

Importance of the STP Maintenance

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2. Importance of Maintenance
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 - Check of the Water flow
4. Biological Dysfunction
 - Raw water
 - Electricity
 - Accumulation of sludge
5. Chemical Dysfunction
6. Desludging & Cleaning
7. To ensure proper maintenance
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9. Biological check
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1. Functions in the STP (Johkasou)

Functions in Johkasou

PHYSICAL

Solid-liquid separation
Concentration of solids
Filtration & Adsorption
Sedimentation
Line velocity, Space velocity
Water flow
Electricity
Motor (Blower, Pump etc.)

Mechanical
inspection &
improvement

BIOLOGICAL

Anaerobic digestion
Oxidation (BOD removal)
Nitrification
Denitrification
Self-digestion of sludge
Reduction of sludge
(Biological pyramid)

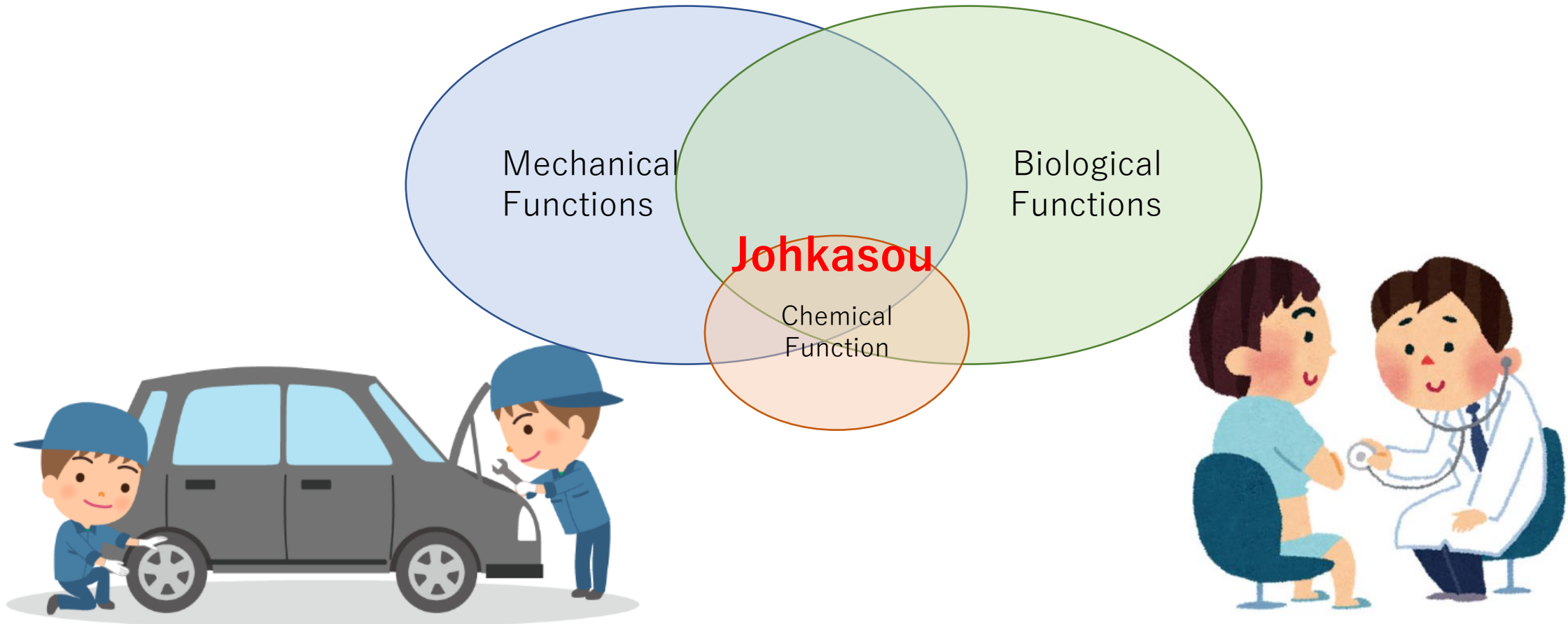
Biological
inspection &
improvement

CHEMICAL

Disinfection

Chemical
test &
replenish

2. Importance of Maintenance

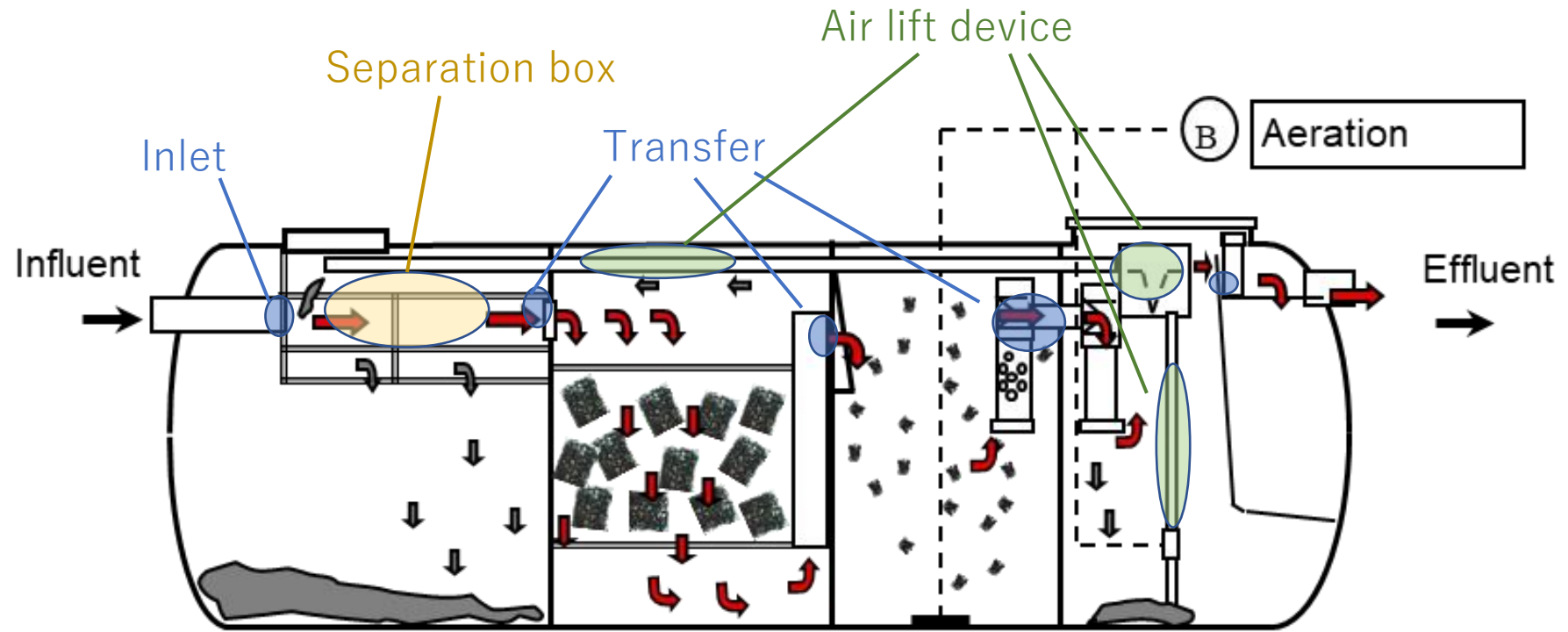


Maintenance person needs
Mechanical, Biological and Chemical skills and knowledges.

