Lesson Topic 1.5

Portable Hydraulic Access and Rescue System

Enabling Objectives

IDENTIFY PHARS equipment and proper procedures IAW Hurst Rescue Tool Manual, Phoenix Rescue Tool Manual, and Holmatro Rescue Tool Manual.

A. **Purpose**

(1) already proven as a valuable piece of equipment by civilian fire departments, the navy has approved the Portable Hydraulic Rescue System (PHARS) for use as emergency damage control equipment PHARS can be utilized in emergency rescue or firefighting operations involving spreading, lifting, cutting, pulling, and piercing light plate or sheet metal.

(2) Currently, there are three different PHARS units available in the fleet:

(a) Hurst

(b) Phoenix

(c) Holmatro

B. Equipment

(1) Power unit

(a) All tools use a diesel powered engine with a hydraulic pump

(b) Unit pressure for Hurst and Phoenix is 5000 psi.

(c) Unit pressure for Holmatro is 10,000 psi

Parts Identification

PHARS

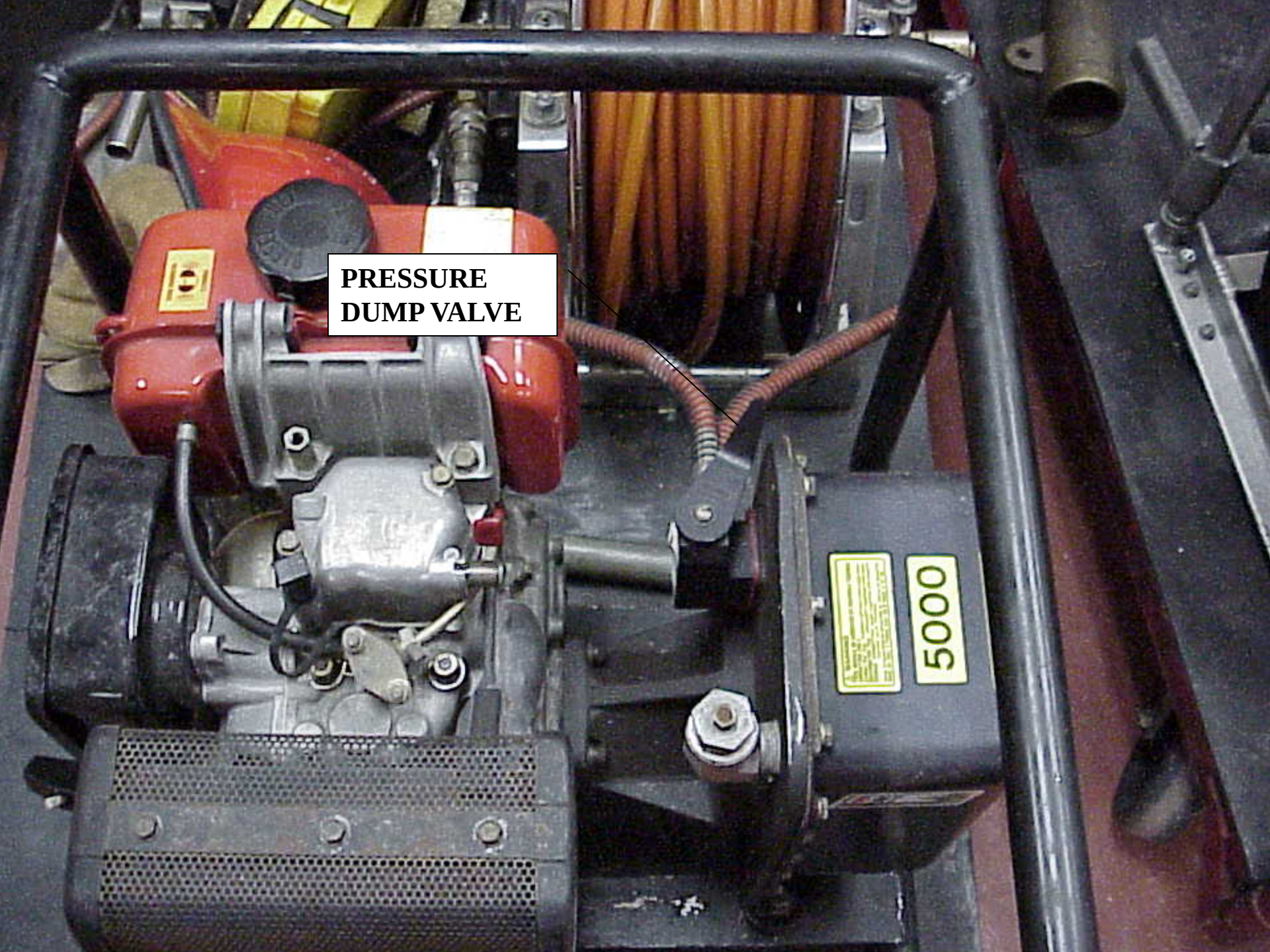
FUEL TANK

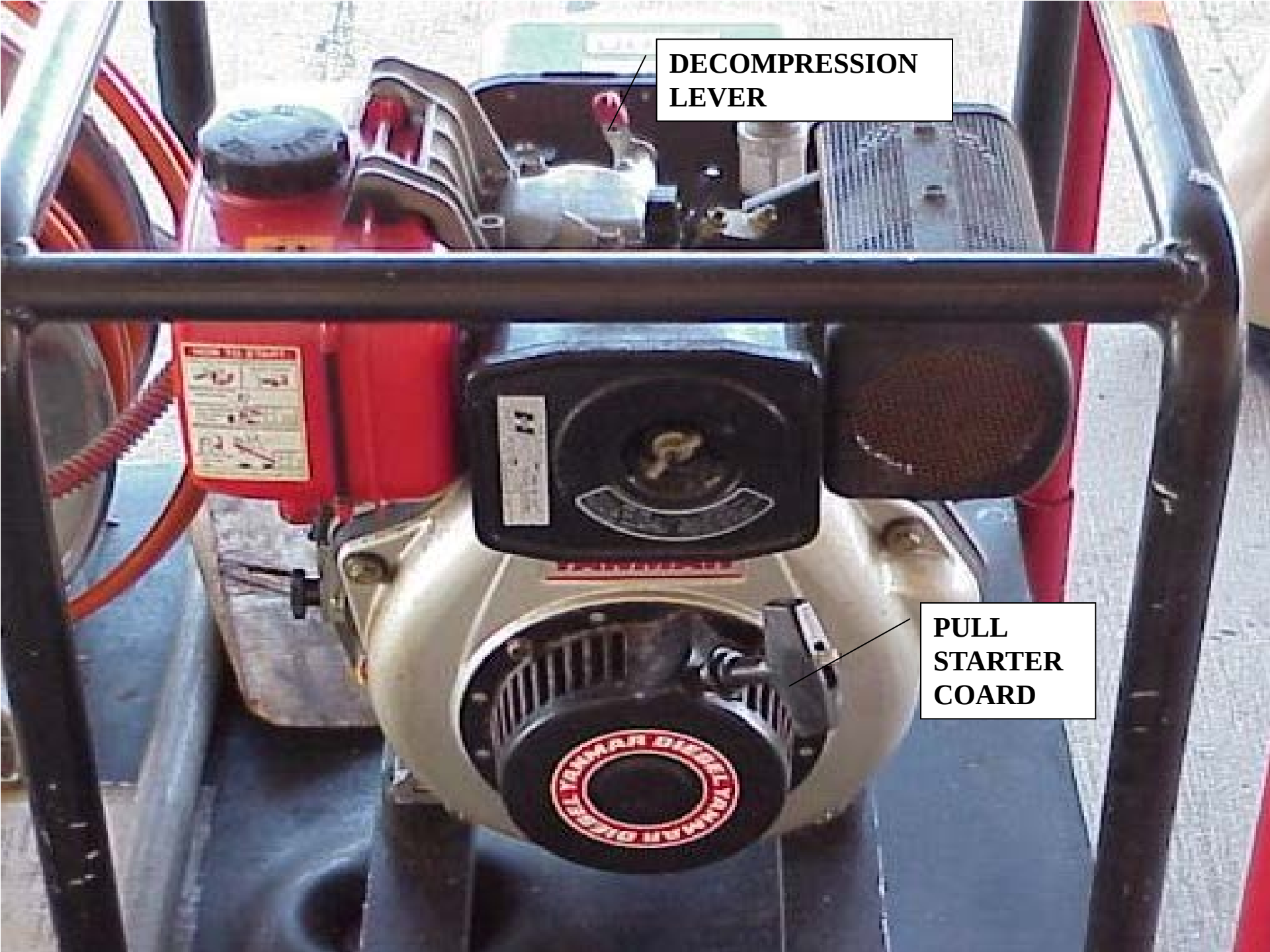
