

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

LIMITED WARRANTY

The Yokogawa Corporation of America warrants to the purchaser that this H-10B Halogen Leak Detector will be free of defects in material and workmanship for a period of one year from date of purchase. This warranty does not cover sensors, reference leaks, filters, airflow balls, lamps, probe tips, and any damage caused by the user. If during the warranty period any covered defects are discovered, Yokogawa Corporation of America will repair or replace this H-10B at its option.

The foregoing limited warranty is exclusive, and in lieu of all other warranties, whether written or implied, and no warranty of merchantability or fitness for purpose shall apply.

YOKOGAWA ◆

YOKOGAWA CORPORATION OF AMERICA

2 Dart Road
Shenandoah, Industrial Park
Newnan, GA, 30265

10/87

Printed in JAPAN

198-4540K122
005N1

OPERATION AND SERVICE

TYPE H-10B

HALOGEN LEAK DETECTOR

READ BEFORE OPERATING

WARNING

DO NOT USE IN COMBUSTIBLE OR EXPLOSIVE ATMOSPHERE

CONDENSED INSTRUCTIONS

1. Plug power cord into any Outlet of the correct nominal voltage, and warm up for 30 seconds.
2. Check that airflow ball floats in probe tip.
3. Set LEAK SIZE switch to MED. (CAL) position.
4. Adjust BALANCE control until H-10B ticks slowly.
5. Place probe tip cover CALIBRATE REFERENCE and check for faster audio and flashing lamp.
6. Probe for leaks.
7. For other leak ranges, set LEAK SIZE switch and readjust BALANCE CONTROL for slow ticking.

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the Yokogawa Corporation of America

YOKOGAWA ◆

YOKOGAWA CORPORATION OF AMERICA

CONTENTS

DESCRIPTION 2
APPLICATION 2
OPERATION 3
SENSOR LIFE EXTENSION 6
MAINTENANCE 7
TROUBLESHOOTING 8
SERVICING 10
PARTS LIST 10
SERVICE POLICY 10
SPECIFICATIONS 11
LIMITED WARRANTY 12

WARNING DO NOT USE THIS LEAK DETECTOR IN A COMBUSTIBLE OR EXPLOSIVE ATMOSPHERE.

DESCRIPTION

The Type H-10B Halogen Leak Detector consists of a control unit, probe with 4½ foot cable/hose, and 8-foot power cord, all housed in a shock-resistant case.

The control unit contains a printed-circuit-board amplifier, plug-in sensor, air-pump, power transformer and speaker housed beneath a chassis cover. A CALIBRATE REFERENCE leak bottle, LEAK SIZE switch, BALANCE control and power switch are located on the top of the control chassis. An input power cord is attached on the inside left of the control chassis. A screwdriver-adjust Sensor Heat control is located on the bottom of the unit.

The probe nozzle consists of a transparent tip, airflow ball, filter, and neon leak-signal lamp, connected to the control chassis by a length of flexible tubing.

The CALIBRATE REFERENCE leak is a quick-removal bottle containing halogen gas R-11, and is calibrated to provide a leak equivalent to approximately ½ ounce per year of liquid halogen R-12.

As an accessory a maintenance kit is provided which consists of filters and airflow balls.

APPLICATION

The H-10B is intended principally for use as a serviceman's tool, although it also can be used for production-line leak checking.

Out-of-Warranty Service:

Repairable units which are found to be inoperative after the warranty period has expired or have failed within the warranty period for reasons not covered by warranty protection, will be repaired or exchanged with a factory-serviced unit at the option of the Yokogawa Corporation of America. Factory-serviced units will carry a 90-day warranty.

Return address:

To obtain either In-Warranty or Out-of-Warranty service, the H-10B should be shipped prepaid to:

Yokogawa Corporation of America
2 Dart Road, Shenandoah,
Ga, 30265
Attn: Meter Division, Service Section

Your H-10B will be promptly returned.

International useres contact the nearest Yokogawa Authorized Service Facility.

SPECIFICATIONS

Power Supply: 110 to 127 volts, 50/60 Hz, 20 watts; or 220 to 254 volts, 50/60 Hz, 20 watts, in accordance with rating plate.