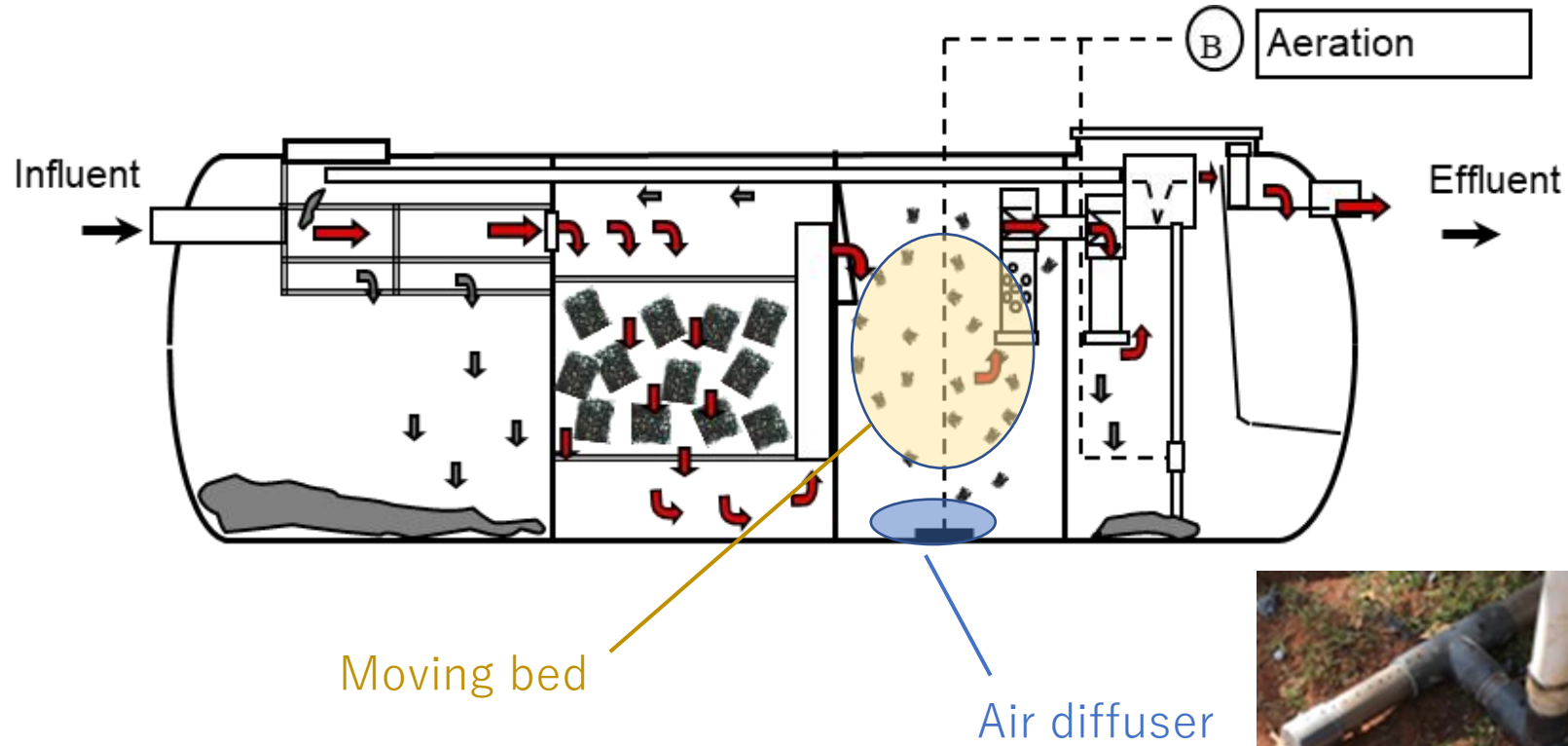
3. Physical (Mechanical) Dysfunction

ITEM	CAUSE	DYSFUNCTION / RESULTS	POINT
Flow of water	Clogging by foreign matters	Water can not transfer Shortcuts occur	Separation box • each transfer port Anaerobic chamber
	Clogging of diffuser	Abnormal flow (not move bed) Lack of DO	Moving bed chamber
	Stuck of pipe or leak	Shortcuts occur Circulation volume decrease	Circulation pipe Measuring box
	Sludge over accumulation	Stack of anaerobic media Functional decline of MB chamber	Sedimentation & separation chamber Anaerobic chamber Moving bed chamber
Electricity	Stoppage, Short supply	Motors not working	Control panel, Cable, Connection point
	Leakage, Over load	Motor malfunction	Blower, Pump
Johkasou body	Deterioration _(becoming bad)	Water leakage	Whole of tank
	Deterioration of cover	Foreign matters get in Danger	Manhole & checker

