

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 6

Agency: CDF

Equipment Designator: Model 14

ICS Type: 3

Summary: Tank Capacity (gallons)— 500
 Pump Rating—500 gal/min @ 150 psi
 Pump Drive—Hydraulic
 Mobile Attack Capability?—Yes
 Number Crew Personnel—5
 Foam System Available?—Yes
 Gallons—20
 All-Wheel Drive? —Yes



General Description: The model 14 is a four-wheel drive type 3 fire engine. The engine has a 500 gallons per minute, two-stage pump, hydrostatically driven pump. The tank holds 500 gallons of water. The engine has a 20 gallon capacity foam unit. For additional firefighter safety, all personnel sit inside the cab. They all face forward for their comfort. One note, CDF Model 14 and 15 engines are basically the same, with the exception of the chassis, four-wheel drive versus two-wheel drive.

Pump: Manufacturer—Darley Model—JMP-500
 Type—Centrifugal
 Performance: gal/min (max) at free flow—500
 gal/min @ max psi = 80 @ 600
 Primer Type— Electric

Tank: Material— stainless steel
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?— N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?— No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	2	5	2
	Size	2½ inch	1½ inch	1-inch reel line

Suction:	Quantity	1	2
	Size	4 inch	2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Electric
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— ¼ turn valve

Manufacturer: International
Manufacturer Model Year: 1996
Engine Fuel Type: Diesel
Vehicle Operating Weight: 26,000-27,000
Brake Type: Air

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen
Cab/Axle Distance: 49 inch
GVW Rating: 33,000
Horsepower Rating: 220
Transmission Type: MTB-643/Retarder

Written Materials: Specifications and drawings are available from: California Department of Forestry
 Davis Mobile Equipment Facility
 5800 Chiles Road
 Davis, CA 95616

WATER PUMPING EQUIPMENT Engine Data Sheet No. 7

Agency: CDF

Equipment Designator: Model 15

ICS Type: 3

Summary: Tank Capacity (gallons)— 500
 Pump Rating—500 gal/min @ 150 psi
 Pump Drive—Hydraulic
 Mobile Attack Capability?—Yes
 Number Crew Personnel—5
 Foam System Available?—Yes
 Gallons—20
 All-Wheel Drive? —No



General Description: The model 15 is a two-wheel drive type 3 fire engine. The engine has a 500 gallons per minute, two-stage pump, hydrostatically driven pump. The tank holds 500 gallons of water. The engine has a 20 gallon capacity foam unit. For additional firefighter safety, all personnel sit inside the cab. They all face forward for their comfort. One note, CDF Model 14 and 15 engines are basically the same, with the exception of the chassis, four-wheel drive versus two-wheel drive.

Pump: Manufacturer—Darley Model—JMP-500
 Type—Centrifugal
 Performance: gal/min (max) at free flow—500
 gal/min @ max psi = 80 @ 600
 Primer Type— Electric

Tank: Material— stainless steel
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?— N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?— No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	2	5	2
Size	2½ inch	1½ inch	1-inch reel line

Suction:

Quantity	1	2
Size	4 inch	2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Electric
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— ¼ turn valve

Manufacturer: International
Manufacturer Model Year: 1996
Engine Fuel Type: Diesel
Vehicle Operating Weight: 25,000
Brake Type: Air

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Cab/Axle Distance: 49 inch
GVW Rating: 33,000
Horsepower Rating: 220
Transmission Type: MD 3560 Allison

Written Materials: Specifications and drawings are available from: California Department of Forestry
 Davis Mobile Equipment Facility
 5800 Chiles Road
 Davis, CA 95616

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 8

Agency: CDF

Equipment Designator: Model 17

ICS Type: 3

Summary: Tank Capacity (gallons)— 650
 Pump Rating—500 gal/min @ 150 psi
 Pump Drive—Hydraulic
 Mobile Attack Capability?—Yes
 Number Crew Personnel—6
 Foam System Available?—Yes
 Gallons—20
 All-Wheel Drive? —No



General Description: The Model 17 is assigned in those urban interface areas with difficult access and some full-service needs. Compact over all, size is maintained with good mobile attack performance. The engine has a hydrostatic driven, two-stage pump, rated at 500 gal/min. The engine carries 650 gallons of water. There is ample hose bed space for either a typical wildland hose compliment or a structure type hose compliment. The engine is also equipped with class A foam. There is seating for six firefighters, all inside the cab.

Pump: Manufacturer—Darley Model—JMP-500
 Type—Centrifugal
 Performance: gal/min (max) at free flow—500
 gal/min @ max psi = 80 @ 600
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?— N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?— No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	3	5	2
Size	2½ inch	1½ inch	1-inch reel line

Suction:

Quantity	2	1
Size	4 inch	2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— ¼ turn valve

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Manufacturer: Spartan
Manufacturer Model Year: 1991
Engine Fuel Type: Diesel
Vehicle Operating Weight: 35,000
Brake Type: Air

Cab/Axle Distance: 136 inch
GVW Rating: 39,000
Horsepower Rating: 240
Transmission Type: MTB 643 Allison

Written Materials: Specifications and drawings are available from: California Department of Forestry
 Davis Mobile Equipment Facility
 5800 Chiles Road
 Davis, CA 95616

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 9

Agency: Texas Forest Service

Equipment Designator: Urban Interface Unit

ICS Type: 3

Summary: Tank Capacity (gallons)— 650
 Pump Rating—500 gal/min @ 150 psi
 Pump Drive—Hydrostatic
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3
 Foam System Available?—Yes
 Gallons—20
 All-Wheel Drive? —Yes



General Description: This engine can be operated from inside the cab as well as from the pump panel. A remote controlled master stream appliance mounted on the front bumper can also be controlled from inside the cab. This engine is used for wildland and interface fires, as well as training.

Pump: Manufacturer—Darley Model—JMP-500
 Type—Centrifugal
 Performance: gal/min (max) at free flow—500
 gal/min @ max psi = 80 @ 600
 Primer Type— Electric

Tank: Material— stainless steel
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?— No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	2	5	2
	Size	1 inch	1½ inch	2½ inch

Suction:	Quantity	2
	Size	2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Electric
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— pipe plug

Manufacturer: International
Manufacturer Model Year: 2001
Engine Fuel Type: Diesel
Vehicle Operating Weight: 26,440
Brake Type: Air

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Cab/Axle Distance: 63.75 inch
GVW Rating: 33,000
Horsepower Rating: 330
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: Texas Forest Service
 P.O. Box 1000
 Pittsburg, TX 75686

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 12

Agency: USDA Forest Service (PSW Region, R5)

Equipment Designator: Model 62

ICS Type: 3

Summary: Tank Capacity (gallons)— 500
 Pump Rating—500 gal/min @ 150 psi
 Pump Drive—PTO
 Mobile Attack Capability?—Yes
 Number Crew Personnel—5
 Foam System Available?—Yes
 Gallons—40
 All-Wheel Drive? —Yes



General Description: The Model 62 is built on a four door cab in both two- and four-wheel drive versions. It features a single live reel in the rear compartment, self-contained breathing apparatus seats, high output alternator, transmission retarder, and cruise control. The unit has a single 70 gallon fuel tank, front bumper extension with preconnect line, hard covered and lighted hose bed, in-cab water level gauge, and scene lighting for night operations.