FUEL COCK

ENGINE SPEED LEVER

HYDRAULIC PUMP

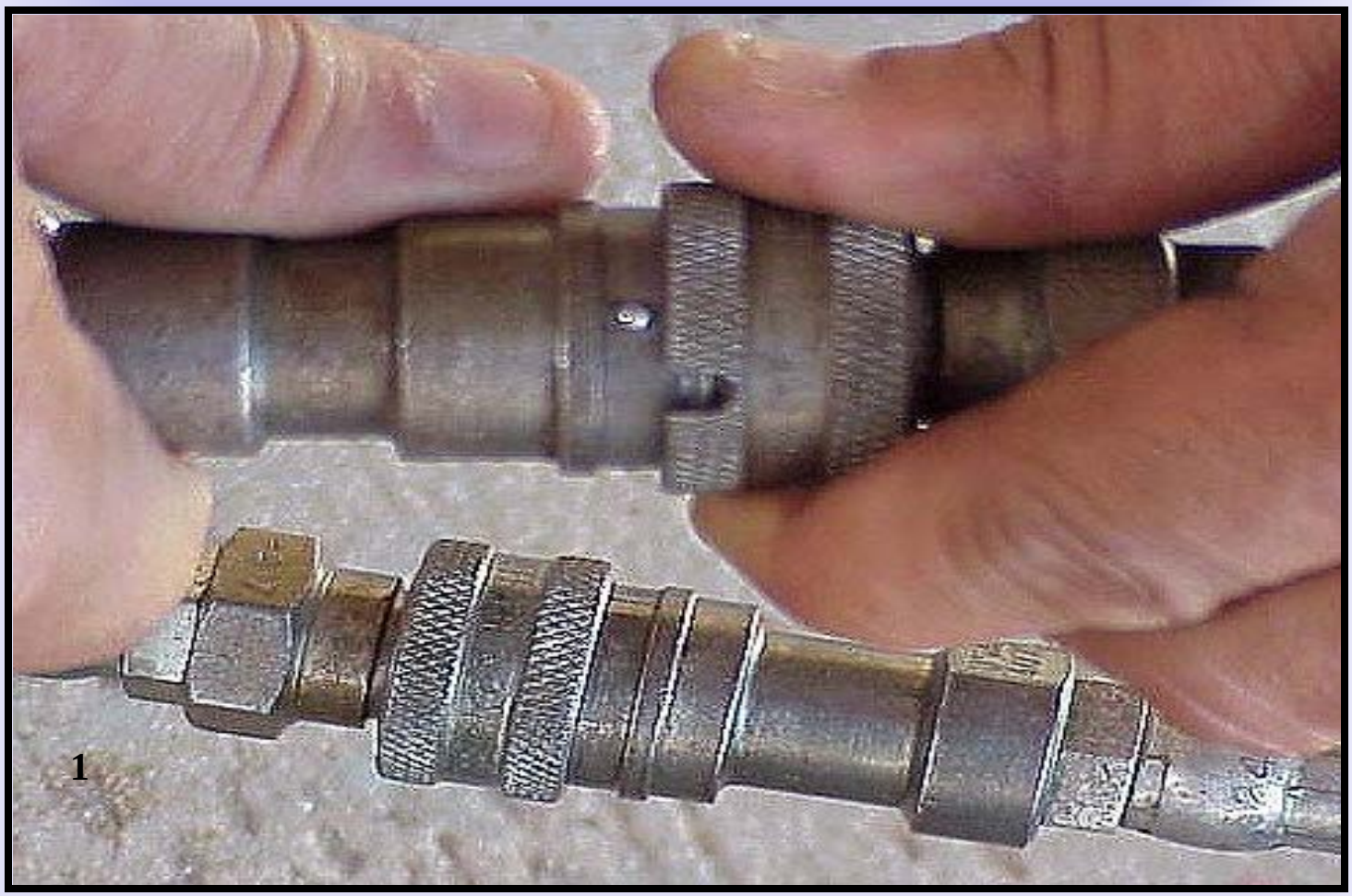
OIL RESERVOIR


PRESSURE
DUMP VALVE
5000


DECOMPRESSION LEVER
PULL STARTER COARD

(e) Operation of quick disconnect couplings

1) Align the slot in the sleeve with the pin



(e) Operation of quick disconnect couplings

2) slide sleeve back to connect or disconnect the Coupling

(e) Operation of quick disconnect couplings

3) After connecting, rotate sleeve 1/4 to 1/2 of a turn to prevent inadvertent or accidental disconnection