Check of water flow-1



Check of water flow-2



4. Biological Dysfunction (1)

ITEMS	CAUSE	DYSFUNCTION / RESULTS	POINT
Contamination in raw water	Acid, Alkali	Decrease in biological activities	Anaerobic chamber MB chamber
	Chemicals (Oxidant)	Decrease in biological activities Death	Anaerobic chamber MB chamber
Blower	Failure Air volume drop Failure of diffuser	Decrease in Biological activities Smell	MB chamber
	Decrease of air-lifted water	SS concentration increase (MBC) Denitrification decrease	Anaerobic chamber Moving bed chamber
Sludge, Scum	Failure of sludge management	Clogging of anaerobic media Sludge outflow to MB chamber (Biofilm detachment • DO decrease)	Sedimentation & separation chamber Anaerobic chamber Moving bed chamber

5. Chemical dysfunction

ITEM	CAUSE	DYSFUNCTION/RESULTS	POINT
Chlorine tablet	Lack of tablet Lack of dissolving	Disinfection capacity decrease	Disinfection chamber
	Over dissolving	Deterioration (Rust etc.) Effect on the control panel Effect on cables	STP tank Control panel Pumps

6. Desludging & Cleaning (1)

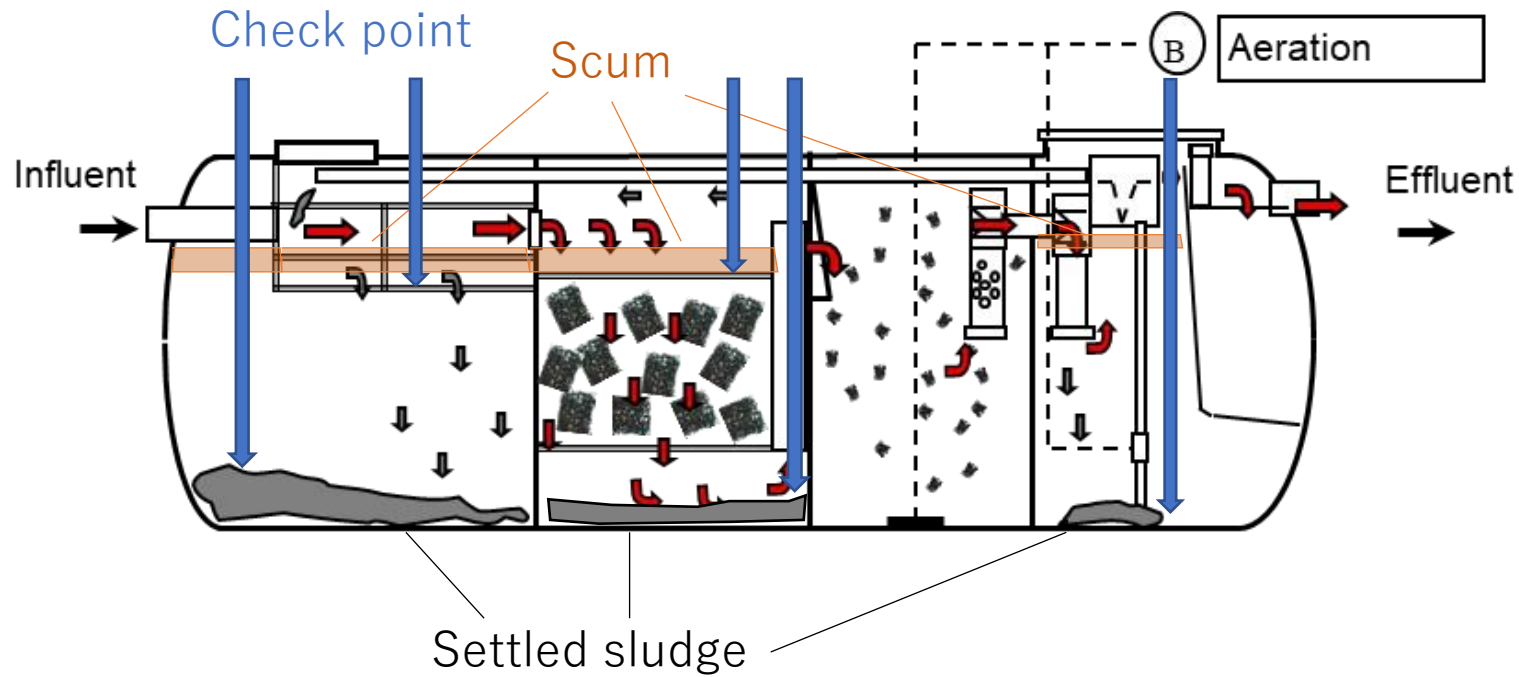


BOD removal = Sludge increase (excess sludge)
Excess sludge causes several bad matters.

As if they were weeds in the garden. Weeds grow naturally. If left them, you will not enter the house.
You must to cut weeds regularly.

Similarly, you have to pull out the excess sludge (desludge) and clean inside the tank to operate the STP properly.

6. Desludging & Cleaning (2)



Desludging should be done once in 6 months
or **in the case of excessive sludge accumulation**



7. To ensure proper maintenance (1)

We have prepared some documents

- Maintenance Procedure
- Inspection & Maintenance Report
- Maintenance Protocol
- Sampling Methods

REV. 2.10 (issued: May 2021)

Maintenance and Inspection Procedures

Daiki Axis Johkasou
(Domestic Wastewater Treatment System)

BA(E) & BJ(E) Type

Project Name	
Johkasou Type	
Handover Date	

This is to certify that the above product was handed over to the owner and this Maintenance and Inspection Procedures was explained by Daiki Axis or official dealer. Please note that the Johkasou will not exhibit its intended performance without prior maintenance and inspection, and the warranty guarantees under the normal conditions of use in accordance with the precautions in this procedures.