Pump: Manufacturer—Darley Model—JMP-500
 Type—Centrifugal
 Performance: gal/min (max) at free flow—500
 gal/min @ max psi = 80 @ 600
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?— Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	1	3	1
Size	2½ inch	1½ inch	1 inch

Suction:

Quantity	4
Size	4 inch

Priming Valve Handle: Electric
Suction Valve Handle: Pneumatic
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—1 ½ inch gravity drain

Manufacturer: International
Manufacturer Model Year: 2001
Engine Fuel Type: Diesel
Vehicle Operating Weight: 28,500-29,000
Brake Type: Air

Discharge Valve Handle: Manual/pneumatic
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Cab/Axle Distance: 55 inch
GVW Rating: 33,000
Horsepower Rating: 300
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: USDA Forest Service
 444 East Bonita Avenue
 San Dimas, CA 91773

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 14

Agency: USDA Forest Service (PNW Region, R6)

Equipment Designator: Model 80

ICS Type: 3

Summary: Tank Capacity (gallons)— 1,000
 Pump Rating—350 gal/min @ 150 psi
 Pump Drive—PTO
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3 to 5
 Foam System Available?—Yes
 Gallons—25
 All-Wheel Drive? —Yes



General Description: The Model 80 consists of a custom made aluminum apparatus body and includes hose beds and cross lay protection line beds. Compartments have adjustable shelving and sweep out floors. Options include a master stream appliance, compound pressure gauge, and adjustable pressure relief valve.

Pump: Manufacturer—Darley Model—HM350
 Type—Centrifugal
 Performance: gal/min (max) at free flow—420
 gal/min @ max psi = 0 @ 400
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	5	2
Size	1½ inch	1 inch

Suction:

Quantity	2
Size	2½ inch

Priming Valve Handle: Manual

Suction Valve Handle: No

Tank-to-Plumbing Shut-Off? No

Gravity Tank Drain/Dump? Yes

Type— pipe plug

Manufacturer: IHC or Freightliner

Manufacturer Model Year: 2001

Engine Fuel Type: Diesel

Vehicle Operating Weight: 28,000

Brake Type: Air

Discharge Valve Handle: Manual

Adjustable Pressure Relief? No

Pump and Plumbing Drain? Yes

Rock Trap/Plumbing Strainer? Yes

Type— Inlet screen

Cab/Axle Distance: 100 inch

GVW Rating: 33,000

Horsepower Rating: 250

Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: USDA Forest Service
 Pacific Northwest Region
 Fire and Aviation Management
 P.O. Box 3623
 Portland, OR 97208

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 15

Agency: USDI Bureau of Land Management

Equipment Designator: BLM 665 (Model 14)

ICS Type: 3

Summary: Tank Capacity (gallons)— 500
 Pump Rating—500 gal/min @ 150 psi
 Pump Drive—PTO
 Mobile Attack Capability?—Yes
 Number Crew Personnel—5
 Foam System Available?—Yes
 Gallons—30
 All-Wheel Drive? —Yes



General Description: Type III interface engine with 500 gal/min 2-stage Darley PTO main pump, and a 150 gal/min @ 125 psi auxiliary pump. It is equipped with an optional 125 cfm CAFS system, and a 2001 Foam Pro foam injection unit.

Pump: Manufacturer—Darley Model—JMP-500
 Type—Centrifugal
 Performance: gal/min (max) at free flow—500
 gal/min @ max psi = 80 @ 600
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	2	3
	Size	1 inch	2½ inch

Suction:	Quantity	2	1
	Size	2½ inch	4 inch

Priming Valve Handle: Electric
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— ¼ turn valve

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen

Manufacturer: Navistar
Manufacturer Model Year: Current
Engine Fuel Type: Diesel
Vehicle Operating Weight: 28,000
Brake Type: Air

Cab/Axle Distance: 49 inch
GVW Rating: 33,000
Horsepower Rating: 300
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: National Interagency Fire Center
 Bureau of Land Management
 Fire Equipment Development Unit
 3833 South Development Avenue
 Boise, ID 83705

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 16

Agency: USDI Bureau of Land Management

Equipment Designator: BLM 665 Interface

ICS Type: 3

Summary: Tank Capacity (gallons)— 525 to 750
 Pump Rating—300 gal/min @ 150 psi
 Pump Drive— PTO
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3 to 6
 Foam System Available?—Yes
 Gallons—25
 All-Wheel Drive? —Yes



General Description: This model was developed for interface and offroad wildland suppression activities in the Western States. The model shown is of standard configuration with four-wheel drive, 33,000 GVW chassis, 250 turbo-diesel, 5-speed automatic transmission with retarder. The engine body is constructed of 304 stainless steel. The tank is constructed of high impact polypropylene in 525- and 750-gallon sizes with 25 gallon integral foam concentrate cell. Primary pumping system is PTO, the auxiliary pumping system is powered by a 26 horsepower water-cooled diesel, foam injection is a 2001 Foam Pro. From this base unit a wide variety of pumping packages can be constructed, various cab configurations allow for crews of three to six.

Pump: Manufacturer—Waterous
 Model—CPK-2
 Type—Centrifugal
 Performance: gal/min (max) at free flow—195
 gal/min @ max psi = 15 @ 400
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes
Valves: Tank-to-Pump?— Pump-to-Tank?—Yes

Overboard Discharge:

	Quantity	2	2	2
Size	2½ inch	1½ inch	1 inch	

Suction:

	Quantity	1	1	1
Size	3 inch	2½ inch	2 inch	

Priming Valve Handle: Electric
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—2½ inch ¼ turn valve
Manufacturer: User Option
Manufacturer Model Year: Current
Engine Fuel Type: Diesel
Vehicle Operating Weight: 31,000
Brake Type: Air

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen
Cab/Axle Distance: 99 inch
GVW Rating: 33,000
Horsepower Rating: 250 to 300
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: National Interagency Fire Center
 Bureau of Land Management
 Fire Equipment Development Unit
 3833 South Development Avenue
 Boise, ID 83705

WATER PUMPING EQUIPMENT Engine Data Sheet No. 17

Agency: USDI Fish and Wildlife Service

Equipment Designator: FWS Model 15

ICS Type: 3

Summary: Tank Capacity (gallons)— 500
 Pump Rating—500 gal/min @ 150 psi
 Pump Drive—PTO
 Mobile Attack Capability?—Yes
 Number Crew Personnel—6
 Foam System Available?—Yes
 Gallons—30
 All-Wheel Drive? —No



General Description: This Fish and Wildlife engine model is utilized for wildland and interface fire suppression. The engine package is mounted on a 4900 Navistar and is two-wheel drive. The engine is 300 horsepower and transmission is automatic.