Nominal Sensitivity:

LEAK SIZE switch	LG	MED.(CAL)	SM
Sensitivity, oz/yr	5.0	0.5	0.1

Response Time: Approximately 1 second.
Reference Leak: Approximately 0.5 oz/yr, R-12.
Approximately 6 months life, refillable with R-11.
Warm-up Time: Approximately 30 seconds.
Temperature: Operating 0°C to 45°C (32°F to 113°F);
Storage 60°C (140°F) maximum.
Dimensions: 8.7x5.5x1.4 inches (22x14x7.5cm)
Weight: 3.2 pounds (1.4 kg)

SERVICING

Repairs described in the Maintenance section of this Instruction Book may be performed by the user. This maintenance can also be performed by returning the unit to the Yokogawa Corporation of America, but a charge will be incurred.

When repairs are required (in or out of warranty), the unit should be carefully packed to prevent shipping damage and sent tc the Yokogawa Corporation of America at the address on page 11 of this book. Overseas users must contact the nearest office of the Yokogawa.

Expendable items (sensor, airflow balls, filters, and probe tip) can be obtained from the nearest authorized distributor of Yokogawa Type H-10B Halogen Leak Detectors.

PARTS LIST

The spare parts listed below are recommended to enable the user of the H-10B to make rapid substitution of plug-in, or easily replaced components when trouble-shooting. All these parts are also interchangeable into the type H-10A Halogen Leak Detector, but older H-10 sensors may not fit into the H-10A and the H-10B.

DESCRIPTION	GE CAT.NO.	REMARKS
Maintenance Kit	4777K45G700	Airflow balls and filters.
Probe tip	8511K41G700	Clear plastic.
Plug-in sensor	1250K46G701	Can also be used on earlier type H-10.
CALIBRATE REFERENCE bottle	GA360	New improved design.

SERVICE POLICY

In-Warranty Service:

Should your H-10B Halogen Leak Detector fail to provide satisfactory service within the one-year warranty period, and the cause is determined to be covered by warranty protection, the H-10B will be replaced / repaired free of charge. at the sole Option of YOKOGAWA CORPORATION of AMERICA.

Normally the serviceman will use it for leak checking automobile air conditioning, and home and commercial air conditioning or refrigeration equipment.

Contamination of the testing area may cause erratic operation of the H-10B. This can occur when the leak in the system is very large and there is little or no ventilation in the testing area. Contamination of an area may also occur where excessive amounts of halogen gases are used. The H-10B cannot differentiate between atmospheric contamination and an actual leak, because it will respond to any halogen gas passing over the sensor. However a large leak often may still be detected and the background contamination discriminated against by switching to the LG leak range.

A contaminated condition can be improved greatly by ventilating the area or isolating the leak-check area.

IMPORTANT – AVOID PLACING THE PROBE DIRECTLY IN A STREAM OF CONCENTRATED HALOGEN, AS THIS WILL DRASTICALLY SHORTEN THE SENSOR LIFE.

OPERATION

The condensed operating instructions appear on the front page.

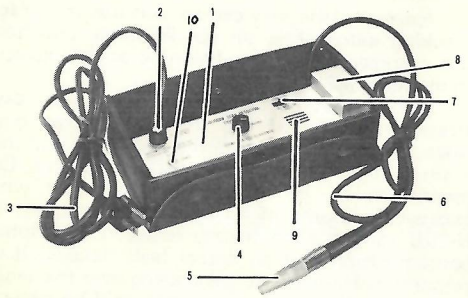
To operate the H-10B, proceed as follows:

1. Before using the H-10B for the first time, remove the screw from the cap on the CALIBRATE REFERENCE assembly (2, Fig. 1) and allow a few minutes for the leak rate to stabilize. This screw is used for shipping only and should not be replaced. Be certain that the bottle contains a quantity of halogen R-11. The liquid level can be observed by pulling the bottle up from its spring retainer clip and out of the panel. Initially this bottle is filled with enough halogen to last approximately 6 months.

2. Plug the power cord (3, Fig. 1) into a 50/60 Hz outlet of the nominal voltage given on the rating plate.

NOTE: The H-10B is available for operation on either 120 or 240 volts AC.

IMPORTANT: – OPERATE THE H-10B ONLY ON THE PROPER SUPPLY VOLTAGE, AS GIVEN ON THE RATING PLATE; OTHERWISE IT COULD BE DAMAGED.



1. Control Unit Chassis
2. CALIBRATE REFERENCE Bottle
3. Power cord
4. BALANCE Control
5. Probe
6. Flexible Hose for Probe
7. LEAK SIZE (LG.-MED.-SM) Switch
8. Sensor Cover
9. Speaker
10. Power Switch

Fig. 1. Leak Detector Components

WARNING DO NOT USE THE H-10B IN AN EXPLOSIVE OR COMBUSTIBLE ATOMOSPHERE. THE AMBIENT ATMOSPHERE IS DRAWN THROUGH THE PROBE AND OVER THE SENSOR, WHICH OPERATES AT APPROXIMATELY 540°C (1000°F). THE RESULTING HOT MIXTURE OF AIR AND A COMBUSTIBLE GAS COULD EXPLODE.

