Fire Apparatus

PROPOSAL

II

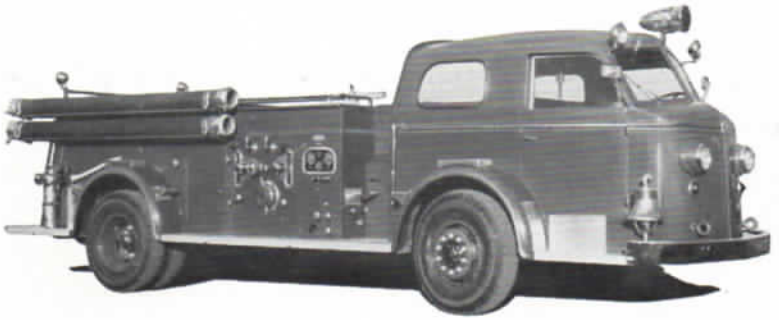
for Ferndale, California

type Invader 750 GPM Pumper, 400 gallon water tank, 215 HP Engine

AMERICAN-LAFRANCE-FOAMITE

The World's Finest Fire Engines

by AMERICAN-LAFRANCE



Dependable Fire Engines—All Capacities

500 G.P.M. 600 G.P.M. 750 G.P.M. 1000 G.P.M. 1250 G.P.M. 1500 G.P.M.

Triple Combination and Quadruple Combination

Powerful Precision-Built Aerial Ladder Apparatus

All-Steel Power Operated Aerial Ladder—Available in Lengths of 65 feet, 75 feet, 85 feet or 100 feet.

Proposal

FOR FURNISHING AMERICAN-LAFRANCE FIRE APPARATUS

BUILT BY

AMERICAN-LAFRANCE-FOAMITE CORPORATION

FACTORY AND GENERAL OFFICES, ELMIRA, N. Y., U.S.A.

Dec. 9, 1954

To Mr. Norman Clough, Chief
Ferndale, California

Dear Sirs:

We hereby propose to furnish to you, subject to the proper execution of the accompanying contract by you and an officer of this Company at Elmira, N. Y., the following Apparatus and Equipment:

One American LaFrance Model Invader 750 G.P.M. Triple Combination Pumper with 400 gallon water tank and 215 HP Engine

All of which are to be built in accordance with the specifications attached hereto, and which are made a part of this proposal and the accompanying contract, and to ship same in about 150 days after execution of said contract by an officer of this Company at Elmira, N. Y., subject to all causes beyond our control, for the sum of

Sixteen Thousand Three Hundred Fifty and no/100---------- Dollars,

($16,350.00) F.O.B. Ferndale, California

3% California State Sales Tax to be added

Prices quoted for acceptance within 15 *days of this proposal date.*

It is understood that all prices stated in this proposal and in the accompanying contract will be increased by the amount of any governmental excise or sales tax affecting the same.

GUARANTY: This apparatus is guaranteed for a period of five years from date of delivery. Under this guaranty we agree to furnish you without cost, except transportation, any parts to replace parts that have failed, providing that such parts are returned to our factory within thirty days after date of failure, transportation prepaid, and we find that failure was attributable to defective material or inferior workmanship.

The guarantee on rubber tires is limited to the guarantee of the manufacturer thereof and adjustments for same are to be made directly with the manufacturer. Storage batteries, electric lamps and other devices subject to deterioration are excluded from this guarantee.

The Company makes no guaranty of its apparatus except as stated herein.

Respectfully submitted,

AMERICAN-LAFRANCE-FOAMITE CORPORATION

By L D Giesaint

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Trademark of the World's Finest Fire Engines

THE AMERICAN-LA FRANCE INVADER

Cab-Ahead-of-Engine

750 Gallon Pump and Hose Car

With Booster System

American-LaFrance Fire Apparatus, such as described in these pages is a product of the combined experience of thousands of fire departments extending over many years, in all parts of the country.

The most recent engineering developments, the selection of high quality materials, skilled craftsmanship and exhaustive tests, all contribute to the efficiency and reliability of this apparatus.

The entire resources of the American-LaFrance organization are exclusively devoted to the engineering and manufacture of fire fighting equipment.

These resources include the largest organization and most extensive factories in the world, engaged in this service. This is supplemented by the longest and most wide spread experience of any organization of its kind.

This combination of experience and facilities enables American-LaFrance to produce fire apparatus that is modern and attractive in appearance, with genuine utility and dependability.

GENERAL ENGINE SPECIFICATIONS

Type	12 cyl. V, en-bloc. Valve-in-head
Size	Bore 3⅝"—Stroke 4¼"
Piston Displacement	527 cubic inches
Brake Horse Power	215 (Certified)
Power N. A. C. C. Rating	63.08 H. P. (For license use)
B. H. P. per Cu. In. Displ.	.408
Crank Shaft	3" diameter, counterbalanced, and provided with vibration damper
Ignition	12 Volt, double, 2 distributors
Lubrication	100% full pressure feed, oil filter and oil cooling unit
Cooling Water Capacity	54 quarts
Mounting	4 point suspension in rubber

The Engine

The engine is the most important unit used in motor fire apparatus. Fire department requirements of today demand heavy duty design, to give unfailing service over long periods; a wide speed range for flexible road performance, and a greatly increased amount of power in reserve.

