

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL AND DIRECT SUPPORT

MAINTENANCE MANUAL

(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)

TRUCK, FIRE FIGHTING, 4x4,

MODEL 1350 PKP/200 AFFF

NSN 4210-00-484-5729

ANSUL FIRE PROTECTION

HEADQUARTERS, DEPARTMENT OF THE ARMY

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MARINETTE, WI 54143

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ANSUL ANSUL FIRE PROTECTION
MARINETTE, WI 54143

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommend Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MCTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

REPORTING EQUIPMENT IMPROVEMENTS (EIR's)

If the Fire Fighting Truck needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: U.S. Army Troop Support Command, ATTN: AMSTR-QX, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. We will send you a reply.

SECTION 1

MANUAL SCOPE

This manual is intended for use with the Ansul Twin-Agent Fire Fighting Truck. Those who operate, recharge, inspect, or maintain this fire suppressing/securing vehicle should read this entire manual. Specific sections will be of particular interest depending upon one's responsibilities.

The purpose of this manual is to familiarize personnel with the operation and maintenance of the twin-agent fire fighting truck. The operator of the fire fighting truck is responsible for all minor maintenance and adjustments necessary to keep the fire suppressing/securing systems and emergency vehicle equipment in ready condition. Higher maintenance is responsible for the major maintenance, service, and repair as necessary to bring the vehicle back into the operating condition.

The information contained in this manual is limited to the fire suppressing/securing system, serial numbers 001 thru 005 and emergency equipment mounted on the International Truck Model 1854-4x4. This manual contains the necessary information needed to prepare for use, operate, recharge, inspect, maintain, service, and repair the fire suppressing/securing system.

The contractor warrants for a period of one year all supplies furnished under Contract DAAK01-78-C-1667 to be free from defects of design, material, and workmanship; and conforms with specifications and all other requirements of this contract.

Applicable publications include:

Federal Sign and Signal Corporation: Siracom II Siren/Control System-Model PA2100 with FN 900 Microphone and TS-100 Speaker designed to be installed in the Model 24 Light Bar Assembly.

Publications include: Dome Assembly Installation Instructions-No. 256A358; FN 900 Adaptor for PA override operation Installation Instructions-No. 256A99B; Model PA 2100 Installation and Service Instructions-No. 255A150G; Service and Parts Index-No. 256A359.

Unity Manufacturing Company: Model AG 6-inch rear decklight; No. 225 spotlight (right and left).

Publications include: Parts Sheet-No. 105-6.

H.K. Porter Incorporated: Model PK4 Hydraulic Rescue Kit (10 ton capacity).

Publications include: Instruction Book-No. 10119; Instruction Envelope-No. ISM 200; Instruction Sheet-No. 1PF10; and Service Station Listing-No. 10120.

Hurst Performance Incorporated: Model 3620025 Rescue Tool.

Publications include: Instruction Manual-No. 159 0082.

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Sierra Company: Model CRK5 Sierra Rescue Crash Tool Kit.

Publications: None, contents listed in vendor's publication section.

International Harvester Company-Truck Division: Model 1854 Truck (4x4).

Publications include: Service Manual (3 volumes)-No. CTS-231 1; Parts Catalog - No. MT-140.

Paratech Incorporated, Formerly Partner Industries: Model K-1200 Rescue Saw.

Publications included: Instruction Book-No. 701042; Parts List-No. 711142.

SYSTEM DESCRIPTION

The Ansul Twin-Agent Fire Fighting Truck is designed for combating fire via roof-mounted turrets or rear-mounted hand-lines which can be used together or independently.

The truck is the basic International Model 1854, 4x4 chassis with a service body attached, and an Ansul 1350 PKP/200 AFFF fire suppressing/securing system mounted on the truck bed.

The fire fighting truck also includes: a roof-mounted warning light bar with built-in speakers controlled by an indicator switch; an electric siren, public address, and radio amplifier system with foot control switch; two rear-mounted decklights; two forward-mounted spotlights; and rescue equipment package.

The truck is a completely self-contained fire fighting vehicle. The dry chemical fire suppression system uses 'Purple-K' as the fire extinguishing agent and nitrogen and the expellant gas. The AFFF system uses AFFF (aqueous film-forming foam) as the extinguishing agent and nitrogen as the expellant gas. Both systems can be actuated simultaneously by using either the remote actuator (located at the hose reel) or the dashboard actuator (located in the truck cab). The twin-nozzles and twin-turrets can be used either independently or simultaneously.

