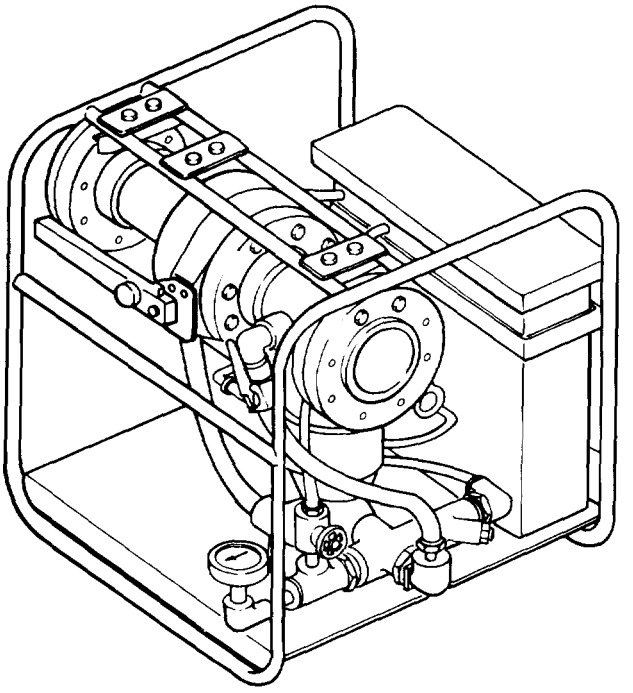
TM 5-4610-233-13&P

TECHNICAL MANUAL

OPERATOR, UNIT, AND DIRECT SUPPORT MAINTENANCE MANUAL (Including Repair Parts and Special Tools List)



WATER PURIFICATION HYPOCHLORINATION UNIT, FRAME-MOUNTED, AUTOMATICALLY CONTROLLED, 350 GPM, MODEL 1955-3 (NSN 4610-01-250-3724)

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HEADQUARTERS, DEPARTMENT OF THE ARMY
12 APRIL 1990

TECHNICAL MANUAL

NO. 5-4610-233-13&P

HEADQUARTERS
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Operator, Unit, and Direct Support
Maintenance Manual
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WATER PURIFICATION HYPOCHLORINATION UNIT, FRAME-MOUNTED, AUTOMATICALLY CONTROLLED, 350 GPM, MODEL 1955-3 (NSN 4610-01-250-3724)

(Current as of 1 May 1989)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve these procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. You may also submit your recommended changes by E-mail directly to <mpmt%avma28@st-louis-emh7.army.mil>. A reply will be furnished directly to you. Instructions for sending an electronic 2028 maybe found at the back of this manual immediately preceding the hard copy 2028.

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HOW TO USE THIS MANUAL

Spend a few minutes looking through this manual. It has a new look that is very different from the manuals you've been using. You'll find the new look is a lot easier to use, and you can find what you're looking for a lot faster.

Each chapter begins with an index that lists each paragraph (in alphabetical order) in the chapter and gives page numbers. Or you can look for the information you want in the alphabetical subject index at the back of the manual.

We got rid of as many words as we could and put in lots of illustrations to show just about everything you'll be doing to maintain your equipment.

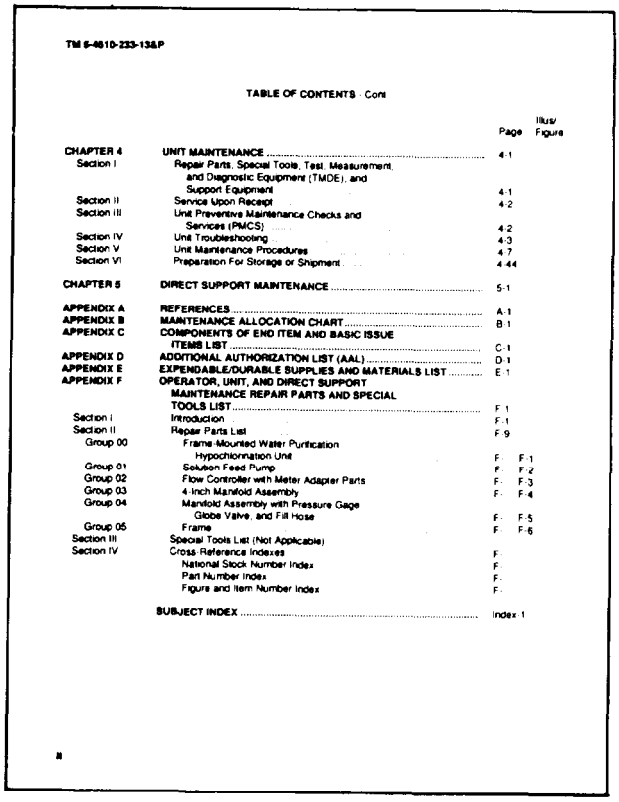
The text is keyed to the illustrations with callout numbers (sometimes words). The callout numbers are in parentheses in the text.