C. Spreader (jaws of life)

(1) Hydraulically operated by means of power piston

(2) Designed for opening, pulling and lifting

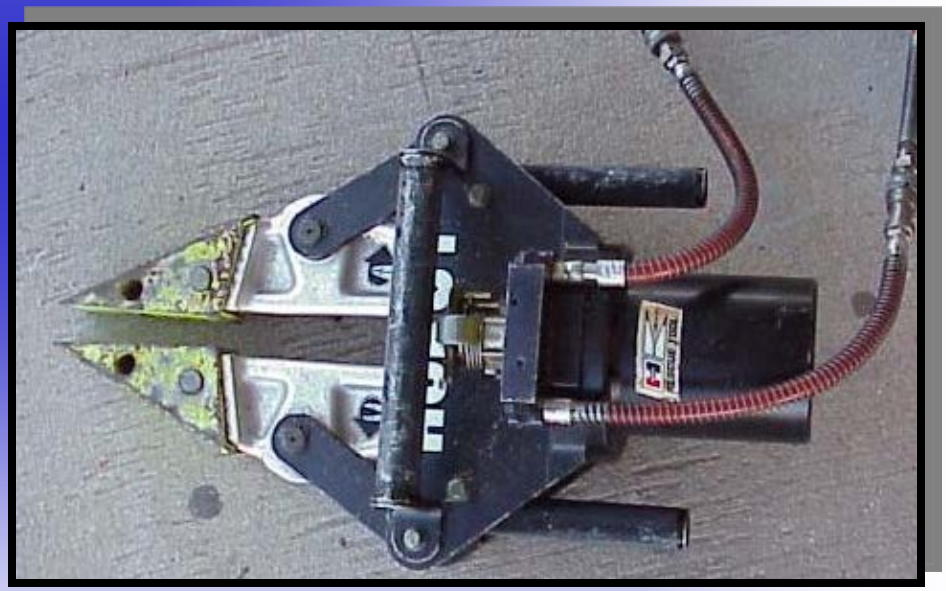
(3) Parts Identification

(a) Jaws (spreader/aircraft cutter tips)

(b) Jaw retainer pin

(c) Connectors(quick disconnect)

(d) Control valve (trigger)



D. Cutting tool

(1) Hydraulically operated by means of power piston

Designed for cutting sheet metal such as vehicle roof door posts and vehicle roofs.

