

# 1976 WARD LA FRANCE TRIPLE

YEAR ..... 1976  
MAKE ..... WARD LA FRANCE  
# CYLINDERS ..... 6  
FUEL ..... DIESEL  
CUBIC INCHES ..... 855  
HORSE POWER ..... 370  
TRANS MAKE ..... SPICER  
TRANS GEARS ..... 6 SPEED  
START GEAR ..... 2ND GEAR  
OPERATING RANGE (RPM) ..... 1700 TO 2200  
PUMP MAKE ..... HALE  
PUMP CAPACITY ..... 1500  
OIL CAPACITY ..... 24 QTS + 12 FILL = 36 QTS TOTAL  
FUEL TANK ..... 50 GALS  
WATER TANK ..... 500 GALS  
OPERATING OIL PRESSURE ... 40 TO 75 PSI  
MINIMUM OIL PRESSURE ..... 30 PSI

OPERATING WATER TEMPERATURE ..... 160° TO 200°F  
MAXIMUM WATER TEMPERATURE ..... 212°F

DRAFT RPM ..... 1000 TO 1200 rpm  
TRANSFER LIMITS ..... BELOW 70 PSI  
PUMPING GEAR ..... 6TH GEAR  
SPRING BRAKE ..... MAXIBRAKE  
MINIMUM BRAKE PRESSURE .. 80 PSI - WARNING @ 60 PSI  
RELIEF VALVE ..... HALE  
RELIEF PRESSURE ..... LIGHT OUT (if it's on, it's working)

## 1976 WARD LA FRANCE

### ENGINE

- ◆ 5 1/2" bore and 6" stroke.
- ◆ 855 cubic inch.
- ◆ Compression ratio 13.5 to 1
- ◆ Highest torque 1150 ft. lbs. at 1600 rpm.
- ◆ Cummings NTC-400 diesel, 6 cylinder valve-in head type.
- ◆ Engine temperature TOO LOW... raw fuel will wash lubricating oil off cylinder walls and dilute crankcase oil. ALL moving parts will suffer from poor lubrication.
- ◆ Highest horsepower 370 at 2200 rpm.
- ◆ Operating range 1700 epm to 2200 rpm
- ◆ Governed at 2200 rpm, but when cold can run an additional 7% on high idle. \*This can be very harmful due to minimal lubrication.
- ◆ Red warning light set at 212 degrees.
- ◆ *Engine operating speed should be maintained at 1900 rpm.*
- ◆ Engine temperature operating range 160 to 200 degrees
- ◆ Long periods of idling are not good for the engine. Operating temperatures drop so low the fuel may not burn completely.
- ◆ This causes carbon to clog the injector spray holes.
- ◆ Piston rings will be worn faster as a result of cylinder walls being washed by fuel.
- ◆ Engine heater maintains temperature at 120 to 140 degrees. Keep it plugged in when apparatus is in quarters.
- ◆ AFTER HEAVY USE.... idle for 3 to 5 minutes to cool engine prior to shutdown.

### ENGINE LUBRICATION SYSTEM:

- ◆ An oil cooler heat exchanger type is located on right side of engine block.
- ◆ Force feed wet sump system.
- ◆ 12 qt. full flow and bypass filters.

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- ◆ 40 to 75 psi operating range with some psi at idle.
- ◆ Do not operate with less than 30 psi.

### ENGINE COOLING SYSTEM

- ◆ Water pump has packless seal and requires no lubrication. Delivers 100 gpm at 2100 rpm
- ◆ Water pump mounted on front of engine.
- ◆ Equipped with a system conditioner to filter, provide electrolytic protection and act as a rust inhibitor.
- ◆ Water circulates through the oil cooler until temperature reaches about 170 degrees, then water circulates from top to bottom of radiator. If possible, do not permit engine water temperature to exceed 200 degrees.

### FUEL SYSTEM

- ◆ Fuel pump is equipped with a knurled knob mechanical valve for opening in an emergency.
- ◆ Emergency fuel shutoff knob on the console between the driver and passenger seats, pulling this manually closes the fuel solenoid valve to stop engine in an emergency.
- ◆ 50 gal fuel tank.
- ◆ Shutoff is mounted forward of the fuel tank above the rear axle. Close this shutoff to change fuel filter.
- ◆ Ignition switch on instrument panel operates fuel pump with a solenoid valve.
- ◆ Compression release: pulling this lever can aid the engine cranking by opening intake or exhaust valves. Use when batteries are low. Pull handle up, use both starter buttons, engine rotates, release handle. Never use to stop engine, can damage valves and valve train.

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## ELECTRICAL SYSTEM

- ◆ SEE TRAINING BULLETIN 65 FOR SPECIAL BATTERY CONFIGURATION
- ◆ When battery readings are below full charge, or battery over charges, and liquid has been overboiling, notify shops.
- ◆ When clicking off or on. Notify shops
- ◆ Ignition switch on instrument panel turns on fuel pump solenoid which pumps fuel into injectors. When ignition switch is shutoff, engine is deprived of fuel.
- ◆ 12 volt starting motor Do not crank over 30 seconds. Hesitate about 30 seconds before retrying.
- ◆ Fuses and breakers protect electrical system. Breakers make a clicking sound
- ◆ Alternator capacity of amps at 14 volts. Built in rectifier changes AC to DC.
- ◆ Idling slightly above idle speed will be enough to supply the entire electrical system with adequate voltage.