So HOW DO YOU USE THIS MANUAL?

Like This:

1. Suppose the operator notified unit maintenance that the chlorine residual test indicated no chlorine in treated water and you want to troubleshoot the hypochlorination unit.

2. Look at the Table of Contents in the front of the manual and find "UNIT MAINTENANCE" and it gives you page 4-1.



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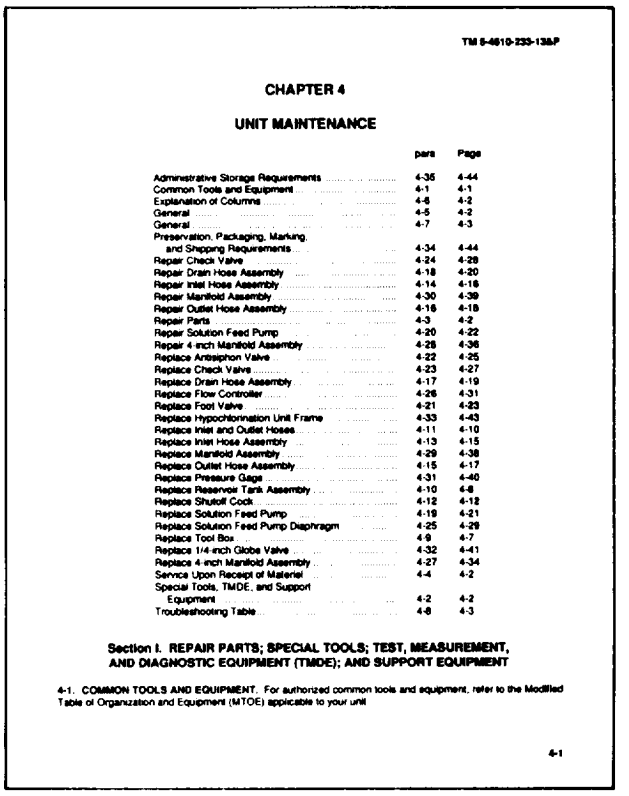

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CHAPTER 4

UNIT MAINTENANCE

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

4-1. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit

4-1

3. On page 4-1, you'll find CHAPTER 4, UNIT MAINTENANCE. The chapter index will give you page 4-3 for the troubleshooting table.

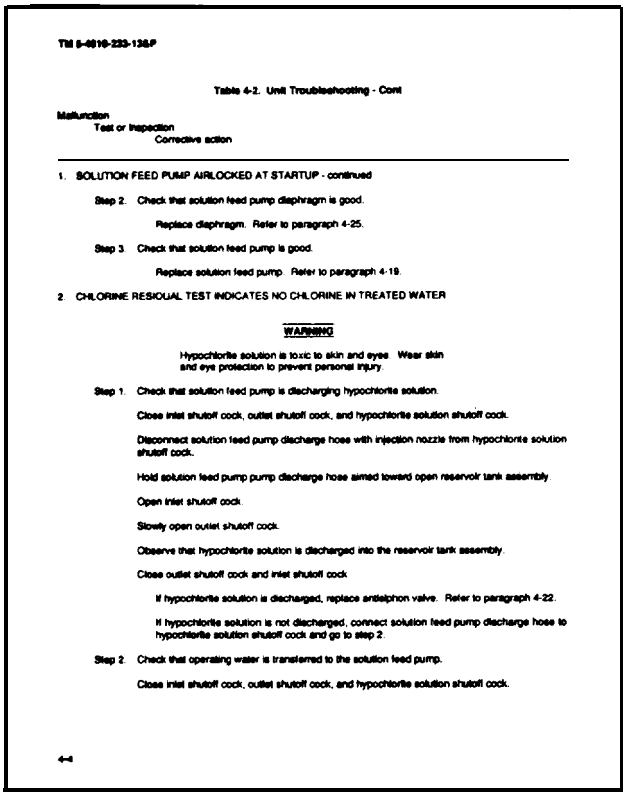

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Table 4-2. Unit Troubleshooting - Cont

