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INSTRUCTION

ON THE

Pressure Gauge for Recuperator

OF THE

Schneider Matériels

(Description and Use)

TRANSLATED AND EDITED AT THE
ARMY WAR COLLEGE
NOVEMBER, 1917

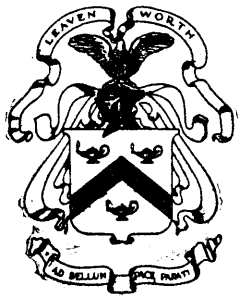
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WAR DEPARTMENT,

WASHINGTON, *November 15, 1917.*

The following pamphlet, "Instruction on the Pressure Gauge for the Recuperator of the Schneider Matériels" (Description and Use), is published for the information of all concerned.

(062.1, A. G. O.)

BY ORDER OF THE SECRETARY OF WAR:

JOHN BIDDLE,
Major General, Acting Chief of Staff.

OFFICIAL:

H. P. McCAIN,
The Adjutant General.

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INSTRUCTION

SUR

La jauge-purgeur pour récupérateur des matériels Schneider. (Description et mode d'emploi.)

ANNEXE

AUX

REGLEMENTS PROVISOIRES

SUR

La description et l'entretien des: canons de 105 Model 1913 Schneider, canons de 155 court Schneider, canons de 155 long Model 1877–1914, mortiers de 280 Schneider.

TRAINING.

WAR COLLEGE DIVISION, GENERAL STAFF, WASHINGTON.

Subject: Instruction sur la jauge-purgeur pour récupérateur des matériels Schneider.

O. K. or pencil memorandum of dissenting opinion. If space opposite name is insufficient for a long opinion, add an additional sheet.

Executive officer.

Col. Bradley.

Maj. Bowman.

Maj. Brown.

Lieut.-Col. Browning.

Capt. Wildrick.

Capt. McCoach.

INSTRUCTION ON THE PRESSURE GAUGE FOR THE RECUPERATOR OF THE SCHNEIDER MATÉRIELS. (DESCRIPTION AND USE.)

I.

Description of the Pressure Gauge.

The pressure gauge is a device to indicate the amount of charge of liquid or gas in the recuperators.

It consists of a stationary part mounted in the plug in front in one of the reservoirs of the recuperator, and a movable part, which is mounted on the other when the pressure is to be read.

Stationary part of the pressure gauge.

It consists of—

The gauge body (1) with a joint (of the so-called "movable-head type") capable of turning on its axis parallel with that of the reservoir. A channel runs through its center which can be connected with the reservoir.

There is a small vent (2) in the rear part of the gauge body along a longitudinal genetrix opening into the valve chamber and supplying the communication between the reservoir and the central canal.

The spring valve (3) seated at the rear of the central canal and intended for closing it. This valve is held in position by its own spring and by the interior pressure of the recuperator.

The valve piston (4) seated in the central canal and screwed onto the front of the valve. It serves for the manipulation of the latter.

The rear plug, with joint, which closes the valve chamber.

The retaining ring, screwed and held tight, which keeps the gauge in place.

The indicating pointer (14), screwed and held tight, the point of which moves during the rotation of the gauge body in front of a *graduation* showing the volume of liquid (15) borne on the plug.

The graduation has divisions in liters and deciliters. The upper part is marked "deficiency," the lower "excess." This graduation displays a red arrow indicating the admissible quan-

tity of liquid in the recuperator for the proper operation of the piece.

A handle (16), to which is attached the manipulating screw (13), intended to give by hand a rotating movement to the whole pressure gauge.

The front plug (11) with joint and nut. This plug is removed for the insertion of the movable part of the pressure gauge.

A hood (12), mounted on hinges, provides protection for the fixed part against bullets and shell splinters. On it there is a small plate indicating the maximum and minimum pressures admissible for the normal operation of the recuperator for different degrees of temperature.

MOVABLE PART OF THE PRESSURE GAUGE.

This part consists essentially of an *adjutage* (5) in several tubulures with a *channel running through its center.*

It includes:

The adjusting nut (10) of the movable part on the gauge body.

The threaded rod (7), with joint in front, which serves for moving the valve piston.

The guide plug of the piston and its joint.

The manometer (6), *with adjusting nut, stop ring, and joint.*

The evacuation center punch (8), *with handle and joint.*

The purging vent (9), communicating with the central channel.

A special key, mounted on the handle (16), is the instrument for turning the gauge.

Operation.—When the movable part is mounted in place on the stationary part and the gun is in a horizontal position, the front vent of the gauge body is brought into contact, by the manipulation of the screw, either with the gas or with the level of separation of the liquid and gas, or with the liquid. By screwing the threaded rod the manometer is made to communicate with the recuperator and will register the pressure in it. By opening the center punch of evacuation and turning gently the manipulation screw it is possible to determine the moment when the front vent passes from the gas into the liquid and thus deduce from the graduation marked by the point of the needle the quantity of liquid in excess or the amount wanting. The excess liquid or gas can be drawn off through the evacuation vent.

II.

USE OF THE PRESSURE GAUGE.

Place the piece on horizontal ground so that the two wheels are at the same level. Make the gun tube perfectly horizontal by means of the level, 1888 model, mounted on the facets of the aiming level.

Open the hood.

Mount in position the movable part of the pressure gauge with the manometer and manipulating key and tighten the nut to insure the coupling.

NOTE.—Make sure that the threaded rod is completely unscrewed.

Measurement of the pressure.—Make sure that the evacuation center punch (8) is closed.

Open the valve gently by turning slowly the threaded rod (7); read the pressure indicated by the manometer. Unscrew the rod to close the valve.

