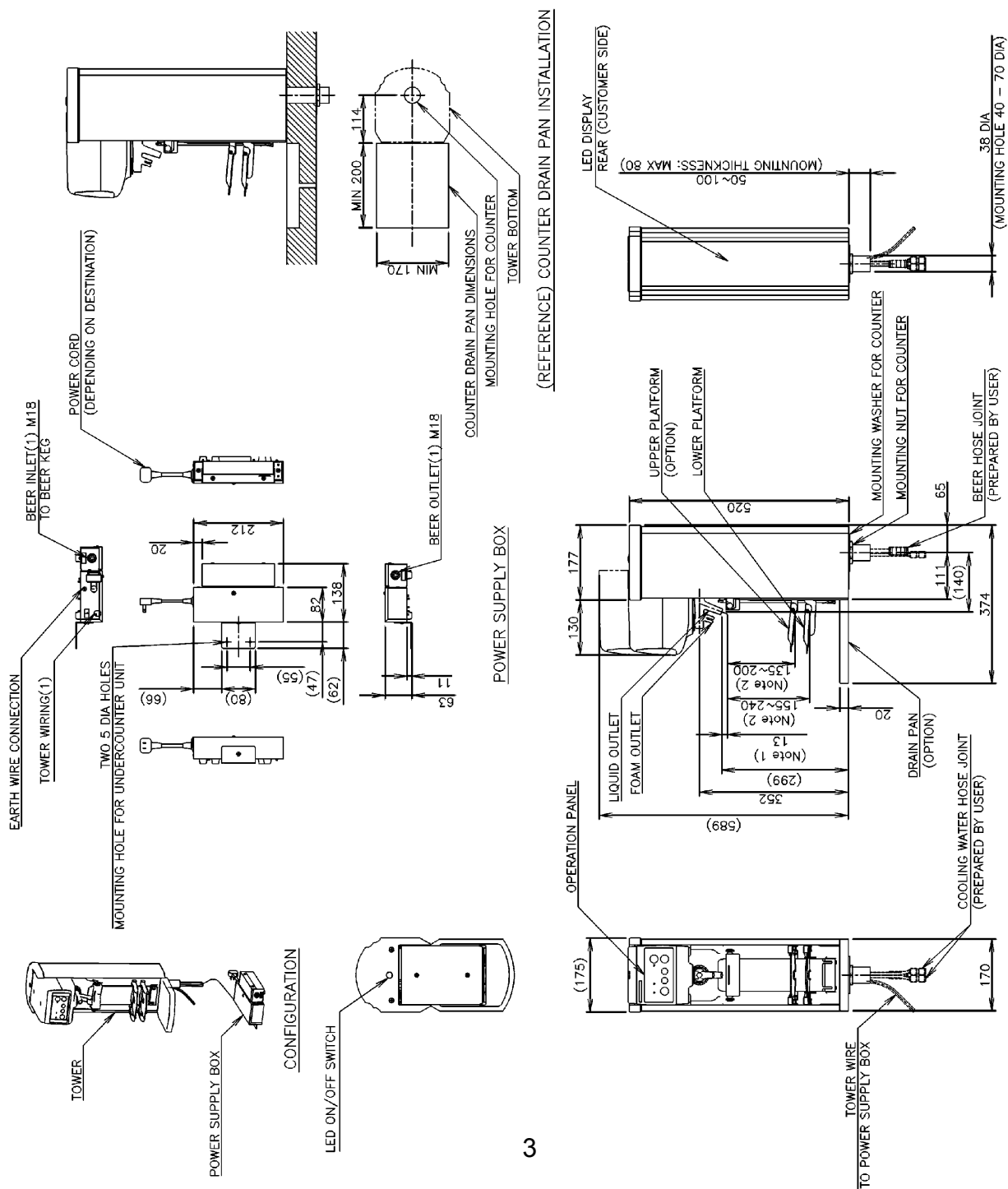
(2) Always check the unit for proper operation before finishing services.

(3) Be sure to reassemble the parts completely. Loose assembly of such parts as control box cover may cause entrance of vermins resulting in a short circuit between terminals and possible ignition.

2. DIMENSIONS/SPECIFICATIONS

ITEM	Hoshizaki Automatic Draft Beer Tower
MODEL	CFD-AS61A
POWER SUPPLY	1Phase170 ~ 264V 50/60Hz Capacity:5VA(0.05A) (12V DC for Entire Tower)
AMPERAGE	Rated: 0.05A Starting: 0.05A
ELECTRIC CONSUMPTION	5W
CONFIGURATION	Tower(1pc)+Power Supply Box(1pc)
OUTSIDE DIMENSIONS	Tower 170mm(W)×374mm(D)×520mm(H) (Including Drain Pan)
	Power Supply Box 176mm(W)×269mm(D)×63mm(H) (Excluding Bracket)
EXTERIOR	Drive Cover: ABS Plastic, Exterior Cover: ABS Plastic LED Display: Acrylic Plastic, Power Supply Box: Stainless Steel
TAP COOLING SYSTEM	Combined Cooling Water Circuit
DISPENSING OUTLET	Automatic Dispensing Tap with Foaming Mechanism
SOLD OUT SENSOR	Electric Resistance
REAR LIGHTING SYSTEM	LED (White)
MOUNTING	M38 Threaded Pipe
MOUNTING THICKNESS	Max 80mm
	40mm ~ 70mm DIA
MOUNTING HOLE	Beer: 10×5DIA, Cooling Water: 8×6DIA
APPLICABLE HOSE	Switching Regulator (12V DC Output)
DRIVE POWER SUPPLY	
TAP DRIVE	Gear Motor×1 System
MUG DRIVE	Gear Motor×1 System
ICE STORAGE CONTROL	Electrode
DRIVE CONTROL	Microprocessor
CO2 GAS CONTROL	Manual Adjustment
ELECTRIC CIRCUIT PROTECTION	Earth Leakage Circuit Breaker, Earth Fuse (12V DC Side:2A) Overcurrent Protector Circuit in Switching Regulator
WEIGHT	10.5kg (Tower:9kg, Power Supply Box: 1.5kg)/(Gross 16kg)
PACKAGE	Carton 795mm(W)×335mm(D)×410mm(H) Instruction Manual, Earth Wire×1, Cleaning Sponge×6, O-Ring×2, Mug Platform×1, Insulation(Glyx 1, Insulation(Glyx 1, Reusable 1"×6, Pen Head Screw ×Washer×2, Nut×2, Flat Washers×2
ACCESSORIES	
OPERATING CONDITIONS	Ambient Temp: 5 ~ 35℃, Voltage Range: Rated Voltage ±10% Based on Specs. No. SS-03602

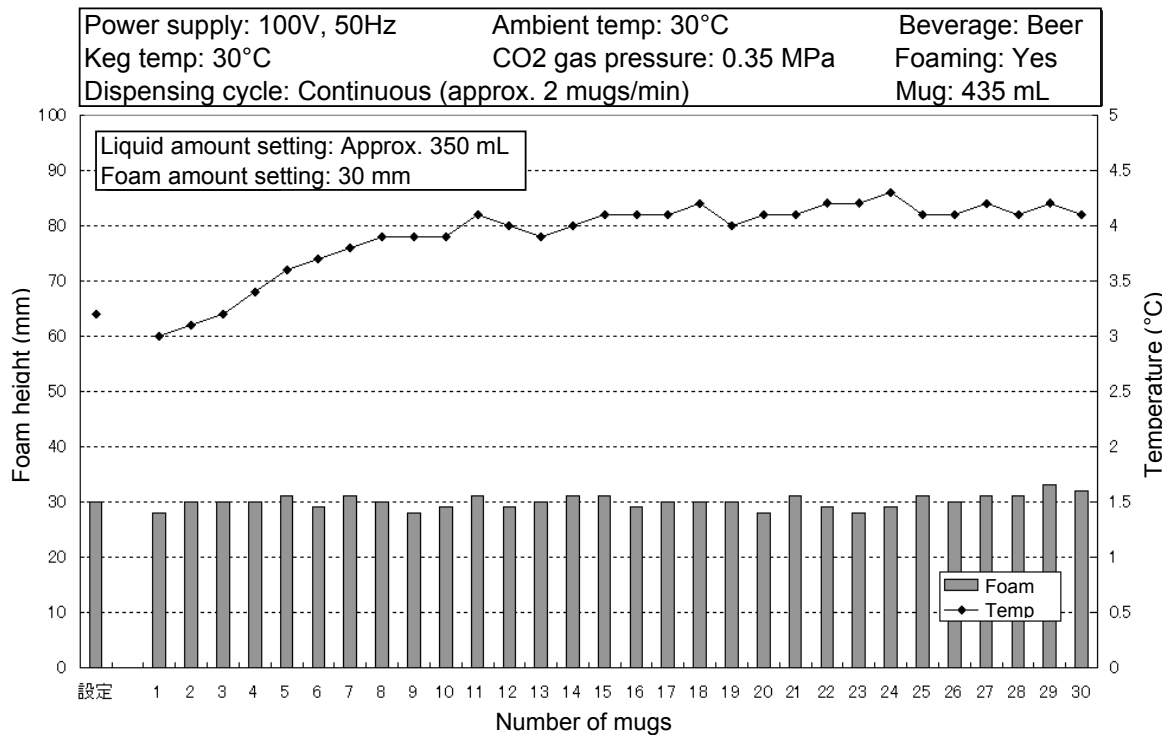
- Based on Specs. No. SS-03602
1. Install the product properly in accordance with the instruction manual (including installation manual) provided.
 2. This product is used in connection with the undercounter unit provided with a cooling water circulation system.
 3. Fix the power supply box on the undercounter unit which must have an earth connection. If it is not practicable, make a direct earth connection from the power supply box. No earth wire is provided.
 4. The above specifications are based on ambient temperature of 30±2°C.
 5. The beer inlet/outlet will be connected with a beer hose joint provided by the beer company.
 5. The accessory drain pan is a handy type. Install a built-in drain pan in the counter, if possible.
- Note 1: Upper end of mug (reference)
Note 2: Available mug size



3. DISPENSING PROPERTIES

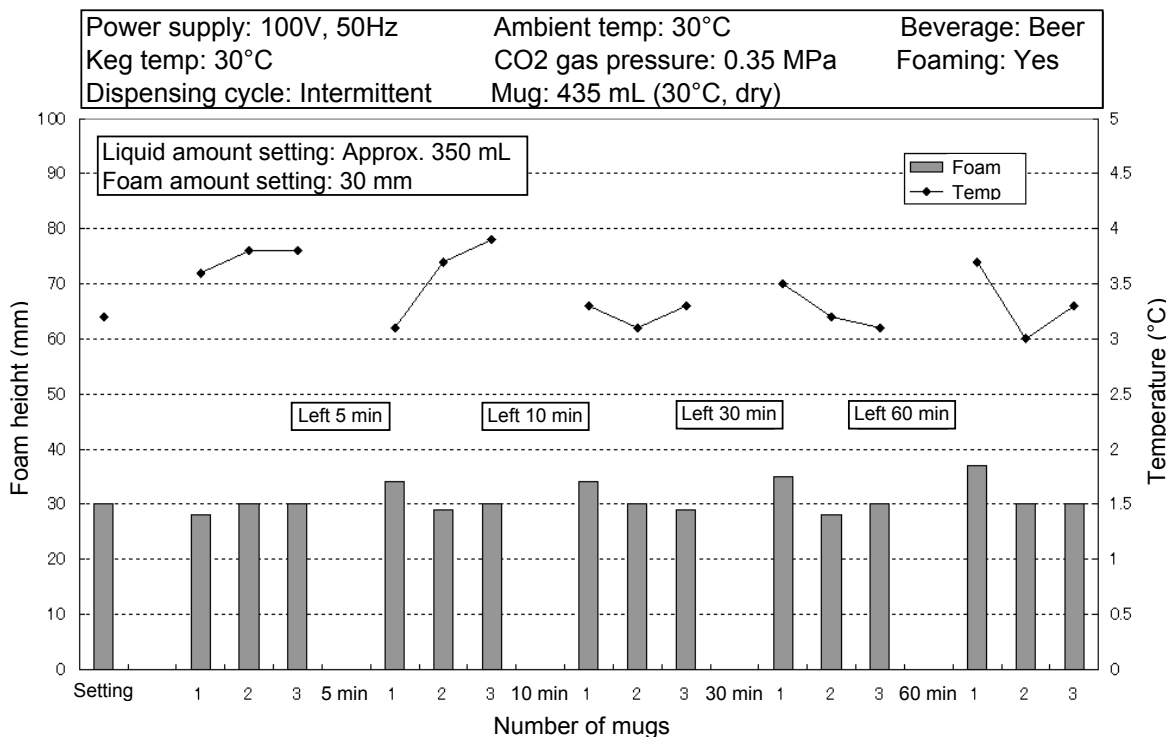
CFD-AS61A connected to DBF-U120WA (right circuit)

Continuous Dispensing



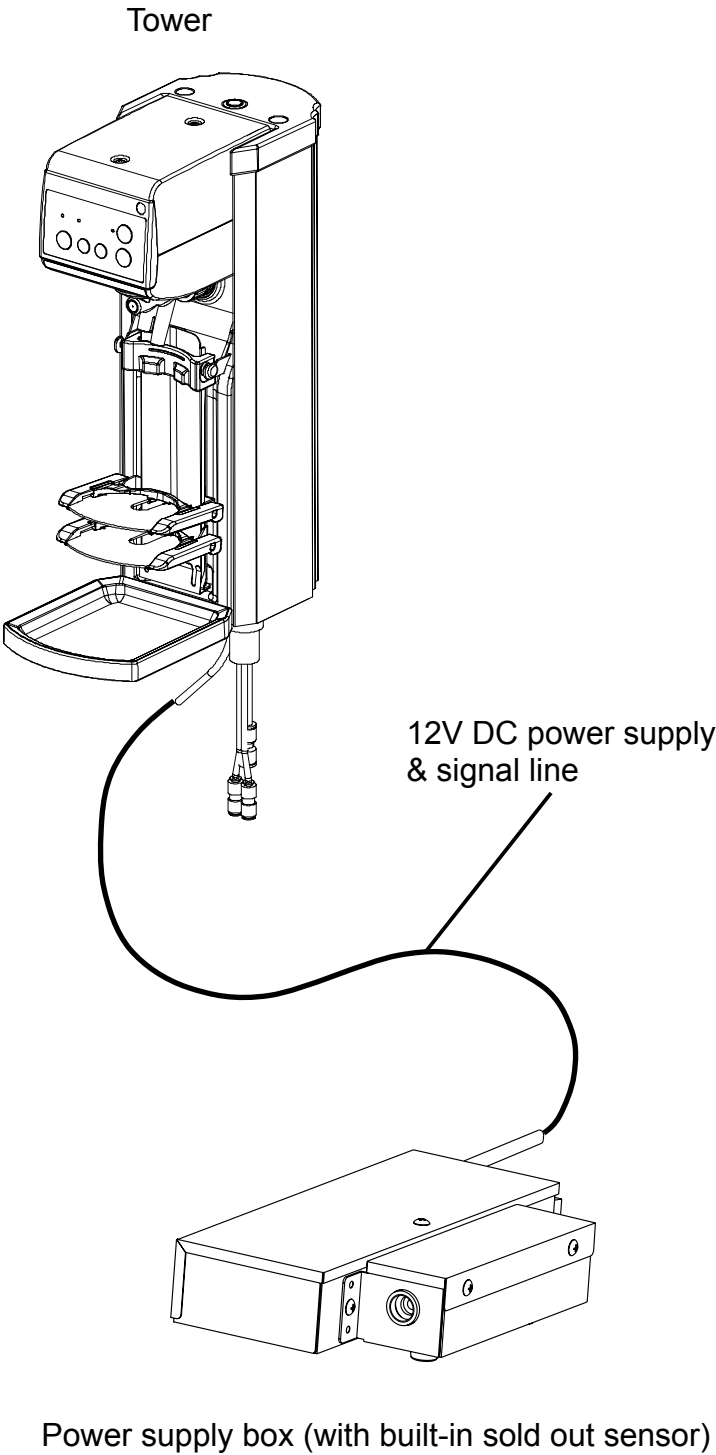
Intermittent Dispensing

Note: Compared to countertop beer dispensers, draft beer towers cannot adequately refrigerate the beer circuit up to the beer tap, resulting in overfoaming the first mug after left to stand.