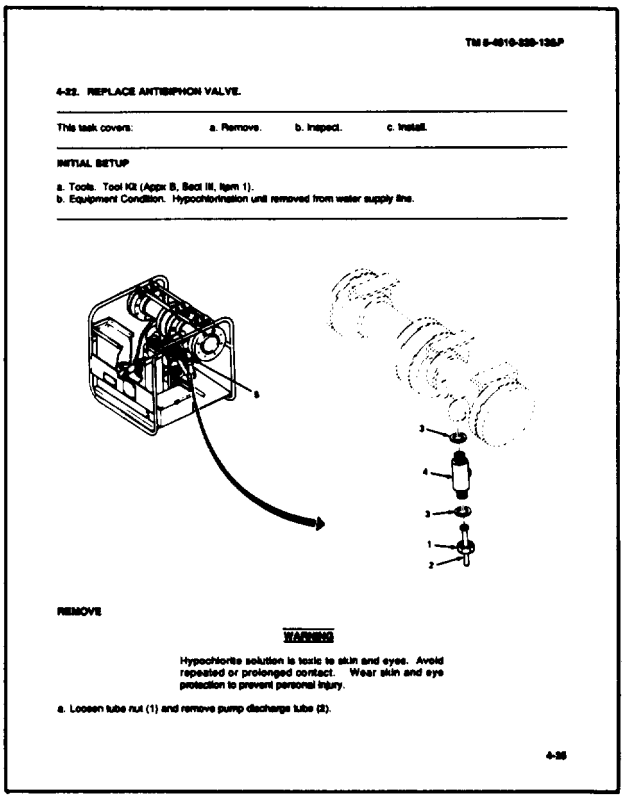
Malfunction / Test or Inspection	Corrective action
1. SOLUTION FEED PUMP AIRLOCKED AT STARTUP - continued	
Step 2. Check that solution feed pump diaphragm is good.	Replace diaphragm. Refer to paragraph 4-25.
Step 3. Check that solution feed pump is good.	Replace solution feed pump. Refer to paragraph 4-19.
2. CHLORINE RESIDUAL TEST INDICATES NO CHLORINE IN TREATED WATER	
	WARNING Hypochlorite solution is toxic to skin and eyes. Wear skin and eye protection to prevent personal injury.
Step 1. Check that solution feed pump is discharging hypochlorite solution.	Close inlet shutoff cock, outlet shutoff cock, and hypochlorite solution shutoff cock.
	Disconnect solution feed pump discharge hose with injection nozzle from hypochlorite solution shutoff cock.
	Hold solution feed pump pump discharge hose aimed toward open reservoir tank assembly.
	Open inlet shutoff cock.
	Slowly open outlet shutoff cock.
	Observe that hypochlorite solution is discharged into the reservoir tank assembly.
	Close outlet shutoff cock and inlet shutoff cock.
	If hypochlorite solution is discharged, replace antisiphon valve. Refer to paragraph 4-22.
	If hypochlorite solution is not discharged, connect solution feed pump discharge hose to hypochlorite solution shutoff cock and go to step 2.
Step 2. Check that operating water is transferred to the solution feed pump.	Close inlet shutoff cock, outlet shutoff cock, and hypochlorite solution shutoff cock.

4-4

4. Look through the troubleshooting table and find the malfunction CHLORINE RESIDUAL TEST INDICATES NO CHLORINE IN TREATED WATER.

5. As you do the tests and corrective actions in the order listed, you will get to “If hypochlorite solution is discharged, replace antisiphon valve. Refer to paragraph 4-22.”

6. Go back to the chapter index on page 4-1 and look for “Replace Antisiphon Valve” and it gives you page 4-25. (Remember, the chapter index is in alphabetical order.)



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4-22. REPLACE ANTISIPHON VALVE.

This task covers: a. Remove. b. Inspect. c. Install.

INITIAL SETUP

a. Tools. Tool Kit (Appx B, Sect III, Item 1).
b. Equipment Condition. Hypochlorination unit removed from water supply line.

REMOVE

WARNING

Hypochlorite solution is toxic to skin and eyes. Avoid repeated or prolonged contact. Wear skin and eye protection to prevent personal injury.

a. Loosen tube nut (1) and remove pump discharge tube (2).

4-25

7. Turn to page 4-25 and look at the procedure, The procedure is divided into modules with one or more steps and a picture to show you whereto look and what to look at.

8. Notice the numbered arrows. These are the callout numbers. As you read each step, we tell you whereto look by including the callout number (in parentheses) after the name of each thing we call out.