Measurement of the quantity of liquid.—Manipulate the screw so as to bring the point of the needle opposite mark .5 of the section of the graduation for "excess."

Open the evacuation center punch (8); then slowly raise the valve by screwing the threaded rod (7) to the degree strictly necessary.

If the recuperators are correctly mounted, gas should be emitted with a whistling sound.

NOTE.—By placing a receptacle under the evacuation vent the medium in which the gauge opening stands can be determined, for, when it is in the gas, only drops of the liquid drawn along by the gas will be collected; but if it is in the liquid a quantity of liquid will be collected with only a few bubbles of gas drawn along by it.

Slowly turn the manipulating screw counterclockwise until this whistling ceases.

NOTE.—If the operation should be carried beyond this position or if the recuperators have been defectively mounted in the first place, liquid would escape through the evacuation vent. It is advisable in this case to repeat the operation, putting the opening of the gauge well into the gas instead of endeavoring to determine the level of the liquid by passing from the liquid into the gas.

Read the graduation opposite the point of the needle which indicates the amount of excess or deficiency of the liquid in the recuperators.

Close the evacuation center punch, then unscrew the threaded rod (7).

Remove the screw and the movable part of the pressure gauge.

NOTE.—Except in case the recuperators must be recharged.

Close the hood.

NOTE.—To determine quickly whether the quantity of liquid is near enough to normal, move the needle in succession on the marks corresponding to the extremities of the red arrow indicating the admissible pressure; air should be emitted in the first position and liquid in the second.

Filling the recuperators.—By the results of the measurements obtained it is evident whether there is a lack of liquid or gas. In case there is a deficiency of both, begin by adding liquid.

When the piece is provided with a pressure gauge, this should always be used to the exclusion of every other means to determine the quantities of liquid or gas introduced into the recuperators or drawn from them. The manometer mounted on the gauge is less liable to get out of adjustment and at the same time it gives more precise indications than that mounted on the coupling of the filling aperture of the truck.

Introduction of liquid.—If there is a deficiency of liquid, introduce the amount indicated on the graduation by means of the liquid pump; measure again the quantity of liquid and determine anew the pressure.

Introduction of gas.—Employ the usual methods, using the manometer mounted on the gauge to control the pressure.

Removal of liquid; removal of gas.—Move the manipulation screw of the gauge in the proper direction to put the interior aperture of the gauge body in contact with the liquid or with the gas. Open the evacuation center punch, then gently raise the valve by turning the threaded rod.

As soon as the desired quantity of liquid or gas has been removed, close the evacuation center punch and unscrew the threaded rod.

PARIS, *July 10, 1917.*

Approved:

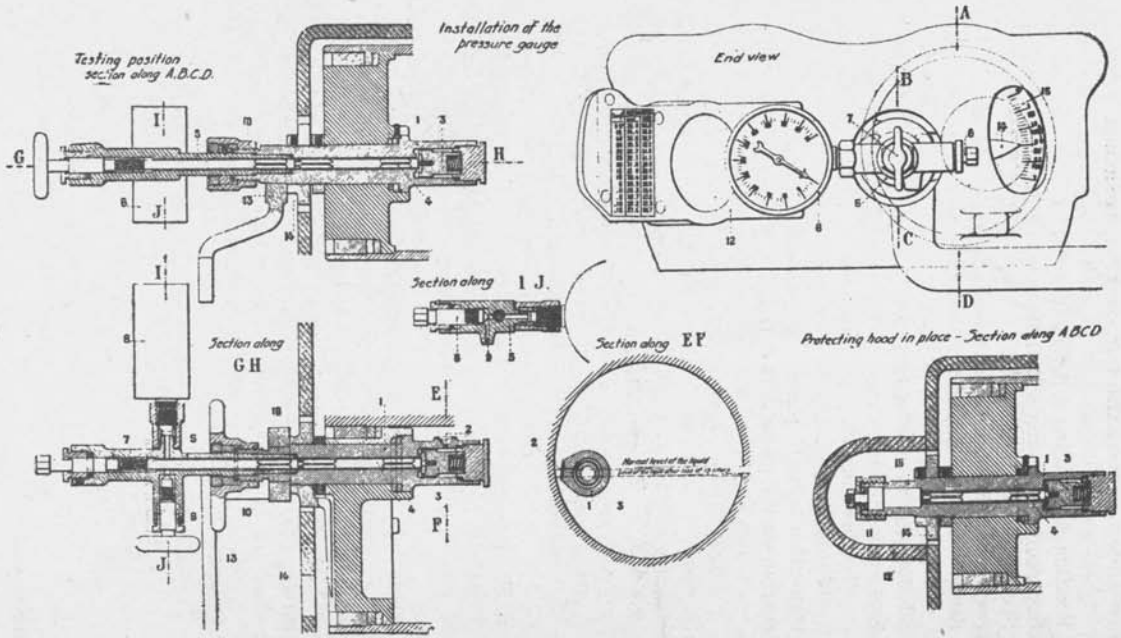
For the Minister and by his order:

The General in charge of the Artillery,

RONNEAUX.

INSTALLATION OF THE PRESSURE GAUGE.

Position for making a determination:
Section on the plane A B C D.
Section on the plane G H.
Section on the plane I J.
Section on the plane E F.
    Normal level of the liquid.
    Level after loss of 1.5 liters.
End view.
    Temperature.
    Pressures.
Protection hood in place.
Section on the plane A B C D.


Testing position
section along A.B.C.D.
Installation of the
pressure gauge
End view
Section along 1 J.
Section along
G H
Section along E F
Protecting hood in place - Section along A B C D