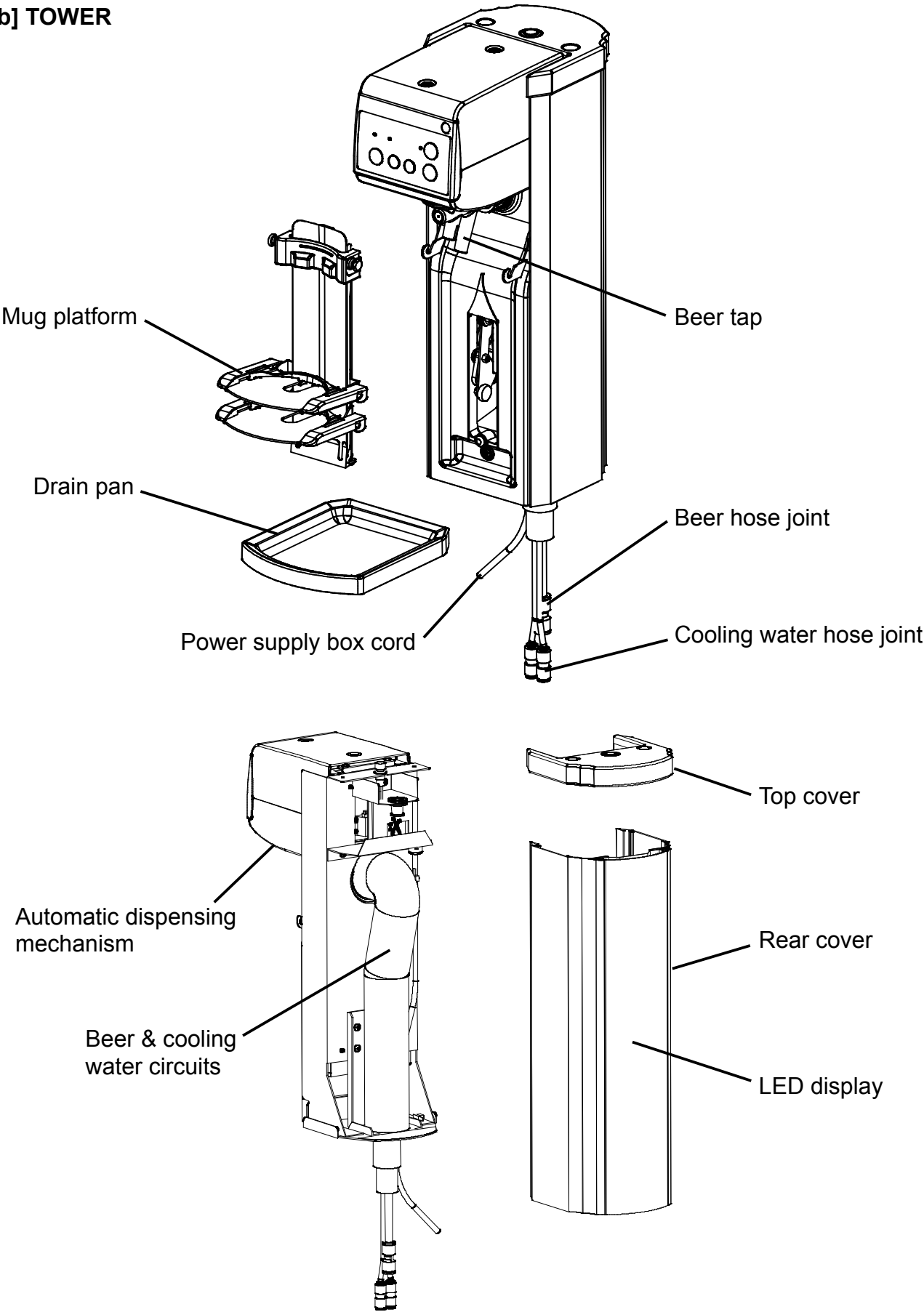


4. CONSTRUCTION

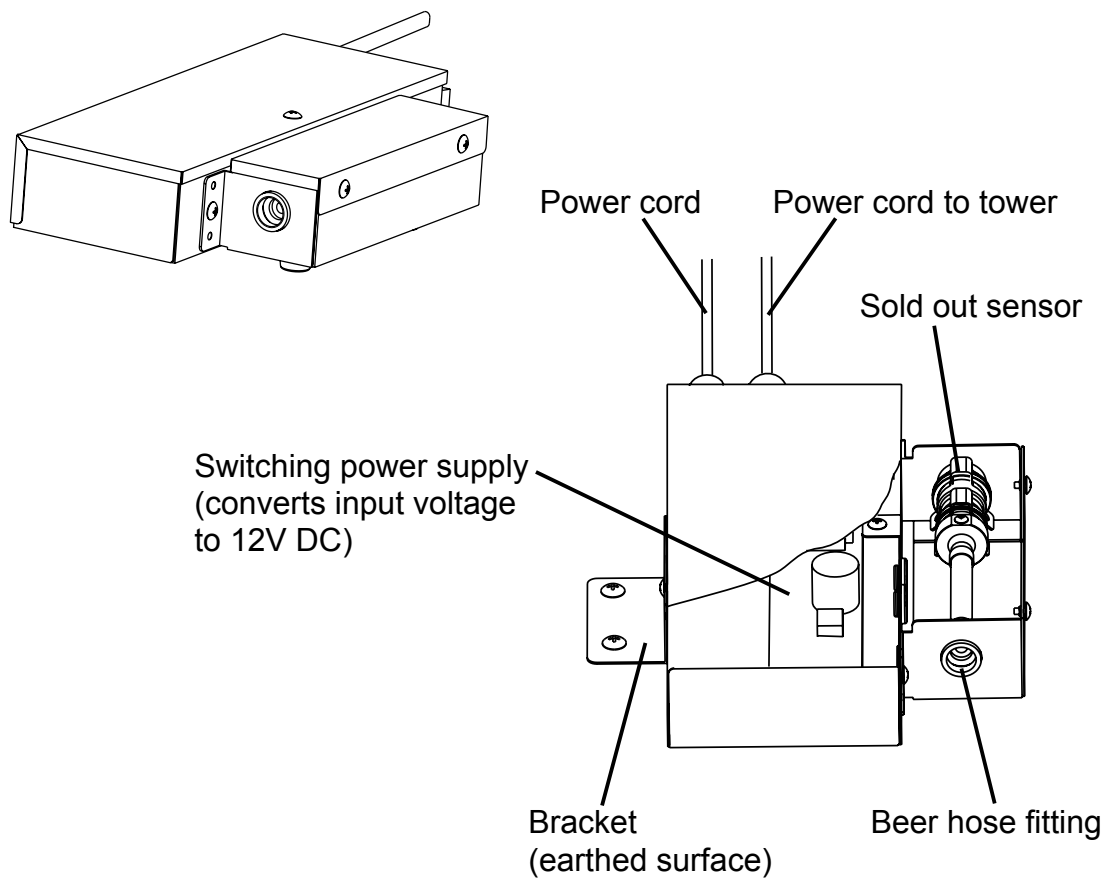
[a] GENERAL



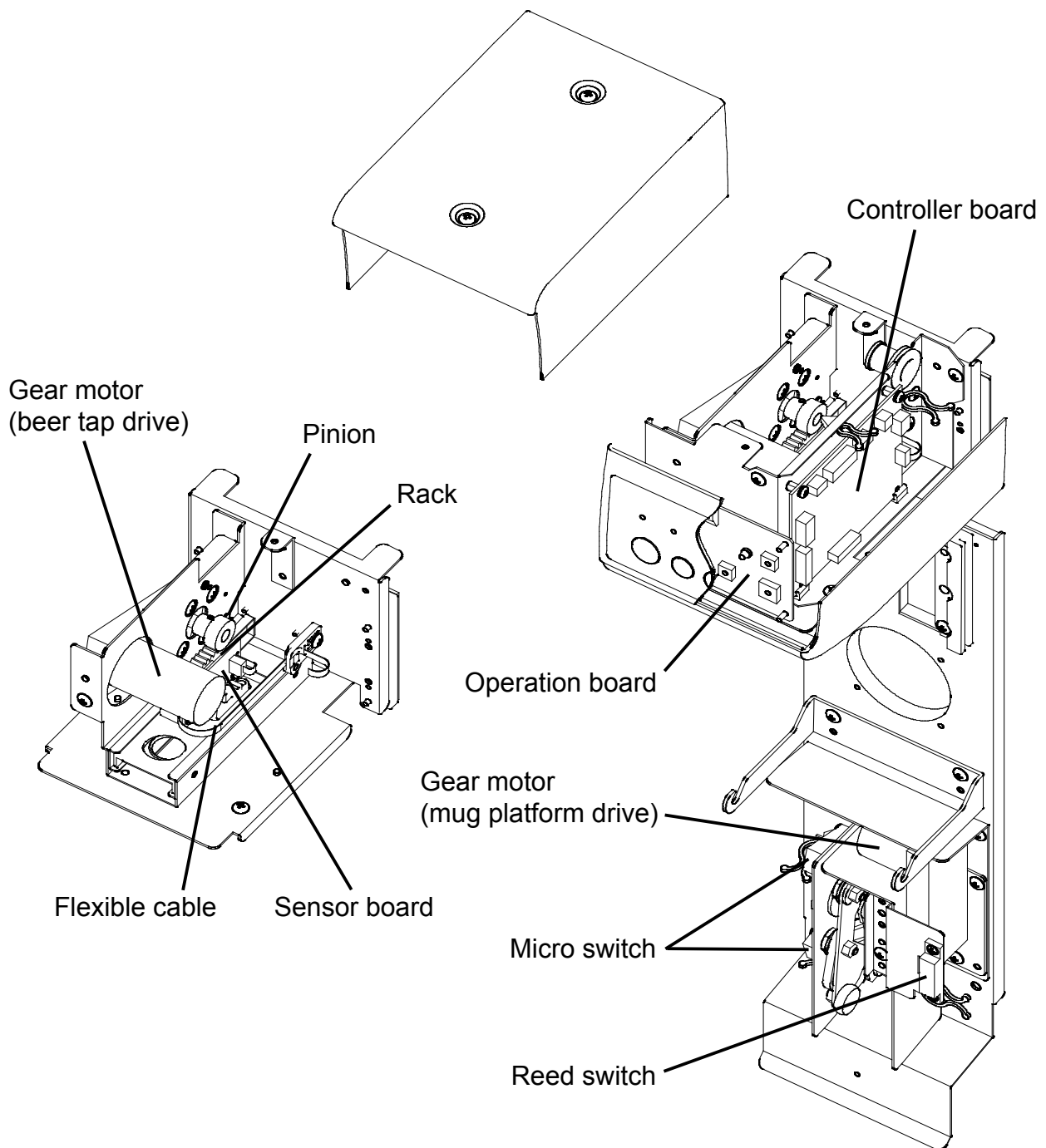
[b] TOWER



[c] POWER SUPPLY BOX (SOLD OUT SENSOR)

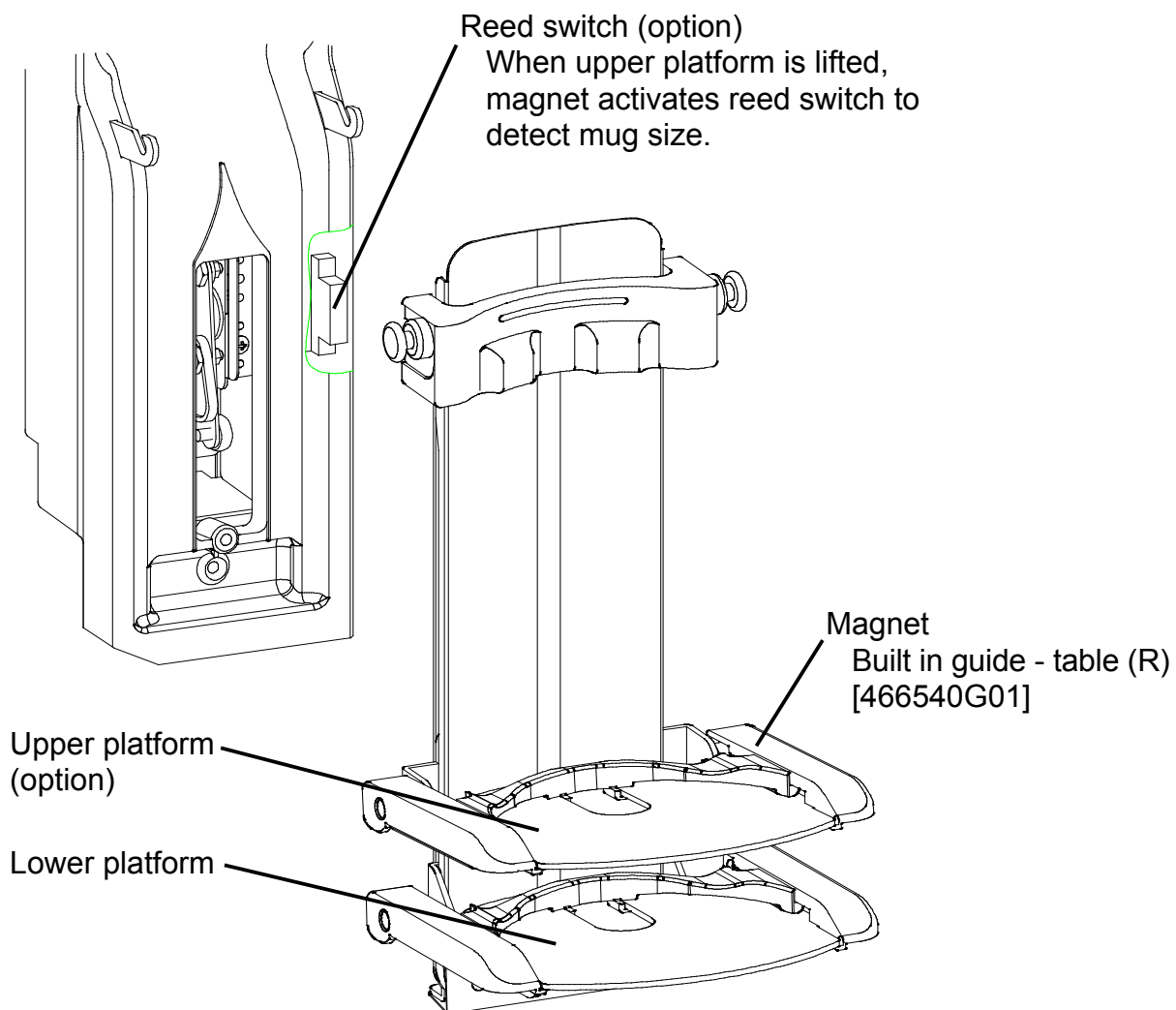


[d] AUTOMATIC DISPENSING MECHANISM



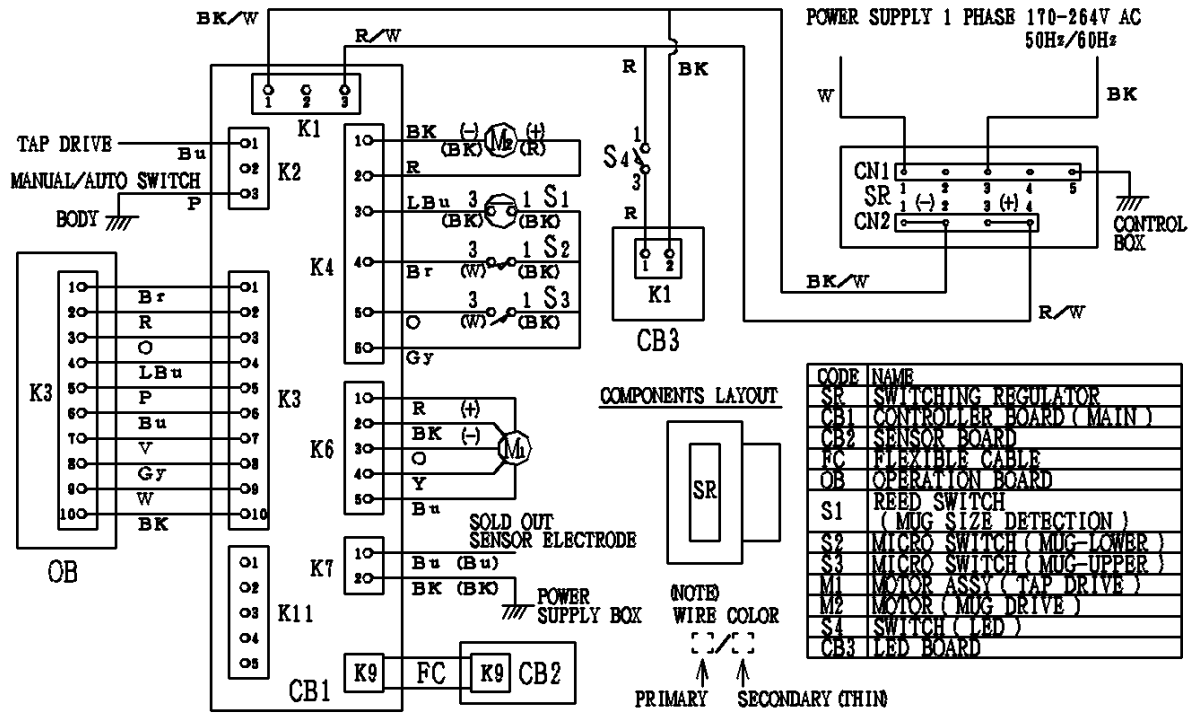
[e] MUG PLATFORM

* See "III. 1. [o]" for adjustment of the mug platform and reed switch. See "I. 6. PARTS INSTALLATION" in the instruction manual for further details.



