

User Instruction

- Before use of this respirator, read carefully and understand the User Instructions of Model GW-7 and the chemical cartridge to obtain designed protection.
- Keep this instruction and user instruction of chemical cartridge as useful reference.

Chemical Cartridge Respirator (Chemical cartridge, Half facepiece)

Model GW-7

Silicone Facepiece

Model GW-7-03
Japan National Assay Registration
No. TN230.

For safe and proper usage

- Use of chemical cartridge respirator is subject to limitations. If you do not follow this, your life and health may be at risk.
- The following special messages may appear throughout this instruction to warn of potential hazard or to attract attention to information for usage.

△DANGER indicates an imminently hazardous situation. Misuse will result in serious injury, sickness or death.

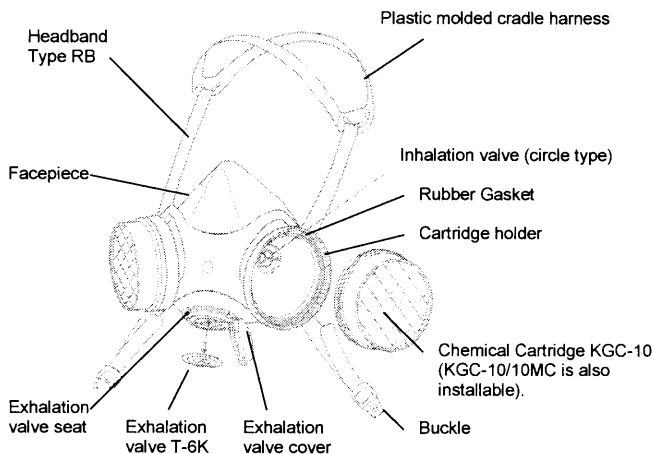
△WARNING indicates a potentially hazardous situation. Misuse can result in serious injury, sickness or death.

△CAUTION indicates a potentially hazardous situation. Misuse can result in injury or damage accident.

Scope of applications

Model GW-7 is a chemical cartridge respirator, designed to protect the wearer from breathing toxic gas, vapor, dust, etc. Never use it in atmospheres described as "△DANGER" in the column below. Type of chemical cartridge for use varies depending on gases and dusts existing in each workplace. Upon usage, read user instruction of the chemical cartridge carefully and use the cartridge that is suitable for the environment.

Part names and structure



△DANGER

- Do NOT use this respirator in atmospheres containing less than 18% oxygen. Misuse will result in death due to lack of oxygen.
- Choose correct chemical cartridge suitable for gas that exists in the particular working environment. Chemical cartridge may not remove gases that are not intended for.
- Use supplied air respirator or self contained breathing apparatus in the following environments.
 - In case where there is no chemical cartridge available that is able to remove toxic gas in the workplace.
 - In case where gas concentration is unknown or very high.
 - In case where type of gas is unknown.
 - In case where there exist mixture of different types of gases.
- Performance of chemical cartridge respirator varies depending on the type of cartridge for use. Make sure to read through the user instruction of the cartridge prior to use.

△WARNING

- Do NOT wear the chemical cartridge respirator under the situation where beard, sideburn and/or forelock come between face and the sealing surface of the respirator. Toxic gas may leak into the facepiece for insufficient airtightness.
- Do NOT use the respirator if the wearer has a disorder in respiratory or circulatory system, or is claimed inappropriate by a doctor.
- Use full-facepiece respirator in the environment with eye-stimulating gas.
- When used with a cartridge with particulate-removing filter, the environment for use differs depending on the filtering efficiency category of the cartridge. Use appropriate cartridge for the working environment.

△DANGER

Make sure to use the respirator when all of the following conditions are satisfied.

- The concentration level of oxygen in the environment is more than 18%.
- The toxic gas concentration in the working environment is 0.1% or below.
- Average toxic gas concentration is less than 10 times of the "exposure limit(*)" (It is below 30 times of the exposure limit if the duration of work per day is less than 30 minutes). (Standard of Japan Respirator Manufacturers Association).

*Permissible concentration levels recommended by the Japan Society for Occupational Health are applied to the exposure limit. For toxic gases without the predefined permissible concentration levels, TLV-TWA levels recommended by ACGIH are applied.

Chemical Cartridge Selection Use cartridges (option)

Cartridges described below are available for use with GW-7. For gases not listed, use other gas mask/chemical cartridge respirator or supplied air respirator.