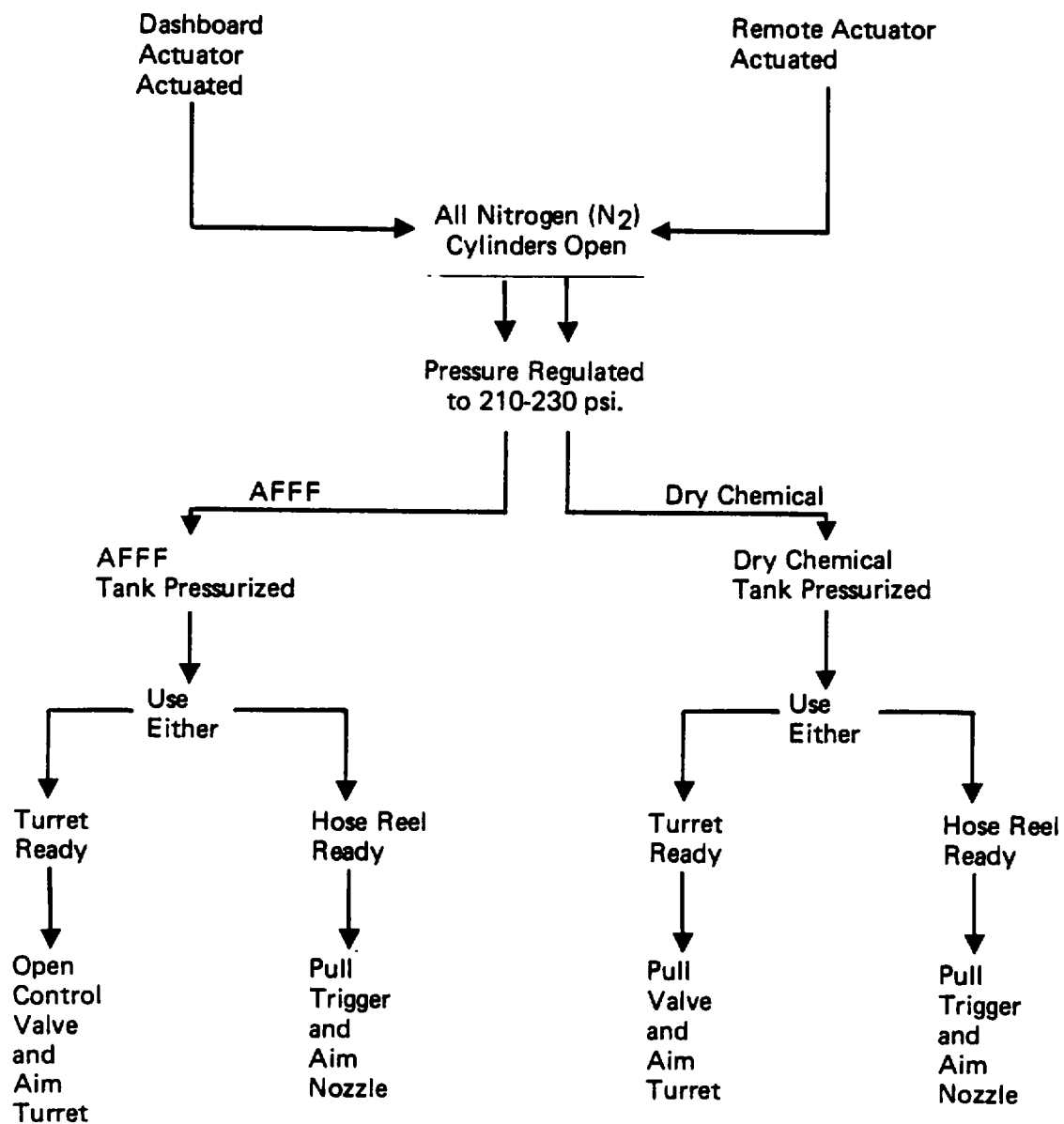
The dry chemical system can be used on Class B and Class C fires only. It provides rapid knockdown of Class A fires, but must be used in combination with the AFFF agent.

The AFFF (aqueous film-forming foam) system is designed for use on Class A and B fires only. It must not be used on Class C fires which involve energized electrical equipment.

CAUTION: The AFFF solution is a mixture of Ansulite AFFF Concentrate and water. It will freeze at 32°F.