These are features of modern engineering, available in all LaFrance-Foamite engines.

This engine, specially designed for fire department use, has built into it the finest materials and most careful workmanship, to meet the rigid requirements of this emergency service.

Twelve cylinder engines of the heavy duty type for fire service, were first introduced by the LaFrance-Foamite. The performance records of these engines in service, has proven the soundness of this modern engineering principle.

SPECIFICATIONS

Crank Case and Cylinder Block

The crankcase and cylinder block are combined in one unit. This assures alignment of all bearings, as permanent rigidity is not possible with separate bolted parts. The main bearings are supported by extra heavy webs. There are also full stiff ribs along the outside of the crankcase for greater strength. Another heavy web structure between the cylinders, further stiffens the cylinder blocks, and also supports the rocker arm and camshaft.

The cylinder angle is 45 degrees. Large water passages all around and to the top of each cylinder provides efficient cooling. Well cast, uniform thickness of the cylinder walls and clean, smooth water passages are assured, because large openings support the cores, when the castings are made. The material is a close grained alloy of nickel-chromium iron, high in toughness and strength, for hard, wear-resisting, cylinder wall surfaces. The cylinder bores are accurately machined and honed to size.

A one piece fly wheel housing is bolted to the rear end of the crank case. This housing is heavily ribbed to take any load or frame weaving stress.

Crank Shaft

The crank shaft is drop forged of high carbon steel, heat treated by the TOCCO hardening process to provide long life bearing surfaces with a high strength. All bearing surfaces are ground and lapped to extreme accuracy. Fully counter-balanced with three counterweights, and accurately balanced. This balancing process consists of placing the crank shaft in perfect static balance, and then in extremely accurate running balance, while rotating in a precision, dynamic balancing instrument. Smooth operation is further insured by a vibration dampener.

Wide cheeks and large diameter crank pins make the shaft very rigid, which definitely prevents torsional vibration. The crank shaft is cross drilled for pressure feed lubrication, to the connecting rod, piston pin bearings, and cylinder walls.

There are four main bearings, which due to their large diameter and length, provide low bearing pressure.

The bearing sizes are as follows:

	Diameter	Length
Front	3″	2 9/16″
Second	3″	2″
Third	3″	2″
Rear	3″	2 3/8″

Cylinder Head

The material is a close grain, gray iron. Large water passages are provided over the combustion chamber and around all valves. The com-

bustion chamber is designed for high compression without detonation. The result is increased power efficiency with easy starting, and good economy. Water passages are provided in the cylinder head covers for proper cooling of the spark plugs. Cylinder head covers containing the spark plugs are easily taken off to regrind valves, without removing the cylinder head from the block.

The cylinder heads may be removed without disturbing either the camshaft or rockershaft assembly.

Main Bearings

The main bearings are steel back, cadmium-silver lined. They are accurately machined to very close limits, then burnished to a hard mirror finish. These bearings are of the precision type. No reaming, scraping or fitting is needed when assembling. The bearing shells are rigidly supported in the crankcase and are doweled to the bearing caps.

Connecting Rods

The connecting rods are drop forged of high carbon steel, double heat treated. They are designed to combine maximum strength, toughness, light weight, with a rigid backing for the bearing. The connecting rods are rifle drilled for full pressure lubrication to the piston pins. Connecting rods and bearings are also drilled for direct lubrication of the cylinder walls.

Connecting Rod Bearings

The connecting rod bearings on the crank shaft are precision type steel back, copper-lead lined. No shims or fitting is required for assembly. Integral keys locate the bearings in the rod. The connecting rod upper bearing for the piston pin is hard rolled bronze, accurately finished and diamond-tooled within close limits to fit the piston pin.

Pistons and Piston Rings

The pistons are aluminum alloy of the Ray-Day design assuring a close running fit under all conditions of operation. The pistons are accurately ground to size and hand fitted to each cylinder. Each piston is fitted with three compression rings and one oil regulating ring. Piston clearances in the cylinder are best suited to fire department use, based on long experience.

Piston Pins

The piston pins are alloy steel, case hardened, ground and lapped to a high degree of accuracy. They are drilled to relieve internal stresses and secure light weight. The pins are full floating type, held in position by spring steel retaining rings, and pressure lubricated from the connecting rod. Piston pins are 7/8 inch diameter with 2 7/8 inches of bearing length.

SPECIFICATIONS

Balance

The high standards of balance maintained throughout this engine, are achieved by the use of a large diameter, short, stiff crankshaft, with wide cheeks to avoid torsional deflection, and the accurate static and dynamic balancing of this crankshaft.

In addition, the entire piston group, consisting of connecting rods, pistons, piston rings, bearings, and piston pins are, when assembled, all kept equal in weight to every other like assembly, within a small fraction of an ounce. The result is an engine with no perceptible period of vibration at any point, within its operating range.

Camshaft and Rocker Shaft

The camshaft and its cams are of drop forged steel in one piece. It is double heat treated, and is located between the cylinder-banks, with the rocker shaft directly above. The camshaft is supported by seven steel back, babbitt lined bearings, and is driven by a silent chain at the front of the engine. End play is prevented by an automatic spring plunger which bears against a hardened steel plug in the chain case. The valve rocker shaft is of high carbon steel, heat treated. The bearing surfaces are accurately ground to size for the rocker arms.