•Cutting solid objects over 3/4” in diameter should be avoided

•Parts identification

(a) Cutting blades

(b) Connectors

(c) Control valve (trigger)

Operation

- (a) When operating, hold blades perpendicular to material to be cut

  (b) Material cut must be secured so that it cannot twist

E. Extension ram

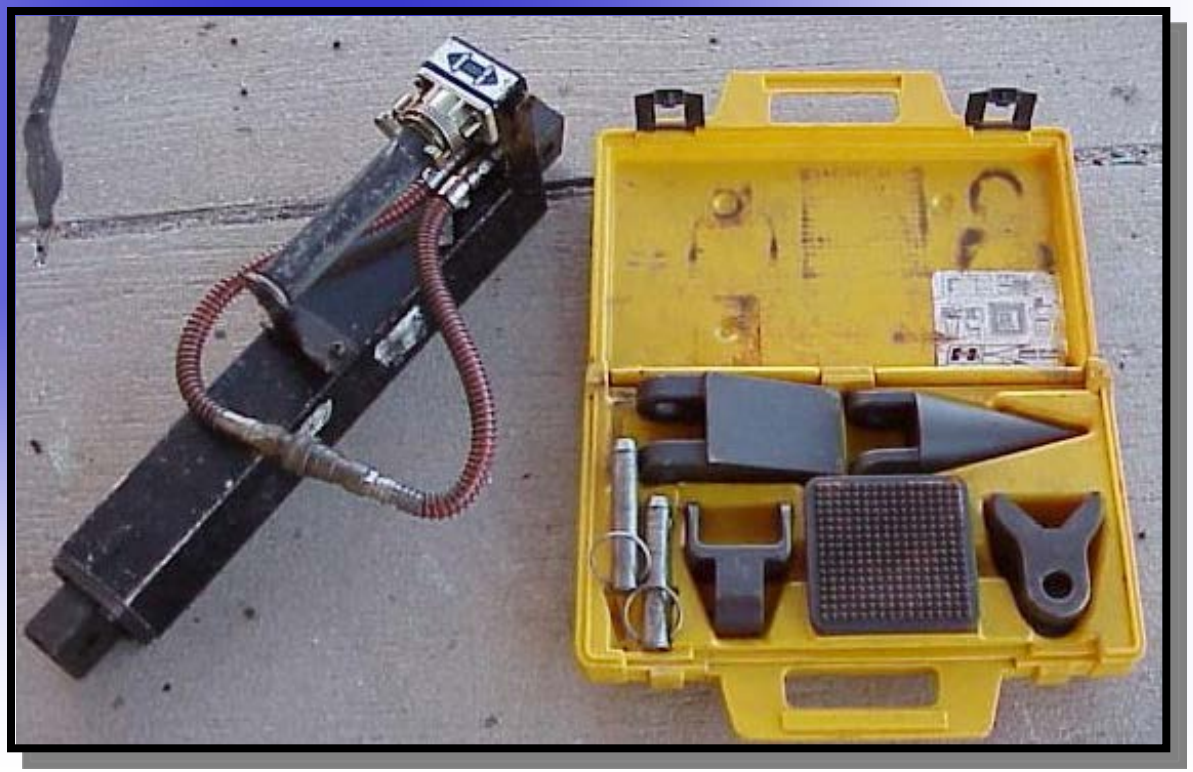
(1) Hydraulically operated by means of power piston
Designed for spreading and pulling

Parts identification

(a) Feet

(b) Connectors (quick disconnect)

(c) Control valve (actuator handle)