Type of gas	Names of cartridge	National Assay No.	Particulate filter (category)
Halogen gas	KGC-10 (A) for halogen gas	No. N171	-
	KGC-10 (A) for halogen gas with mighty micron filter	No. N170	Yes (S1) *1
Acid gas	KGC-10 (B) for acid gas	JIS T8152 compatible	-
	KGC-10 (B) for acid gas with mighty micron filter		Yes *2
Organic vapor	KGC-10MC for organic vapor	No. TN184	Yes (S1)*1
	KGC-10 (C) for organic vapor	No. N87	-
	KGC-10 (C) for organic vapor with mighty micron filter	No. N88	Yes (S1) *1

*1 By installing on cartridge, the mighty micron filter can be used to remove dust that exists with toxic gas or vapor. However, do NOT use these cartridges in the environment where dioxins, radioactive dusts, metal fume and/or oil mist exist.

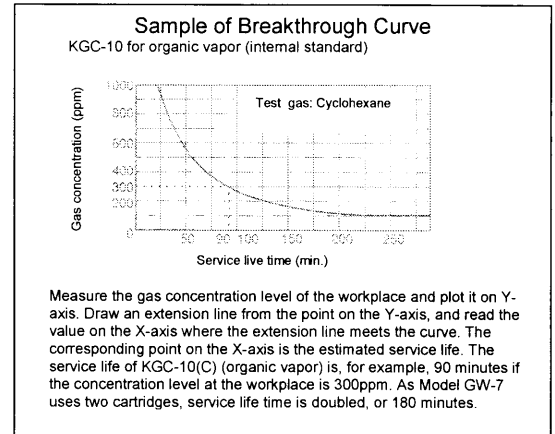
*2 The same test criteria as national assay standard category S1 are used.

Service life of chemical cartridges In addition to the explanation below, read the user instruction attached to each cartridge.

Chemical cartridge loses decontamination capability when it reaches to breakthrough. It is important to understand the service life of the cartridge. Replace cartridge with a new one when it loses decontamination or particulate-filtering capability, whichever comes first.

● **Estimation of service life by breakthrough curve**

Service life of cartridge varies depending on the gas concentration in the environment. Breakthrough curve, shown on the user instruction of cartridge, represents the relationship between the gas concentration level in the environment and estimated service life. When the used time reaches to the estimated service life, replace the cartridge with a new one. If the cartridge is repeatedly used, and used for a short period of time in each occasion and the gas concentration level in the environment remains constant, record the used time in the "Record of used time" column on the user instruction of the cartridge and replace the cartridge with a new one when the accumulation of the used time reaches to the estimated service life.



● **Estimation of service life by smell**

Immediately replace the cartridge with a new one if the wearer feels gas smell. Sense of smell varies between individuals, and the olfactory perception can get slowly paralyzed with the gas smell. Do NOT use only gas smell as a tool to judge for replacement.

● **Estimation of service life by inhalation resistance**

Replace the cartridge with a new one when the inhalation resistance increases (when the wearer feels difficulty in breathing), regardless of decontamination capability remaining.

● **Estimation of service life by particulate-removing performance**

(applicable when a cartridge with a particulate-removing feature is used).

Refer to the user instruction attached to the cartridge for replacement schedule of the cartridge with a particulate-filtering feature.

WARNING

- For replacement schedule and applications of the cartridge, read user instructions attached to the cartridge.
- Estimation of service life using the breakthrough curve is just for reference purpose only. Replace cartridge with a new one well in advance for safety. Service life also varies depending on the amount of air breathed, humidity, and temperature.
- Breakthrough curve attached to the cartridge has been made based on the test gases that are specified by Japanese national assay standard and JIS. Even with the same cartridge, estimated service life can vary, depending on the type of gas.
- Call KOKEN or local distributor for the service life of cartridge used under special conditions or against special toxic gas. (Decontamination capability of organic vapor cartridge decreases if used under high temperature and/or high relative humidity.
- Even if it is within estimated service life, and if the wearer notices gas smell, gas stimulation and/or gas taste, immediately escape to safe area with clean air, and replace the cartridge with a new one.
- If the wearer feels physical abnormality while using the chemical cartridge respirator, immediately escape to safe area with clean air and see doctor.