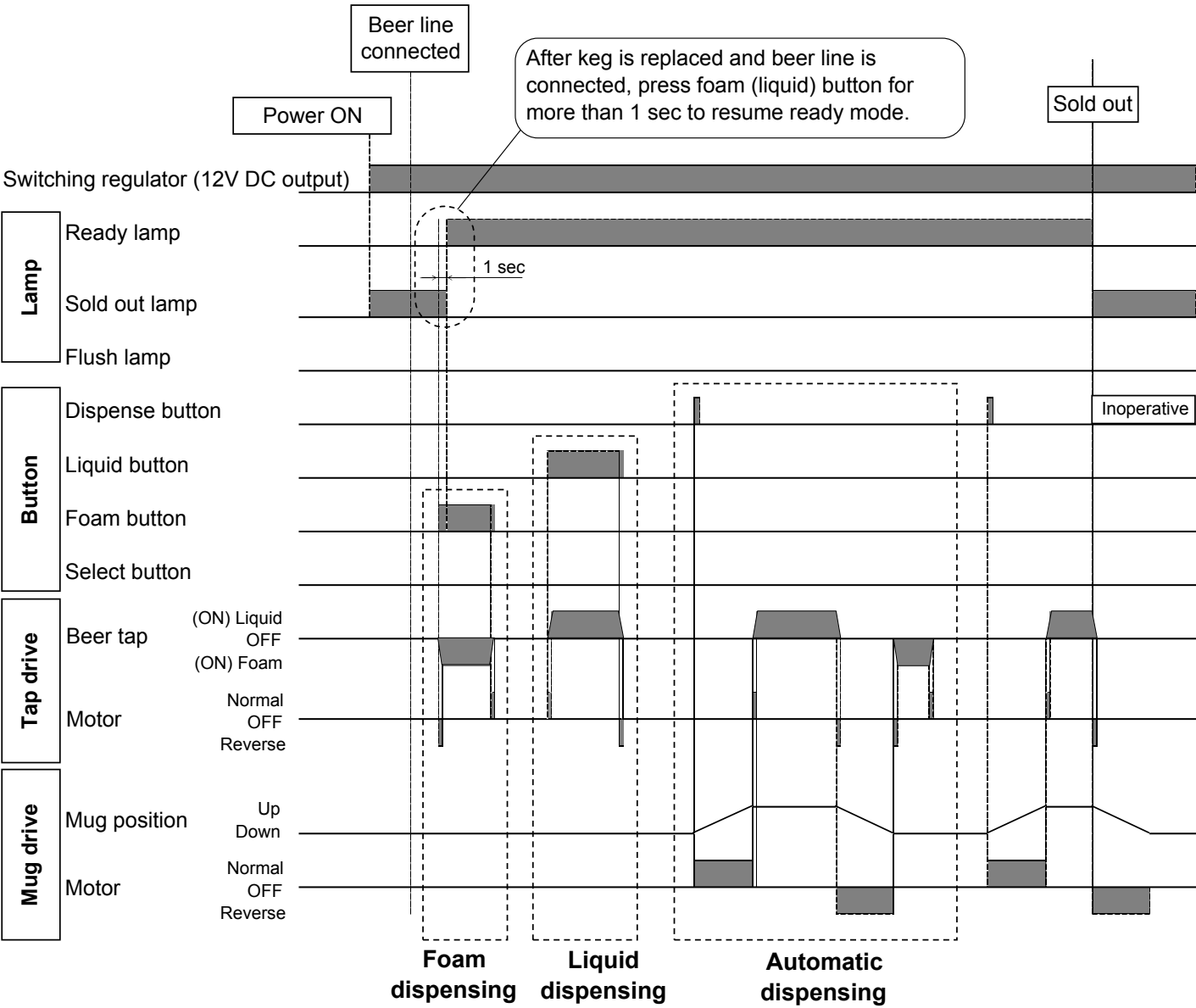
II. TECHNICAL INFORMATION

1. WIRING DIAGRAM

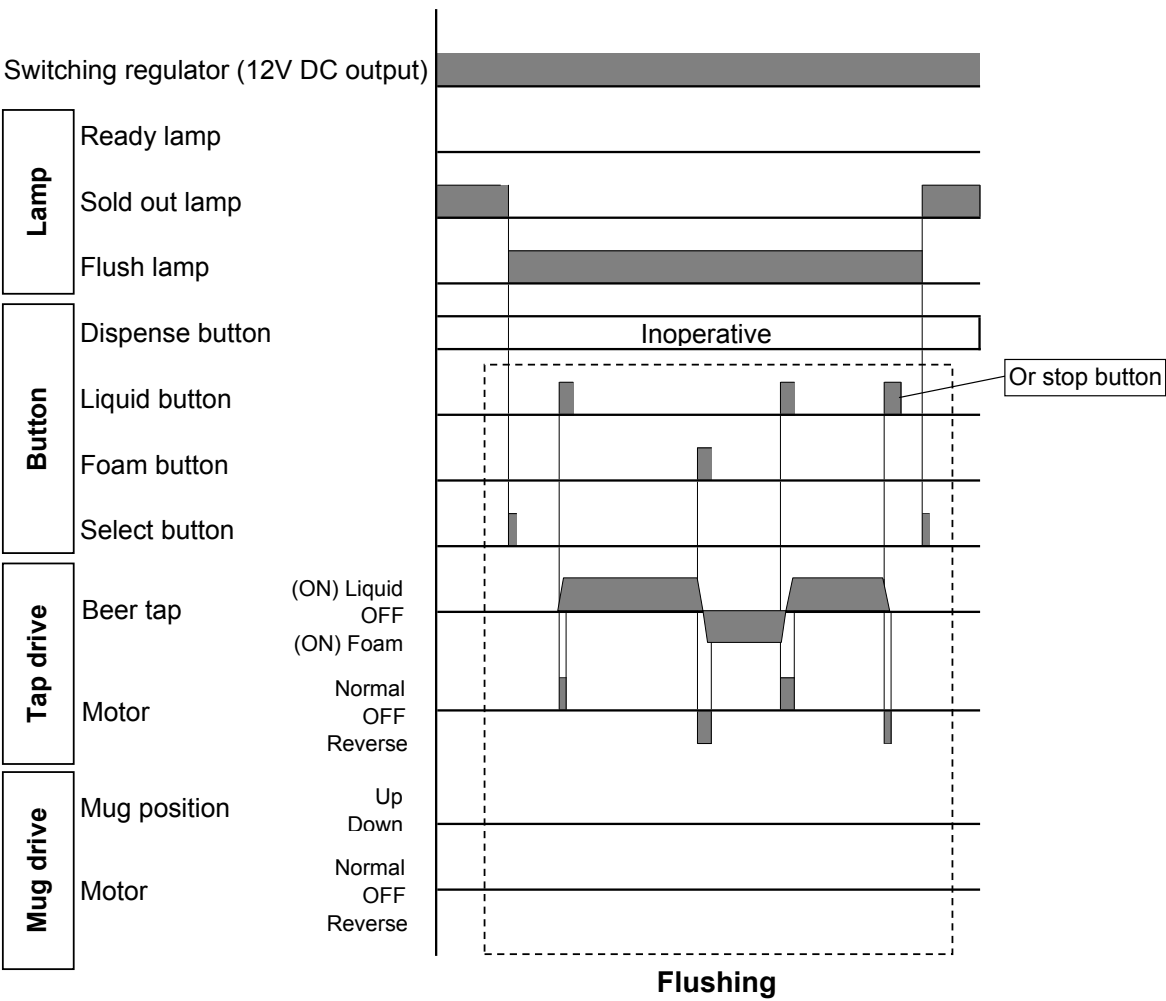


2. TIMING CHART

[a] READY MODE

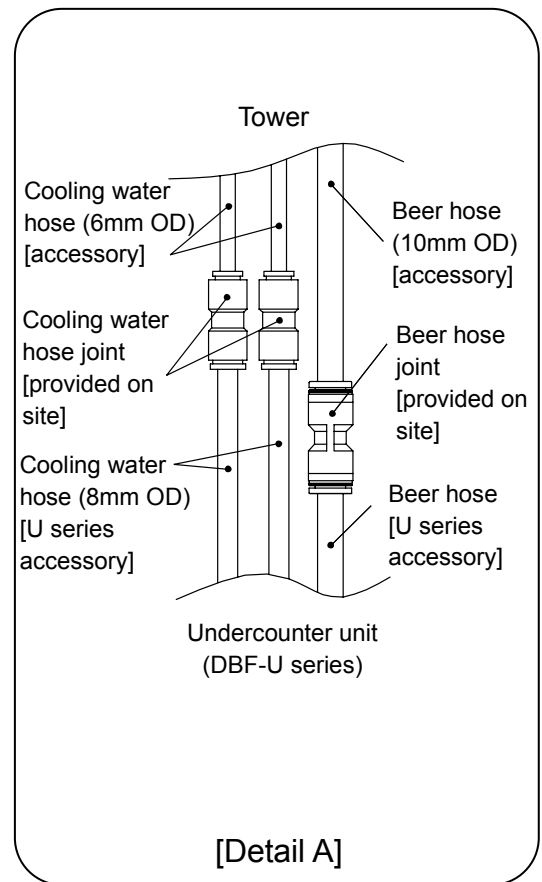
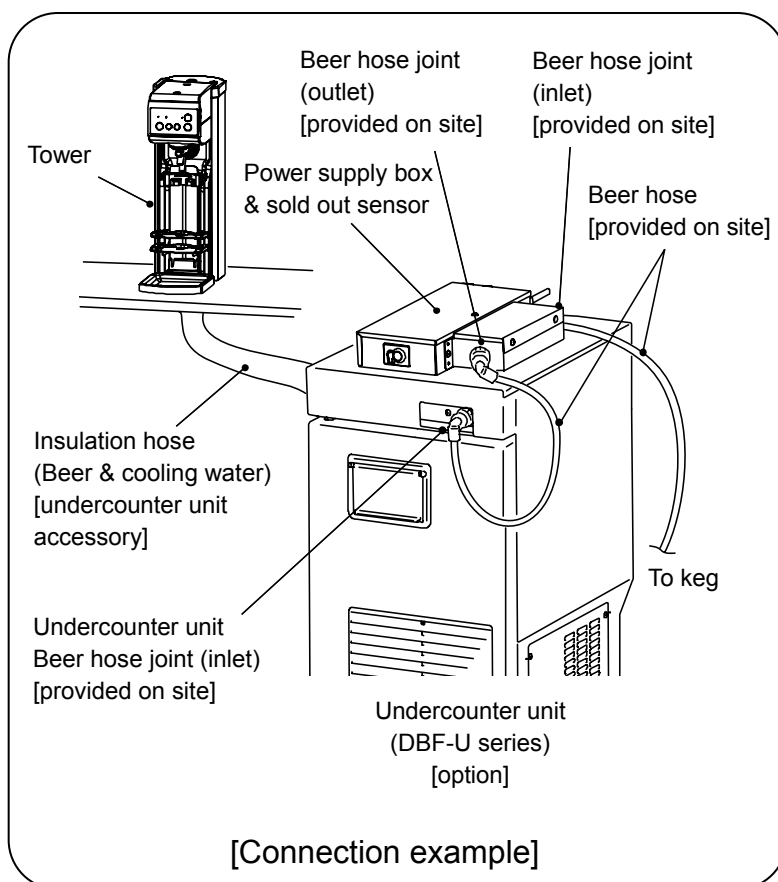
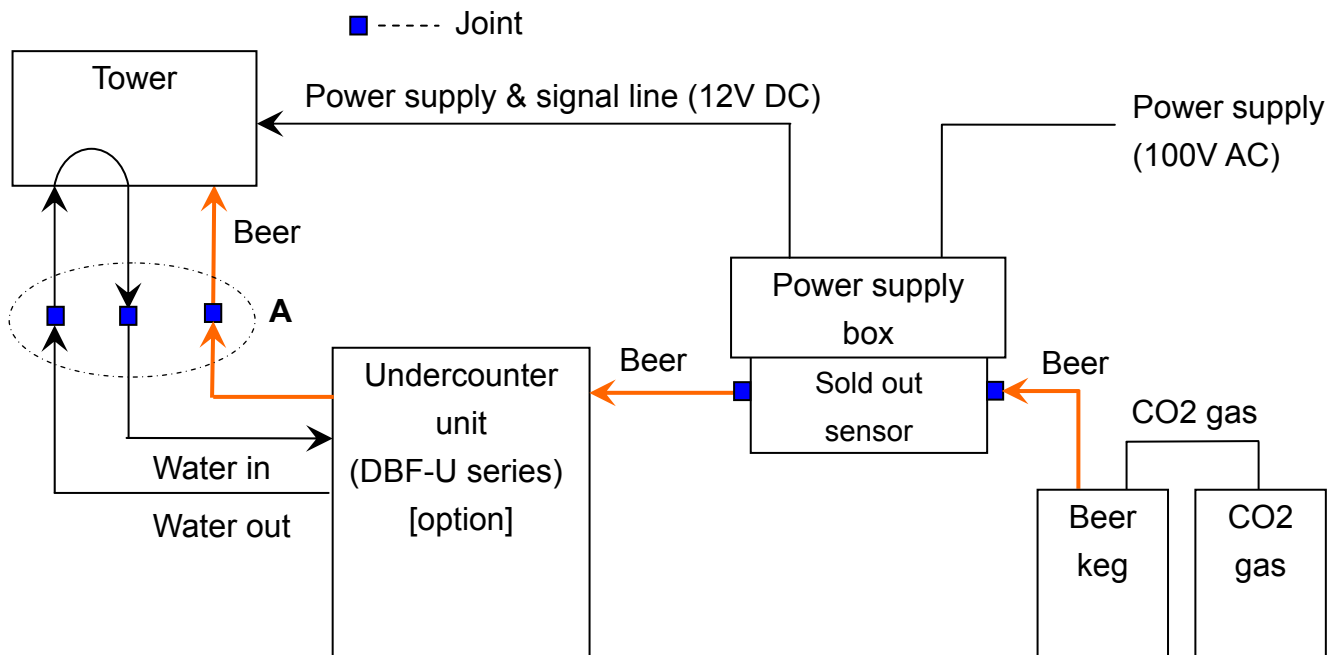


[b] FLUSH MODE



3. BEER CIRCUIT

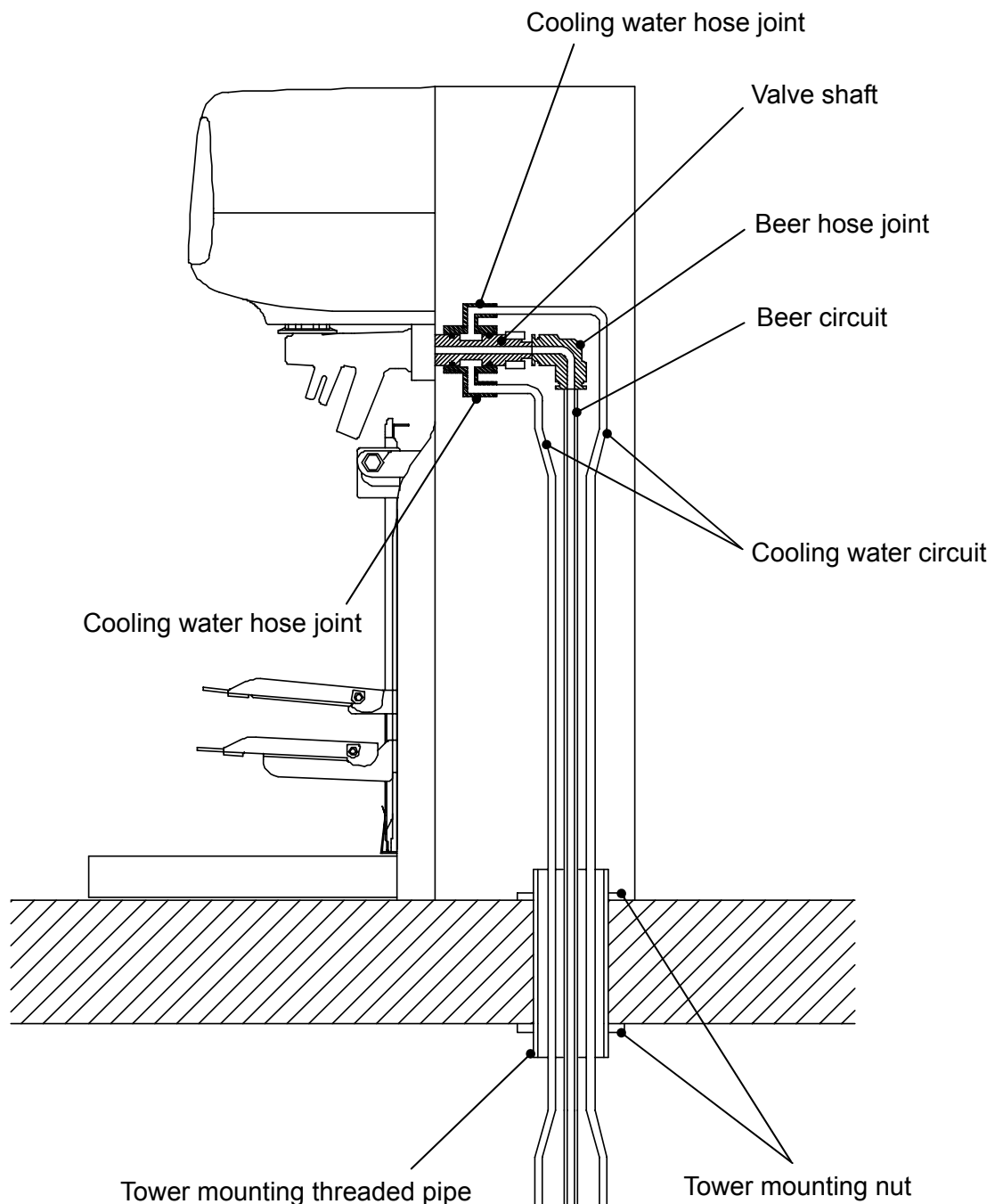
[a] CONNECTIONS



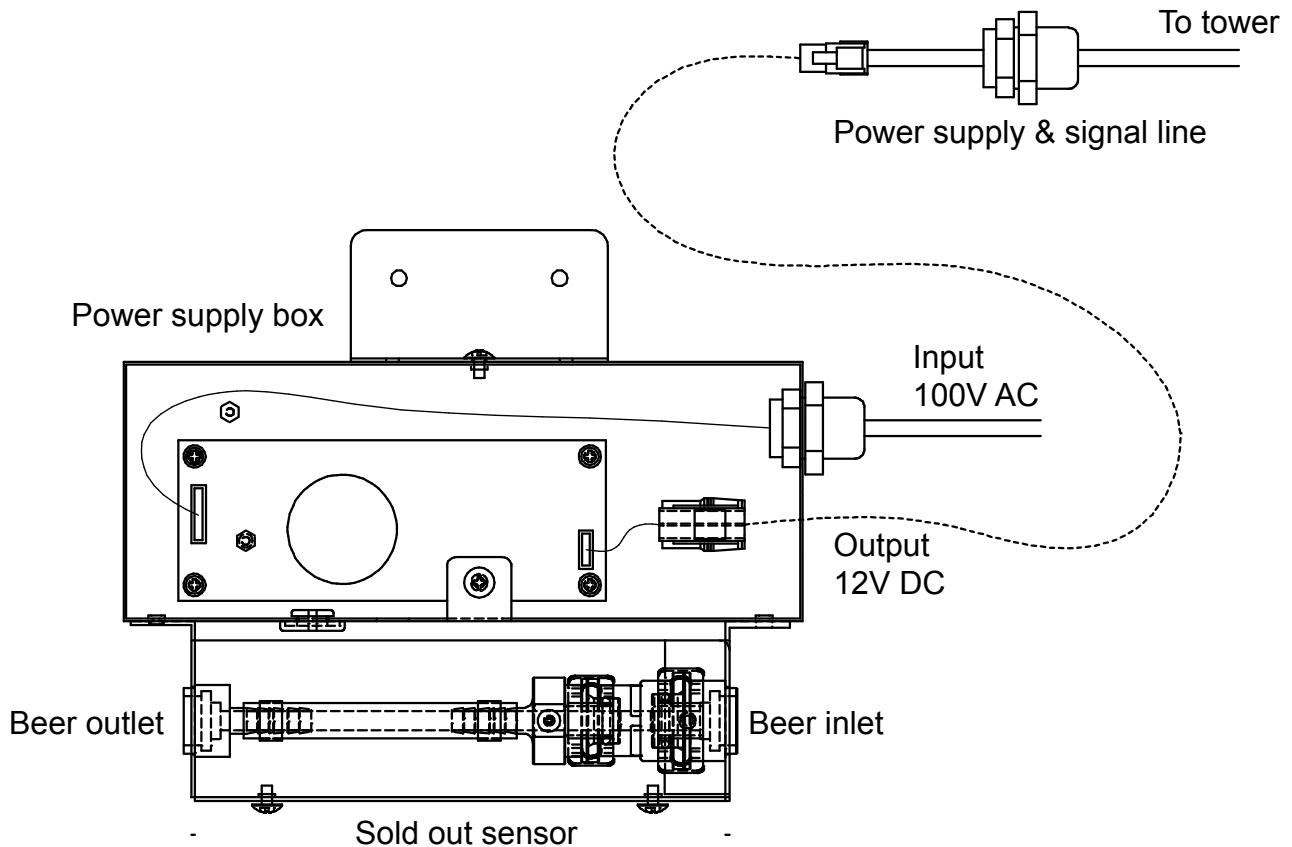
[b] TOWER

In case that the ambient temperature raises the beer temperature inside the tower during the standby mode, overfoaming will be caused and portion control will be difficult. To prevent this problem, the beer circuit including the valve shaft is combined with the cooling water circuits.

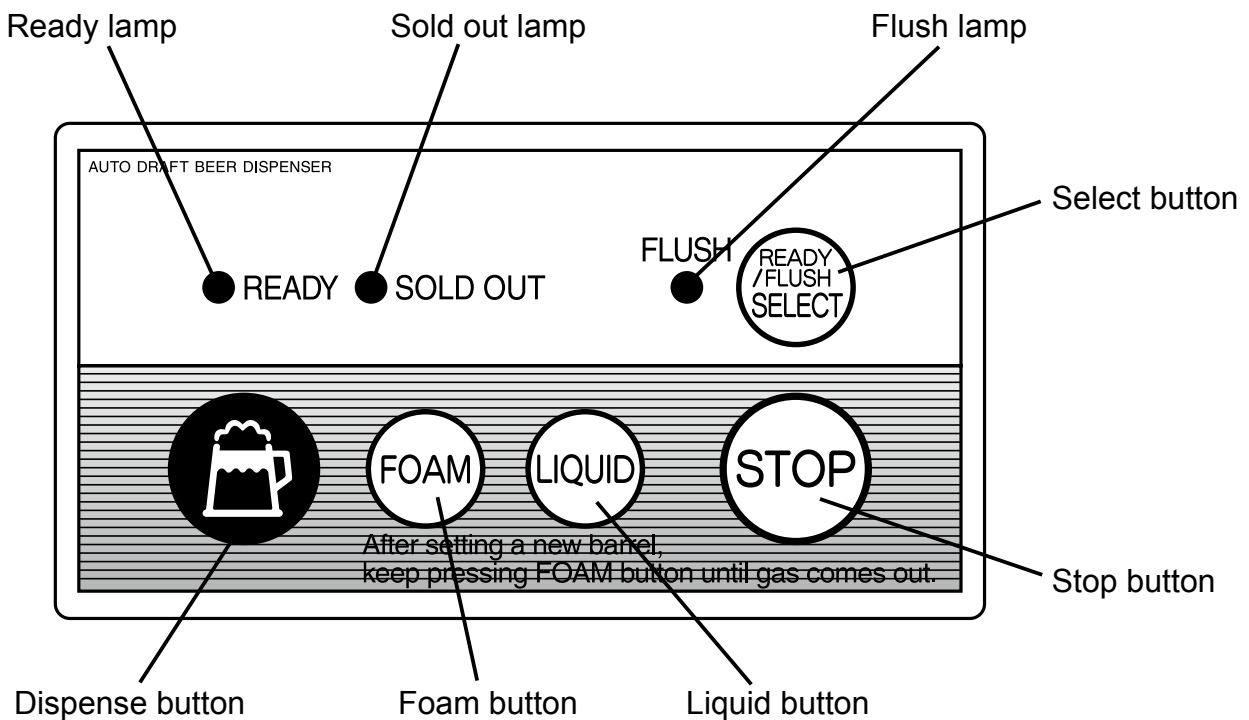
- Note:
1. Compared to a countertop instant cooling beer dispenser, the tower contains the longer beer circuit and has the lower cooling capacity, which may cause overfoaming more easily.
 2. Cooling water may be difficult to flow at the beginning of circulation. Turn on and off the cooling water several times to check for proper circulation.