Rocker Arms

The rocker arms are drop forged, chrome-nickel alloy steel, heat treated. The rocker arm bearings are steel backed, babbitt lined. The rollers are steel, case hardened and bronze bushed. The screws for adjusting the tappet clearance with the valves are ground and polished to prevent wear of the valve stems.

Valves

The exhaust valves are forged from Silcrome, an alloy steel resistant to burning and warping. The use of this alloy steel, insures freedom from warped and leaky valves, and makes frequent regrinding unnecessary. The intake valves are of chrome-nickel alloy steel particularly adapted to this use. The clear or port diameter is 1⅜" for both intake and exhaust valves and the seat angle is 30 degrees.

Timing Chain

The camshaft and generator are driven from the crank shaft by a silent, positive drive chain. The chain is extra large for the duty imposed and is quickly and easily adjusted from outside the engine, without disassembling any parts.

Lubrication System

The lubrication system is designed for full pressure oil supply to every wearing surface of the motor. The oil pump is a positive displacement type, located in the oil pan and driven from the camshaft. Oil first passes through a large capacity strainer, then through the pump. From the pump the oil passes through an inter-cooler in the bottom tank of the radiator and is returned to the main supply line where under pressure it flows through drilled passages to lubricate all main crankshaft bearings, connecting rod bearings, piston pin bearings, cylinder walls, camshaft bearings, rocker arm bearings and the timing chain. A by-pass type of oil filter with a replaceable filter unit assures clean oil.

Direct pressure oiling to the cylinder walls and the piston pins are two features of LaFrance-Foamite motors that insure adequate lubrication, long motor life and minimum maintenance for emergency fire service.

Two pressure gauges are connected to the oil supply line of the motor. One gauge is mounted on the instrument panel, in full view of the driver. One gauge is mounted on the pump operator's panel.

Oil Pan

The oil pan is die-cast from a strong, tough aluminum alloy. It is provided with fins for maximum cooling to assist in maintaining proper oil viscosity. A steel baffle prevents oil surge during highway operation.

Carburetors

Two down-draft carburetors of the fixed jet type with manual adjustment for idling are provided, one carburetor for each bank of six cylinders. This arrangement of carburetors assures equalization of mixture control without lean or "flat" spots. The two carburetors are interconnected for synchronized throttle control. Air cleaners of the dry type are also provided which increase the life of the engine, and also act as back-fire flame arrestors.

A velocity type governor is mounted under each carburetor which automatically operates to prevent over-speeding of the engine. The governor does not affect control at engine speeds for normal road or pumping operations.

Manifolding

Two inlet manifolds are provided, one for each bank of six cylinders. Each inlet manifold is of "Swan" design for high efficiency and equalized mixture distribution. Each bank of six cylinders is also provided with an individual exhaust manifold which permits high efficiency operation with low back pressure. A hot spot between each exhaust and intake manifold aids easy starting and a quick warm-up of the engine.

Cooling System

The cooling system is entirely self-contained with adequate capacity for all road and pumping operations. An auxiliary cooler is furnished for use as may be required when pumping. The cooling system is standard type with auxiliary cooling coils located in upper part of radiator. Control of auxiliary cooler is by a hand valve located convenient for the pump operator. Non-freeze solutions can be used in the engine cooling system without loss.

Circulation of cooling water through the system is by a centrifugal pump mounted on the front of the engine. Water is drawn from the bottom of the radiator and discharged into a manifold leading to each bank of cylinders. The water then flows around the cylinders and upward into the cylinder heads and valve covers, cooling the valve seats, valves, and spark plugs, and is discharged into the top tank of the radiator.

The water pump shaft is made of non-corrosive, stainless steel, mounted on ball bearings, lubricated from a large reservoir equipped with pressure fittings. The pump packing is a self-lubricating mixture of metallic packing and graphite, held in place by an adjustable gland.

A large shrouded, four blade fan is mounted on two heavy duty ball bearings operating in a grease filled housing. The fan is driven by two heavy endless type V-belts. Adjustment of the belts is also provided.

The radiator is a large capacity finned tube type of built up construction for heavy duty service. The radiator is cushion mounted on two supports from a heavy cross member, eliminating any possibility of stress in the radiator from frame distortion when operating on uneven streets. The radiator is provided with ample overflow outlet and a large fill connection with bayonet locking cap.

A valve is located convenient to the operator to permit the addition of water to the cooling system direct from the fire pump should it be desirable. A metered restriction in the filling line prevents excessive pressure developing in the cooling system.

Thermostats of the automatic type are provided in the cooling system which permits a quick warm-up of the engine. The thermostats are set to automatically open fully at 160° F. temperature.

SPECIFICATIONS

Ignition System

A 12-volt, double ignition system with two spark plugs for each cylinder is provided. There are two separate twelve cylinder distributors, each with two cam operated contact points. These distributors are of the full automatic type. The spark advance is always correct for any engine speed. No attention is required from the operator and the best spark position is assured at all times for maximum economy and power. One distributor operates from the camshaft and one from the generator shaft. Four high tension spark coils, two for each distributor, are provided. Primary current is obtained from the battery and generator.

Both ignition systems are controlled with a single switch and may be operated each independently or both together. A red pilot light indicates when the ignition switch is closed.