CAUTION

- Residual service life of organic vapor cartridge, if used for more than half of its estimated service life and stored for 5 days or more, may become remarkably short. Replace the cartridge well in advance under this condition.
- It is dangerous to judge only by smell. Sense of smell varies between individuals and becomes paralyzed if the toxic gas leaks gradually. It is especially dangerous to judge by smell if the target gas is highly toxic, the contamination level in the working environment is high, and/or the smell of the target gas is weak.

How to use Inspect the chemical cartridge respirator before each use following the <Inspection procedure> (Page 4).
Install the cartridge and don the respirator in a clean place without toxic substance.

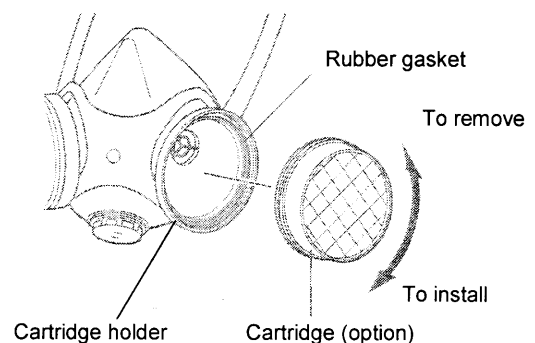
1. Installation of the cartridge

CAUTION

- Open the bag of the cartridge just before use, as it is sensitive to humidity.

- ① Open the plastic bag and take out the cartridge and user instruction. (Read the user instruction carefully and understand the contents).
- ② Inspect that the rubber gasket is securely placed without misalignment and/or distortion on the cartridge holder.
- ③ Align the cartridge parallel to the cartridge holder, as shown on the illustration.
- ④ Align the cartridge with the cartridge holder groove, and turn it clockwise until it is securely fastened.
- ⑤ If the groove and thread are misaligned, or if the cartridge is not stable, remove and install it once again.

*Install and remove 2pcs of the cartridges at one time.



2. FITTING INSTRUCTIONS Perform in a clean place without toxic substance.

① Place the plastic molded cradle harness on your crown of head.

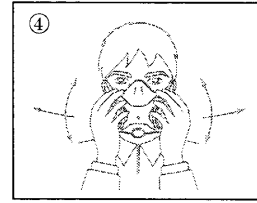
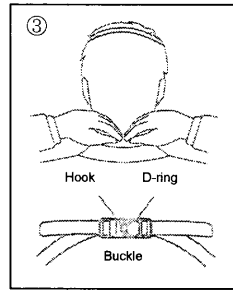
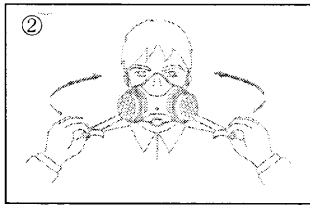
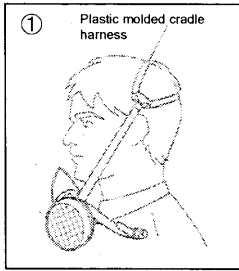
② Hold both ends of the headband and pull them evenly so that the respirator approaches to face to cover your mouth and nose.

③ Fasten the buckle located behind of your neck by fitting the hook in the D-ring.

④ Adjust the respirator position on face for stable position by aligning it left and right, up and down.

⑤ Perform fit test after donning is completed.

⑥ To remove the respirator, remove the buckle.



Caution: If the length of the headband is inappropriate, adjust the length, according to <Adjustment of headband length> below.

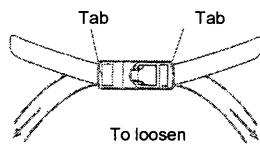
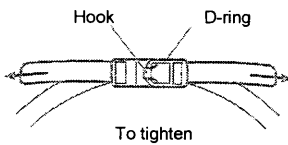
CAUTION

- If the length of the headband cannot be adjusted, make the adjustment following <Adjustment of headband length>.
- Make sure that the headband is well elastic and not over-extended.
- Make sure that the length of the headband on the right and left is evenly tightened, or the respirator could not be donned and fit on face appropriately. Over-extended headband and/or longer headband than the other could be at risk of being caught up in machine.

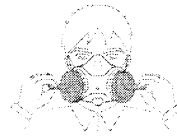
< Adjustment of headband length >

Adjust the length of the headband, according to the following procedure.
*Adjust the headband so that the lengths on the right and left are the same.