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The following chart illustrates the sequence of operating events and the options available with this system:



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TRUCK EQUIPMENT AND ACCESSORIES

Warning Light: The light bar is mounted on the roof of the cab and includes a built-in public address speaker. The light can be operated by means of a separate switch on the dashboard instrument panel. The switch contains a red indicator light which is activated when the warning light is in use.

Electronic Siren, Public Address, and Radio Amplifier System: The system contains selector controls for siren, public address, or radio amplification through an external speaker mounted in the warning light bar assembly. The amplifier, its controls, and the microphone are mounted in the cab in a location accessible to the driver or passenger. The siren can be operated by either the floor-mounted switch or the standard horn actuator.

Spotlights: Two decklights are mounted at the rear of the truck on top of the service body. Two spotlights are mounted on the side of the truck cab. The rear lights are operated by a switch located at the bottom of each light. The cab-mounted lights can be operated from switch/handle assemblies inside the truck cab.

Rescue Equipment: A hydraulic rescue kit, aircraft rescue crash tool kit, and rescue saw are located in the service body compartments for easy access during rescue operations. To use, follow manufacturer's instructions provided with equipment.

FIRE SUPPRESSING/SECURING SYSTEM

Dry Chemical Fire Suppression System: The dry chemical system can be used on Class B and Class C fires and is very effective for exterior running and flowing Class B fires. It provides rapid knockdown of Class A fires, but must be used in combination with the AFFF agent to avoid fire reignition. The dry chemical system is mounted on the center of the truck bed behind the AFFF system.

The components of the dry chemical system include: a 1350 lb. dry chemical tank with control valves and associated piping, three 400 cu. ft. nitrogen cylinders with pressure regulators, a twin-agent hose reel serving both the dry chemical and AFFF system, a dry chemical discharge nozzle, and a dry chemical turret with pneumatic control valve.

AFFF Fire Suppressing/Securing System: The AFFF (aqueous film-forming foam) system is designed for use on Class A and B fires only. It must not be used on Class C fires which involve energized electrical equipment.

CAUTION: The AFFF solution is a mixture of Ansulite AFFF Concentrate and water. It will freeze at 32°F.

The AFFF system is mounted behind the truck cab in front of the dry chemical system.

The components of the AFFF system include: a 200 gal. solution tank with control valves and associated piping, two 400 cu. ft. nitrogen cylinders with pressure regulators, a twin-agent hose reel serving both the dry chemical and AFFF system, a AFFF discharge nozzle, and an AFFF turret with pneumatic control valve.

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Nitrogen System: Five nitrogen cylinders provide the expellant gas for both the dry chemical and AFFF systems. Each cylinder contains a Quick-Opening valve with a pneumatic valve actuator for either local actuation (by pulling the Quick-Opening Lever), or remote actuation (from the dashboard or the hose reel). The cylinder valve also contains a gauge for accurate pressure readings. When the cylinders are opened, the compressed nitrogen flows from the cylinder through high pressure hose into the regulators where the pressure is reduced to 210 to 230 psi and then flows through low pressure hose into the agent tanks. This pressure forces the-extinguishing agents through the discharge piping to both the handline nozzles and turrets. The agent flow is then controlled by the operator by opening the nozzles or turrets. Part of the nitrogen also runs through separate lines and is regulated to 125 psi to enable turret control valve operation. A safety relief valve is located on the regulators and on each extinguishing agent tank to vent excess pressure in the event of regulator malfunction.

Control Valves: The flow of nitrogen and extinguishing agent through each system is regulated by control valves. Each valve is color-coded to correspond to instructions given on the system nameplates and manual.

Hose Reel and Hoses: A rotating drum-type hose reel is mounted on a frame behind the dry chemical tank at the rear of the vehicle. The twin-agent nozzle is secured on a holder through the tie-bar, and a ring pin holds the assembly in place when not in use. A hand crank is provided for rewinding the hose after operation should the electric motor malfunction. The hose reel holds 100 ft. of twin-agent hose (two 1 in. hoses combined, one for dry chemical, one for AFFF). Piping from the agent tanks is connected to both sides of the hose reel supplying one hose reel with both dry chemical and AFFF through the twin nozzles. The operator can use either or both of the agents to fight a fire. Both the dry chemical and AFFF nozzles are mounted on single bar to enable the operator to move easily without getting tangled in the hose.