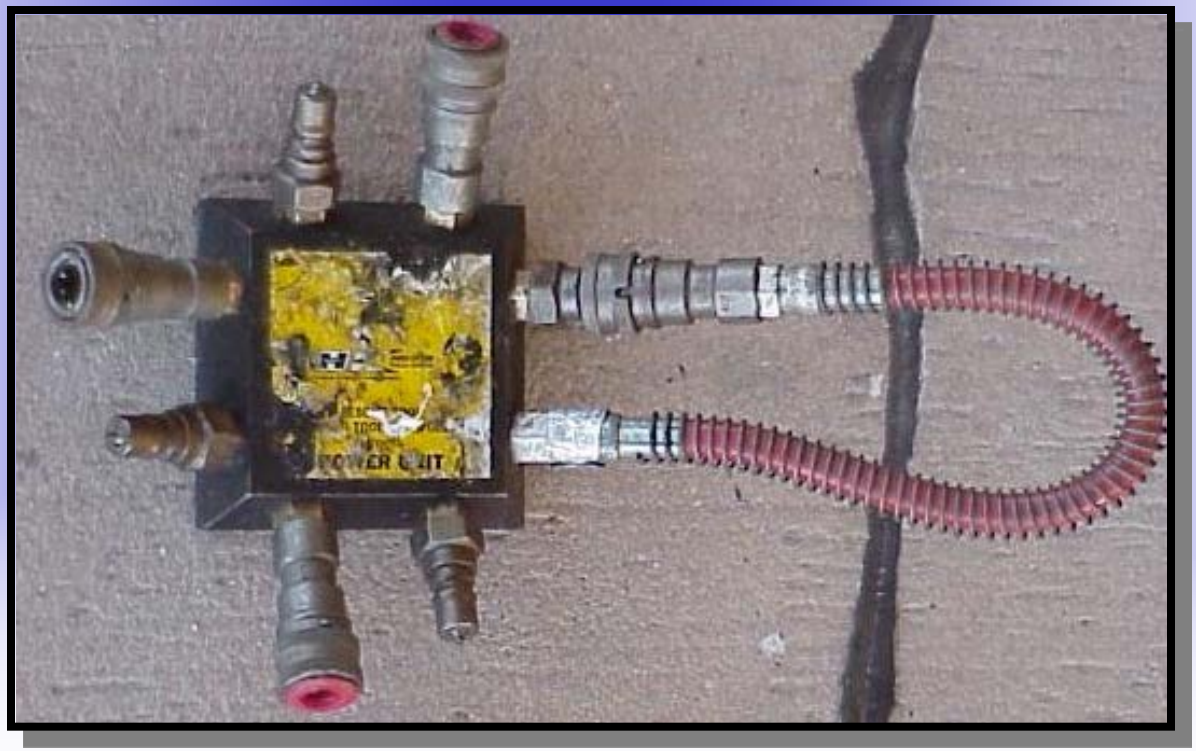
F. Accessories

(1) Multi tool manifold block

(a) Enables more than one piece of equipment to be connected to power unit amplifying hose layout.

(b) Only one piece of equipment can be operated at any one time when using the manifold block

(c) Pressure/dump valve must be in the dump position when adding or removing equipment from manifold block



F. Accessories

(2) Hose reel

(a) 100 feet of twinned hose for remote operation and orderly storage

(3) Attachment Set

- Increases the capabilities of extension ram
- Includes: conical point, base plate, v block and wedge

G. Operating procedures

(1) Check oil and fuel levels

(2) Before starting unit, check hydraulic fluid by removing hex bushing (fill cap) on power unit

CAUTION: Do not place pressure/dump valve in pressure position until after fluid level has been checked and hex bushing replaced

(4) Ensure pressure/dump valve is in the dump position

(5) Place speed lever in the run/start position

(6) Press decompression lever

(7) Hold cage of power unit with one hand and pull cord with other. Pull cord sharply until engine starts

WARNING: **EXHAUST GASES ARE DANGEROUS!!!! Do not operate power unit in an enclosed area. Exhaust gases contain carbon monoxide which is odorless and poisonous and can cause injury or death if inhaled**

(8) Connect desired equipment to power unit

(9) Place pressure/dump valve in pressure position to operate equipment

WARNING: Keep clear of moving parts

(10) When changing equipment , pressure/dump valve must be placed in the dump position

H. Securing procedures

(1) Place pressure/dump valve in dump position

(1) Place speed lever in “off” position

(3) Close fuel cock

(4) Storing tools and pump

(a)Compensate for possible build up from thermal expansion of hydraulic fluid by connecting short hoses on tool, completing the circuit. Then moving the trigger in both directions to equalize the pressure on both sides of the piston

CAUTION: Do not close tools completely

(b) Close spreader (jaws of life) within approximately 1/4” of spreader tips coming in contact

(c) Close Extension Ram to within approximately1/4” of tips/ends of cutting blade meeting

(d) Close Extension Ram to within approximately 1/4” of being completely contracted.

NOTE: This will ensure that no undue pressure is applied to seals within tools