## BRAKE SYSTEM

- ◆ Auxiliary hand brake control is **not** to be used as a parking brake.  
It may use in two manners:
  1. Using as a "hill holder".
  2. May be applied when **descending** grade. Guard against **excessive heat**.
- ◆ The apparatus was equipped with "SKID TROV" 121 brake system, but because unreliability, it has been disconnected.

**NOTE: Extreme caution and judgement must be taken whenever drag is applied regardless of the method of application (auxiliary or foot brake). Excessive drag will overheat the brake drums brake drums are overheated, brake drums.**

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### AIR FILTER

- ◆ Gauge located on the turbocharger intake manifold that measures restriction to the air intake system.
- ◆ When dirty will indicate by showing in **RED** in indicator band on vacuum gauge. Call shops for replacement. Cleaning filter in field is not recommended.
- ◆ Other indications of dirty filter are loss of engine power or excessive smoke in exhaust gases.

### AIR RESERVOIR SYSTEM

- ◆ On the air gauge, there are **two** indicator hands, **red & green**.  
**Red hand** indicates amount of air in primary tank  
**Green hand** indicates amount in secondary tanks.
- ◆ Air storage tanks:  
1 - Primary  
3 - Secondary  
**Secondary tanks will not fill until primary reaches 90**
- ◆ EFFECTIVE braking air pressure is at least **80 PSI**.
- ◆ When air pressure is below 90 psi:
  1. Secondary tanks will not fill until primary reaches 90 psi.
  2. At 90 psi apparatus may be moved, **but only the rear brakes will have full braking psi**. Full braking psi is reached when secondary tanks are at 90 psi.
- ◆ All auxiliary air powered equipment is supplied from the **secondary system**.
- ◆ When descending grades, look for 10 psi on application gauge including proper gear selection.
- ◆ Lights and buzzer on dash **will** operate when pressure falls below 60 psi and ignition switch is on.
- ◆ Air outlet on left side of running board for charging water extinguisher. UNDER NO CONDITIONS SHALL BE USED FOR OPERATING A PAINT SPRAY GUN OR HAVE A AIR BOTTLE CONNECTED TO IT.

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## TRANSMISSION

- ◆ **Maximum speed** in each gear:
  - 1st 8.6 mph
  - 2nd 13.5 mph
  - 3rd 20.5 mph
  - 4th 32.5 mph
  - 5th 49 mph
  - 6th 64 mph
- ◆ Spicer SST2, 6 speed, manual shift.
- ◆ Never allow weight of foot to rest on the clutch. This will result in **short life of the clutch release bearing.**
- ◆ Clutch 15½"
  - Twin plate dry disc, with clutch brake.
  - When free travel is reduced to "½" call shops
- ◆ Shift to next gear at 2200 Epm.
- ◆ Shifting down hill \*Governor **WILL NOT** control engine when descending hill. Back wheels are driving engine.
- ◆ Ordinary starts are in second gear
- ◆ Good practice is to maintain 1800 to 1900 rpm or less when descending hills with approximately 10 psi brake application.

## TURBOCHARGE

- ◆ Forces additional air into engine so it can deliver more horsepower.
- ◆ Consists of a turbine wheel and a centrifugal blower, or compressor wheel, separately encased but mounted on and rotating with a common shaft.
- ◆ Cooling is derived from the engine's lubricating oil.
- ◆ The power to drive the turbine wheel, which in turn drives the compressor, is obtained from energy of engine exhaust gases.
- ◆ **Do not shut down engine whole hot. This may cause temperature of turbocharger to rise 100 degrees above engine temperature.**

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Results of this extreme heat may damage bearings.

### PUMP

- ◆ Capacity 1500 gpm @ 150 psi.
- ◆ HALE centrifugal two stage pump. Series/parallel type.
- ◆ High pressure 150 gpm at 600 psi.

### STEERING

- ◆ Ross twin cam and lever type steering gear.

### TRANSFER VALVE

- ◆ Clockwise for pressure Counterclockwise for volume.
- ◆ If possible water should be flowing to transfer.
- ◆ Controlled by a handwheel for changing from one position to another.
- ◆ Change over just above idle.
- ◆ Recommended below 70 psi.
- ◆ During pumping, use the setting, which gives the desired results at the lowest rpm.

### RELIEF VALVE

- ◆ To place in operation; after reaching proper engine pressure,
  1. Turn hand wheel counterclockwise until pilot light is on and there is a drop in pressure as indicated on the pressure gauge.
  2. Then, turn hand wheel clockwise slightly until the light is out.
- ◆ HALE relief valve.
- ◆ Frequently test @ 150 psi to insure proper operation.

# **1976 WARD LA FRANCE**

## **SUCTION INLETS**

- ◆ 2 - 6" inlets, 1 on each side, reduced to 4"
- ◆ 3½" auxiliary inlets

## **WATER TANK**

- ◆ Flow capacity from tank to pump of 600 gpm.
- ◆ 500 gallons 3/16" steel tank

## **DRAFT**

Raise rpm's to **1000 - 1200**

- ◆ Pump can be run dry for approximately 3 minutes.
- ◆ Air pressure must be over 90 lbs. in order to operate the air actuated shift lever.
- ◆ Pump revolves nearly twice the engine speed.
- ◆ 1500 gpm water turret.

## **PUMPING PROCEDURES**

### **Hydrant**

1. Spot apparatus at hydrant and apply spring brake. Set chocks.
2. With engine at idle depress clutch pedal.
3. Shift to 6th gear (direct drive).
4. Engage fire pump by placing lever to pump position.
5. Connect suction.
6. Open suction.
7. Transfer valve.
9. Open discharge valves and accelerate engine to obtain desired pressure.