Generator

Two generators of heavy duty ventilated and voltage regulated type are provided. This arrangement insures a high output capacity to balance the total light load plus the advantage of a low cut-in speed to permit charging at only idle engine speed. The generators charge in parallel and a regulator keeps the output at the correct rate according to the connected load or the condition of the battery. Cut-out relays are provided which prevent the battery from discharging through the generators. Generator charging capacity is 474 watts.

Battery and Charging Plug

The 12-volt system is provided by ~~two~~ (FOUR) large capacity, heavy duty 6-volt batteries, connected in series. This arrangement permits easier handling and lower maintenance cost. The batteries have a capacity rating of 136 ampere hours at a 20 hour discharge rate. The batteries are mounted on a sliding tray at the forward left side of the body. The sliding tray permits withdrawal to a position outside the body for hydrometer testing or inspection. A well ventilated compartment and proper tray design provide long battery life. A permanently connected polarized battery charging receptacle is provided for station charger use.

Starting Mechanism

The starter is 12-volt motor with Bendix drive for engagement with the flywheel. The starting motor is mounted on the right forward side of the flywheel housing with short leads to the battery and is operated by a relay switch with control button located on the instrument panel. The starting motor is provided with self-lubricating bearings and fully enclosed Bendix drive that requires no attention.

GENERAL CHASSIS FEATURES

Cab-Ahead-of-Engine Design

The complete apparatus presents a definite impression of efficiency and utility, combined with a pleasing appearance. Design emphasis has been placed on meeting the operating requirements of the fire service.

The cab-ahead-of-engine design provides a short, compact, highly maneuverable fire engine. Improved accessibility to all operating units and equipment, with increased storage space, has been provided.

With the engine back of the cab, better weight distribution has also been achieved, which gives easier steering, more uniform tire loading, better vision for the driver and easier inspection and maintenance.

The entire engineering and manufacturing facilities of LaFrance-Foamite are devoted exclusively to meeting the needs of the fire service. The new cab-ahead-of-engine models, with the new TRIPLEFLOW 2-stage centrifugal pump, chassis frames that are stiffer and of all-welded construction, shorter wheelbase and shorter turning radius, Hydro-vac brakes, rubber suspended cab, and improved and simplified pump primer system, are some of the important features provided in the La-France-Foamite fire engines.

SPECIFICATIONS

Body

The entire body is built of heavy gauge, cold rolled steel. The body sides and end are made with integral flanges. The sides are streamlined at the rear for modern appearance. Electric welding throughout produces a rigid, sturdy construction that will withstand all strains. All outside surfaces are ground and polished before painting.

The body side panels are extended to form an enclosure for the pump, and all pump controls and gauges are mounted in the right hand panel in a central position for convenience.

The hose compartment is floored with a removable, ventilating hard wood slat type platform. The hose body has capacity of ~~1000~~ 1000 feet of 2½ inch double jacket fire hose, with a ~~150~~ 400 gallon capacity water tank.

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Hand Rails

The rear hand rails are made from 1⅜" diameter, heavy tubing. The rails are substantially mounted in heavy streamlined brackets. All brackets and rails are attractively finished in chrome plate.

Rear and Side Steps

The rear step is large and roomy. It is made of heavy steel, supported by a strong steel structure, securely bolted to the chassis frame. The corners are rounded with large radius corner plates. All edges of the step are well curved.

The side steps are of heavy steel, strongly supported. All edges are well curved, from the front fender to the rear step.

The rear and side steps are embossed with a non-skid surface for safety and durability.

Equipment Compartments

2 enclosed all steel compartments, one on each side of body 21"x28½"x14"

2 enclosed all steel compartments at rear of hose body 14"x14"x23"

1 open equipment box in front of hose body 45"x68"x12"

SPECIFICATIONS

Cowl

The cowl is strongly constructed of heavy gauge cold drawn steel in a single stamping with suitable reinforcements. The windshield supports are electrically welded to the cowl to form a single piece of great strength and rigidity.

The instrument panel is heavy gauge steel with an attractive and weatherproof finish. On this panel are mounted the speedometer, tachometer, gasoline gauge, ammeter, oil gauge, hand throttle control, ignition switch, engine temperature indicator, light switches, choke control, remote control electric starter switch, and windshield wiper control. A large glove and records compartment is provided.

Windshield

The windshield is two piece type, sloped to eliminate glare and afford good driver protection. The windshield glass is high test shatterproof plate glass. Each section is set in rubber. Each windshield assembly is rigidly supported on all sides. Two windshield wipers are provided of electric heavy duty type.

Side Doors

The two doors, one each side of the driver's seat are pressed in forming dies to harmonize with the body and cowl lines. They are heavily constructed having a thick, stiff section and are made of heavy gauge, cold rolled steel strongly reinforced and electrically welded to form a single piece. Outside surfaces are ground smooth and polished before painting. They are mounted with heavy hinges and have heavy duty locks with large handles. Half windows of shatter proof glass are provided in each door. Two outside rear view mirrors are provided.

Searchlights

There are two large searchlights, each 140,000 candlepower, located outside the cab, one at each front corner. The light beams can be placed at any direction with pistol grip control from inside the cab.