- ① To tighten, pull the headband on the hook side and D-ring side.
- ② To loosen, release the tension of the headband by lifting both tabs of the hook and D-ring.



Fit test



- ① Cover the inhalation air inlet with fit testers (option).
- ② Don the respirator, close the ends of the pipes with fingers, and inhale.
- ③ If the respirator is donned appropriately, it will be pressed against wearer's face.
- ④ If the wearer feels air leak between face and facepiece, re-inspect components (including the inspection of each component, mainly the exhalation valve, the length of the headband and respirator position, etc.).
- ⑤ If good fit is obtained, make sure to remove the fit testers before entering into the workplace.

WARNING

- Make sure to perform fit test prior to each use. If not donned appropriately, toxic dust could leak from the opening between face and facepiece, and the wearer could be at risk of inhaling.

DANGER

- Do NOT don the chemical cartridge respirator over towel. Do NOT use facelet, or toxic gas and/or dust could leak into the facepiece.

CAUTION

- Do NOT pull the headbands too tight, or the wearer would feel insufficient fit or feel uncomfortable after working for a long time.
- Use of respirator could cause skin roughness and/or eczema for those who have allergic tendency or fragile skin. In such case, stop using it and see physician.
- Do NOT apply excessive vibration and/or impact on the chemical cartridge. The performance of the chemical cartridge could decrease, or the chemical cartridge could get damaged.

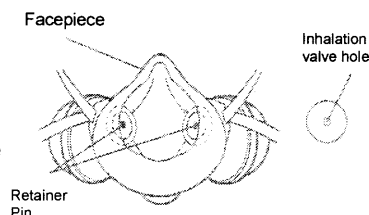
Replacement of inhalation valves / exhalation valve Perform in a clean place without toxic substance

Replacement schedule

◎ Replace when crack, distortion, damage, dirt, and/or sticky surface is observed.

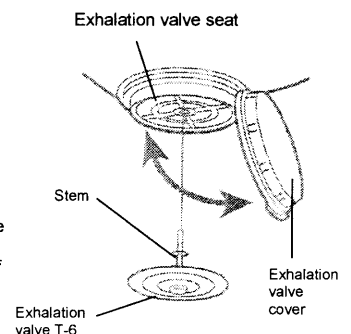
Replacement of inhalation valve

- ① Remove worn inhalation valve from retainer pin of the valve seat located inside of the respirator.
- ② Place a new valve in its position. Widen the hole of the valve by fingers so that the retainer pin easily go through the hole.



Replacement of exhalation valve

- ① Open the tab of the exhalation valve cover and take the valve out by holding it with fingers.
- ② To install a new exhalation valve, insert the valve stem into the center hole of the exhalation valve seat. When the top of the stem comes out from the inner side of the valve seat, grasp the projected point of the valve stem and pull it until stem flange appears outside of the center hole of the exhalation valve seat.
- ③ Make sure to close the exhalation valve cover completely.



Replacement of headband Replace the headband in a clean place without toxic substance

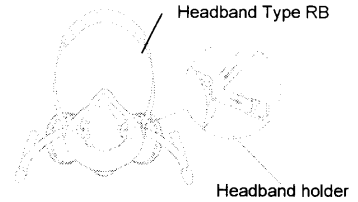
Replacement schedule

Replace the headband with a new one when:

- Ⓞ The headband gets remarkably dirty;
- Ⓞ Buckle and/or plastic molded cradle harness is damaged; and/or,
- Ⓞ The headband becomes inelastic or over-extended.

Replacement procedure

- ① Remove the headband from the headband holder on both right and left sides.
- ② To install a new headband, insert it from the facepiece side, and securely install it in headband holder.



Caution: Be sure with strap direction. Do NOT twist straps.