Daiki Axis / Dealer

Owner

 Caution










Prior to installation of the Johkasou, carefully read the cautions in this document to fully understand them.

Carefully store this document for future reference.

[illegible]

BAE Maintenance Protocol	
Please check "check item" on Maintenance & Inspection report	
<Before maintenance>	
No.	Protocol
1	Check outside of Johkasou
2	Check the control panel
3	Check the condition of Blower
<Maintenance>	
	Take photos from manhole
	- 1. Influent point
	- 2. Terminal of separation box
4	- 3. Transfer baffle
	- 4. Moving bed and/or Sedimentation
	- 5. Measuring box
	- 6. Moving bed
	Sampling of each water
	- 5. Treated water (disinfection chamber, effluent pipe, discharge pump tank)
4	- 4. Water in the moving bed chamber
	- 3. Transferred water from anaerobic chamber to moving bed chamber
	- 2. Sedimented water (transferred water from sedimentation & separation chamber)
	- 1. Raw water (raw water tank, inlet pipe, 1st room of separation box)
6	Take photos sample in row (from Raw water to Treated water)
	Measuring pH, DO, Transparency, Ammonia
	Measurement of scum & sludge thickness
8	- 1. Sedimentation & separation chamber
	- 2. Separation box
	- 3. Anaerobic chamber
	- 4. Sedimentation chamber
9	Sedimentation and Separation Chamber
10	Anaerobic Chamber
11	Moving bed Chamber
12	Sedimentation Chamber (Measuring box)
13	Transferring of the scum and the settled sludge at the bottom (sedimentation chamber)
14	Cleaning of Measuring box & circulation pipe & resetting the circulation volume
15	Disinfection Chamber
16	The chlorine case(tube) & tablet
17	Cleaning of inside of each chamber (wall)
18	Maintenance of Blower
19	Check the alarm System
20	Check outside of Johkasou
21	Take photos if needed
22	Check the Maintenance and Inspection Report
<Sludge removal>	
1	Transferring settled sludge by circulation device (max flow rate)
2	Sludge removal
3	Clean each point
4	Fill the water
5	Check and reset the circulation volume