Seats

Seating capacity for five men is provided. The driver's seat is 57 inches long and is adjustable for best driving comfort. This seat will easily accommodate three men. Two single seats are provided, one each side of the engine, facing to the rear. Entrance and exit for each of these single seats is at the side and no door impedes entrance or exit.

All seats are durably upholstered with genuine leather covering over airfoam rubber both on the cushions and seat backs. The seats are made of heavy gauge steel with suitable hardwood reinforcements.

The steering wheel and controls such as accelerator pedal, clutch pedal and brake pedal are located for comfort and safe driving. The hand brake lever is located at the left of the driver at the edge of the cowl where it is accessible without interference. The gear shift lever is pivoted back of the seat riser so that the floor boards and driver's compartment is free of interference with other riders on driver's seat.

The floor boards and toe boards are of heavy gauge steel with nonskid safety embossing.

SPECIFICATIONS

Wheelbase and Tread

The wheelbase is 150 inches. The tread is 74-13/16 inches front and 69-1/2 inches in the rear. Specially designed axles provide the wide tread best suited for safe fire apparatus operation.

Frame

The frame is made up of high carbon pressed steel side members and cross members electrically welded to form a rugged and stiff structure for emergency service and to carry the required load. The side members are fish-belly type with 8 inch depth, flanges 2½ inches wide and ¼" thick. Four pressed steel cross members with large gussets provide a maximum of strength for permanent alignment.

Wheels and Tires

For maximum safety the wheels are of the rolled steel type attached to steel hubs, mounted on adjustable Timken roller bearings. Proper provision has been made to exclude dirt and water from the bearings.

The tires are pneumatic, 8.25 - 20 single front and dual rear, all wheels interchangeable. These tires are standard for this apparatus. When apparatus is specified with larger than standard water tanks, or other over-standard load features, which require oversize tires, the tires furnished will be ..... front, ... rear.

Front Axle

The front axle is made of alloy steel, drop forged I-beam section, heat treated. The steering knuckles are of the inclined pin, reverse Elliott type, made of heat treated alloy steel. The load thrust is taken on a special roller thrust bearing. Pivot pins are keyed in the axle. The steering cross rods are of the universal ball and socket type with automatic take up, having a clamp adjustment for wheel alignment.

Rear Axle

The rear axle is heavy duty spiral bevel gear, hypoid type, designed for emergency service. The driving pinion, ring gear, and differential assembly are carried in a single housing for permanent alignment and easy servicing.

The pinion gear is provided with external adjustment and is straddle mounted, being supported by a straight roller bearing and double taper roller bearings. The ring gear and differential are adjustable for alignment and are supported on two roller bearings. The axle shafts are full floating type, permitting removal of the shaft without dismounting the wheel. The standard gear ratio is 7.2:1.

SPECIFICATIONS

Springs

The springs are semi-elliptic type, front and rear, made of heat-treated chrome manganese steel with hard bronze bushed eyes, center bolts, and rebound clips. The front springs are 38¼ inches long, 2½ inches wide and the rear springs are 48½ inches long, 2½ inches wide. The shackle bolts are large diameter, accurately ground to size and fitted for pressure lubrication.

Propeller Shafts

The propeller shafts are tubular section, large diameter and dynamically balanced to prevent vibration. The universal joints are needle bearing type for long life and minimum maintenance. A large splined slip joint is provided on each propeller shaft.

Gasoline Tank

The gasoline tank is constructed of heavy gauge steel electrically welded at all joints. The steel is lead coated to prevent corrosion. A stiff reinforcing partition acts as a surge baffle.

The tank is securely supported at three points between the frame side members at the rear of the chassis. A large filler opening is provided on the left side and outside of the hose body. The filler cap is bayonet lock type. An electric gauge unit is mounted on the tank with the level indicator on the instrument panel. The capacity is 50 (U. S.) gallons.

Steering Gear

The steering gear is semi-irreversible, uniform ratio, twin lever type. This design provides steering ease and freedom from road shock. All moving parts operate in a bath of oil.

A large diameter steering wheel of the molded rubber, steel reinforced type is provided in a comfortable driving position.

Brakes

Efficient and dependable brakes are essential to the safe operation of fire apparatus. To provide the driver with the most effective and safest brakes, LaFrance-Foamite provide the Hydro-vac system of hydraulic brakes operated by vacuum power. For smoothness and efficiency, this system has no equal.

The service brakes on all four wheels are Hydro-vac operated. The service brakes are two-shoe type faced with heavy molded lining for years of trouble free service. The front brakes are 16¼ inches diameter, 3 inches wide. The rear brakes are 16¼ inches diameter, 3½ inches wide. The hand parking or emergency brake is Tru-stop ventilated disc brake mounted on the propeller shaft providing brakes on the two rear wheels. The brake disc is 14 inches diameter, two-shoe type and operated by a hand lever convenient to the driver.

Mufflers

Two large mufflers designed for heavy duty service, blow-out proof type, are provided.

Bumper

The front bumper is heavy duty pressed steel channel type with chrome plated finish. Substantial supports are provided at each end of the front bumper. The supports are attached directly to the chassis main frame.

Shock Absorbers

Hydraulic type shock absorbers are provided at front and rear for smooth riding without bouncing of load.