Pump: Manufacturer—Darley Model—JMP-500
 Type—Centrifugal
 Performance: gal/min (max) at free flow—500
 gal/min @ max psi = 80 @ 600
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	3	2	2
	Size	1½ inch	2½ inch	1 inch

Suction:	Quantity	2
	Size	2½ inch

Priming Valve Handle: Electric
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— ¼ turn valve

Manufacturer: Navistar
Manufacturer Model Year: Current
Engine Fuel Type: Diesel
Vehicle Operating Weight: 26,000
Brake Type: Air

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Cab/Axle Distance: 49 inch
GVW Rating: 33,000
Horsepower Rating: 300
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: National Interagency Fire Center
 USDI Fish and Wildlife Service
 3833 South Development Avenue
 Boise, ID 83705

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 18

Agency: Connecticut DEP Forestry/Fire Control

Equipment Designator: 2½ ton, 6 by 6

ICS Type: 4

Summary: Tank Capacity (gallons)— 1,000
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: All wheel drive, military 2½ ton truck with a 1,000 gallon tank, BB-4 centrifugal, four-stage pump, Robwen Flow-mix 500 foam proportioner, and live reel with 300 feet of 1-inch hose.

Pump: Manufacturer—Wajax-Pacific Model—BB-4 Type—Centrifugal
 Performance: gal/min (max) at free flow—110 gal/min @ max psi = 14 @ 400
 Primer Type—Exhaust

Tank: Material—Fiberglass
 Construction: Baffles?—Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—No

Overboard Discharge:

Quantity	1	1
Size	10 inch	1 inch

Suction:

Quantity	1
Size	2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—Electric quick dump
Manufacturer: AM General
Manufacturer Model Year: 1975
Engine Fuel Type: Diesel
Vehicle Operating Weight:
Brake Type: Air/hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—
Cab/Axle Distance: 90 inch
GVW Rating: 23,520
Horsepower Rating: 150
Transmission Type: Manual

Written Materials: Specifications and drawings are available from: Roscommon Equipment Center
 c/o Forest Fire Experiment Station
 P.O. Box 68
 Roscommon, MI 48653

WATER PUMPING EQUIPMENT Engine Data Sheet No. 19

Agency: Florida Division of Forestry

Equipment Designator: FEPP Brush Patrol

ICS Type: 4

Summary: Tank Capacity (gallons)—800
 Pump Rating—80 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: Military 2.5 ton, all wheel drive, brush patrol. Very good off-road patrol on prescribed burns, mop-up, and line patrol. Repair parts are easy to find.

Pump: Manufacturer—Robwen Model—180
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi = 10 @ 250
 Primer Type— Manual

Tank: Material— Polypropylene
 Construction: Baffles?—Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	1	1	1
Size	1½ inch	1 inch	1-inch booster

Suction:

Quantity	1
Size	2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— Pipe plug
Manufacturer: Kaiser Jeep
Manufacturer Model Year: 1966
Engine Fuel Type: Multi fuel
Vehicle Operating Weight: 16,500
Brake Type: Air/hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen
Cab/Axle Distance: 130/148 inch
GVW Rating: 18,530
Horsepower Rating: 134
Transmission Type: Manual

Written Materials: Specifications and drawings are available from: Florida Division of Forestry
 3125 Conner Boulevard
 Tallahassee, FL 32399

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 21

Agency: Michigan Dept. of Natural Resources

Equipment Designator: 2½ ton 6 by 6

ICS Type: 4

Summary: Tank Capacity (gallons)— 900
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: Integral, low profile tank, is mounted on a military 2½ ton, all-wheel drive vehicle. Unit consists of tank, pump, two live reels, and a foam proportioner. Cab operated nozzles are also available. The truck has guards and limb risers for off-road operation. Some units have hydraulically operated fire plows.

Pump: Manufacturer—Wildfire-Pacific Model—BB-4 **Tank:** Material— steel
 Type—Centrifugal Construction: Baffles?— Yes
 Performance: gal/min (max) at free flow—110 If steel, is the tank corrosion treated?— Yes
 gal/min @ max psi = 14 @ 400
 Primer Type— Exhaust

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	1	2
Size	1½ inch	1 inch

Suction:

Quantity	1
Size	2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— Manual 4-inch butterfly valve
Manufacturer: Military
Manufacturer Model Year: Various
Engine Fuel Type: Multifuel
Vehicle Operating Weight: 22,000
Brake Type: Air/hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—
Cab/Axle Distance: 76 inch
GVW Rating: 23,000
Horsepower Rating: Various
Transmission Type: Manual

Written Materials: Specifications and drawings are available from: Roscommon Equipment Center
 c/o Forest Fire Experiment Station
 P.O. Box 68
 Roscommon, MI 48653

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 22

Agency: Michigan Dept. of Natural Resources

Equipment Designator: 5 ton 6 by 6

ICS Type: 4

Summary: Tank Capacity (gallons)— 1,400
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—12
 All-Wheel Drive? —Yes



General Description: Integral, low profile tank, mounted on military 5-ton, all-wheel drive vehicle. Unit consists of tank, pump, two live reels, and a foam proportioner. Cab operated nozzles also available. The truck has guards and limb risers for off-road operation. Some units have hydraulically operated fire plows.

Pump: Manufacturer—Wildfire-Pacific Model—BB-4
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi = 14 @ 400
 Primer Type— Exhaust

Tank: Material— Steel
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?— Yes

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	1	2
Size	1½ inch	1 inch

Suction:

Quantity	1
Size	2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— Manual 6-inch butterfly valve
Manufacturer: Military
Manufacturer Model Year: Various
Engine Fuel Type: Multifuel
Vehicle Operating Weight: 34,720
Brake Type: Air/hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—
Cab/Axle Distance: 90 inch
GVW Rating: 46,810
Horsepower Rating: 195
Transmission Type: Manual

Written Materials: Specifications and drawings are available from: Roscommon Equipment Center
 c/o Forest Fire Experiment Station
 P.O. Box 68
 Roscommon, MI 48653

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 24

Agency: USDA Forest Service (Northern Region, R1 and Intermountain Region, R4)

Equipment Designator: Model 52

ICS Type: 4

Summary: Tank Capacity (gallons)— 700
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2 to 5
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: The Model 52 fire package is designed for easy mount and dismount from a 9 foot 6 inch to 12 foot flat bed truck. Unit consists of a fiberglass or polypropylene tank, 18 horsepower pump, two live reels, storage compartments, and appropriate plumbing.