7. To ensure proper maintenance (2)

Apparatus or equipment		Location where it is needed	Purpose
Ladle		• Each chambers	- Removal of scum - Check on properties of sludge
Siphon Pump		• Sedimentation chamber • Disinfection chamber	- Sampling of treated water
Brush		• Inlet and outlet pipe • Separation box • Moving bed chamber • Sedimentation chamber • Airlift	- Cleaning the inside of pipes and tubes, the flow port, the overflow port, the Airlift, etc.
Measuring cup (two liters)		• Moving bed chamber	- Check on moving bed quantity
Transparency meter		• Treated water	- Measurement of transparency level
DO & pH meter (Temperature)		• Moving bed chamber	- Measurement of dissolved oxygen - Measurement of pH - Measurement of temperature
Residual chlorine analyzer		• Effluent water	- Measurement of residual chlorine
Ammonia measurement kit (for BJ Type)		• Sedimentation chamber (Treated water)	- Measurement of ammonia nitrogen
Sludge level checker		• Separation & Sedimentation chamber, • Anaerobic chamber, • Sedimentation chamber	- Measurement of deposited sludge
Tools		• Blower	- Repair and maintenance of blower
Maintenance and inspection Report			

Service of maintenance tools/equipments

Improvement of maintenance skills

- Preparation of Video
- Conduction of lecture

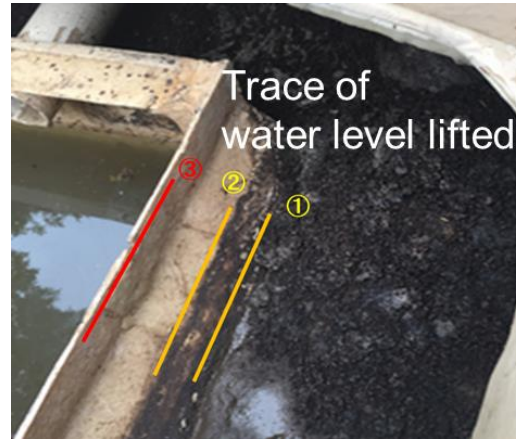
8. Physical check

■ Maintenance of Blower

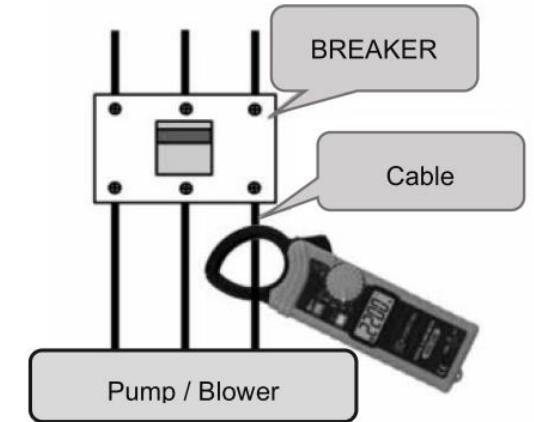


(Cleaning of the air filter element)