Engine Hood

The engine hood is four-section type with each section hinged with heavy duty type of concealed piano hinges. Access to the engine is provided from either side of the apparatus. Large handle spring type locks are provided on each side of the hood.

The hood sections are made of cold rolled steel, suitably reinforced. Provision is made to support the hood sections in the raised position. Adequate heat insulation is also provided on the inside of the hood.

Fenders

The front and rear fenders are full crown type designed for full tire coverage with ample skid-chain clearance. The fenders are made of cold rolled steel with rolled outer edge, and are securely bolted to the body with anti-squeak beaded welt between the fender and body. Additional supports are provided at the outer edge, both front and rear, of each fender where attached to the heavy steel side steps.

Towing Eyes

Two heavy drop forged steel towing eyes are provided, attached directly to the frame side members. One towing eye of forged steel is provided at the rear center of the apparatus. The rear eye is electrically welded as an integral unit with the wide top flange of the frame rear cross member. This construction provides great strength by the elimination of mechanical joints and bolts, also permitting an angle tow without bending the towing eye.

Chassis Lubrication

Fittings for high pressure lubrication are provided for all chassis and pump units requiring periodic lubrication. A Zerk pressure gun is furnished for lubrication at such points as spring shackle bolts, universal joints, steering drag link, front axle pivot pin and cross tie rod, also pump discharge gates.

Small Tools

A complete set of tools and wrenches, including jack, is furnished for the motor and chassis.

Siren Horn

The warning siren is a powerful electric streamlined unit with chrome plate finish. A large red flashing light is combined with the siren as a traffic warning. The siren is free rolling with ball bearing impeller, requiring minimum current for operation.

For maximum warning range the siren is mounted over the windshield and is operated by either of two foot switches located in the floor plate.

Locomotive Bell

A bronze, chrome plated, locomotive bell with a clear penetrating tone, is furnished with suitable mounting and location to permit long range warning. The bell is 12 inches in diameter. Suitable control is provided for operation from the front seat.

Ladder Supports

The ladders are carried on the left side of the body, firmly supported in two brackets provided with leather facing on supporting surfaces. Two quick acting levers with spring tension on lock cable permit quick removal of ladders and prevent ladder rattle or movement when ladders are mounted.

SPECIFICATIONS

Pump

The TRIPLEFLOW pump is two-stage centrifugal, parallel-series volute type. The pump is of advanced design for high efficiency fire service use. The pump housing and impellers are all bronze to be free of corrosion and maintain high efficiency. The impeller shaft is stainless steel. The impeller and shaft assembly is carried on heavy duty ball bearings operating in grease filled housings. Replaceable seal rings are provided on both impellers and in the housing for minimum maintenance and maximum service.

The exclusive impeller design in the TRIPLEFLOW pump contributes to the high efficiency. One impeller is double suction type and one impeller is single suction type. Both impellers are in running and static balance for smooth operation without vibration to insure long packing life.

The TRIPLEFLOW pump is mounted amidship on the chassis and provides a maximum of accessibility. The pump is driven by a single set of silent operating gears connecting to the drive from the engine. The pump is placed in operation by a single control in the driver's compartment without need of priming before engaging the drive.

Change-over Valve

The change-over valve is manually operated to change the discharge from parallel (capacity) to series (pressure). Discharge pressures from 80 pounds to 175 pounds are obtained in the parallel (capacity) setting and pressures above 175 pounds are obtained with the series (pressure) setting.

Packings

The pump packings are of the automatic adjustment type and do not require frequent attention or adjustment by the operator.

Operation

All controls for the pump are located at a central panel convenient for the operator. The hand throttle control is micrometer and quick acting type to provide exact control over pump pressure. The governor for automatic pressure control is located at the panel together with the primer control. All gauges are protected from freezing and are indirectly lighted for night operation. All discharge gates are controlled from one control station.

Priming Device

To operate at draft a priming system is furnished to exhaust air from the pump and suction hose. The LaFrance - Foamite primer is exhaust ejector type for simplicity, dependability, and high efficiency. The system has no rotating or moving parts to require maintenance. A simple control puts the system in operation and priming can be accomplished without shutting down the pump.

Governor

The governor maintains a constant pump pressure if one or more lines of hose are shut off while pumping.

A tube from the pump leads to the governor, mounted in the engine compartment, and directly connected to the engine throttle. Pressure in the pump is regulated by the governor which controls the throttle position of the engine. The governor is set at any desired pressure by pulling out a control handle and releasing it when the pump gauge reads at the desired pressure. This automatically places the governor in control of the pressure, and no further attention is required.

If a change in pressure is required, the governor control handle is pulled out and the engine throttle is set to obtain the new pressure. The governor handle is then released, which again places the governor in complete control against any pressure increase.

Pump Transmission Oil Cooler

An oil cooler in the pump transmission is provided to maintain proper oil viscosity. Heavy copper coils are located in the bottom of the case and are of ample size for proper cooling under all conditions of pump operation. The cooler assembly is removable as a unit.

Suction Equipment

Suction inlets on each side of the apparatus are provided with long handled, air tight suction caps. The suction hose is mounted in full length steel troughs on the right side of body. Quick releasing spring clamps front and rear hold it firmly in place.

The suction hose is a hard, smooth bore, steel re-inforced hose of the highest quality, made to rigid specifications, especially for LaFrance Foamite apparatus.