[c] POWER SUPPLY BOX, SOLD OUT SENSOR



4. LAMP INDICATIONS



[a] NORMAL CONDITIONS

Mode	Condition	Lamp		
		Ready	Sold out	Flush
Ready	Automatic dispensing is available. Normally select this mode.	ON	OFF	OFF
Sold out	Beer keg is empty. Dispense button becomes disabled.	OFF	ON	OFF
Beer / cocktail setting	Select between beer / low-malt beer mode and cocktail mode to change sold out sensor setting (factory adjusted to beer mode).	[Beer] Flush in following order		
		1	2	3
		[Cocktail] Flush in following order		
		3	2	1
Flush	Beer circuit is flushed. Dispense button becomes disabled. Press liquid / foam button to keep beer tap open, and stop button to close. Press select button to switch between ready and flush modes.	OFF	OFF	ON
Manual dispense	Tap drive is lifted up. All buttons become disabled. Mode will change automatically when tap drive is lowered.	One of the three lamps flushes (1 sec ON, 1 sec OFF)		

[b] ABNORMAL CONDITIONS

When the tower detects an error, the three lamps on the operation panel unit (tap drive) will flush in the following pattern to locate the problem.

With an error indication, the operation panel becomes disabled.

Priority	Error	Condition	Lamp		
			Ready	Sold out	Flush
1	Controller board	Problem occurred within controller board.	Flush	Flush	Flush
			1 sec ON, 1 sec OFF		
2	Mug platform	It took more than 5 sec to lower mug platform.	Flush	Flush	OFF
			1 sec ON, 1 sec OFF		
3	Encoder (tap drive)	Beer tap opening / closing displacement (pulse) was not detected properly.	Flush	OFF	Flush
			1 sec ON, 1 sec OFF		
4	Hall element (tap drive)	Beer tap closing midpoint correction was not detected properly.	OFF	Flush	Flush
			1 sec ON, 1 sec OFF		

III. SERVICE INFORMATION

1. SERVICE DIAGNOSIS

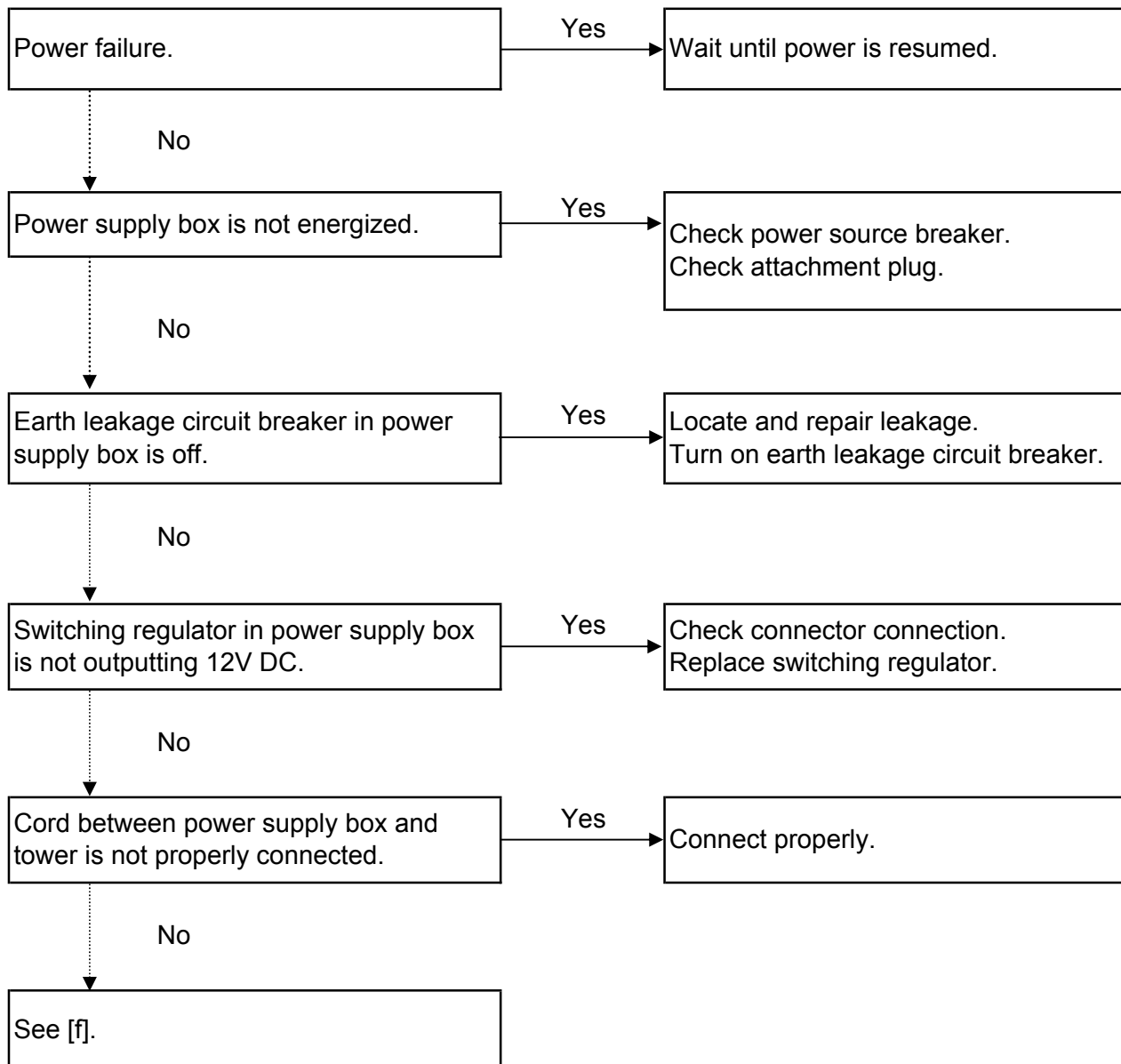
Before performing troubleshooting:

- 1) Check the lamp indication on the operation panel. See “II. 4. LAMP INDICATIONS”.
Then, turn off the power supply and turn it back on.
- 2) If the error indication or abnormal operation still remains after troubleshooting, turn off the power supply as soon as possible. If the power supply is left on, some other parts may also become defective (ex. damage by locked motor, blown fuse on controller board).

Refer to the applicable section for troubleshooting:

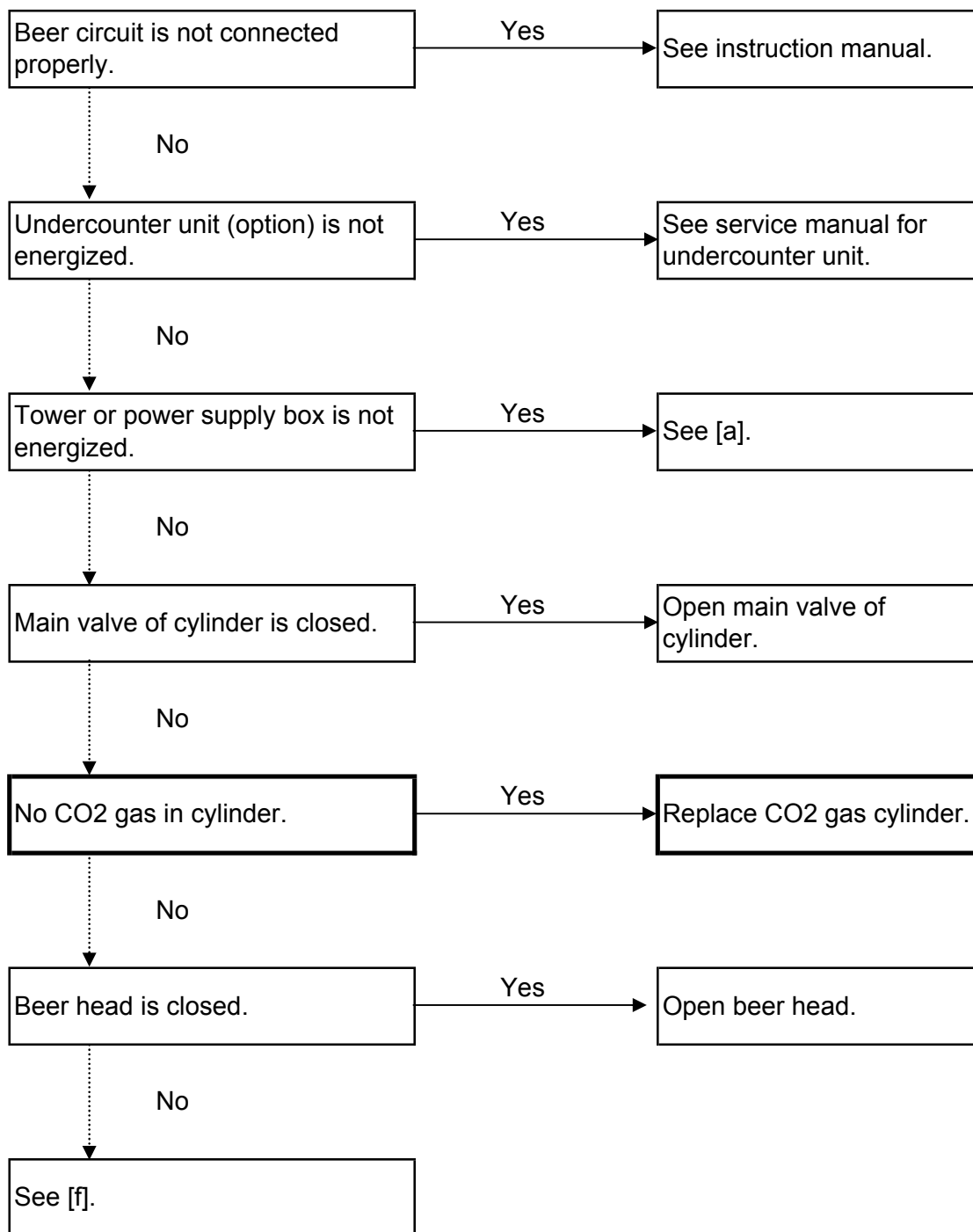
- [a] No power supply (lamp off)
- [b] No beer is dispensed
- [c] Beer will not stop
- [d] Dispensed volume differs from setting
- [e] Overfoaming
- [f] Drive will not move properly
- [g] Error indication
- [h] Tap drive will not move up or down
- [i] Adjustment of slide plate inside tap drive
- [j] One lamp flushing with tap drive lowered, dispense button will not start automatic dispensing
- [k] Sold out lamp on with beer left in keg
- [l] Sold out sensor sometimes fails to operate
- [m] Sold out sensor setting
- [n] Cocktail keg (dry) option
- [o] Adjustment of mug platform and reed switch (mug size)

[a] No power supply (lamp off)



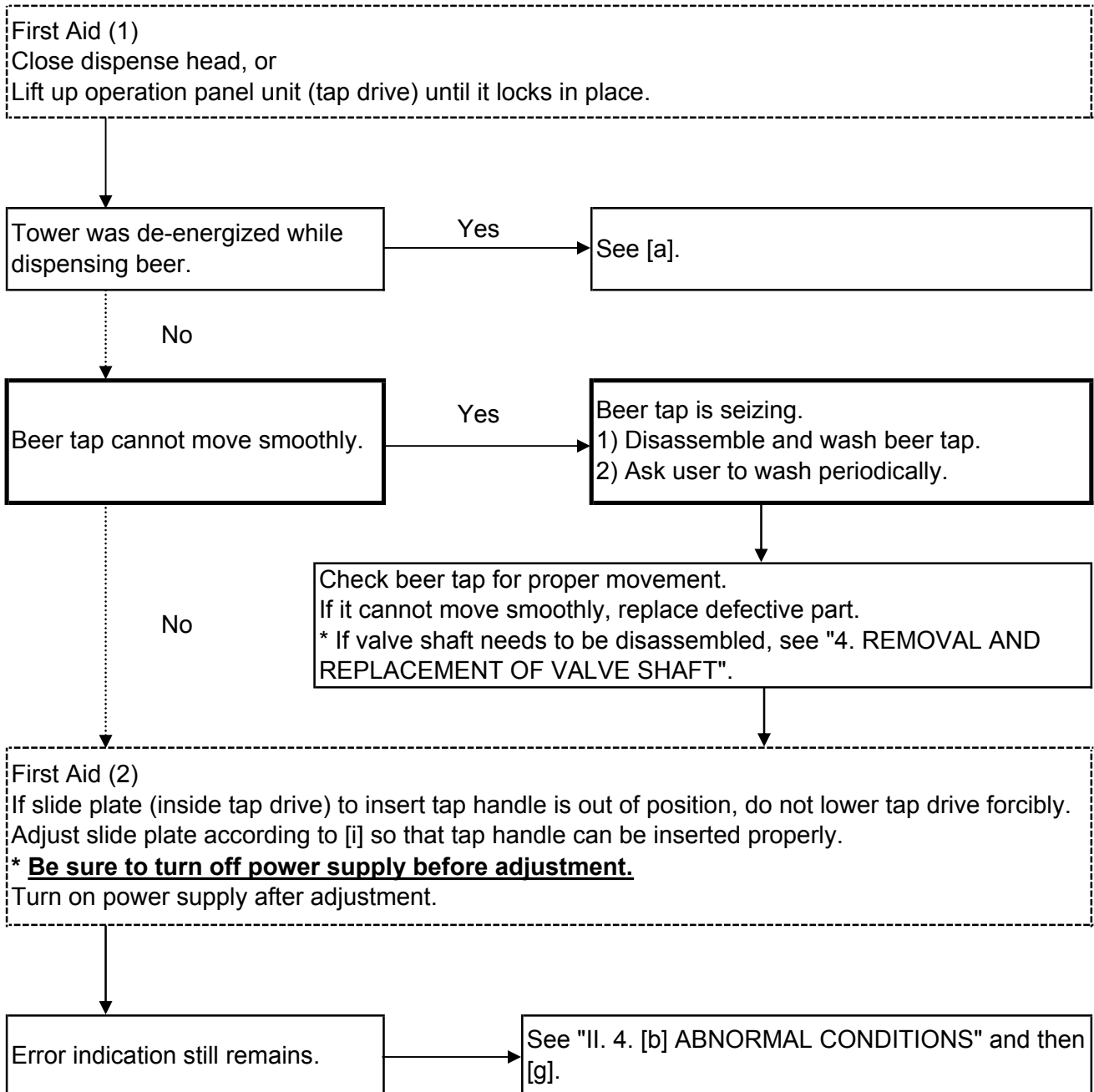
[b] No beer is dispensed

*** Thick frames show frequently occurring cases.**



[c] Beer will not stop

* Thick frames show frequently occurring cases.



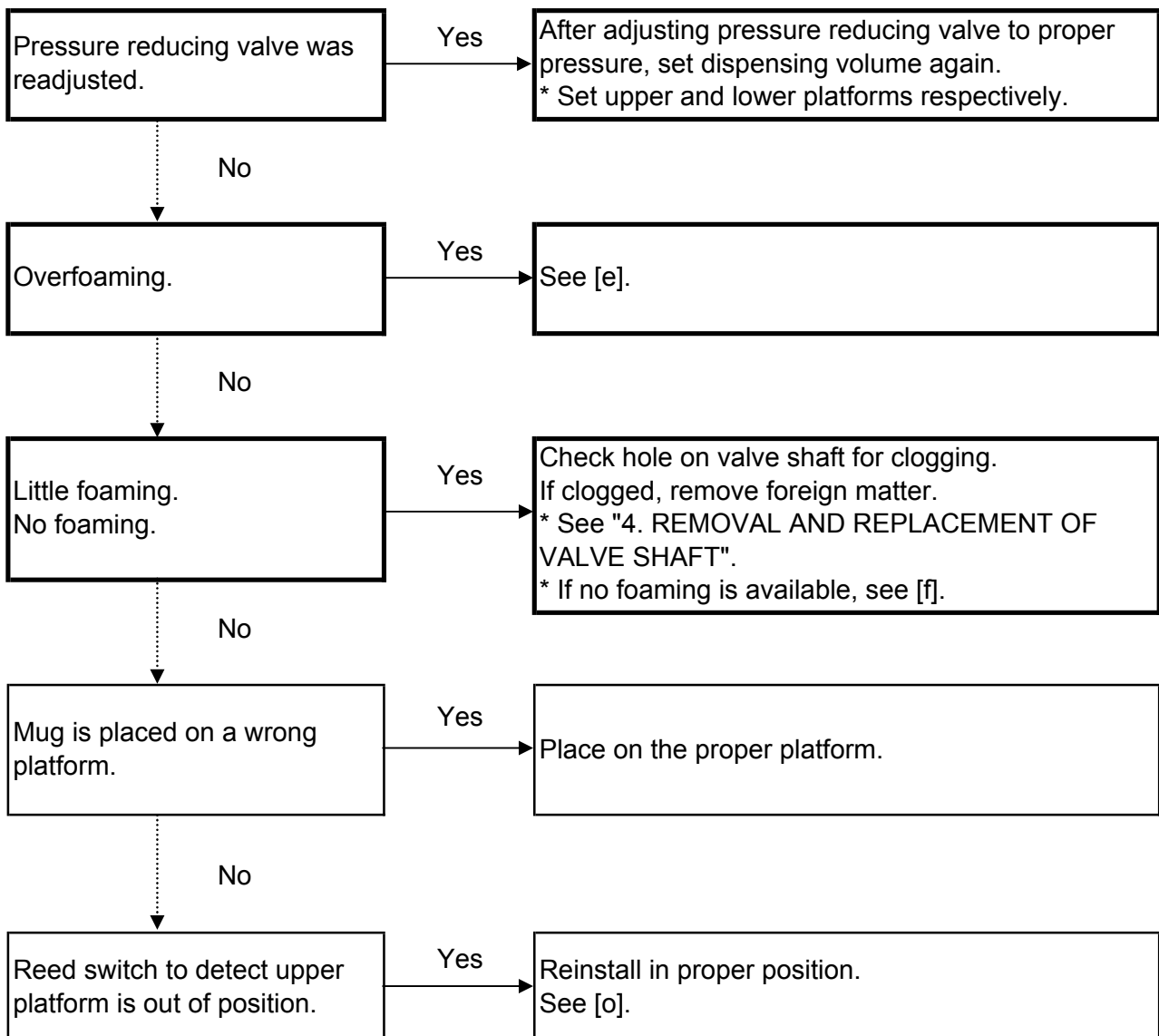
Note:

Dispense beer with operation panel unit in dispense mode.

If liquid or foam button is pressed in flush mode, beer will not stop until liquid or foam button is pressed again or stop button is pressed (see instruction manual for further details).