Pump: Manufacturer—Wildfire Model—BB-4
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi = 14 @ 400
 Primer Type— Other

Tank: Material— Fiberglass or polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?— N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	3	2
Size	1½ inch	1 inch

Suction:

Quantity	2
Size	2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—Manual 10-inch dump valve
Manufacturer: User Option
Manufacturer Model Year: Varies
Engine Fuel Type: Diesel or gas
Vehicle Operating Weight: Varies
Brake Type: Varies

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen
Cab/Axle Distance: Varies
GVW Rating: 26,000
Horsepower Rating: Varies
Transmission Type: Varies

Written Materials: Specifications and drawings are available from: USDA Forest Service
 Model 52 Program
 Aerial Fire Depot
 5765 West Broadway
 Missoula, MT 59808

WATER PUMPING EQUIPMENT Engine Data Sheet No. 25

Agency: USDI Bureau of Land Management

Equipment Designator: BLM 668 UEX

ICS Type: 4

Summary: Tank Capacity (gallons)—2,400
 Pump Rating—140 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—6
 Foam System Available?—Yes
 Gallons—50
 All-Wheel Drive? —Yes



General Description: This BLM model was developed for extreme duty off-road wildfire suppression activities in the Western States. The unit is constructed to NFPA 1906 Wildland Fire Engine standards. This model has full time all wheel drive, independent suspension, and central tire inflation (CTI). The truck's transmission is a 6-speed Twin Disc automatic. The truck is powered by a 400 horsepower turbo diesel. The tank is constructed of high impact polypropylene and shielded in 304 stainless steel. The tank carries 2,400 gallons with 50 gallons foam concentrate and has equipment storage built into the top. The optional pumping system on this unit is powered by a 42 horsepower water-cooled diesel designed to produce full pump performance at 5,000 feet and 100 °F; foam injection is a 1601 Foam Pro. The unit shown in the picture is equipped with an optional Darley/Odin Derringer 70 cfm CAFS foam system and equipped with a master stream appliance on the front bumper. Various cab configurations allow for crews of two to six.

Pump: Manufacturer—Waterous Model—CPT-1
 Type—Centrifugal
 Performance: gal/min (max) at free flow—180
 gal/min @ max psi = 50 @ 330
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	3	2
	Size	1½ inch	1 inch

Suction:	Quantity	2
	Size	2 inch

Priming Valve Handle: Electric
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—10-inch manual valve

Manufacturer: Tatra
Manufacturer Model Year: Current
Engine Fuel Type: Diesel
Vehicle Operating Weight: 56,000
Brake Type: Air

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Cab/Axle Distance: 122½ inch
GVW Rating: 58,000
Horsepower Rating: 400
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: National Interagency Fire Center
 Bureau of Land Management
 Fire Equipment Development Unit
 3833 South Development Avenue
 Boise, ID 83705

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 26

Agency: USDI Bureau of Land Management

Equipment Designator: BLM 667

ICS Type: 4

Summary: Tank Capacity (gallons)—500 to 865
 Pump Rating—140 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3 to 6
 Foam System Available?—Yes
 Gallons—25
 All-Wheel Drive? —Yes



General Description: This BLM model was developed for off road suppression activities in the Western States. The model shown is built to NFPA 1906 Wildland fire engine standards. This is the standard 667 configuration with four-wheel drive, 33,000 GVW chassis, 250 turbo-diesel, 5-speed automatic transmission with retarder. The engine body is constructed of 304 stainless, tank is constructed of high impact polypropylene in 500- and 865-gallon sizes with 25-gallon integral foam concentrate cell. The pumping system is powered by a 30 horsepower water-cooled diesel designed to produce full pump performance at 5,000 feet and 100 °F; foam injection is a 1601 Foam Pro unit. A 55 cfm CAFS unit is available for this engine. From this base unit a wide variety of pumping packages have been constructed, various cab configurations allow for crews of three to six. This model and other configurations are being used by the USFWS, USNPS, USFS, Dept. of Defense, State of Alaska, and Mexico.

Pump: Manufacturer—Waterous Model—CPT-1
 Type—Centrifugal
 Performance: gal/min (max) at free flow—195
 gal/min @ max psi = 15 @ 400
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes
Valves: Tank-to-Pump?— Pump-to-Tank?—Yes

Overboard Discharge: Quantity 3 2
 Size 1½ inch 1 inch

Suction: Quantity 2
 Size 2 inch

Priming Valve Handle: Electric
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—Manual 2½ inch ¼ turn valve
Manufacturer: User Option
Manufacturer Model Year: Current
Engine Fuel Type: Diesel
Vehicle Operating Weight: 29,000
Brake Type: Air

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen
Cab/Axle Distance: 88 inch
GVW Rating: 33,000
Horsepower Rating: 250 to 300
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: National Interagency Fire Center
 Bureau of Land Management
 Fire Equipment Development Unit
 3833 South Development Avenue
 Boise, ID 83705

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 27

Agency: Wisconsin Dept. of Natural Resources

Equipment Designator: 850 gallon pumper

ICS Type: 4

Summary: Tank Capacity (gallons)—850
 Pump Rating—N/A
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3
 Foam System Available?—Yes
 Gallons—25
 All-Wheel Drive? —No



General Description: This Wisconsin 850-gallon unit is equipped with a fiberglass utility body with handtool/equipment storage on two sides. It has an 850-gallon water tank made of polypropylene, a Darley 355 gal/min centrifugal water pump, live reel with 100 feet of 1-inch hose, and a Robwen foam proportioner. The foam unit is supplied by a 25-gallon reservoir which is integral to the 850-gallon water tank. All controls are conveniently mounted on a rear facing panel. The unit also pulls a tiltbed trailer loaded with a John Deere 450 crawler tractor equipped with a mounted fire plow and water tanks.

Pump: Manufacturer—Darley Model—2BE-18
 Type—Centrifugal
 Performance: gal/min (max) at free flow—355
 gal/min @ max psi = 50 @ 140
 Primer Type— Manual

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	1	3	1
Size	1 inch	1½ inch	2½ inch

Suction:

Quantity	1
Size	2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—Manual 10-inch quick dump
Manufacturer: User Option
Manufacturer Model Year: Varies
Engine Fuel Type: Diesel
Vehicle Operating Weight: 25,780
Brake Type: Air

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—
Cab/Axle Distance: 101 inch
GVW Rating: 35,000
Horsepower Rating: 300
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: Wisconsin Dept. of Natural Resources
 Neil H. LeMay Forestry Center
 518 West Somo Avenue
 Tomahawk, WI 54487

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 28

Agency: Florida Division of Forestry

Equipment Designator: Wildland engine

ICS Type: 5

Summary: Tank Capacity (gallons)— 500
 Pump Rating—100 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: This is a four-wheel drive Ford F550 initial attack vehicle, with a 500-gallon aluminum tank and light bar.