SPECIFICATIONS

Discharge Gate Equipment

There are three, 2½ inch, discharge gates and outlets. Two discharge gates and outlets are located on the right side of the body and one discharge gate and outlet is on the left side of the body. The controls for all discharge gates, bleeder valves, governor, primer, auxiliary cooler, water tank, booster hose and all instruments are located in one control panel. Heat from the engine prevents freezing of discharge gates, gauges, and all other controls or instruments required for pump operation.

The discharge gates are bronze fitted, of the latest type, balanced and quick opening. Pressure lubrication fittings are provided to insure easy operation at all times. Each discharge outlet is fitted with an air-tight, chrome plated, blind cap.

Pump Capacities

The rated capacities are to be delivered from draft, lift not exceeding ten (10) feet, as per the International Association of Fire Chiefs' specifications. Capacity rating is based on sea level barometric conditions. Hydrant capacities are dependent on the hydrant flowing pressure.

	Rated Capacity, Class A	Rated Capacity, Class B	Hydrant Capacity (50 lb. flow pressure)
PUMP PRESSURE	GALLONS PER MINUTE	GALLONS PER MINUTE	GALLONS PER MINUTE
120 lbs.	——	750	1550
150 lbs.	750	——	1370
200 lbs.	525	375	850
250 lbs.	375	250	650
300 lbs.	300	——	600

Pump Equipment

Two (2) 10 ft. lengths of suction hose, 4½".....internal diameter.
One (1) metal outside suction strainer.
Two (2) metal inside pump strainers.
One (1) swivel hydrant connection, 4½ inches to large hydrant opening.
One (1) swivel connection, 4½ inches to 2½ inches.
Two (2) compound pressure gauges, graduated, minus 30 to 0 to 400 lbs. (the use of two compound gauges simplifies operation, and protects the gauge on the pressure side when priming.)
One (1) 2½" double female connection.
One (1) 2½" double male connection.
One (1) tachometer.
One (1) engine cooling temperature gauge.
One (1) engine oil pressure gauge.

Tool Equipment

The following list of maintenance equipment items will be supplied:

One hydraulic Jack.
One ball peen machinists hammer.
One improved 7-inch combination pliers.
One 4-inch screwdriver.
One 6-inch screwdriver.
One front axle nut wrench.
One rear axle nut wrench.
One 11-inch adjustable auto wrench.
One ⅜-inch cold chisel.
One spark-plug socket wrench.
One small hand oil-can with spout.
One 7/16-inch and ½-inch double-end wrench.
One 9/16-inch and ⅝-inch double-end wrench.
One ¾-inch and ⅞-inch double-end wrench.
One 15/16-inch and 1-inch double-end wrench.
One Zerk Grease Gun.
One Tool Roll.
One wheel nut socket wrench with handle.
One water pump packing nut wrench.
Two booster hose spanner wrenches.
One 2½ inch hose spanner wrench.
One suction hose coupling wrench.
One operators manual.

BOOSTER SYSTEM

Water Tank

~~150~~ 400 ..... gallons capacity constructed of corrosion resisting steel, re-inforced and electrically welded at all corners. There are stiffening partitions inside which also act as baffles. The outside is ground smooth and sand blasted, before painting. The entire inside is well pickled, cleaned and treated with a special rust resisting preparation. A depressed type head is furnished to permit filling the tank with pails or cans. A large 5"diameter fill opening is provided with a gasketed cap and quick acting spring lock. A large overflow pipe is provided for ample venting.

Mounting

Standard water tanks are mounted and securely bolted inside the body at the front of the hose compartment.

Water Piping

The piping, connections, and gate valves are specifically constructed for the purpose. All joints between valves, piping, elbows, etc., are carefully made and given hydrostatic water test of 350 lbs. The tank valve, hose valve and drain valve are all within easy reach from the operating position. Piping from water tank to pump 2" inside diameter.

Hose Reel

A heavy steel reel is mounted, in a strong welded steel structure at the rear. This location is under the body, directly in front of the rear step. Rounded edges on the reel and its protective housing offers a smooth surface for the hose to pass over. There is ample capacity for 250 feet of ¾" hose, or 200 feet of 1" hose.

A detachable hand crank is provided for easy rewind of the hose. The crank is carried in a special holder in the forward equipment box when not in use.

Booster Equipment

150 ..... feet of 1" diameter (specify ¾" if required) LaFrance booster hose, tested for 800.....pounds pressure, in coupled sections.

One (1) straight flow, shut-off type nozzle.

One (1) shut-off nozzle tip ¼" diameter, smooth bore.

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SPECIFICATIONS

Ladders Choice of Wood or Duo Safety Aluminum

LaFrance-Foamite ladders are made of the most carefully selected material. The sides are of Douglas Fir thoroughly seasoned by natural methods under our own supervision, from three to four years before using. The rungs are second growth natural-cured ash. The extension ladder is equipped with the latest approved automatic safety locks, and raising mechanism. Ladders are ironed at the ends, and strengthened laterally by iron crossrods. They are well finished in natural color, with black painted and varnished ends.

One (1) 24 ft. solid side extension ladder.

One (1) 14 ft. solid side roof ladder, with folding hooks.