Inspection procedure

Components to inspect		Check points	Troubleshooting
Facepiece cushion		No cracks, no distortions, no holes, no sticky (deteriorated) rubber and/or no remarkable dirt are found.	Replace the respirator with a new one. Clean the respirator in case there is remarkable dirt.
Cartridge holder		No cracks, no distortions, and/or no remarkable dirt are found. Check if cartridge can be installed properly.	
Exhalation valve cover Exhalation valve seat		No cracks, no distortions, no scars, and/or no remarkable dirt are found.	
Inhalation valve Rubber gasket		No cracks, no distortions, no damage such as holes, no sticky (deteriorated) rubber and/or no remarkable dirt are found.	Replace the part with a new one. Clean the part if dirt is observed.
Exhalation valve		No cracks, no distortions, no holes, no sticky (deteriorated) rubber and/or no foreign material such as dust are found.	Replace the exhalation valve with a new one. Clean the attached foreign objects such as dust.
Headband	Straps	Fully-elastic. It keeps necessary strength to hold respirator.	Replace the headband with a new one.
	Plastic molded cradle harness, Buckle	No cracks, no distortions, and/or no chips are found. The buckle can be disconnected at ease and can be securely fastened.	
Connections		There are no missing components.	Install the missing parts, or replace the part with a new one.
Chemical cartridges (option)	Appearance	No distortions, no holes, no remarkable dirt, and/or no absorption of water are found.	Replace the cartridge with a new one.
	Smell	No gas smell and/or no unusual odor are recognized.	
	Remaining service life	If re-used, sufficient service life is remaining. (Check the record of the used time).	Use appropriate cartridge.
	Type	Chemical cartridge appropriate for the toxic gas in the environment must be used.	
Filtering material (only applicable with cartridges with particulate filtering feature).		No damage, no distortion, no choking breathing, and/or no remarkable decrease in filtering efficiency are found.	Replace the cartridge with a new one. If the filtering material can be replaced, replace the filtering material with a new one.

For cleaning, refer to "Cleaning after use."

Specifications

	Internal standard	Average
Inhalation resistance	15Pa or less	7Pa
Exhalation resistance	39 +/- 15Pa	45Pa
Increased value of carbon dioxide concentration/ Dead space	0.7% or less/ 280cm ³ or less	0.56%/ 224cm ³
Weight	113 +/- 20g	113g

Figures above are based on the medium-sized facepiece and standard headband, and without cartridges and optional accessories.

Replacement parts:

Call Koken or local distributor for the following replacement parts.

- Inhalation valve Circle type
- Exhalation valve Type T-6K
- Headband Type RB
- Sponge Egg shape (50pcs per bag).

Optional parts (sold separately):

Fit tester to check the fitness between the respirator and face. (2pcs required).

- For use with KGC-10 Fit tester Type M
- For use with KGC-10MC Fit tester Type J

Pre-filter for KGC-10

- Pre-filter for KGC-10 Mighty Micron Pre-Filter for KGC-10

Optional component for installing pre-filter onto the cartridge.

- Filter retainer for KGC-10 Pre-Filter / Chipper Retainer for KGC-10

Maintenance and storage Make sure to perform maintenance after each use and keep the respirator clean

1. Cleaning after use.

Perform cleaning in a clean place without toxic substance.

● **Respirator**



- Make sure to perform cleaning after removing the cartridge from the respirator.

- Gently wipe dust and sweat adhered on the respirator with a dry or slightly wet cloth. Be sure not to damage the respirator.
- Clean remarkable dirt with mild detergent diluted with warm water. Be careful not to scratch the respirator, especially the exhalation valve seat and exhalation valves. Remove detergent by rinsing completely.
- Wipe out residual water after cleaning and dry it out of direct sunlight.
- Disinfect facial contact area and inside of the facepiece by wiping it with the alcohol-soaked cloth. Then wipe them completely.



- Always keep the face-contacting area of the facepiece cushion clean. Presence of dirt on the facepiece cushion could cause skin roughness or skin irritation.
- Dry alcohol completely, or rinse and wipe out completely.

● **Cartridge (option)**



- Never use damp cloth and never use water to clean chemical cartridge. The use of damp cloth or water spoils gas removal capability of the chemical cartridge.

Clean the cartridges with a dry cloth. NEVER use water for cleaning.

2. Storage

● **Place for storage**



- Shelf life of chemical cartridge is two years from the date of manufacturing. Do NOT use the cartridge stored for more than 2 years from the date of manufacturing.
- Dispose of the used chemical cartridge as an industrial waste. Pack them in securely sealed plastic bag so that toxic substance absorbed would not diffuse.

After cleaning, store the respirator in a dry place without heavy temperature fluctuations and/or high humidity. Do NOT pile up the cleaned respirators, as the facepiece, headband, etc. could be damaged and/or distorted. Avoid a direct sunlight for storage. Prepare an exclusive storage place so that the storage condition can be checked at ease.



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