Pump: Manufacturer—Darley Model—2BE20H
 Type—Centrifugal
 Performance: gal/min (max) at free flow—375
 gal/min @ max psi = 100 @ 120
 Primer Type— Exhaust

Tank: Material— Aluminum
 Construction: Baffles?—Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	1	1	1
Size	2½ inch	1½ inch	1-inch booster

Suction:

Quantity	1
Size	2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— ¼ turn valve

Manufacturer: Ford
Manufacturer Model Year: 2001
Engine Fuel Type: Diesel
Vehicle Operating Weight: 13,900
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—

Cab/Axle Distance: 60 inch
GVW Rating: 17,500
Horsepower Rating: 210
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: Florida Division of Forestry
 3125 Conner Boulevard
 Tallahassee, FL 32399

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 29

Agency: Alabama Forestry Commission

Equipment Designator: Brush patrol

ICS Type: 6

Summary: Tank Capacity (gallons)— 250
 Pump Rating—100 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—No
 Gallons—
 All-Wheel Drive? —Yes



General Description: This is a one ton, four-wheel drive, dual wheel vehicle with a slip on tank, used for initial attack and mop-up.

Pump: Manufacturer—Kuppa Model—100
 Type—Centrifugal
 Performance: gal/min (max) at free flow—100
 gal/min @ max psi = 26 @ 460
 Primer Type— Exhaust

Tank: Material— Fiberglass
 Construction: Baffles?—Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	1	1	1
Size	1 inch	1½ inch	1-inch booster

Suction:

Quantity	1
Size	1½ inch

Priming Valve Handle: None
Suction Valve Handle: None
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— Gate valve

Manufacturer: Ford
Manufacturer Model Year: 1992
Engine Fuel Type: Diesel
Vehicle Operating Weight: 10,100
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Cab/Axle Distance: 60 inch
GVW Rating: 11,500
Horsepower Rating: 200
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: Alabama Forestry Commission
 513 Madison Avenue
 Montgomery, AL 36130

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 30

Agency: East Bay Regional Parks (CA)

Equipment Designator: Grass patrol 4 by 4

ICS Type: 6

Summary: Tank Capacity (gallons)— 300
 Pump Rating—110 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—20
 All-Wheel Drive? —Yes



General Description: This unit consists of a 15,000 GVW cab/chassis, custom aluminum body with SCBA compartments. The 300 gallon unit has no live reel but has a front bumper swivel discharge, dual cross lays (side), and rear discharge with a Foam Pro 1600 proportioner unit.

Pump: Manufacturer—Darley Model—1½ AGE 24 Onan **Tank:** Material—Polypropylene
 Type—Centrifugal Construction: Baffles?—Yes
 Performance: gal/min (max) at free flow—110 If steel, is the tank corrosion treated?—N/A
 gal/min @ max psi = 40 @ 275
 Primer Type— Electric

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge: Quantity 4
 Size 1½ inch

Suction: Quantity 1
 Size 2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? No
 Type—
Manufacturer: Ford
Manufacturer Model Year: Varies
Engine Fuel Type: Diesel
Vehicle Operating Weight: 13,500
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—
Cab/Axle Distance: 60 inch
GVW Rating: 15,000-17,000
Horsepower Rating: 235
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: East Bay Regional Park District
 2501 Grizzly Peak Road
 Berkeley, CA 94706

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 31

Agency: Florida Division of Forestry

Equipment Designator: Wildland brush patrol

ICS Type: 6

Summary: Tank Capacity (gallons)— 300
 Pump Rating—80 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: One-ton GMC four-wheel drive initial attack engine, tool boxes, light bar with aluminum tank.

Pump: Manufacturer—Robwen Model—180
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi = 10 @ 250
 Primer Type— Electric

Tank: Material— Aluminum
 Construction: Baffles?—Yes
 If steel, is the tank corrosion treated?— N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge: Quantity 1 1
 Size 1½ inch 1-inch booster

Suction: Quantity 1
 Size 2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— Pipe plug
Manufacturer: GMC
Manufacturer Model Year: 1993
Engine Fuel Type: Diesel
Vehicle Operating Weight: 13,573
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen
Cab/Axle Distance: 60 inch
GVW Rating: 15,000
Horsepower Rating: 210
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: Florida Division of Forestry
 3125 Conner Boulevard
 Tallahassee, FL 32399

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 32

Agency: Michigan Dept. of Natural Resources

Equipment Designator: M-1008

ICS Type: 6

Summary: Tank Capacity (gallons)— 175
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: The cargo box of the military M1008 is removed and replaced with a flat steel bed. Polypropylene tank, pump, and proportioner are mounted to the steel bed along with the storage units.

Pump: Manufacturer—Wildfire-Pacific Model—BB-4
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi = 14 @ 400
 Primer Type— Exhaust

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?— N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	1	1
Size	1½ inch	1 inch

Suction:

Quantity	1
Size	2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— Pipe plug
Manufacturer: GM
Manufacturer Model Year: late 90's
Engine Fuel Type: Diesel
Vehicle Operating Weight: 8,300
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—
Cab/Axle Distance: 60 inch
GVW Rating: 9,400
Horsepower Rating: 135
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: Roscommon Equipment Center
 c/o Forest Fire Experiment Station
 P.O. Box 68
 Roscommon, MI 48653

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 34

Agency: New Jersey Forest Fire Service

Equipment Designator: All terrain engine

ICS Type: 6

Summary: Tank Capacity (gallons)— 300
 Pump Rating—N/A
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—No
 Gallons—
 All-Wheel Drive? —Yes



General Description: This is an all-wheel drive, all terrain articulating vehicle acquired through the FEPP program known as a Gamma Goat. It is fitted with a custom built fiberglass tank, equipped with a firefighting water pump and has had brush guards added to protect the operator and the vehicle.

Pump: Manufacturer—Hale Model—25FB-B25
 Type—Centrifugal
 Performance: gal/min (max) at free flow—350
 gal/min @ max psi = 25 @ 118
 Primer Type— Exhaust

Tank: Material— Fiberglass
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge: Quantity 2
 Size 1½ inch

Suction: Quantity 1
 Size 1½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— Manual gate valve
Manufacturer: AM General
Manufacturer Model Year: 1970
Engine Fuel Type: Diesel
Vehicle Operating Weight: 10,820
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—
Cab/Axle Distance: N/A
GVW Rating: 11,000
Horsepower Rating: 53
Transmission Type: Manual

Written Materials: Specifications and drawings are available from: New Jersey Forest Fire Service
 P.O. Box 404, 4th Floor
 Trenton, NJ 08625-0404

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 35

Agency: New Jersey Forest Fire Service

Equipment Designator: Initial attack brush truck

ICS Type: 6

Summary: Tank Capacity (gallons)— 250
 Pump Rating—60 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3
 Foam System Available?—No
 Gallons—
 All-Wheel Drive? —Yes



General Description: This four-wheel drive truck is reinforced on all sides and underneath for protection from trees, brush, and rocks. It is utilized for aggressive initial attack in off-road situations through brush and tree cover types.