[d] Dispensed volume differs from setting

*** Thick frames show frequently occurring cases.**



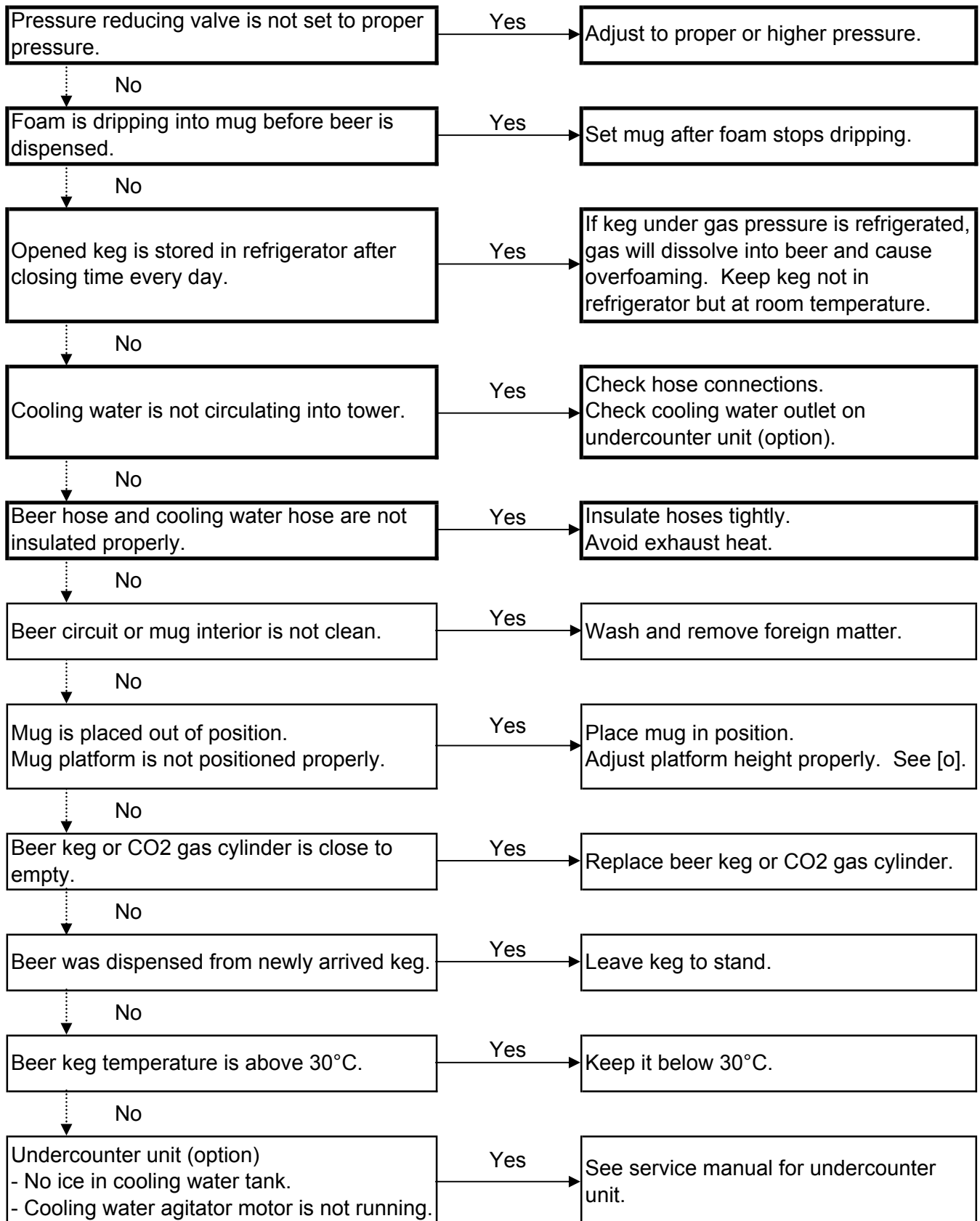
Note:

Residual pressure will slightly increase dispensed volume when beer keg is getting empty.
Beer level in mug may change by around 1cm while full keg becomes empty.

[e] Overfoaming

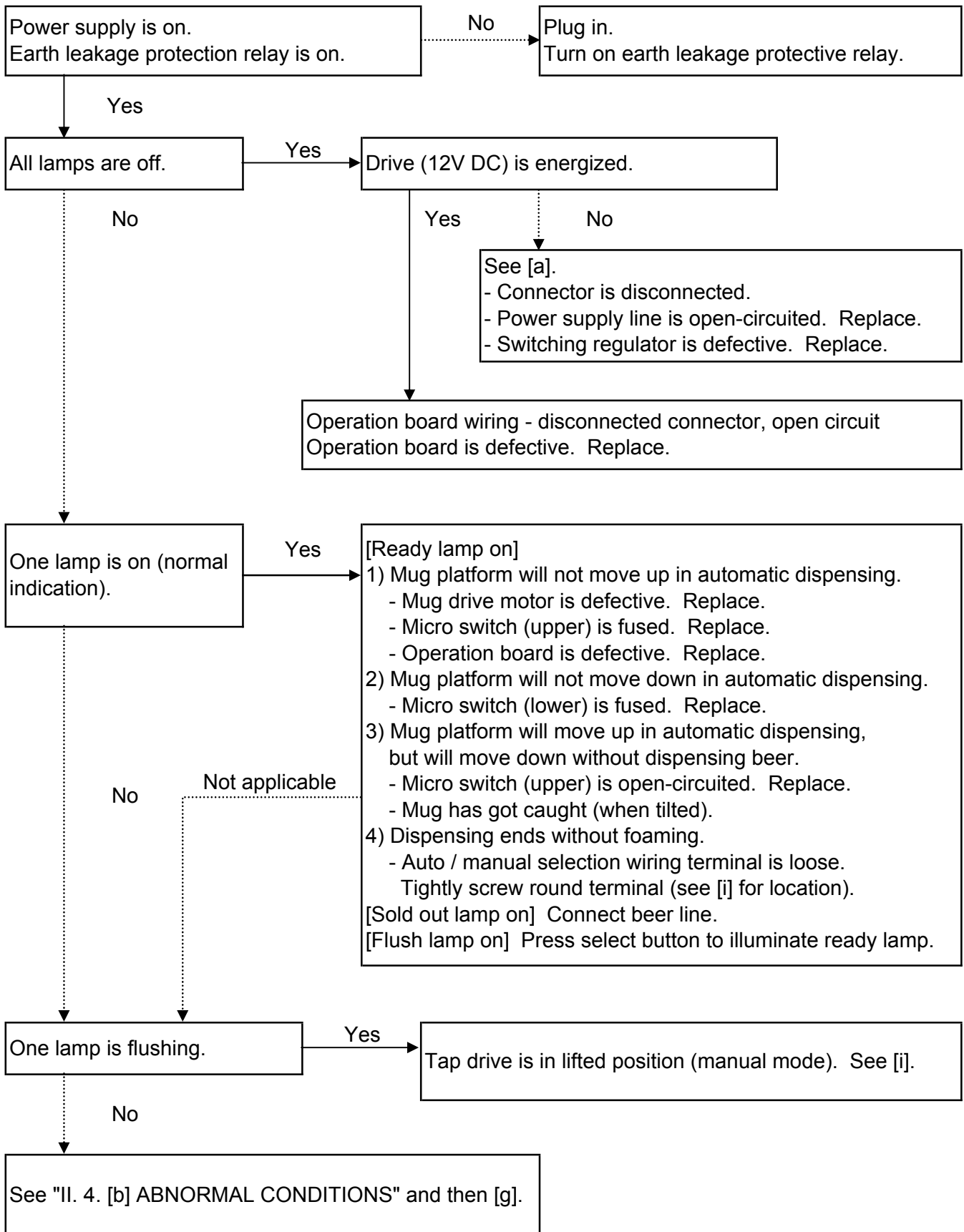
Note: Compared to countertop beer dispenser, draft beer tower contains longer beer circuit and has lower cooling capacity, which may cause overfoaming more easily.

*** Thick frames show frequently occurring cases.**



[f] Drive will not move properly

*** Bold letters show frequently occurring cases.**



After following instructions below, turn off and on power to cancel error indication.

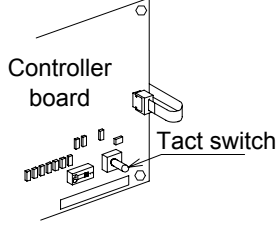
Controller board error
Lamp indication: All lamps are flashing.

Replace controller board.

Signal check mode
Lamp indication: All lamps are on.

* Signal check mode is a function to check signal from DBF-AS65WB-J pressure control board. For models without pressure control function, all three lamps will be on while tact switch is pressed. This means there is no signal. Buttons become disabled while tact switch is pressed. Normal mode is resumed when tact switch is released.

Tact switch located at bottom right of controller board in tap drive is turned on by pressure of wires. Correct wiring to release switch from pressure.



Mug platform error (mug drive is defective)
Lamp indication: Ready lamp and sold out lamp are flashing.

Mug drive motor will not run.

Yes

Check for:

- Loose wire connections.
- Unplugged connectors.
- Jammed links.

Replace mug drive motor.

No

Micro switch is defective. Replace.

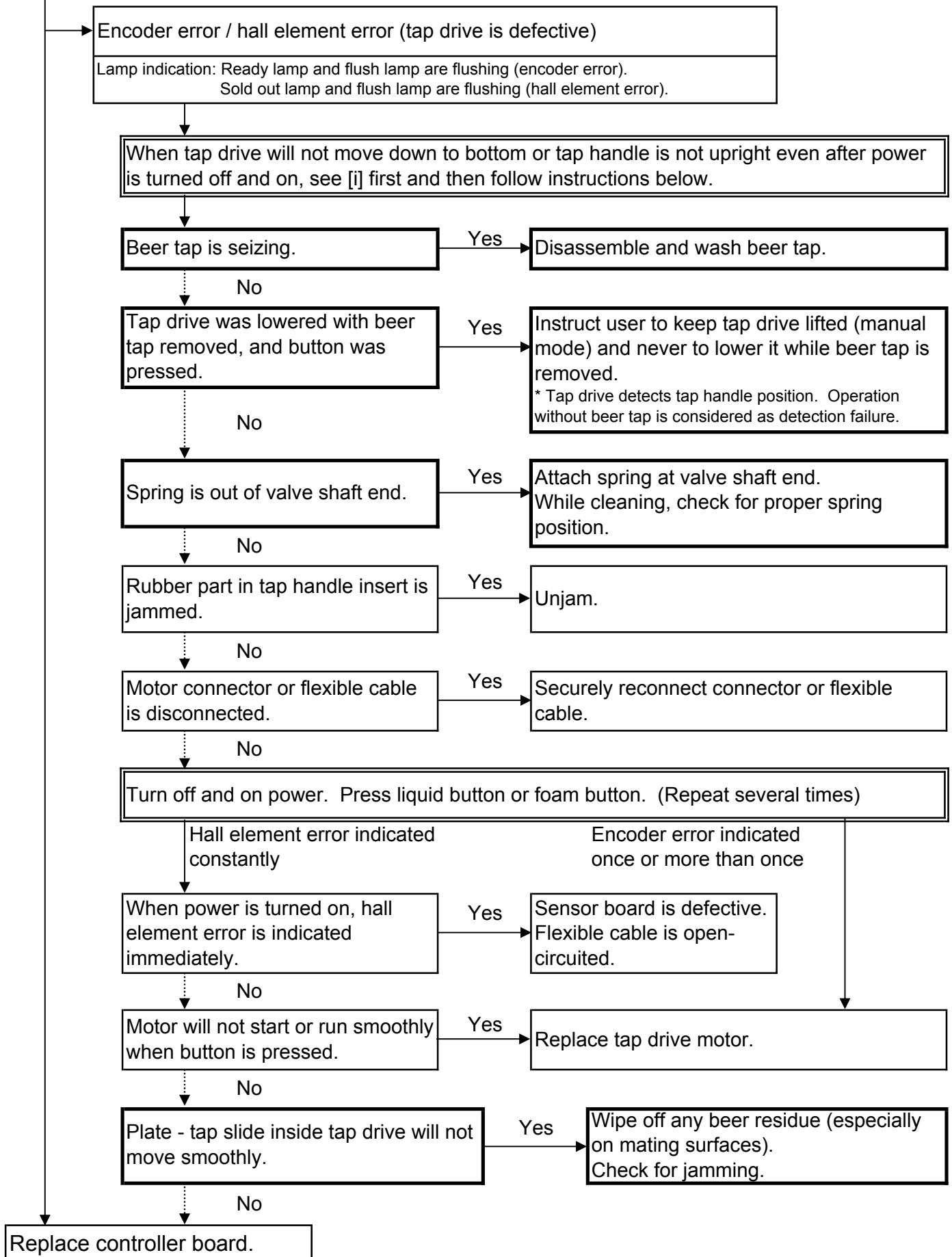
1) Mug platform will move down without dispensing beer. Micro switch (upper) is defective.
2) Mug plat form will not move down or no foaming. Micro switch (lower) is defective.

Cam is rattling. Replace.
Mug drive motor is defective. Replace.

Continue on next page

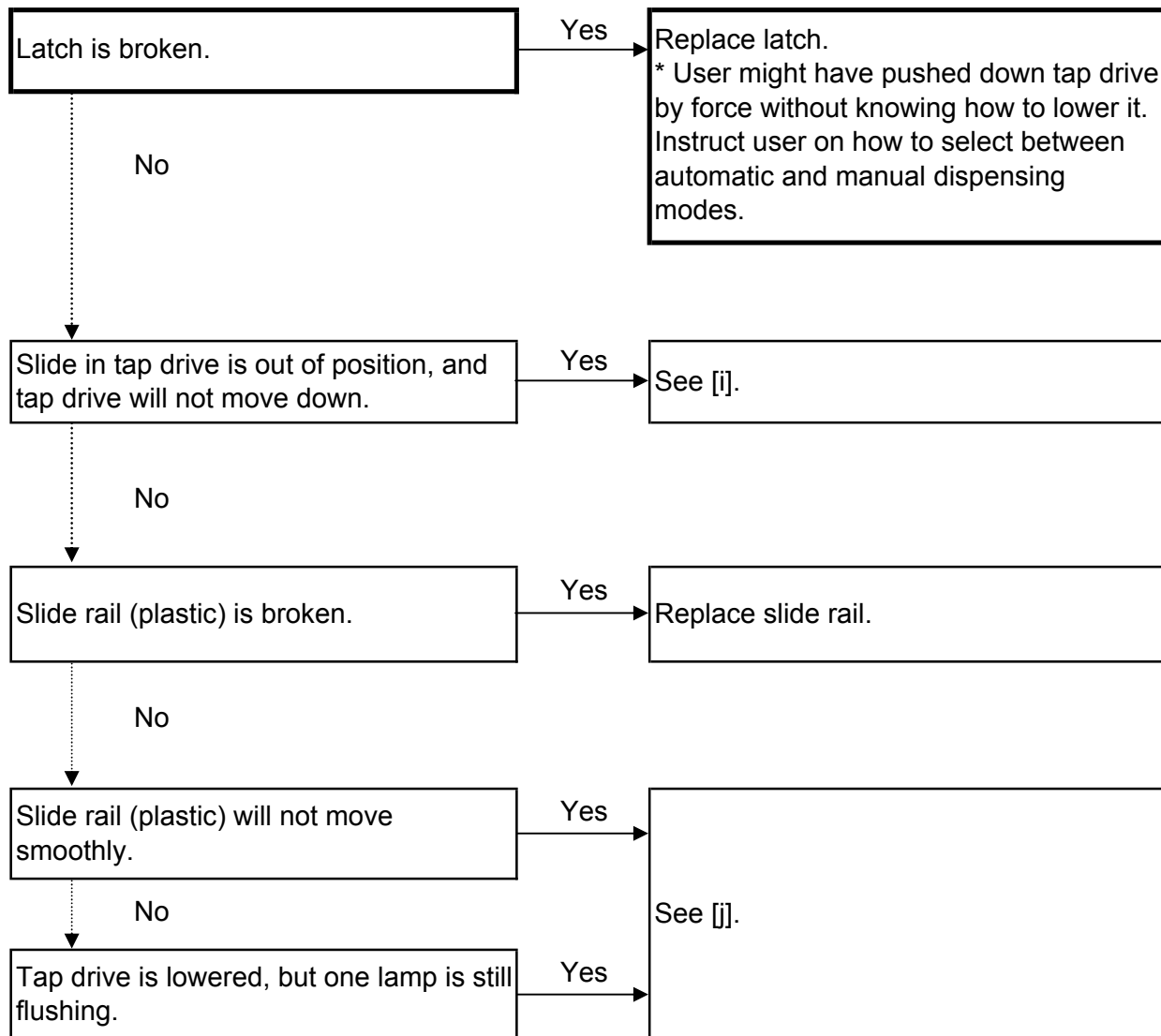
Continued

* Thick frames show frequently occurring cases.



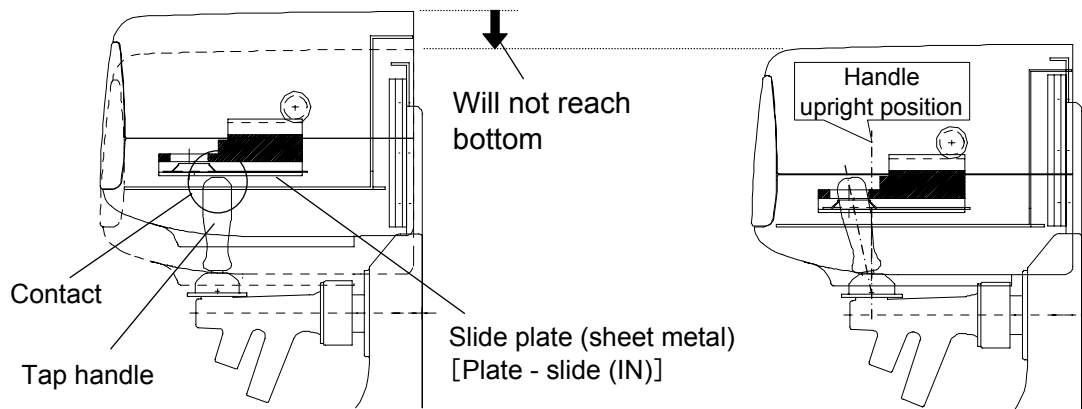
[h] Tap drive will not move up or down

*** Thick frames show frequently occurring cases.**



[i] Adjustment of slide plate inside tap drive

In case (a) or (b), follow instructions below.
In other cases, see [j].



(a) Tap handle is in contact with plate - slide (IN) inside tap drive, and tap drive will not move down.

(b) Tap handle is not upright even after power is turned off and on.