9. Do the procedure, then check to see if you have corrected the malfunction.

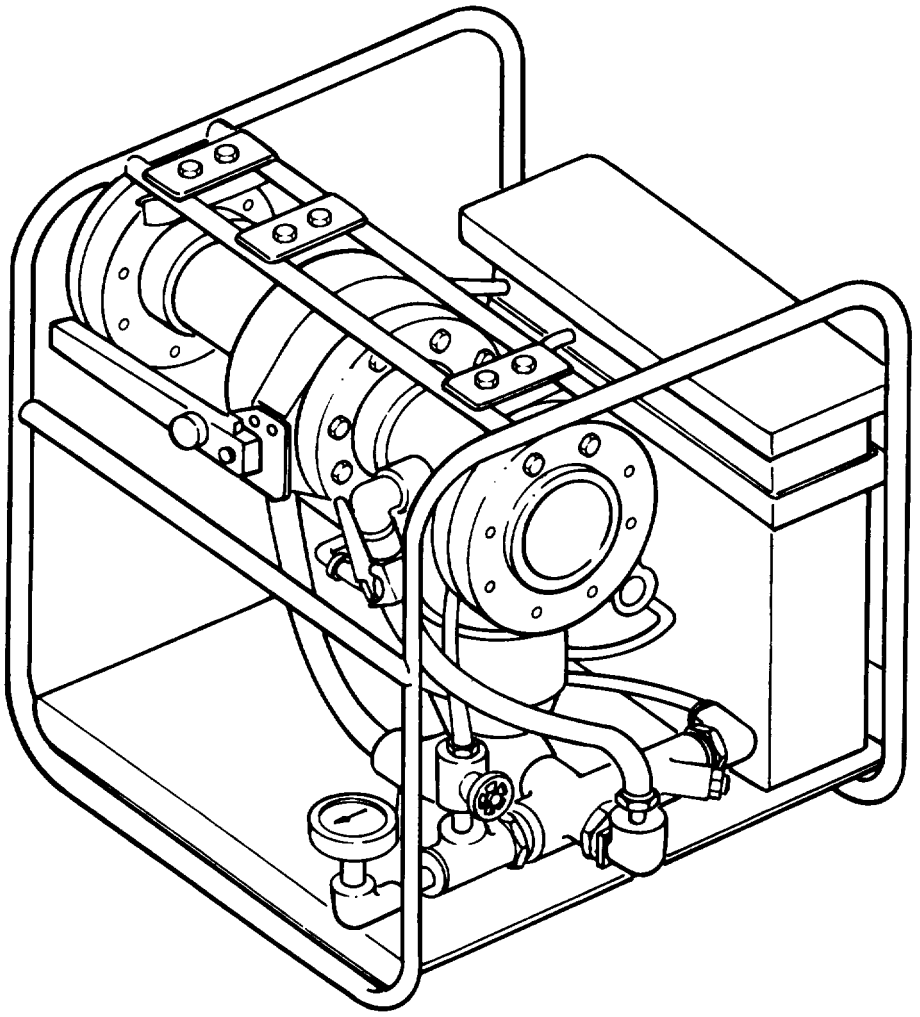

Figure 1-1. Water Purification Hypochlorination Unit, Model 1955-3

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE. This manual contains operation and maintenance instructions for Water Purification Hypochlorination Unit Model 1955-3 (figure 1-1), hereinafter called hypochlorination unit. This manual includes procedures for operation, cleaning, inspection, testing, servicing, disassembly, and assembly of the equipment for operator through direct support maintenance as authorized by the Maintenance Allocation Chart (MAC).

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, The Army Maintenance Management System (TAMMS).

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S). If your hypochlorination unit needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't tike the design or performance. Put it on a SF 368 (Quatity Deficiency Report). Mail it to us at: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MDO, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. We will send you a reply.

1-4. WARRANTY INFORMATION. The hypochlorination unit is warranted by Waltron Ltd. for 18 months from date of delivery. Report all defects in material or workmanship to you supervisor who will take appropriate action.

1-5. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE. Destruction of Army materiel to prevent enemy use is described in TM 750-244-3.

1-6. PREPARATION FOR STORAGE OR SHIPMENT. Preparation instructions for storage or shipment are found in Chapter 4, Section VI.

1-7. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC). Maintenance standards for the hypochlorination unit are given in the preventive maintenance sections and the maintenance chapters of this manual. By performing PMCS and the maintenance procedures, quality control of the equipment will be maintained.

1-8. SAFETY, CARE, AND HANDLING. Observe all WARNINGS, CAUTIONS, and NOTES in this manual. This equipment can be dangerous if these instructions are not followed.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-9. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

Characteristic

Placed in a water supply line, will chlorinate water flowing through the line unattended for a minimum of 2 hours.

Capabilities and Features

Feed hypochlorite solution in direct proportion to waterflow rate.

Portable frame-mounted.

Chlorinates waterflow rate from 2 to 350 gallons per minute.

Uses water pressure as power source.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS. See figure 1-2.

a. *Four-Inch Manifold (1).* A 4-inch diameter pipe for connection to a water supply line. The manifold provides lateral outlets to power the solution feed pump and permit hypochlorite solution injection to the waterflow.

b. *Range Adjusting Valve (2).* Mounted in the manifold and used to bypass enough waterflow through the water meter to operate the solution feed pump.

c. Flow *Controller (3).* A mechanical flowmeter modified with a gear box and a control pilot valve to operate the solution feed pump.

d. Solution Feed Pump (4). A hydraulically operated positive displacement proportioning pump.

e. *Reservoir Tank (5).* A 6-gallon plastic tank holding the hypochlorite and water solution.