Pump: Manufacturer—Hale Model—HPX-200
 Type—Centrifugal
 Performance: gal/min (max) at free flow—250
 gal/min @ max psi = 40 @ 165
 Primer Type— Manual

Tank: Material— Aluminum
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	2	3
	Size	1 ½ inch	1 inch

Suction:	Quantity	1
	Size	1 ½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? No
 Type—

Manufacturer: Ford
Manufacturer Model Year: 2000 and up
Engine Fuel Type: Diesel
Vehicle Operating Weight: 11,600
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—

Cab/Axle Distance: 60 inch
GVW Rating: 12,500
Horsepower Rating: 235
Transmission Type: Manual/automatic

Written Materials: Specifications and drawings are available from: New Jersey Forest Fire Service
 P.O. Box 404, 4th Floor
 Trenton, NJ 08625-0404

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 36

Agency: USDA Forest Service (Northern Region, R1)

Equipment Designator: Model 52

ICS Type: 6

Summary: Tank Capacity (gallons)— 200-300
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2 to 3
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: The Model 52 Type 6 fire package is designed for easy mount and dismount from a 9½ foot flat bed. The unit consists of a fiberglass/polypropylene tank, 18 horsepower pump, live reel, storage compartments, and appropriate plumbing.

Pump: Manufacturer—Wildfire Model—BB-4
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi =14 @ 400
 Primer Type— Other

Tank: Material— Fiberglass/polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	3	1
Size	1½ inch	1 inch

Suction:

Quantity	2
Size	2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—1½ inch ball valve

Manufacturer: User Option
Manufacturer Model Year: Varies
Engine Fuel Type: Diesel or gas
Vehicle Operating Weight: Varies
Brake Type: Varies

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen

Cab/Axle Distance: Varies
GVW Rating: 15,000 to 17,500
Horsepower Rating: Varies
Transmission Type: Varies

Written Materials: Specifications and drawings are available from: USDA Forest Service
 Model 52 Program
 Aerial Fire Depot
 5765 West Broadway
 Missoula, MT 59808

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 38

Agency: USDA Forest Service (PNW Region, R6)

Equipment Designator: Model 33U

ICS Type: 6

Summary: Tank Capacity (gallons)— 300
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3
 Foam System Available?—Yes
 Gallons—15
 All-Wheel Drive? —Yes



General Description: The Model 33U consists of a custom made aluminum apparatus body and includes hose beds. Compartments have adjustable shelving and sweep out floors.

Pump: Manufacturer—Wildfire Model—BB-4
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi = 14 @ 400
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?— N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge: Quantity 3 2
 Size 1½ inch 1 inch

Suction: Quantity 1
 Size 2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? No
Gravity Tank Drain/Dump? No
 Type—

Manufacturer: Ford or GM
Manufacturer Model Year: 2001
Engine Fuel Type: Diesel
Vehicle Operating Weight: 14,000
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Cab/Axle Distance: 60 inch
GVW Rating: 15,000
Horsepower Rating: 235
Transmission Type: Manual

Written Materials: Specifications and drawings are available from: USDA Forest Service
 Pacific Northwest Region
 Fire and Aviation Management
 P.O. Box 3623
 Portland, OR 97208

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 40

Agency: USDA Forest Service (Eastern Region, R9)

Equipment Designator: E-3-1

ICS Type: 6

Summary: Tank Capacity (gallons)— 200
 Pump Rating—72 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3
 Foam System Available?—Yes
 Gallons—15
 All-Wheel Drive? —Yes



General Description: This GMC four-wheel drive, dual wheel, Type 6 engine is used during initial attack, mop-up, and structure protection procedures.

Pump: Manufacturer—Robwen Model—CAFS 180
 Type—Centrifugal
 Performance: gal/min (max) at free flow—100
 gal/min @ max psi = 72 @ 150
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	2	1
Size	1½ inch	1 inch

Suction:

Quantity	1
Size	2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— 1½ inch pipe plug

Manufacturer: GMC
Manufacturer Model Year: 1996
Engine Fuel Type: Gasoline
Vehicle Operating Weight: 11,000
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type— Inlet screen

Cab/Axle Distance: 64 inch
GVW Rating: 12,000
Horsepower Rating: 200
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: USDA Forest Service
 Baldwin Ranger District
 650 North Michigan Avenue
 P.O. Box Drawer D
 Baldwin, MI 49304

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 42

Agency: USDA Forest Service (Eastern Region, R9)

Equipment Designator: Superior NF, Type 6

ICS Type: 6

Summary: Tank Capacity (gallons)— 300
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3
 Foam System Available?—Yes
 Gallons—10
 All-Wheel Drive? —Yes



General Description: The Superior National Forest Type 6 is built on a four-wheel drive chassis and commercial service body. The pump unit is a slip-on fire package with a 300-gallon polypropylene tank, auxiliary engine driven centrifugal pump, and class A foam system with 10-gallon reservoir. Dual live reels are located on the right and left decks of the service body.

Pump: Manufacturer—Wildfire Model—BB-4
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi = 14 @ 400
 Primer Type—Other

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?— N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge: Quantity 2 2
 Size 1½ inch 1 inch

Suction: Quantity 1
 Size 2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—1½ inch manual ball valve

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen

Manufacturer: Ford
Manufacturer Model Year: 2001
Engine Fuel Type: Diesel
Vehicle Operating Weight: 15,500
Brake Type: Hydraulic

Cab/Axle Distance: 60 inch
GVW Rating: 17,500
Horsepower Rating: 235
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: USDA Forest Service
 Superior National Forest
 Fleet Manager
 8901 Grand Avenue Place
 Duluth, MN 55808–45701

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 44

Agency: USDI Bureau of Land Management

Equipment Designator: BLM 662 ID

ICS Type: 6

Summary: Tank Capacity (gallons)—300
 Pump Rating—100 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—3 to 6
 Foam System Available?—Yes
 Gallons—25
 All-Wheel Drive? —Yes



General Description: This BLM model was developed for offroad wildland suppression activities in the Western States. The model shown is the BLM's standard configuration with four-wheel drive. This engine's body is constructed of aluminum load floor and fire resistant composite fiberglass body. The tank is constructed of high impact polypropylene 300-gallon capacity with 15- to 25-gallon intergal foam concentrate cell. The pumping system is powered by a 26 horsepower water-cooled diesel, foam injection is a 1601 Foam Pro unit. Options are available for high pumping capacities and 60 cfm CAFS. From this base unit a wide variety of pumping packages have been constructed, various cab configurations allow for crews of three to six. This model and other configurations are being used by the USFWS, USNPS, USFS, Dept. of Defense, State of Alaska, and various municipalities.

Pump: Manufacturer—Waterous Model—501A
 Type—Centrifugal
 Performance: gal/min (max) at free flow—105
 gal/min @ max psi = 35 @ 400
 Primer Type— Electric

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	1	1
	Size	1½ inch	1 inch

Suction:	Quantity	2
	Size	2 inch

Priming Valve Handle: Electric or manual

Suction Valve Handle: Manual

Tank-to-Plumbing Shut-Off? Yes

Gravity Tank Drain/Dump? Yes
 Type—Manual 1½ inch ¼ turn valve

Manufacturer: Ford F-450

Manufacturer Model Year: Current

Engine Fuel Type: Diesel

Vehicle Operating Weight: 13,800

Brake Type: Hydraulic

Discharge Valve Handle: Manual

Adjustable Pressure Relief? No

Pump and Plumbing Drain? Yes

Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen

Cab/Axle Distance: 60 inch

GVW Rating: 15,000/17,500

Horsepower Rating: 235

Transmission Type: Varies

Written Materials: Specifications and drawings are available from: National Interagency Fire Center
 Bureau of Land Management
 Fire Equipment Development Unit
 3833 South Development Avenue
 Boise, ID 83705

WATER PUMPING EQUIPMENT Engine Data Sheet No. 45

Agency: Virginia Department of Forestry

Equipment Designator: Brush patrol

ICS Type: 6

Summary: Tank Capacity (gallons)— 250
 Pump Rating—90 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: Military Hummer with good ground clearance for enhanced road capabilities. The 250-gallon tank works well for initial attack and mop-up. Has extra cab protection for working in the woods and a winch.

<p>Pump: Manufacturer—Darley Model—1½ AGE 18 Type—Centrifugal Performance: gal/min (max) at free flow—120 gal/min @ max psi = 20 @ 270 Primer Type— Exhaust</p>	<p>Tank: Material—Polypropylene Construction: Baffles?— Yes If steel, is the tank corrosion treated?—N/A</p>
--	---

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	1	1
	Size	1½ inch	1 inch

Suction:	Quantity	1
	Size	2½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—Pipe plug
Manufacturer: AM General
Manufacturer Model Year: 1995
Engine Fuel Type: Diesel
Vehicle Operating Weight: 10,500
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen
Cab/Axle Distance: N/A
GVW Rating: 12,000
Horsepower Rating: 160
Transmission Type: 4 speed automatic

Written Materials: Specifications and drawings are available from: Virginia Department of Forestry
 900 Natural Resources Drive
 Suite 800
 Charlottesville, VA 22903

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 46

Agency: North Carolina Div. of Forest Resources

Equipment Designator: Initial attack wildland engine

ICS Type: 7

Summary: Tank Capacity (gallons)— 150
 Pump Rating—65 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—3
 All-Wheel Drive? —Yes



General Description: This is a four-wheel drive pickup with a slip-on fire package. Roughly 250 of these units are deployed across North Carolina.

Pump: Manufacturer—Wildfire Pacific Model—Mark 3
 Type—Centrifugal
 Performance: gal/min (max) at free flow—98
 gal/min @ max psi = 0 @ 380
 Primer Type— Exhaust

Tank: Material—Fiberglass or aluminum
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—No

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge: Quantity 1
 Size 1½ inch

Suction: Quantity 1
 Size 2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—Pipe plug
Manufacturer: User Option
Manufacturer Model Year: Varies
Engine Fuel Type: Diesel
Vehicle Operating Weight: 8,000
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen
Cab/Axle Distance: 60 inch
GVW Rating: 8,650
Horsepower Rating: Varies
Transmission Type: Varies

Written Materials: Specifications and drawings are available from: North Carolina Div. of Forest Resources
 512 North Salisbury Street
 Raleigh, NC 27626

WATER PUMPING EQUIPMENT Engine Data Sheet No. 47

Agency: USDA Forest Service (Eastern Region, R9)

Equipment Designator: BE-S slip-on

ICS Type: 7

Summary: Tank Capacity (gallons)— 100
Pump Rating—11 gal/min @ 150 psi
Pump Drive—Auxiliary engine
Mobile Attack Capability?—Yes
Number Crew Personnel—2 to 3
Foam System Available?—No
Gallons—
All-Wheel Drive? —Yes



General Description: The Wildfire BE-S slip-on fire package has a 100-gallon tank with a 200 foot 1-inch live reel. It is mounted on a Ford 1-ton chassis with equipment boxes carrying a leaf blower, chain saw, and 400 feet of 1½-inch hose. The unit shown has a 2-gallon foam inductor connected to the live reel.

Pump: Manufacturer—Wildfire Model—BE-S
Type—Positive displacement
Performance: gal/min (max) at free flow—N/A
gal/min @ max psi = 11 @ 50
Primer Type—Self priming

Tank: Material— Polypropylene
Construction: Baffles?— Yes
If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge: Quantity 2
Size 1 inch

Suction: Quantity 1
Size 1 inch

Priming Valve Handle: No
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
Type— 2-inch pipe plug

Manufacturer: Ford
Manufacturer Model Year: 2001
Engine Fuel Type: Gasoline
Vehicle Operating Weight: 10,500
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? No
Rock Trap/Plumbing Strainer? No
Type—

Cab/Axle Distance: 60 inch
GVW Rating: 11,200
Horsepower Rating: 260
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: USDA Forest Service
Monongahela National Forest
Gauley Ranger District
200 Sycamore Street
Elkins, WV 26241

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 48

Agency: USDA Forest Service (Eastern Region, R9)

Equipment Designator: B-2

ICS Type: 7

Summary: Tank Capacity (gallons)— 125
 Pump Rating—36 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2 to 3
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: The Ford F350 four-wheel drive Type 7 engine is used during initial attack, mop-up, and as holding unit on prescribed burns. Also available as a six-passenger vehicle (Model B-9).

Pump: Manufacturer—Cascade Fire Model—14270 **Tank:** Material— Fiberglass
 Type—Centrifugal Construction: Baffles?— Yes
 Performance: gal/min (max) at free flow—N/A If steel, is the tank corrosion treated?—N/A
 gal/min @ max psi = 16½ @ 225
 Primer Type—Other

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—No

Overboard Discharge:	Quantity	1	1
	Size	1½ inch	1 inch

Suction:	Quantity	1
	Size	1½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type— 1½ inch pipe plug
Manufacturer: Ford
Manufacturer Model Year: 2000
Engine Fuel Type: Gasoline
Vehicle Operating Weight: 8,200
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? No
 Type—
Cab/Axle Distance: 60 inch
GVW Rating: 9,900
Horsepower Rating: 260
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: USDA Forest Service
 Baldwin Ranger District
 650 North Michigan Avenue
 P.O. Box Drawer D
 Baldwin, MI 49304

WATER PUMPING EQUIPMENT Engine Data Sheet No. 49

Agency: USDA Forest Service (Eastern Region, R9)

Equipment Designator: Type VII slip-on

ICS Type: 7

Summary: Tank Capacity (gallons)— 75 to 125
 Pump Rating—30 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2 to 3
 Foam System Available?—No
 Gallons—
 All-Wheel Drive? —Yes



General Description: This 75-gallon or 125-gallon, slip-on fire package is mounted in the bed of a standard truck. The live reel carrying 200 feet of 3/4-inch hose is top mounted. A storage box for tools is mounted to the rear of the bed.

Pump: Manufacturer—Western Fire Model—Forester **Tank:** Material—Fiberglass
 Type—Centrifugal Construction: Baffles?—Yes
 Performance: gal/min (max) at free flow—30 If steel, is the tank corrosion treated?—N/A
 gal/min @ max psi = 30 @ 200
 Primer Type—Other

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—No

Overboard Discharge: Quantity 1 1
 Size 1½ inch ¾ inch

Suction: Quantity 1
 Size 1½ inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? Yes
Gravity Tank Drain/Dump? Yes
 Type—1½ inch pipe plug
Manufacturer: Ford
Manufacturer Model Year: 1994
Engine Fuel Type: Gasoline
Vehicle Operating Weight: 7,987
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? Yes
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen
Cab/Axle Distance: 60 inch
GVW Rating: 8,600
Horsepower Rating: 210
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: USDA Forest Service
 Wayne National Forest
 Fleet Manager
 219 Columbus Road
 Athens, OH 45701

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 50

Agency: Wisconsin Dept. of Natural Resources

Equipment Designator: Initial Attack

ICS Type: 7

Summary: Tank Capacity (gallons)—150
 Pump Rating—20 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: The Wisconsin 150 gallon four-wheel drive initial attack unit features an aluminum flat rack body with side mounted tool/equipment cabinets and a slip-on polypropylene water tank. The slip-on unit has a mounted Darley/Davey water pump, live reel with 100 feet of 1-inch lightweight booster hose, Robwen foam proportioner, and a rear mounted control panel.

Pump: Manufacturer—Darley/Davey Model—AK282
 Type—Centrifugal
 Performance: gal/min (max) at free flow—120
 gal/min @ max psi = 20 @ 155
 Primer Type— Other

Tank: Material— Polypropylene
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?— Yes Pressure Gauge?— No Automatic shutdown?—No

Valves: Tank-to-Pump?— Yes Pump-to-Tank?—Yes

Overboard Discharge:

Quantity	2	1
Size	1 inch	1½ inch

Suction:

Quantity	1
Size	1½ inch

Priming Valve Handle: N/A

Suction Valve Handle: Manual

Tank-to-Plumbing Shut-Off? Yes

Gravity Tank Drain/Dump? Yes

Type—Pipe plug

Manufacturer: Varies

Manufacturer Model Year: Varies

Engine Fuel Type: Diesel

Vehicle Operating Weight: 8,600

Brake Type: Hydraulic

Discharge Valve Handle: Manual

Adjustable Pressure Relief? No

Pump and Plumbing Drain? Yes

Rock Trap/Plumbing Strainer? Yes

Type— Inlet screen

Cab/Axle Distance: 60 inch

GVW Rating: 9,200

Horsepower Rating: 195

Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: Wisconsin Dept. of Natural Resources
 Neil H. LeMay Forestry Center
 518 West Somo Avenue
 Tomahawk, WI 54487

WATER PUMPING EQUIPMENT

Engine Data Sheet No. 51

Agency: USDA Forest Service (PSW Region, R5)

Equipment Designator: Model 20

ICS Type: N/A

Summary: Tank Capacity (gallons)— 50 to 75
 Pump Rating—85 gal/min @ 150 psi
 Pump Drive—Auxiliary engine
 Mobile Attack Capability?—Yes
 Number Crew Personnel—2
 Foam System Available?—Yes
 Gallons—5
 All-Wheel Drive? —Yes



General Description: The Model 20 fire package consists of an engine, pump, live reel or hose basket, plumbing, control panel, and a 50- to 75-gallon water tank on a skid plate that slides into a low profile utility body truck.

Pump: Manufacturer—Robwen Model—180
 Type—Centrifugal
 Performance: gal/min (max) at free flow—110
 gal/min @ max psi = 10 @ 250
 Primer Type—Other

Tank: Material— Polypropylene or fiberglass
 Construction: Baffles?— Yes
 If steel, is the tank corrosion treated?—N/A

Controls and Gauges: Hand Throttle?—Yes Pressure Gauge?—Yes Automatic shutdown?—Yes

Valves: Tank-to-Pump?—Yes Pump-to-Tank?—Yes

Overboard Discharge:	Quantity	1	1
	Size	1½ inch	1 inch

Suction:	Quantity	1
	Size	2 inch

Priming Valve Handle: Manual
Suction Valve Handle: Manual
Tank-to-Plumbing Shut-Off? No
Gravity Tank Drain/Dump? Yes
 Type—Pipe plug
Manufacturer: Ford
Manufacturer Model Year: 2002
Engine Fuel Type: Gasoline
Vehicle Operating Weight: 8,920
Brake Type: Hydraulic

Discharge Valve Handle: Manual
Adjustable Pressure Relief? No
Pump and Plumbing Drain? Yes
Rock Trap/Plumbing Strainer? Yes
 Type—Inlet screen
Cab/Axle Distance: 60 inch
GVW Rating: 9,700
Horsepower Rating: 310
Transmission Type: Automatic

Written Materials: Specifications and drawings are available from: USDA Forest Service
 444 East Bonita Avenue
 San Dimas, CA 91773

WATER PUMPING EQUIPMENT

Water tender matrix—Water Tenders

C. Water Tenders

Water tenders are designed to transport large quantities of water. The National Wildfire Coordinating Group (NWCG) categorizes information on water tenders into logical groups providing common options often requested by fire managers. The Incident Command System (ICS) uses this water tender typing system based on equipment capabilities. The table below shows NWCG minimum requirements for water tender resource types.

Table 2—NWCG water tender types—minimum requirements.

Components	Water Tender Types		
	1	2	3
Tank capacity (gallons)	5,000+	2,500+	1,000+
Pump capacity (gal/min)	300+	200+	200+
Off load capacity (gal/min)	300+	200+	200+
Maximum refill time (minutes)	30	20	15

This section contains a small sample of water tenders (ground tankers), which are found in various parts of the country. There are numerous designs, sizes, and capacities available for users to choose from.

Sheet No.	NWCG ICS Type	Tank Capacity (gallons)	Pump Rating (gal/min @ 150 psi)	Pump Drive	Equipment Designator	Agency
1	2	3,500	500	PTO	BLM 669 water tender	USDI Bureau of Land Mgmt.
2	2	6,000	250	Auxiliary engine	Water tender	Florida Division of Forestry
3	3	1,200	250	PTO	1,200 gallon tender	New Jersey Forest Fire Service
4	3	1,100	N/A	Auxiliary engine	1,100 gallon tender	New Jersey Forest Fire Service
5	3	1,000	N/A	PTO	1,000 gallon tender	New Jersey Forest Fire Service
6	3	3,500	N/A	Auxiliary engine	3,500 gallon off-road tender	New Jersey Forest Fire Service
7	3	1,400	N/A	Auxiliary engine	1,400 gallon tender	New Jersey Forest Fire Service
8	3	1,500	350	PTO	Wildland tender	USDA Forest Service (R-5)
9	N/A	500	N/A	Auxiliary engine	500 gallon tender	New Jersey Forest Fire Service