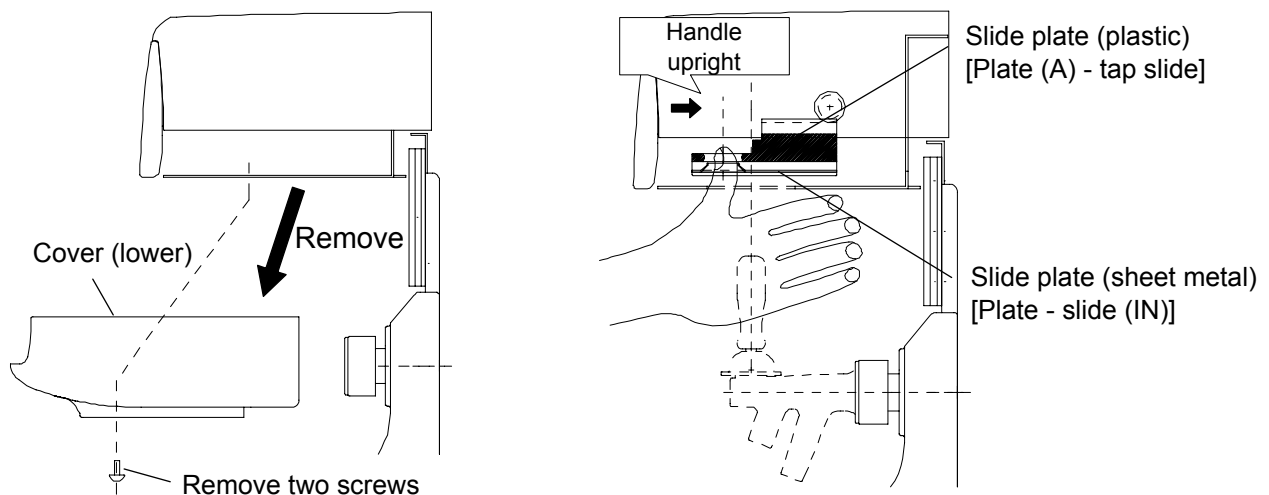
* In normal condition, tap handle resumes upright position when power is turned off and on.

[Remedy]

1. Turn off power supply. **Or it can be dangerous.**

2. Remove tap and cover (lower). Put your finger into hole at tap drive bottom, and adjust slide plate (plastic) and slide plate (sheet metal) holes to upright position of tap handle.

* Adjustment needs some force. Be careful not to pinch or cut your finger.



3. After attaching tap, lower tap drive. Check that tap handle is upright. If not, repeat step 2.

4. Turn on power supply.

The above procedure is just to restore default settings. Be sure to locate and repair the cause of the problem. See "II. 4. [b] ABNORMAL CONDITIONS" first and then [g].

[j] One lamp flushing with tap drive lowered, dispense button will not start automatic dispensing

[Condition]

Tap drive cannot reach the bottom due to problems such as upper and lower slides. Manual dispensing mode remains selected.

[Auto / manual selection]

Tap drive has electrodes on base (a) and base (b) as shown below. When electrodes are in contact with each other, tap drive is considered to reach the bottom, and automatic dispensing mode is selected. When electrodes are not in contact with each other, manual dispensing mode is selected, and buttons become disabled.

[Remedy]

1. Lower tap drive until electrodes [base (a) and base (b)] come in contact with each other.

[Note]

- 1) If tap drive is seizing, do not lower it by force, but follow instructions in [i].
 - 2) If upper and lower slides cannot move smoothly, apply following grease.
Recommended grease: Nichimoly Oce@n SG No. 2 by Daizo Corporation
- *1. Gear motor pinion and rack in tap drive are applied with the same grease.
*2. To prevent cracking of plastics, do not use machine oil.

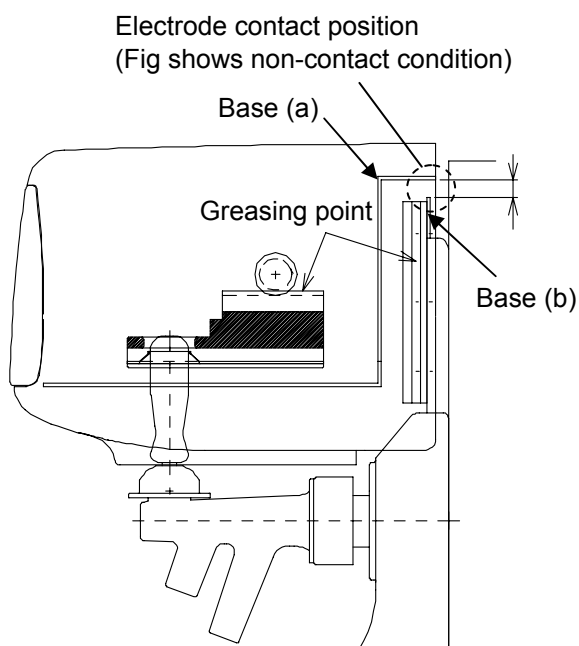
2. If is still flushing:

- 1) Check for any vinyl or other insulator caught in contact position of base (a) and base (b).

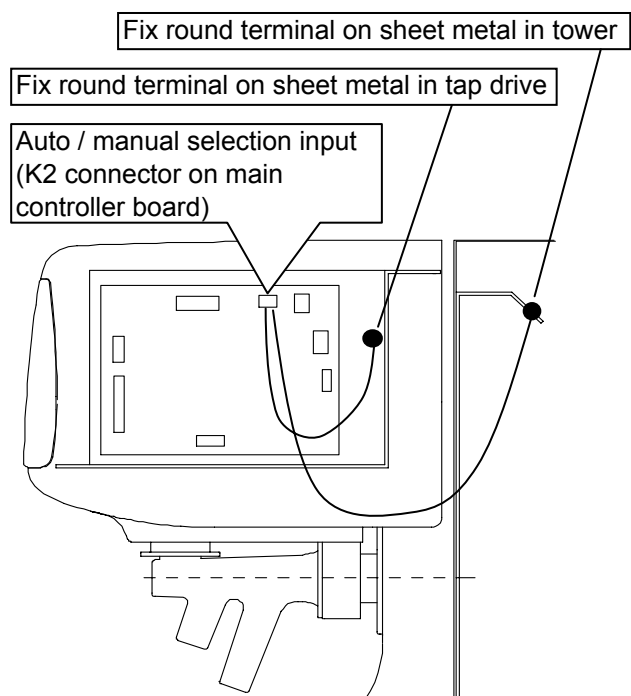
[Remedy] Remove any obstruction from contact position (see Fig. 1).

- 2) Check for proper connection of auto / manual selection electrode wiring (K2 connector on main controller board).

[Remedy] Tightly connect wiring in proper position (see Fig. 2).



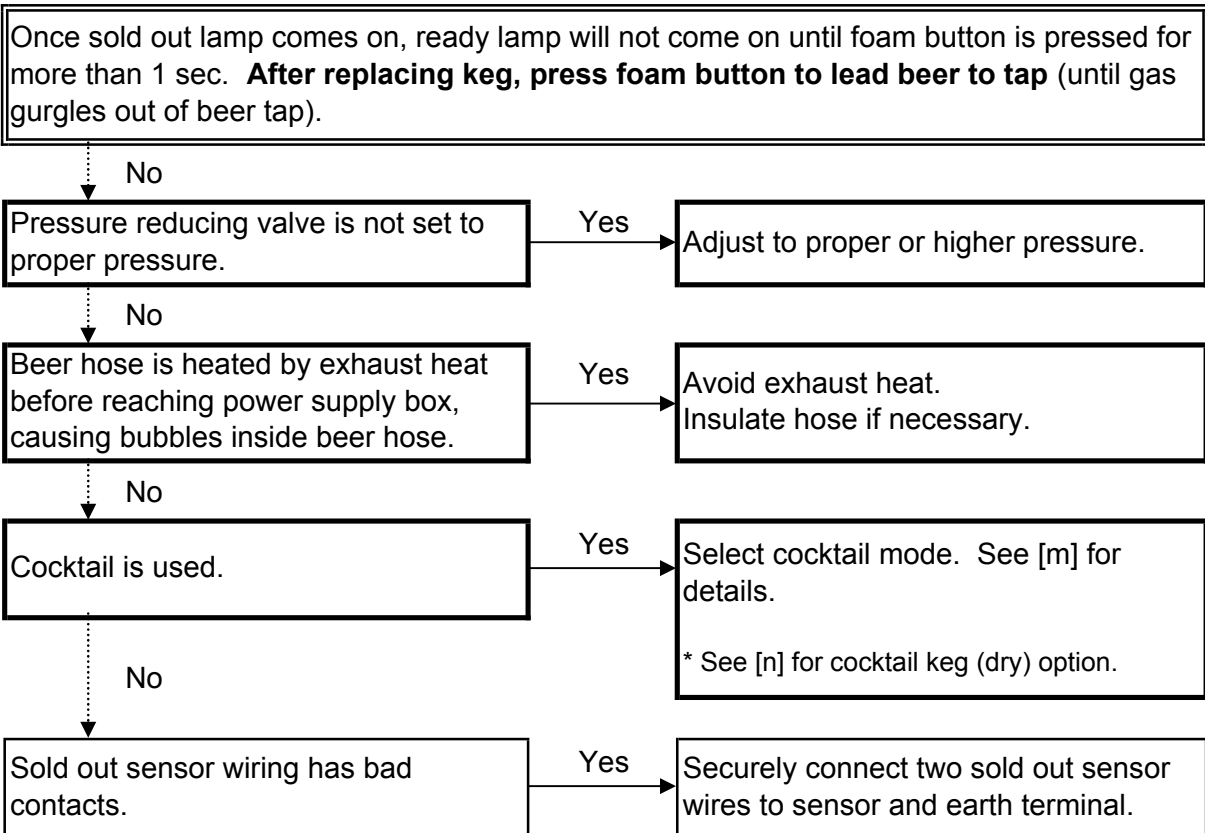
[Fig. 1]



[Fig. 2]

[k] Sold out lamp on with beer left in keg

*** Thick frames show frequently occurring cases.**

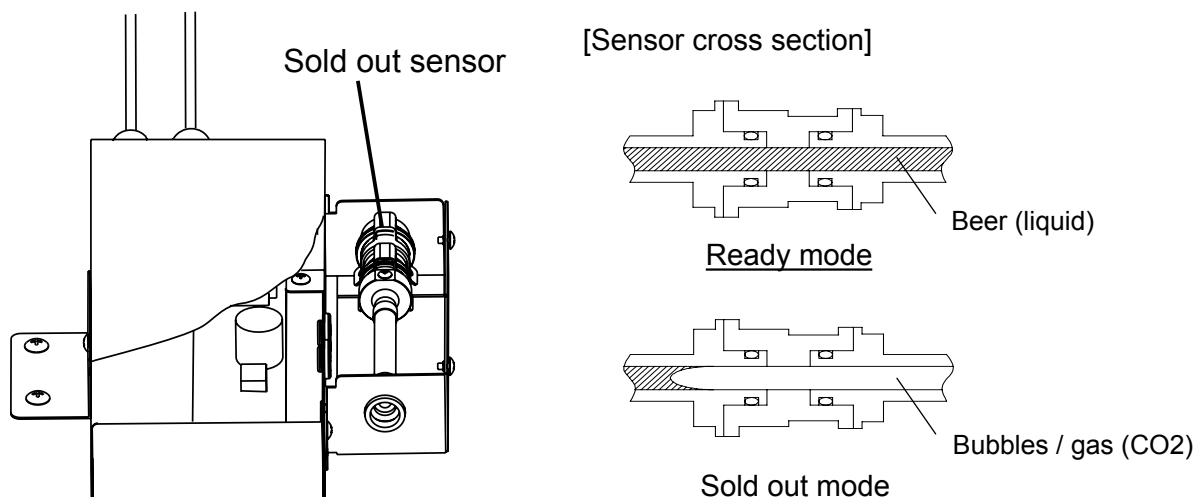


[Sold out sensor]

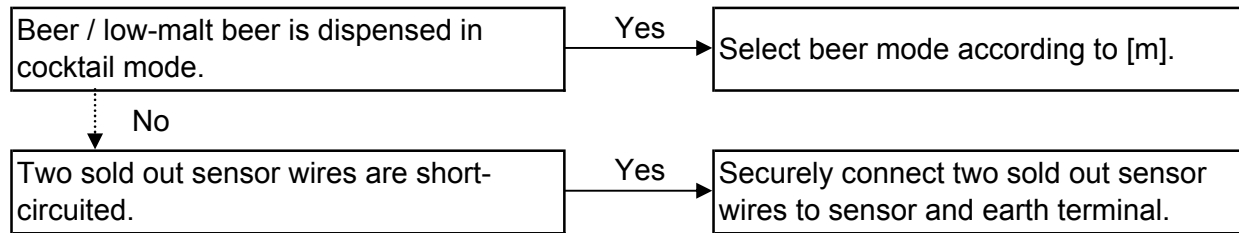
Electrodes provided in beer circuit measure electrical resistance. Beer is considered "sold out" when resistance is above a certain level and "ready to dispense" when resistance is below that level.

For accurate sensing, this reference level can be switched for beer mode and cocktail mode. See [m] for adjustment for installation or change of beverage type.

* Resistance becomes lower with liquid (beer) and higher with gas (CO₂). When beer keg becomes empty in automatic dispensing mode, CO₂ gas bubbles will flow through beer circuit



[l] Sold out sensor sometimes fails to operate



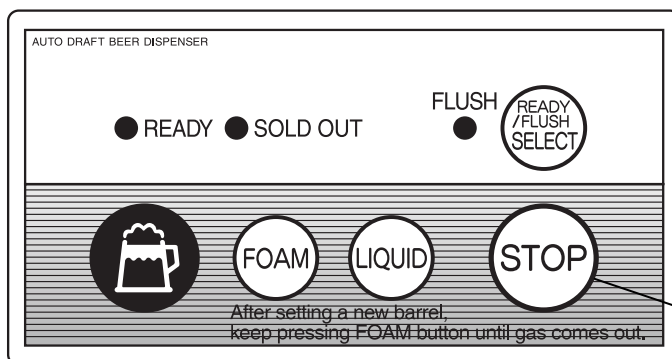
[m] Sold out sensor setting

Sold out sensor setting can be selected between beer / low-malt beer mode and cocktail mode.

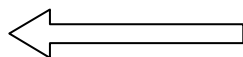
- 1) Lower operation panel unit to start standby mode.
- 2) Keep pressing stop button.
- 3) After 3 seconds, currently selected mode will be indicated (after 3 - 8 sec: current mode).
- 4) After 8 seconds, setting will change to another mode (after 8 sec and later: new mode).
- 5) Release stop button to complete setting.

- * This setting is saved even after power is turned off. For installation, relocation, or change of beverage type, check for proper setting.
- * In cocktail keg (dry) option, keep setting in beer mode and make adjustment according to [n].

Lamp comes on from left to right in beer / low-malt beer mode.



Mode	Lamp
Beer / low-malt beer	From left to right ➡
Cocktail	From right to left ⬅



Lamp comes on from right to left in cocktail mode.

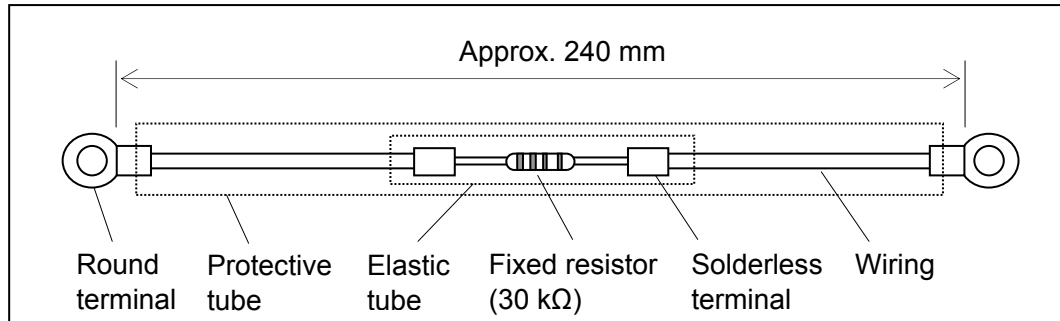
Keep pressing stop button.

Pressed for 3 sec: Indicate current mode
 Pressed for 8 sec: Change to another mode (Indicate new mode)
 Release stop button: Complete setting

[n] Cocktail keg (dry) option

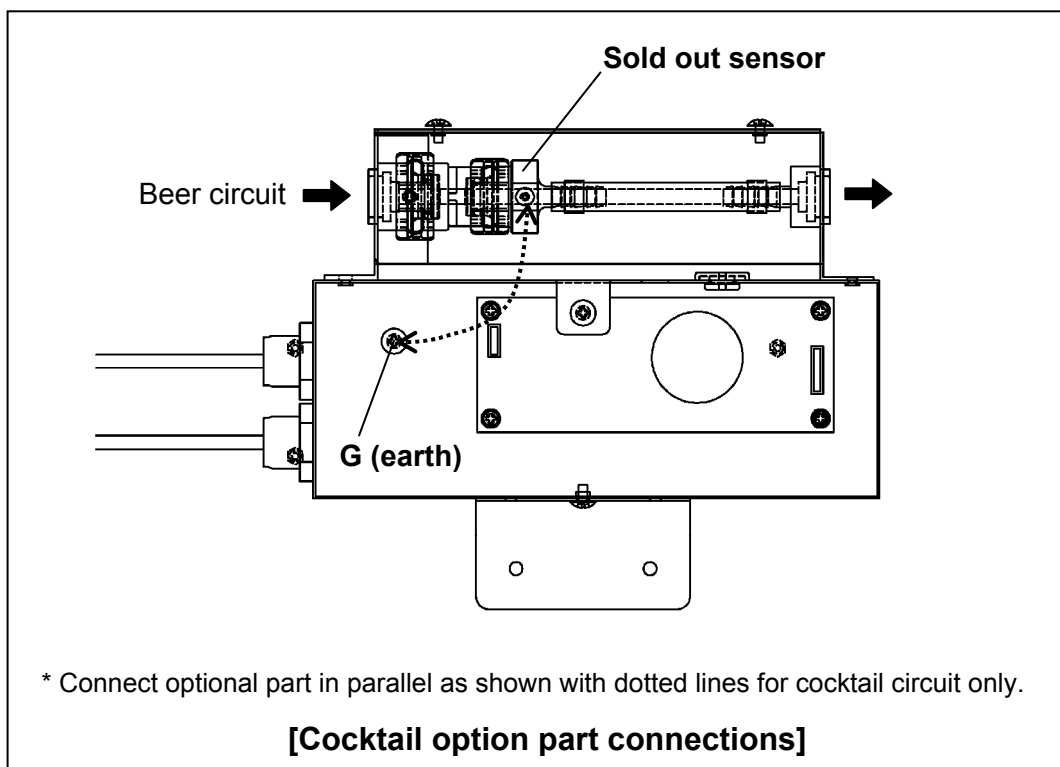
Cocktail keg (dry) option is difficult in sold out detection and only allowed with following optional part. When keg temperature is low, sold out lamp often comes on. Store cocktail keg at room temperature.

[Optional part] Harness - resistor (part # 464958G01)



[Procedure]

- 1) Uncover power supply box and sold out sensor.
- 2) Connect optional part as follows:
 - [When beer circuit (1) is cocktail circuit] Connect optional part to sold out sensor (1) and G.
 - [When beer circuit (2) is cocktail circuit] Connect optional part to sold out sensor (2) and G.
 - * 1. Leave existing connections as they are, and screw wires together.
 - * 2. Optional part can be installed in either direction.
- 3) Select beer mode according to [m].
- 4) To reinstall, reverse above procedure.
- 5) Connect cocktail keg, lead cocktail to tap, and check that ready lamp comes on.

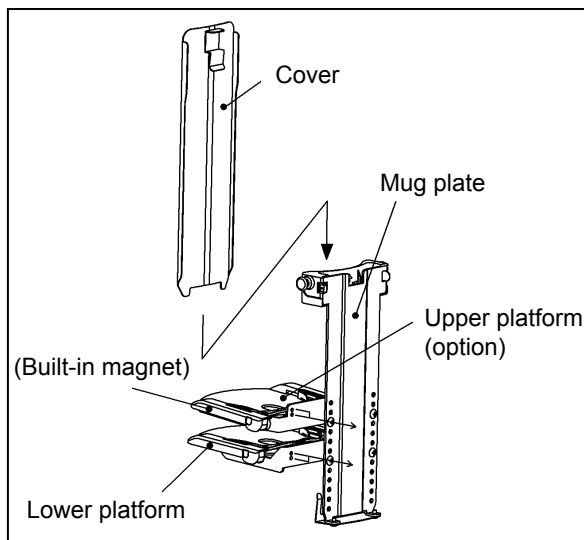


[o] Adjustment of mug platform and reed switch (mug size)

Mug platform must be adjusted according to size of mug used. Mug size detecting reed switch must also be relocated depending on upper platform position.