Twin Turrets: Each turret can be controlled from the cab by means of a pneumatic control valve with open-close positions. The turrets can be maneuvered either vertically or horizontally by using the turret handles located in the ceiling of the cab adjacent to the control valve.

Remote and Dashboard Actuators: The Quick-Opening cylinder valves can be opened either at the cylinders or from a remote location. Actuation from a remote location is accomplished by using either the dashboard actuator located in the truck cab, or by a remote actuator located on the hose reel frame. The dashboard actuator allows the operator to open the nitrogen cylinder valve without having to leave the cab. The remote actuator allows the operator to open the nitrogen cylinders from the hose reel area. The actuators are operated simply by pulling the ring pin and pushing a lever (remote actuator) or button (dashboard actuator). The expellant gas from a small nitrogen cartridge flows through 1/4 inch tubing to the pneumatic valve actuators which open all five of the nitrogen cylinders.

Extinguishing Agents: This system combines the effects of two agents 'Purple-K' dry chemical and ANSULITE AFFF (aqueous film-forming foam) to suppress and secure a fire. The dry chemical provides rapid knockdown of flames to gain initial control over the fire. The AFFF creates a film-forming foam to prevent fire reflash. As the foam-supported film spreads over the fire, it prevents the escape of flammable vapors, excludes oxygen from the fuel surface, and helps cool the hazard area.

INTRODUCTION

TABLE OF SPECIFICATIONS

1. Vehicle

Type	Truck, Twin-Agent Fire Fighting, 24,200 GVW, Model 1854 4x4 Diesel Driven, Commercial
General Dimensions	
Length (Overall)	243.0 In.
Width (Overall)	94.0 In.
Height (Maximum)	127.0 In.
Wheelbase	162.0 In.
Gross Vehicle Weight (Rated)	24,200 Lb.
Gross Vehicle Weight (Actual)	20,200 Lb.
Chassis Manufacturer	International Harvester Company (Truck Division)
Model	1854
Type	4x4 Chassis and Cab, Diesel Driven, Commercial

2 1350 PKP/200 AFFF Suppressing/Securing System

Dry Chemical System	Ansul Fire Protection, Wormald U.S., Inc.
Model	1350 PKP
Type Agent	Ansul PKP (Purple "K") (Mil.-F-22287)
Expellant	Nitrogen
Capacity (Nitrogen Cylinder)	400 Cu. Ft.
Pressure Charged (Nitrogen Cylinder)	2640 PSI at 70°F
Tank Capacity	1350 Lb. (PKP)
Operating Pressure	210-230 PSI
AFFF System	
Model	200 AFFF
Type Agent	Ansul AFFF 6 Per Cent Concentrate (Mil.-F-24385C)
Expellant	Nitrogen
Capacity (Nitrogen Cylinder)	400 Cu. Ft.
Pressure Charged (Nitrogen Cylinder)	2640 PSI at 70°F
Tank Capacity	200 Gal.
Operating Pressure	210-230 PSI

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TABLE OF SPECIFICATIONS (CONT)

3. Hose Reel

Manufacturer	Aero-Motive Mfg. Company
Model	EAD 29-14-19 With Electric Rewind
Dimensions	
Height	31.75 In.
Width	31.75 In.
Length	29.00 In.
Twin-Agent Hose	
Hose Diameter Dry Chemical (Inside)	1.0 In.
Hose Diameter AFFF Agent (Inside)	1.0 In.
Hose Length	100 Ft.

4. Dry Chemical Nozzle

Manufacturer	Ansul Fire Protection, Wormald U.S., Inc.
Part No.	S-27762
Hose Connection	1-1/2" Male NPTF x 1-1/2" Female NPSM Swivel Union
Rate	7.8 Lbs./Sec.
Effective Range	77.0 Ft.

5. AFFF Nozzle

Manufacturer	Elkhart Brass Manufacturing Corporation
Part No.	25501
Hose Connection	1-1/2" Male NPTF x 1-1/2" Female NPSM Swivel Union
Rate	58.3 GPM
Effective Range	60.0 Ft.

6. Dry Chemical Turret

Manufacturer	Ansul Fire Protection, Wormald U.S., Inc.
Part No.	14035
Hose Connection	2" Male NPTF x 2" Female NPSM Swivel Union
Rate	18.1 Lbs/Sec.
Effective Range	11 5 Ft.
Pattern Width	17 Ft.