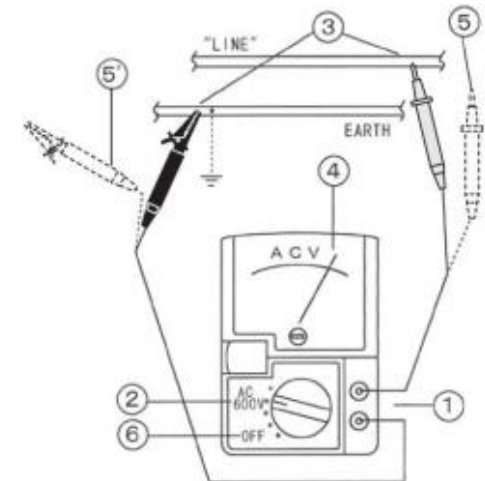
■ Check of water level rising



■ Measurement of Current

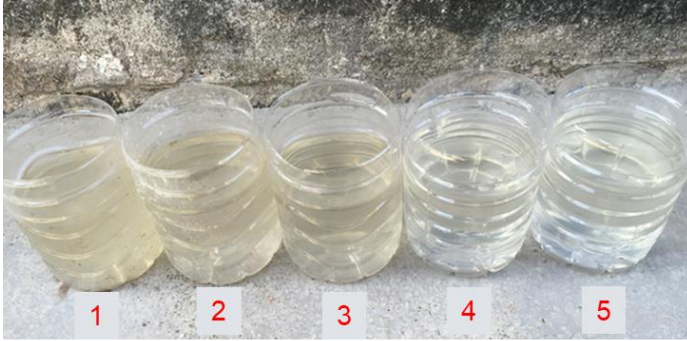


■ Measurement of Insulation resistance

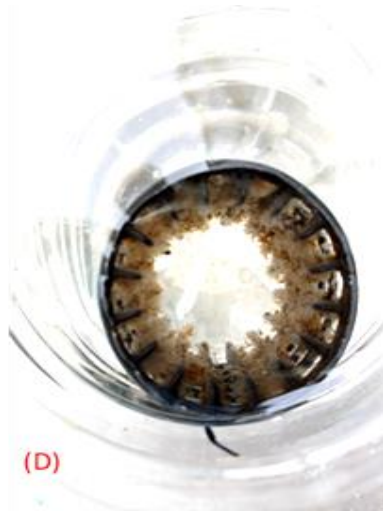


9. Biological check

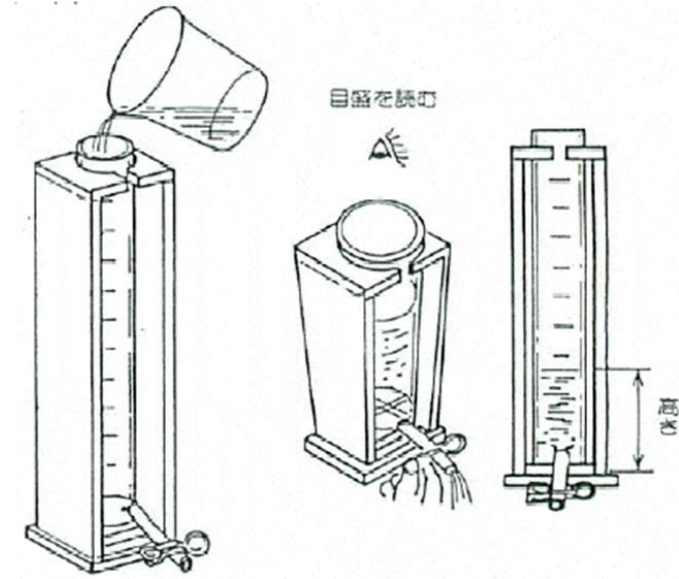
- Check water in each chamber (transfer water)



- Check the condition of biofilm



- Check the Transparency



9. Conclusion

- ▶ STP, Johkasou are not just equipment, machine.
They have also biological process.
- ▶ Proper maintenance will ensure the performance of Johkasou.
- ▶ Maintenance persons need to have
physical, mechanical and biological knowledges.
- ▶ For maintenance persons, we have to prepare proper documents.
- ▶ For maintenance work, we have to prepare proper tools.