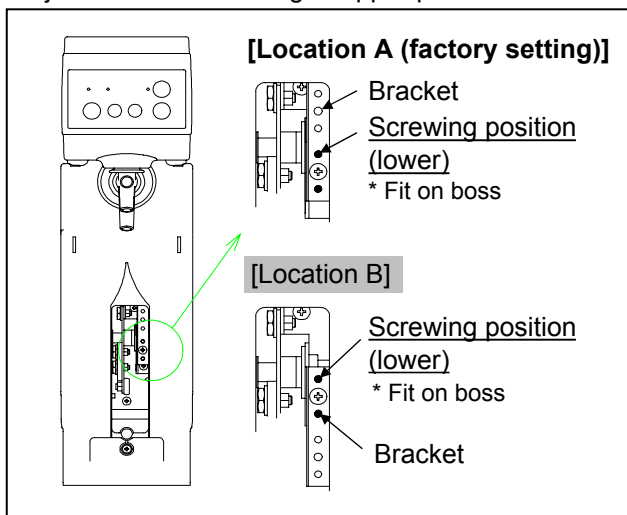
Follow instructions below for adjustment. * See instruction manual for details.

Mug platform assembly



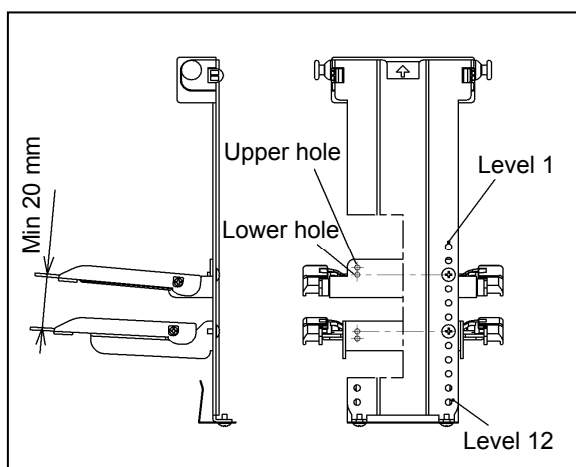
Bracket locations (option)

Adjust bracket according to upper platform location.



Mug platform locations

Adjust in reference to table on right.



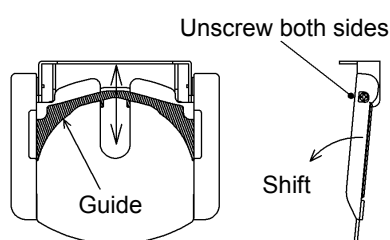
Mug heights and platform locations (reference)

Mug plate level	Upper platform			Lower platform		
	Hole	Mug height (mm)	Bracket location	Hole	Mug height (mm)	
1	Lower	135	A	Not available		
	Upper	140				
2	Lower	145				
	Upper	150				
3	Lower	155				
	Upper	160				
4	Lower	165	B	Lower	155	
	Upper	170		Upper	160	
5	Lower	175		Lower	165	
	Upper	180		Upper	170	
6	Lower	185		Lower	175	
	Upper	190		Upper	180	
7	Lower	195		Lower	185	
	Upper	200		Upper	190	
8	Not available			Lower	195	
9				Upper	200	
				Lower	205	
10				Upper	210	
				Lower	215	
11				Upper	220	
				Lower	225	
12				Upper	230	
				Lower	235	
						Upper

[Note] 1) Mug diameter: 50 mm ID - 105 mm OD/bottom
 2) Larger and smaller mugs differ in height by more than 20 mm.

Upper platform adjustment

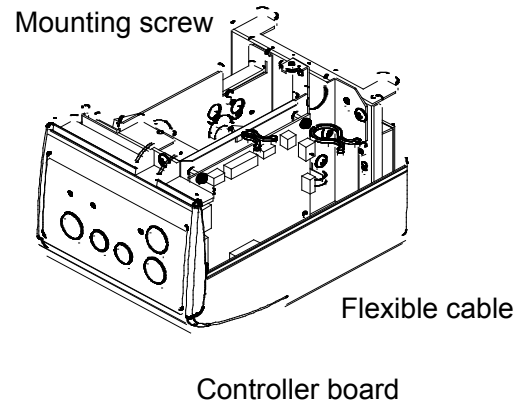
Adjust guide to position mug bottom.



2. REMOVAL AND REPLACEMENT OF CIRCUIT BOARDS

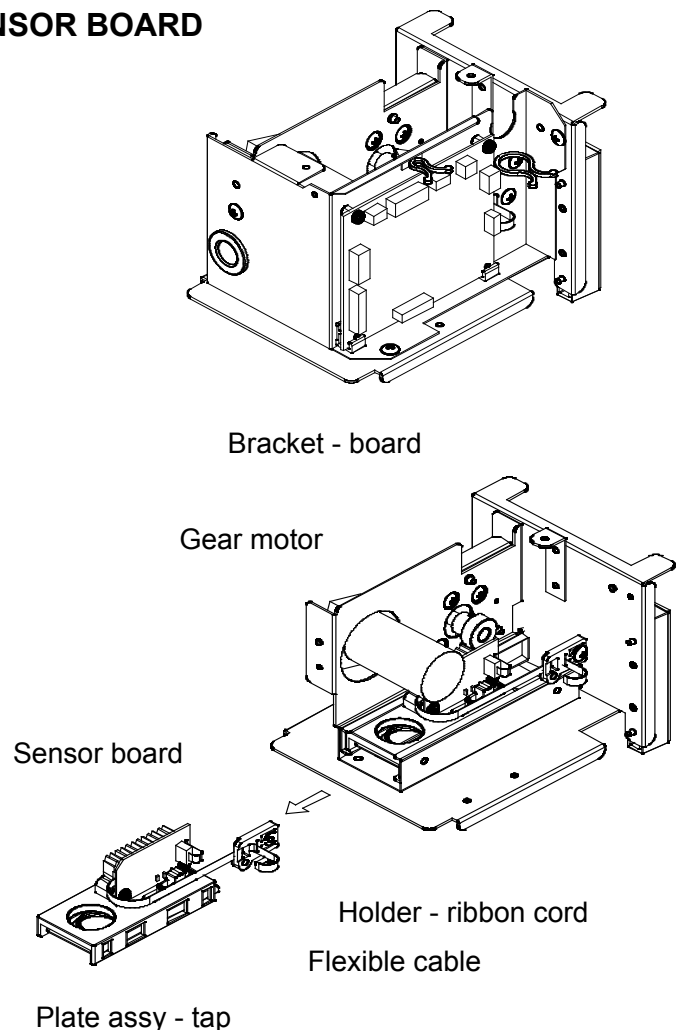
[a] REMOVAL AND REPLACEMENT OF CONTROLLER BOARD

- 1) Turn off the power supply.
- 2) Remove the plastic cover (upper) or plastic cover (lower) from the tap drive.
- 3) Disconnect the flexible cable from the connector on the main controller board located at the right side of the tap drive. See [d] for details.
- 4) Remove the two mounting screws from the top of the controller board.
- 5) Release the wire from the wire retainer, lift off the controller board, and disconnect all the connectors.
- 6) Install the new controller board. To replace the removed parts, reverse the above procedure.



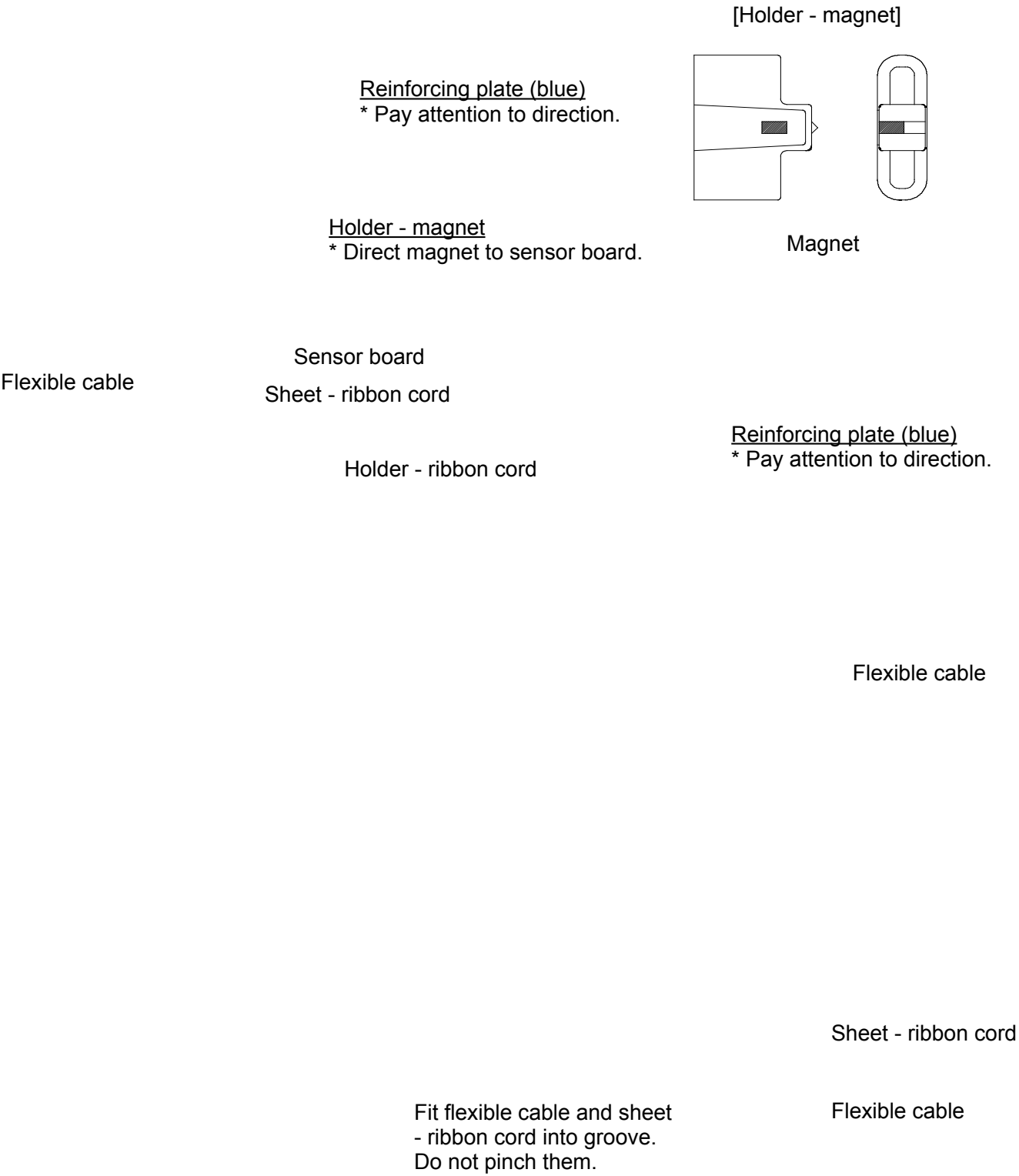
[b] REMOVAL AND REPLACEMENT OF SENSOR BOARD

- 1) Follow steps 1) to 3) in [a]. Remove both plastic covers.
- 2) Unscrew the holder - ribbon cord.
- 3) Remove the sheet metal (bracket - board) securing the controller board.
- 4) Remove the gear motor.
- 5) Lift up the entire tap drive, and pull the plate assy - tap out of the tap drive.
* Be careful not to damage the flexible cable.
- 6) Remove the sensor board, and install the new one. See [d] for removal of the flexible cable and [c] for routing of the flexible cable.
- 7) To replace the removed parts, reverse the above procedure.



[c] ROUTING OF FLEXIBLE CABLE

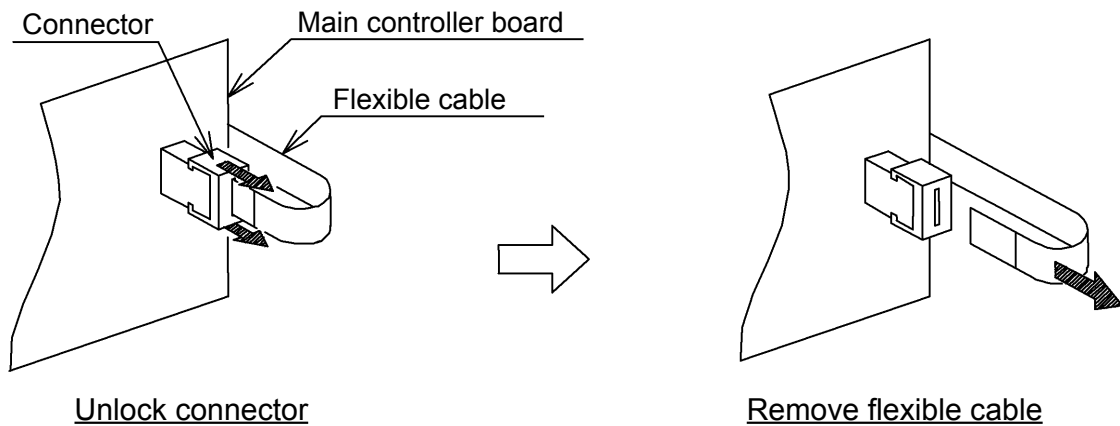
* Same as DBF-AS series



[d] REMOVAL OF FLEXIBLE CABLE

* Same as DBF-AS series

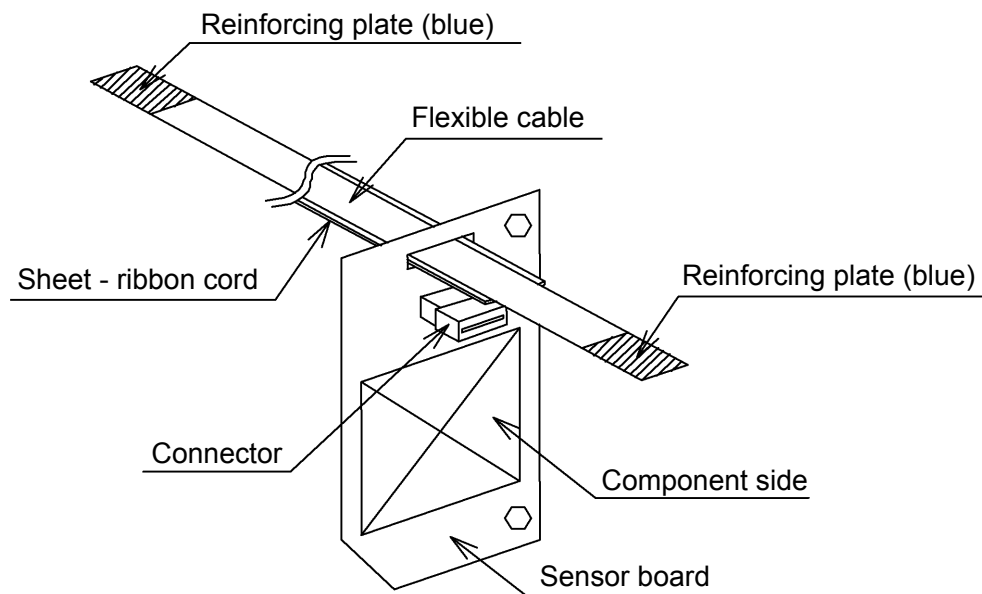
- 1) Unlock the connector of the flexible cable by pulling it at right angle to the controller board (see figure below). The connector may be firmly fixed with the paint on the controller board.
- 2) Pull the flexible cable out of the connector. Be careful not to damage the flexible cable.



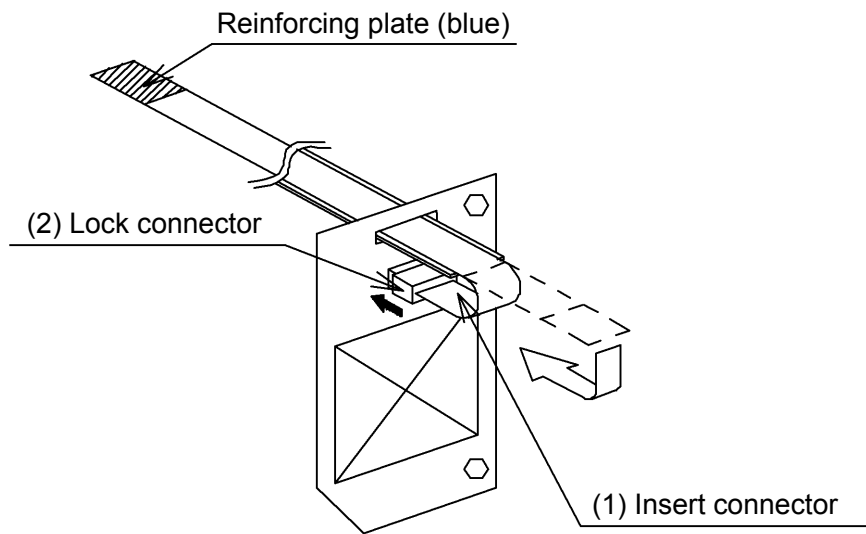
[e] REPLACEMENT OF FLEXIBLE CABLE

* Same as DBF-AS series

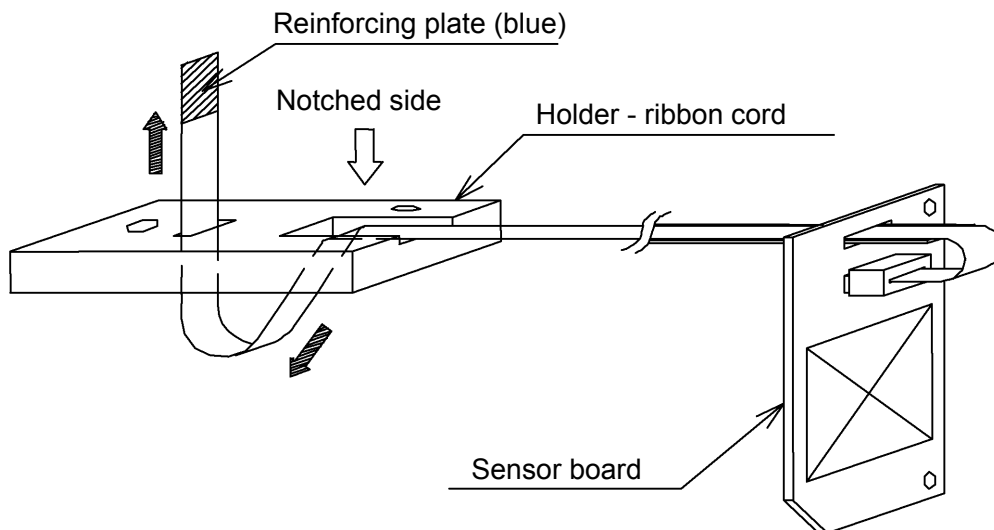
- 1) Insert the new flexible cable and sheet - ribbon cord into the hole in the sensor board as shown below. Pay attention to the direction of the flexible cable.



- 2) Insert the flexible cable into the sensor board connector, and lock the connector. Unlock the connector before inserting the flexible cable.