3. The H-10B will start to warm up when the power cord is plugged into an outlet and the power switch is at on. Allow 2 minutes for warm-up.

4. Check for sufficient airflow by pointing the probe tip toward the floor and observing the airflow ball in the probe. If the airflow is correct, the ball will rise and float above the tip of the probe. (See Fig. 2.) The height the ball rises is not important as long as it rises. If the air-flow ball does not rise, tap the probe lightly to make sure the ball isn't sticking. If the ball does not rise at all due to insufficient airflow, check the filter in the probe tip, as described in the Maintenance section. If the flow is still insufficient, then the

H-10B TROUBLESHOOTING CHART

SYMPTOM	PROBABLE CAUSE	REMEDY
Excessive respsonse to CALIBRATE REFERENCE.	High line voltage.	Reset Sensor Heat control more counterclockwise.
No response to CALIBRATE REFERENCE	CALIBRATE REFERENCE empty.	Refill CALIBRATE REFERENCE bottle.
	No air flow. Probe ball does not float	Replace filter in probe tip. Check operation of pump.
	Sensor exposed to excessive amounts of halogen.	Remove probe to clean atmosphere and allow unit to run several minutes while sensor purges itself.
	Water in probe.	While unit is operating. blow clean air into the probe tip for approximately 1 minute (5 psig) or blow (by mouth) as hard as possible into probe tip for one or two minutes.
	Low line voltage.	Reset Sensor Heat control more clockwise.
Audio normal. but probe lamp does not flash.	Burned-out or damages lamp.	Replace probe.
Responds continuously on all LEAK SIZE positions. BALANCE control will not stop response.	Dirt in sensor.	Remove sensor and blow out with clean air (not over 10 psig) and/or remove dirt. If unsuccessful. replace sensor.
	Short circuit in sensor.	Replace sensor.
Responds continuously on smaller LEAK SIZE positions. BALANCE control will not stop response.	Excessive sensitivity.	Reset Sensor Heat control more counterclockwise.
	Atmosphere contaminated with excessive halogen.	Ventilate area.
		Switch to larger LEAK SIZE

CAUTION: Sensor surface temperature may reach 200°C (390°F) during operation, and may cause a burn if not allowed to cool.

3. Unplug and discard the sensor.

4. Insert a new sensor and close the cover.

5. Set the Sensor Heat control (Fig. 3) to its full counterclockwise position.

6. Place the unit in operation and check its sensitivity, by following the procedure in steps 5, 6, and 7, in the Operation section. Gradually position the Sensor Heat control more clockwise, until the proper response is obtained. Each time the Sensor Heat control is adjusted make only small adjustments, either up or down as appropriate. After each adjustment wait about 30 seconds for the sensor temperature to stabilize, then again check the sensitivity.

CALIBRATE REFERENCE REFILL

The halogen gas R-11 contained in the CALIBRATE REFERENCE bottle will last for approximately 6 months under normal operating conditions. To refill the assembly, proceed as follows:

1. Remove the bottle from the chassis and unscrew the cap.

NOTE: Make sure the discs remain in position in the cap.

2. Fill the bottle approximately 7/8ths full with halogen R-11.

NOTE: Refilling the bottle with halogen R-11 will be easier if done at a temperature below 24°C (75°F).

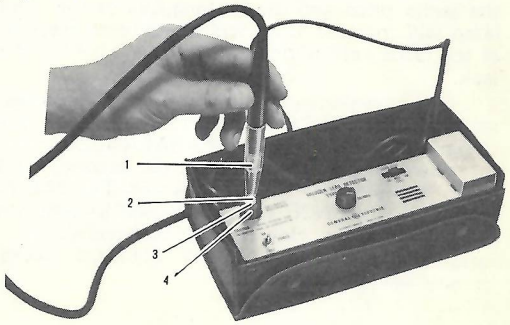
3. Tighten the bottle cap very firmly, and replace the bottle in the chassis.

4. After a few hours check the leak rate around the threads; it should be much less than ½ ounce per year. Tighten the cap further if it is not.

TROUBLE-SHOOTING

If the performance of the H-10B is not satisfactory, refer to the following chart to perform troubleshooting and diagnosis.

unit should be forwarded for repair to the Yokogawa Corporation of America, at the address on page 11.