Pike Pole

One 10 ft. pike pole, mounted. The pike pole is made of straight grained Oregon Pine, and finished in natural color.

Hand Extinguishers

One (1) Foamite 2½ gallon, heavy fire department type.

One (1) 30 pound Pressurized Dry Chemical Extinguisher.

Extinguishers are mounted in quick acting clamp type holders, convenient for quick access and operation.

Play Pipe Holders

Two hardwood cones for play pipes, mounted.

Lanterns

Two fire department electric hand lanterns, conveniently mounted.

Fire Axes

One pick back, 6 lb. axe, fire department standard, mounted.

One flat head 6 lb. axe, fire department type, mounted.

Crowbar

One steel crowbar, 36 inches long, mounted in spring brackets.

Finish

The apparatus is handsomely painted in official fire department red, with fine coach colors. The finishing process includes our special series of treatments which is based on long experience, and assures a long lived paint finish, especially suited to the fire service.

Gold leaf striping and scrolls with suitable shading, combine with the chrome plated trim strips, hand rails and polished aluminum plates, to provide a durable finish with an attractive and pleasing appearance.

SPECIFICATIONS

Lettering Instructions

Name As Desired On .....

..... On .....

.....

Extra, or Over Standard Equipment

400 gallon Water tank

Automatic lights in Compartments

Step plates on top of rear fenders.

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GENERAL INFORMATION

This page must be filled in by the sales representative before these specifications are sent to the factory. Failure to do this will cause delay in starting construction of this apparatus, and necessitate inquiry.

THREAD SAMPLES

New 2½" male and female couplings must be mailed to the factory at once, if new apparatus is to have any 2½" threaded equipment.

FOR A PUMPER

Does city have large hydrant openings? If so, **sample thread for this must also be sent.** All thread samples will be returned with the apparatus.

Static hydrant pressure ..... p.s.i.

Note: If high pressure system is used for fire service, give data on maximum pressure and standard pressure.

ROAD CONDITIONS

It is important that any unusual road conditions which may affect apparatus be described here. .....

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Per cent of grades, if more than 6 per cent .....

What is altitude? .....

SHIPPING AND BILLING

To whom is apparatus to be invoiced? .....

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To whom consigned? .....

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IMPORTANT: — **Be sure to send a supply of city billing forms,** if sworn, or billing on special forms is required.

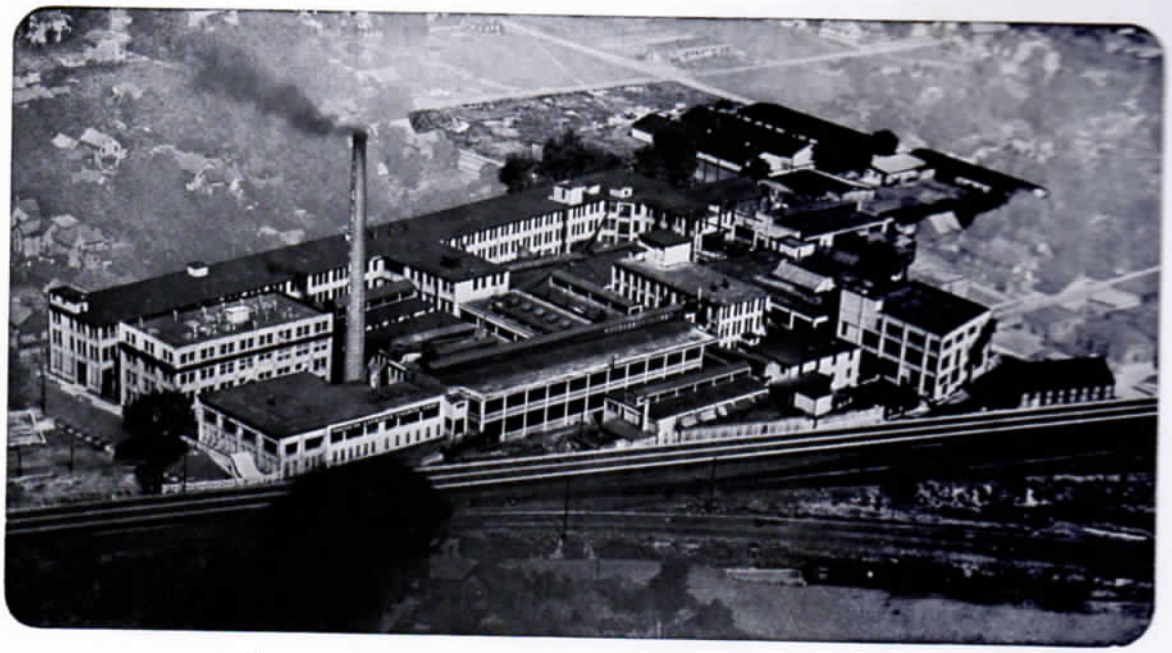
UNLOADING APPARATUS

Are facilities available for easy unloading of apparatus? .....

.....

If not, is it advisable to route shipment to nearest location with suitable unloading platform or ramp? .....

.....



FACTORY AT ELMIRA, N. Y.

AMERICAN-LAFRANCE-FOAMITE CORPORATION

FACTORY AT TORONTO, ONT., CANADA

LAFRANCE FIRE ENGINE AND FOAMITE LIMITED