- 3) Insert the other end of the flexible cable into the hole in the holder - ribbon cord as shown below. Pay attention to the direction.

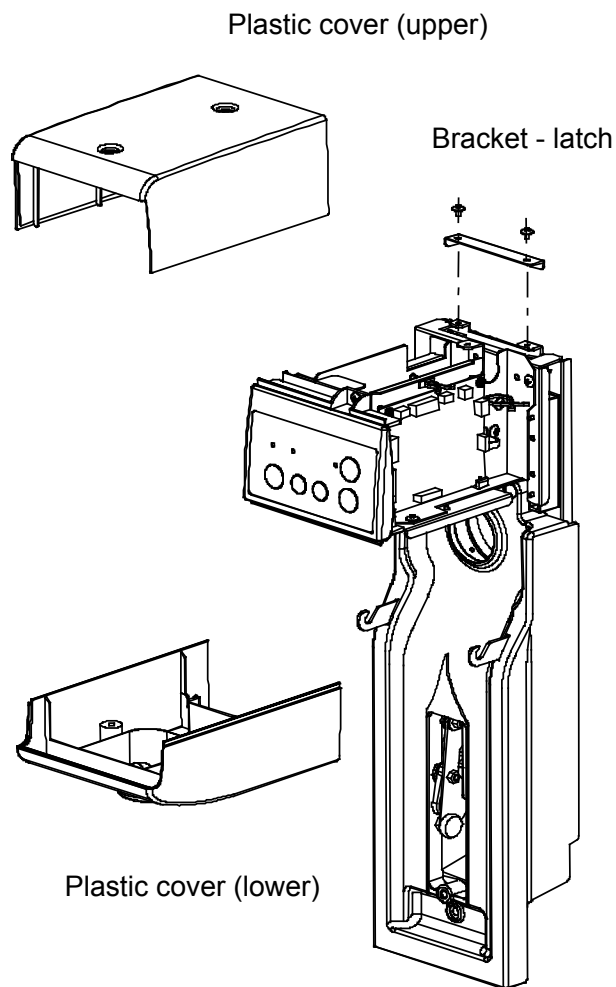
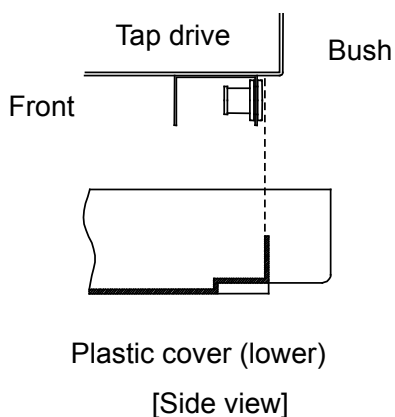


- 4) Put the flexible cable and sheet - ribbon cord between the sensor board and plate (A) - tap slide, and fix them. See [c] for routing of the flexible cable.

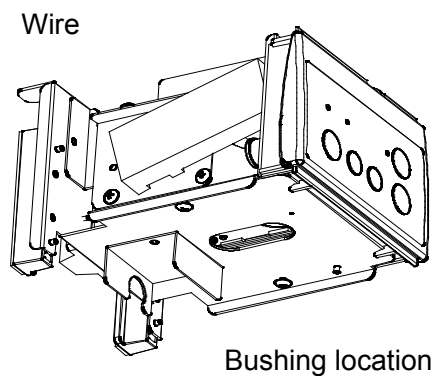
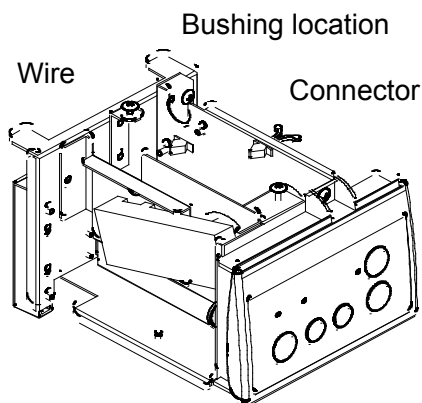
3. REMOVAL AND REPLACEMENT OF TAP DRIVE

- 1) Turn off the power supply.
- 2) Remove the plastic cover (upper), plastic cover (lower) and beer tap.
- 3) Remove the bracket - latch.
- 4) Disconnect the controller board connector and the wire connected to the tap drive. See the figure below for the routing of the wire.
- 5) Lift off the tap drive.
- 6) To replace the removed parts, reverse the above procedure.

* When installing the plastic cover (lower), position the rear rib behind the bush. Be careful not to pinch the bush.



[Routing of wire]

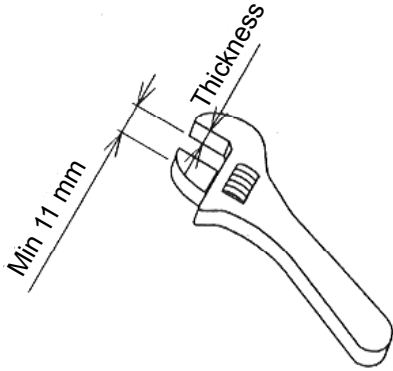


4. REMOVAL AND REPLACEMENT OF VALVE SHAFT

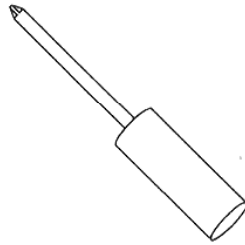
[a] REQUIRED TOOLS AND PARTS

1) Adjustable wrench (small)

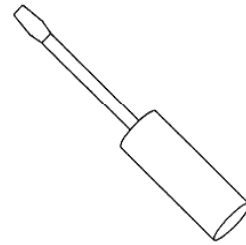
* 7 mm thick or less
[4 mm is optimal]



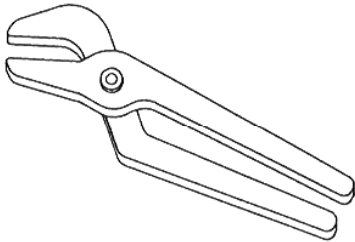
2) Phillips screwdriver



3) Flat blade screwdriver

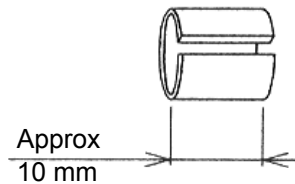


4) Pliers



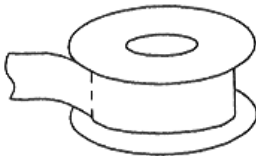
5) Braided hose (slit vertically)

* Slip- and damage-proof



6) Sealing tape

* Damage-proof



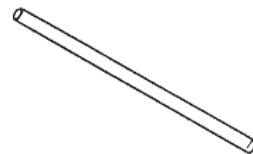
7) O-ring (1AS4)

* Replace each time valve shaft is disassembled



8) Wire (0.9 mm DIA or less)

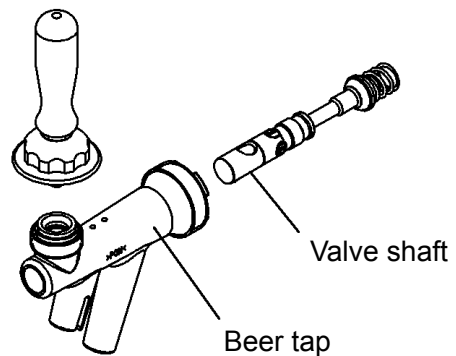
* Clip is also acceptable



[b] REMOVAL OF VALVE SHAFT

* Same as DBF-AS series

1) Remove the beer tap from the tower, disassemble the beer tap, and remove the valve shaft.

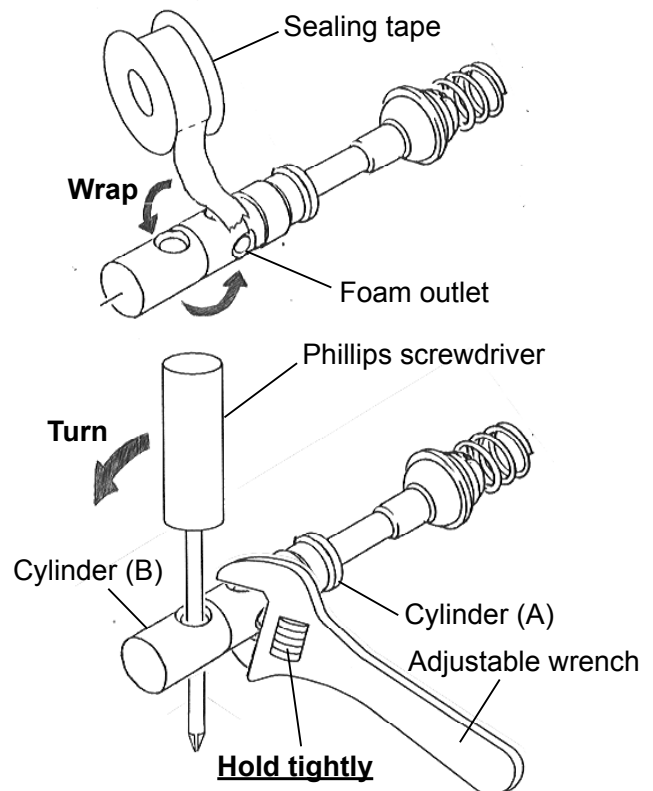


2) Wrap 3 - 5 turns of sealing tape around the foam outlet in the valve shaft.

* Sealing tape is used to protect the valve shaft from damage but not completely protective.

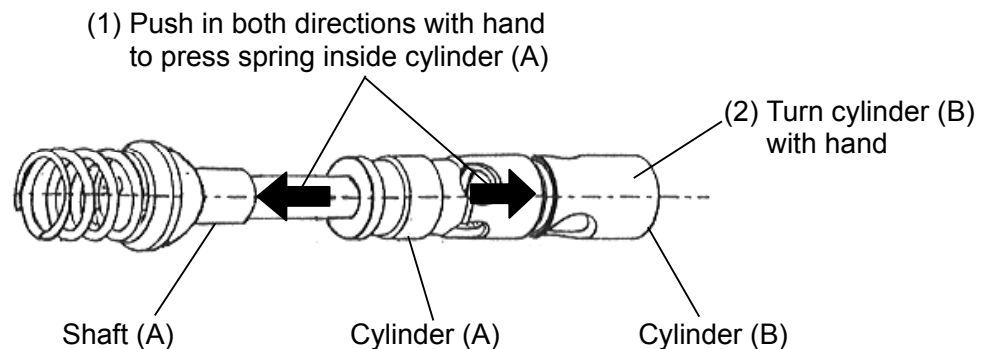
3) Hold the wrapped foam outlet with an adjustable wrench, and insert a Phillips screwdriver into the hole in the cylinder (B). With the adjustable wrench fixed in position, turn the screwdriver in the arrow direction to loosen the cylinder (B) screw.

* The space around the foam outlet in the cylinder (A) is limited and hard to hold when turning the cylinder (B). Hold the adjustable wrench tightly in position. To prevent deformation, do not pinch the cylinder (A) with pliers.

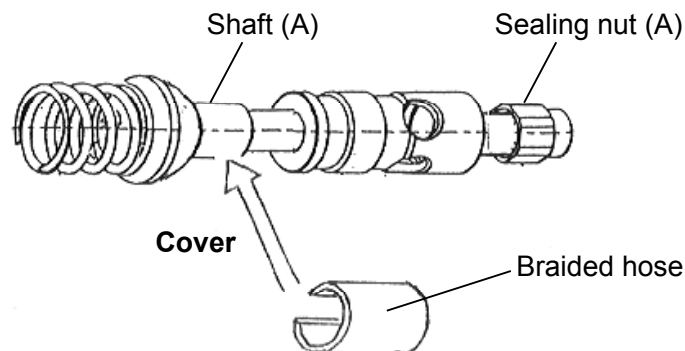


4) After loosening the cylinder (B) screw, push the shaft (A) and cylinder (A) with one hand in the arrow directions, and remove the cylinder (B) with the other hand.

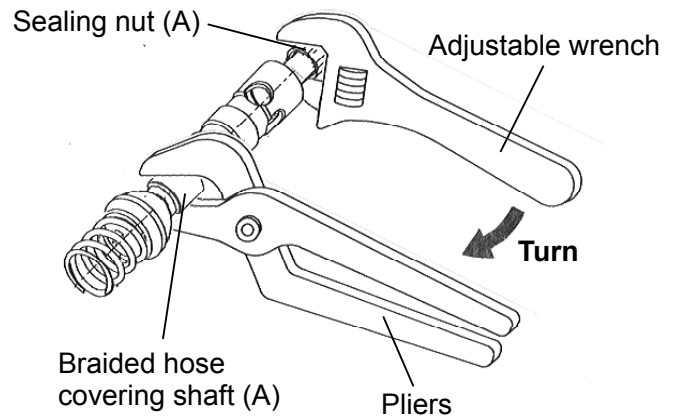
* The sealing nut (A) is pressed on the sheet (B) by spring pressure. The sheet (B) may be damaged if the cylinder (B) is directly turned for removal.



5) Cover the larger diameter side of the shaft (A) with a braided hose.

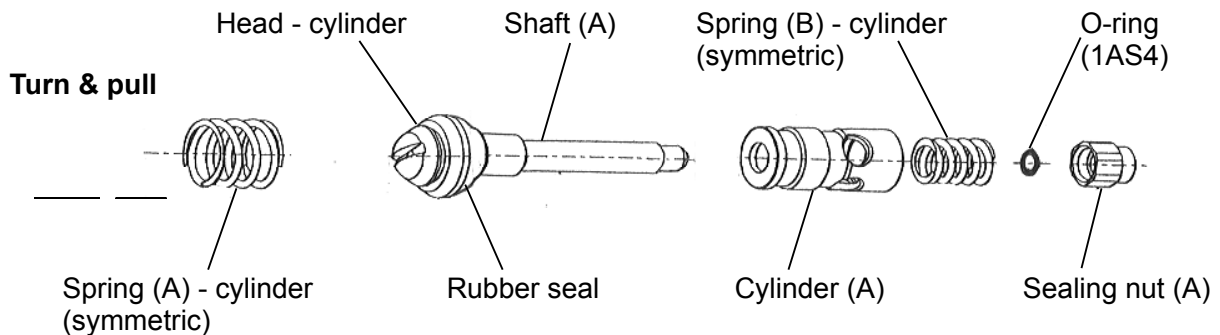


- 6) Pinch the covered shaft (A) with pliers. Hold the sealing nut (A) tightly with the adjustable wrench, and turn it in the arrow direction to remove the sealing nut (A).



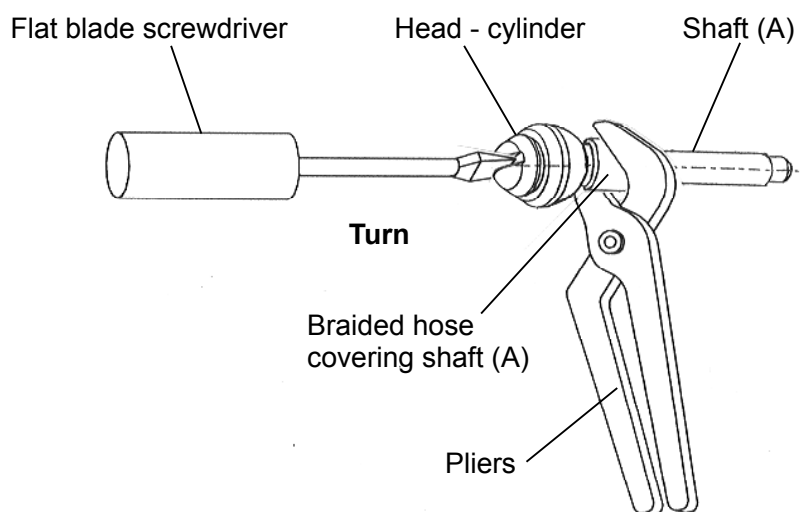
- 7) After the sealing nut (A) and o-ring are removed, the valve shaft can be disassembled as shown below. Replace the o-ring (1AS4) with a new one when reassembling the valve shaft after cleaning.

- * The spring (A) - cylinder is easily removable without tools by turning and pulling in the arrow direction. Be careful not to deform the spring.

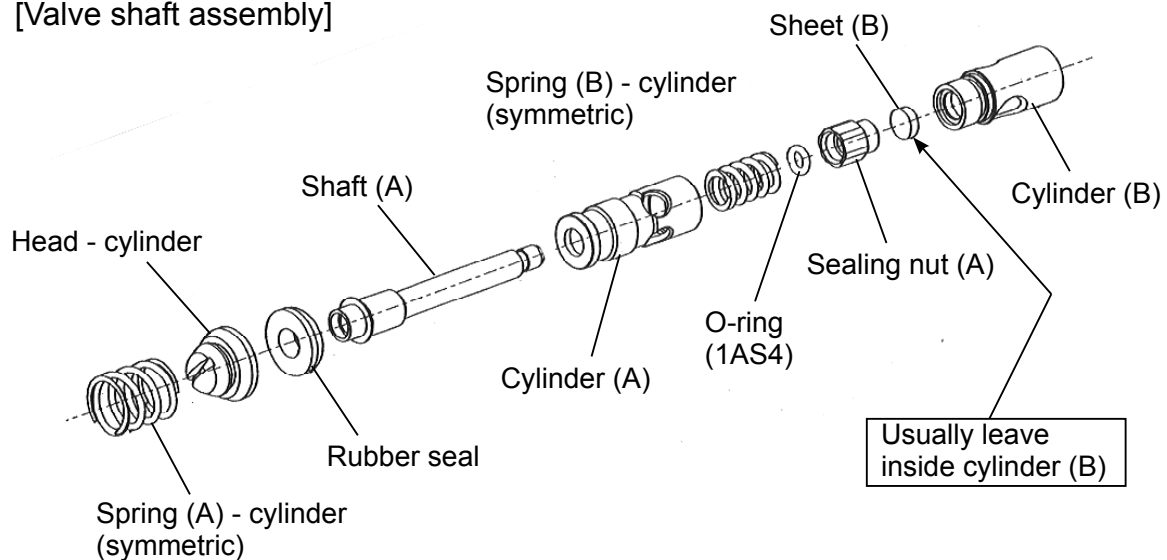


- 8) Pinch the covered shaft (A) with pliers. Turn the tip of the head - cylinder with a flat blade screwdriver, and remove the head - cylinder.

- * The spring (A) - cylinder can be left attached.



[Valve shaft assembly]



9) To replace the removed parts, reverse the above procedure.

[Notes on disassembly and reassembly of valve shaft]

- 1) If the cylinder (A) or (B) has burrs on its outer surface, deburr it with a fine file. Otherwise, burrs may shave the beer tap (plastic) when the valve shaft is inserted.
- 2) If the cylinder (A) or (B) is deformed, replace the part. When replacing the cylinder (B), replace the sheet (B) as well.
- 3) To replace the sheet (B), use a pointed object to pick the sheet (B) out of the cylinder (B). Be careful not to damage the sheet (B) when fitting it into the cylinder (B).

[Notes on cleaning of valve shaft]

- 1) Use the accessory brush or other soft tool, water and a neutral detergent to clean the valve shaft.
- 2) Do not remove the sheet (B) from the cylinder (B) for normal cleaning.
- 3) Check the small holes in the head - cylinder, shaft (A) and sealing nut (A) for clogging. Use a wire to unclog them if necessary.

[Servicing time]

The disassembly and reassembly take about 4 minutes respectively, and only 2 minutes by experienced personnel.