1. Neon Lamp
2. Airflow Ball
3. Filter
4. CALIBRATE REFERENCE Bottle

Fig. 2. Checking Leak Detection Operation

5. Place the LEAK SIZE switch (7, Fig. 1) in the MED. (CAL) position.

6. Adjust the BALANCE control (4, Fig. 1) until the audio ticks slowly, about 1 to 3 ticks per second. The neon lamp in the probe (1, Fig. 2) will also flash, but much more slowly.

7. Place the probe tip over the hole in the cap of the CALIBRATE REFERENCE bottle, and "sniff" it for two or three seconds. This allows enough time for the H-10B to pump down the concentration of gas which normally collects around the bottle output port, and thus arrive at a steady-state response. Be sure that the bottle contains a quantity of refrigerant Freon R-11. The lamp in the probe should flash rapidly, and the audio pitch should increase markedly, but then back off somewhat from the saturated, full-scale howl.

The CALIBRATE REFERENCE may be used as often as necessary to assure proper operation of the H-10B and as a comparison reference to assist in determining the size of the leak. A leak which causes an audio pitch about equal to that produced by the CALIBRATE REFERENCE has a leak rate of approximately the same size, one-half once per year of halogen R-12.

8. Hold the probe as close as possible to the area being tested and move the tip at about one inch per second along seams or joints suspected of leaking. When the probe encounters a leak, both the audio pitch and the flashing rate of the neon lamp will increase. Both will continue to respond at the faster rate as long as the probe is held at the leak.

9. For detecting much larger or smaller leaks, set the LEAK SIZE switch to the appropriate range. LG. or SM., readjust the BALANCE control for slow ticking (1 to 3 ticks per second), and probe for leaks as in the previous step. The CALIBRATE REFERENCE cannot be used to calibrate these two ranges. However, Yokogawa Corporation of America can supply Standard Leaks of any value required.

SENSOR LIFE EXTENSION

The H-10B provides sensor life which is substantially extended beyond that of the older type H-10 through occasional adjustment of a Sensor Heat control provided on the H-10B. This procedure also provides more accurately calibrated sensitivity throughout the sensor life, and allows compensation for abnormally high or low line voltages (see Maintenance section).

The Sensor Heat control is a screwdriver adjustment accessible through a hole on the bottom of the case of the H-10B (Fig. 3).

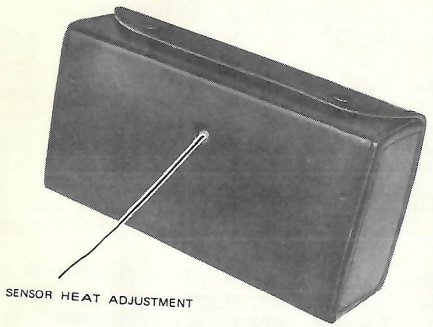


Fig. 3. Sensor Heat Control

As the H-10B is used and the sensor ages, its sensitivity will gradually decrease. The overall sensitivity and calibration of the complete H-10B may be restored by gradually positioning the Sensor Heat control more clockwise, until finally with a fully aged sensor the control will be fully clockwise. After that when the sensor fails to respond properly, replace it following the procedure in the Maintenance section and readjust the Sensor Heat control.

Each time the Sensor Heat control is adjusted make only small adjustments, either up or down as appropriate. After each adjustment wait about 30 seconds for the sensor temperature to stabilize, then check the sensitivity by the procedure in steps 5, 6, and 7, in the Operation section.

NOTE: For best sensor life avoid excessive sensitivity (avoid excessive clockwise setting).

MAINTENANCE

The H-10B is designed for long life with very little maintenance. A kit which contains the necessary expendable replacement parts is supplied with each H-10B.

Instructions for replacing these items are described in the following sections.

Filter Replacement

To protect the air pump from damage from foreign particles and moisture, replace the filter (3, Fig. 2) often. With moderate use (15-30 minutes per day), once a month is not too often.

To replace the filter, pick out the old filter with a pin or tweezers. The fine screen will remain in the tip. Insert the new filter in the tip and make sure it is firmly seated against the fine screen.

Sensor Replacement

The sensor is a plug-in unit that is thrown away when expended. It needs replacement when the H-10B no longer responds to the CALIBRATE REFERENCE, even with the Sensor Heat control fully clockwise. (Make sure the CALIBRATE REFERENCE bottle contains the R-11 halogen).

To replace the plug-in sensor, proceed as follows:

1. Unplug the power cord and open the sensor cover (8, Fig. 1). The sensor is now visible.
2. Allow the sensor to cool before handling it.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP