

# Wagner-Smith

OPERATOR'S AND PARTS MANUAL  
FOR  
THE WAGNER-SMITH COMPANY  
MODEL T-4DP-115  
FOUR DRUM PULLER  
CONTROL #  
SERIAL #



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# SECTION “A”

## SAFETY

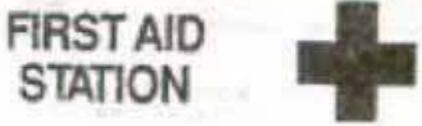
FIG	DESCRIPTION	PAGE #
	<p><b>ATTENTION:</b></p> <p>This manual is intended to give operational, parts, and maintenance information for the unit referenced on the front cover. It is not intended to replace safe operating practice or serve as a tension/ stringing operation procedures manual. This piece of equipment is designed for use in tension/ stringing operations within its specification only. Any use other than this that is not authorized by Wagner-Smith Equipment Co., is potentially dangerous, and could result in severe injury or death. Additionally, this equipment should only be operated by trained personnel who are fully aware of the proper operating procedures and potential safety hazards encountered during tension/ stringing operations.</p>	
	<p>SAFETY</p> <p>WARNINGS</p>	<p>A – 2.5</p> <p>A – 6.7</p>

# SECTION “A” SAFETY

<p><b>RECOGNIZE SAFETY INFORMATION</b></p> <p>This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.</p> <p>Follow recommended precautions and safe operating practices.</p>	
<p><b>“DANGER”</b> – Is used to indicate a hazardous situation which has a high probability of death or severe injury. Danger should not be considered for property damage accidents unless personal injury risk is present.</p>	
<p><b>“WARNING”</b> – Is used to indicate a hazardous situation which has some probability of death or serious injury. Warning should not be considered for property damage accidents unless personal injury risk is present.</p>	
<p><b>“CAUTION”</b> – Is used to indicate a hazardous situation which may result in minor or moderate injury. However, caution should not be used when there is a possibility of death or serious injury. Caution should not be considered for property damage accidents unless personal injury risk is present.</p>	
<p><b>FOLLOW SAFETY INSTRUCTIONS</b></p> <p>Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs.</p> <p>Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.</p> <p>Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.</p> <p>If you do not understand any part of this manual and need assistance, contact Wagner-Smith Equipment Company.</p>	

# SECTION "A"

## SAFETY

<p><b>PREPARE FOR EMERGENCIES</b></p> <p>Be prepared if a fire or accident occurs. Keep a first aid kit and fire extinguisher handy. Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.</p>	
<p><b>PROTECT AGAINST NOISE</b></p> <p>Prolonged exposure to loud noise can cause impairment or loss of hearing.</p> <p>Wear a suitable hearing protective device such as earmuffs or earplugs to protect against uncomfortable loud noises.</p>	
<p><b>STAY CLEAR OF ROTATING SPINDLES AND CHAIN DRIVES</b></p> <p>Entanglement in rotating reel spindle and reel spindle drive can cause serious injury or death.</p> <p>Keep all guards in place at all times.</p> <p>Wear close fitting clothing. Stop the engine and be sure the drives are completely stopped before performing any type of service on the equipment.</p>	
<p><b>PRACTICE SAFE MAINTENANCE</b></p> <p>Understand service procedure before doing work. Keep area clean and dry. Never lubricate, service, or adjust machine while it is moving. Keep hands, feet, and clothing from power driven parts. Disengage all power and operate controls to relieve pressure. Stop the engine. Remove the key. Allow machine to cool.</p>	<p>Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove all buildup of grease, oil, or debris.</p> <p>Disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.</p>

# SECTION "A"

## SAFETY

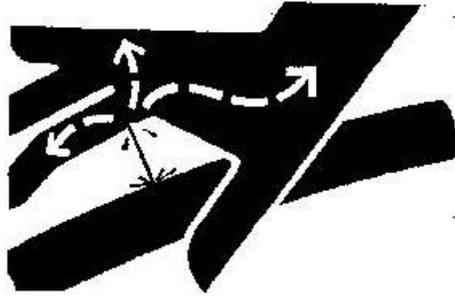
### AVOID HIGH -PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately.



### REMOVE PAINT BEFORE WELDING OR HEATING

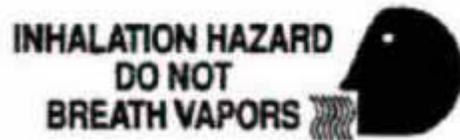
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

- If you use sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper container and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



### SERVICE COOLING SYSTEM SAFELY

Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.



# SECTION "A" SAFETY

## FILLING FUEL TANK



**CAUTION:** Handle fuel carefully. Do not fill the fuel tank when engine is running.

**DO NOT** smoke while filling fuel tank or servicing fuel system.

**IMPORTANT:** The fuel tank is vented through the filler cap. If a new filler cap is required, always replace it with an original vented cap.

Fill fuel tank at the end of each day's operation to prevent condensation in tank as moist air cools and freezing during cold weather.



**SECTION "A"  
SAFETY**

**WARNING**

**ELECTROCUTION  
HAZARD**

**DO NOT OPERATE THIS  
MACHINE WITHOUT  
PROPER GROUNDING**

**SECTION “A”  
SAFETY**

**WARNING**

**THIS MACHINE IS A HIGHLY  
SPECIALIZED PIECE OF  
EQUIPMENT THAT SHOULD BE  
OPERATED ONLY BY  
QUALIFIED PERSONNEL**

# SECTION "B" INTRODUCTION

FIG	DESCRIPTION	PAGE #
	INTRODUCTION	B - 2

# SECTION "B"

## INTRODUCTION



The Wagner-Smith Company Model T-4DP-115 is a trailer mounted, four drum type puller having a wide range of speed and pulling capabilities. The unit utilizes four (4) individual drums with separate mechanical clutches for each drum.

The four (4) drum concept allows the four (4) lines to be payed out at the same time and pulled back individually, resulting in much faster production time.

The unit is powered by an integral engine and closed loop, pressure compensated, hydraulic system. A feature which enables the operator to pre-set the maximum pull the unit may exert.

The unit has a freewheeling feature, with mechanical overspin brakes, which allows pulling lines to be hauled out without the need to run the engine.

The unit incorporates four post type levelwinds for even winding of line on the drums. The levelwinds are operated via control valves located at the control panel.

# SECTION "C" SPECIFICATIONS

FIG	DESCRIPTION	PAGE #
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# SECTION "C"

## SPECIFICATIONS

### WAGNER-SMITH MODEL T-4DP-115

FOUR DRUM  
PULLER  
TRAILER MOUNTED

Specification No. 41115-15  
Date 8/6/09, Page 1 of 2

#### UNIT PERFORMANCE

Continuous Torque Rating	• 115,000 lbs. in.
Full Drum Line Pull Rating	• 3,594 lbs.
Line Speed	• 5.00 mph

**NOTE: The above figures are for single drum pulling. Levelwind provided is set up for pulling one drum at a time.**

#### DRUMS

Diameter	• 64 inches
Core Diameter	• 20 inches
Width Inside	• 23 ½ inches
Approximate Capacity	• 15,000 ft of 5/8 in synthetic rope

#### LEVELWIND(S)

- Four (4) post type, four roller, hydraulically actuated.

#### DRIVE TRAIN

- 115 HP water cooled diesel engine, variable-volume pump and fixed displacement motor with hydraulic brake in main drive. Each drum can be disconnected for freewheeling with drum overspin brake control. Hydraulic pressure control, drum speed control and gauges panel mounted.

# SECTION "C"

## SPECIFICATIONS

### WAGNER-SMITH MODEL T-4DP-115

FOUR DRUM  
PULLER  
TRAILER MOUNTED

Specification No. 41115-15  
Date 8/6/09, Page 2 of 2

#### UNDERCARRIAGE

Tires (Duals) Axles	<ul style="list-style-type: none"><li>• 255/70R22.5 load range "H"</li><li>• Tandem 15,000 lb capacity each</li></ul>
Suspension	<ul style="list-style-type: none"><li>• Leaf spring</li></ul>
Brakes	<ul style="list-style-type: none"><li>• Air Brakes with ABS Front Axle</li></ul>
GVWR	<ul style="list-style-type: none"><li>• 33,300 lbs</li></ul>

#### FEATURES

- Control panel is located on the unit for ease of operation (off the ground).
- Operator's seat.
- 2-speed, crank type front jack.
- 4 post, hydraulic levelwind.
- Rear stabilizers-mechanical pin type.

#### DIMENSIONS

Unit Length	<ul style="list-style-type: none"><li>• 23 feet, 4 inches</li></ul>
Unit Width	<ul style="list-style-type: none"><li>• 8 feet, 0 inches</li></ul>
Unit Height	<ul style="list-style-type: none"><li>• 9 feet, 6 inches (Transport)</li></ul>
Net Weight (without rope)	<ul style="list-style-type: none"><li>• 19,750 lbs</li></ul>

#### OPTIONS AVAILABLE

- Hydraulic Operated Front and/or Rear Jacks
- Electric brakes

# SECTION "D"

## DESCRIPTION OF INDIVIDUAL FUNCTIONS

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	HYDROSTATIC REEL DRIVE	D - 2...3
	HYDROSTATIC PUMP	D - 3
	HYDRAULIC FLUID RESERVOIR AND FILTER	D - 4
	LEVELWIND	D - 4...5
	FREEWHEELING PAYOUT	D - 5
	CONTROLS	D - 6

# SECTION "D"

## DESCRIPTION OF INDIVIDUAL FUNCTIONS

### HYDROSTATIC REEL DRIVE

The Hydrostatic reel drive consists of a diesel engine (Fig. 1) which drives a variable displacement, pressure compensated hydraulic pump (Fig. 2A), fixed displacement hydraulic motor (Fig. 3A), a high efficiency planetary gearbox (Fig. 3B), and final reel drive (Fig. 4) is through a chain reduction.

The fail-safe brake is built in the planetary gearbox (Fig. 3B) and is controlled manually from the operator's panel by a palm valve (Fig. 5). The brake is automatically applied in the event of a hydraulic system failure.



Figure 1 Engine and Pump

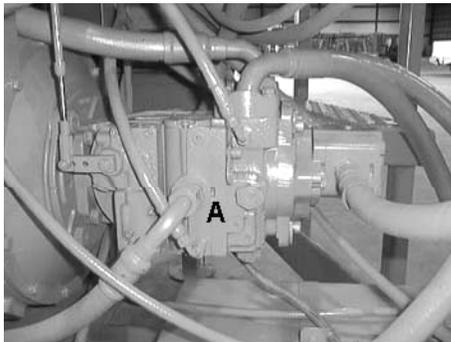


Figure 2 Hyd. Pump

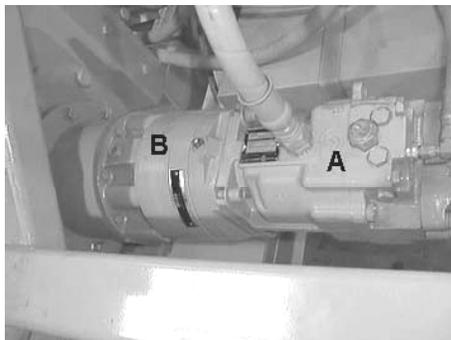


Figure 3 Hyd. Motor & Gearbox

# SECTION "D"

## DESCRIPTION OF INDIVIDUAL FUNCTIONS



Figure 4 Final Reel Drive



Figure 5 Hyd. Brake Knob

### HYDROSTATIC PUMP

The variable volume, pressure compensated, pump (Fig. 2A) is driven by the diesel engine (Fig. 1) and is connected to the fixed displacement motor (Fig. 3A) in a closed loop configuration. The displacement of the pump is automatically reduced to zero should the line pull increase to the maximum pre-set pressure causing the pulling reel to stop. During normal operation the displacement is controlled by the directional control lever (Fig. 6) located on the control panel. The engine should be run at governed speed and line speed is controlled by the directional control lever (Fig. 6).



Figure 6 Directional Control

# SECTION “D”

## DESCRIPTION OF INDIVIDUAL FUNCTIONS

### HYDRAULIC FLUID RESERVOIR AND FILTER

The purpose of the hydraulic fluid reservoir (Fig. 7) is to provide hydraulic fluid to the pump; it also serves as a means of cooling the oil. The purpose of the hydraulic filter (Fig. 8) is to clean the hydraulic oil as it circulates through the system.

**It is imperative that the hydraulic reservoir and filter be serviced at the recommended intervals. Cleanliness is the life of a hydraulic system.**

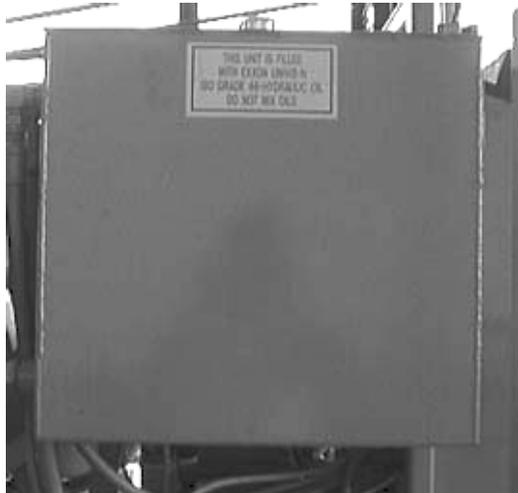


Figure 7 Hyd.  
Oil Reservoir



Figure 8 Hyd.  
Oil Filter

### LEVELWIND

Levelwinding of the pulling line onto the drum is accomplished by means of a diamond leadscrew (Fig. 9A) with a sheave (Fig. 9B). The pulling line rotating the sheave causes the levelwind to travel on the shaft. The levelwind is self reversing at each end of travel. To move the levelwind from one side to the other, remove pin (Fig. 9C), lift up leadscrew, rotate 180 degrees and set leadscrew in support and reinstall pin to secure leadscrew.

# SECTION "D"

## DESCRIPTION OF INDIVIDUAL FUNCTIONS



Figure 9  
Levelwind

### FREEWHEELING PAY-OUT FEATURE

Each individual drum features a manual disconnect clutch (Fig. 10) with a drum caliper brake (Fig. 11), manually controlled (Fig. 12).



Figure 10  
Disconnect



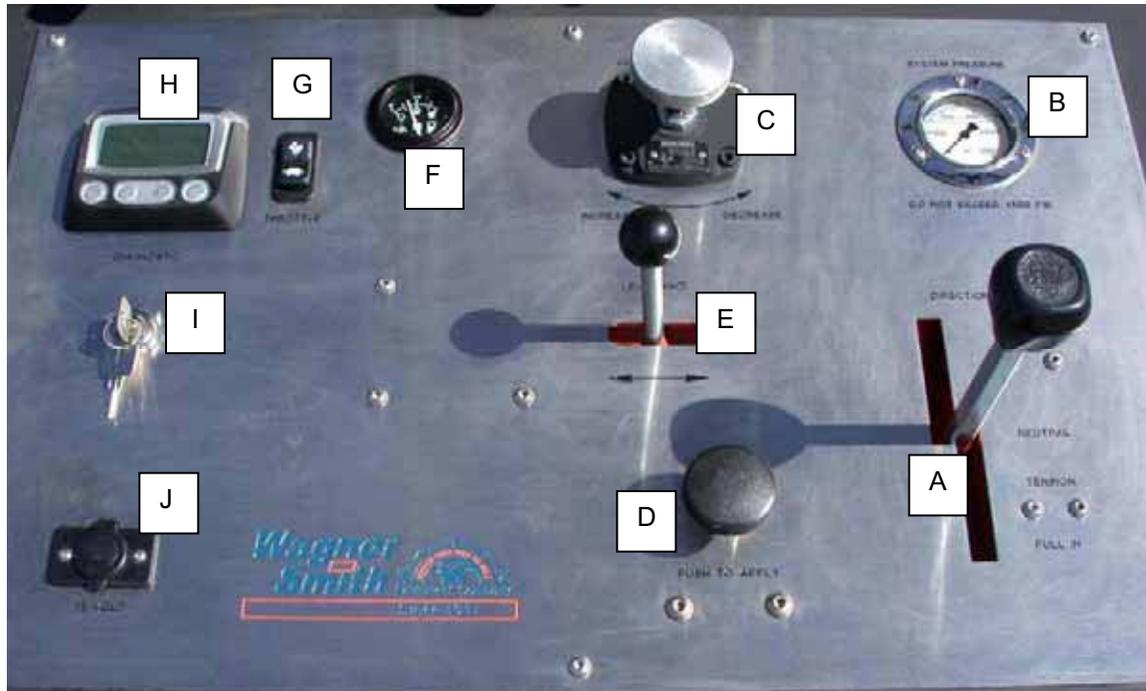
Figure 11  
Caliper Brake



Figure 12 Overspin  
Brake Controls

# SECTION “D”

## DESCRIPTION OF INDIVIDUAL FUNCTIONS



### CONTROLS

The control panel is shown above and a description of each control, gauge and light and its purpose is listed below.

#### Console Control Functions:

- A. **Directional Control:** This controls the direction and speed either in the pull-in or payout mode. The further the handle is from neutral in either direction the faster the reel turns.
- B. **Hydraulic Pressure Gauge:** This gauge indicates system pressure and is used in conjunction with the pressure control to set pulling pressure.
- C. **Hydraulic Pressure Control:** This control is to set and adjust the hydraulic pressure during the pull-in mode of the conductor. To increase the hydraulic pressure turn clockwise and to decrease turn counterclockwise.
- D. **Brake Control:** The “Palm Brake” functions are; to be applied during the hydraulic system pressure setting, to be applied after the pull-in or payout mode is stopped as a safety measure so the reel will not turn accidentally. In case of emergency **ONLY**, this brake can be applied during pull-in or payout operations. **NOTE:** Continual use of this practice can and will cause damage and possible failure of the fail-safe brake.
- E. **Level wind Directional Control:** Manually controls the direction and speed of the level wind to either the right or left.
- F. **Fuel Gauge:** Indicates amount of fuel in the tank.
- G. **Throttle:** this control can be twisted either counter clockwise or clockwise to increase or decrease the engine’s RPM (speed). The button in the center of the control can rapidly increase or decrease the RPM’s by depressing the button and pulling it out or pushing in.
- H. **Engine Diagnostics Gauge:**
- I. **Key Switch:** Engine Start / Stop
- J. **12 Volt Power Port:**

# SECTION "E" OPERATIONS

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	DAILY PREVENTATIVE MAINTENANCE	E - 4
	PAY OUT OF PULLING LINE	E - 5...6
	PULLING	E - 6...7

# SECTION “E” OPERATIONS

## TOWING THE TRAILER

### Towing Procedures:

Use a properly equipped and sized vehicle when towing this equipment. Always check to see that the pintle hitch is secure and locked, safety chains, breakaway switch and lighting/brake pigtail are properly fastened to tow vehicle. Front and rear jacks are in the retracted position and locked. Any loose equipment or objects must be removed, tie down, or placed in a storage box, so not to become a hazard while the unit is being transported. Levelwind cylinder should be in the depressed position. Before leaving the yard, check brakes, running, turn, and brake lights on trailer. Tires should be inflated while cold for maximum payload capacity; tire pressure varies with tire sizes. **Note:** Sticker for tire pressure located near wheel wells.

### Towing checklist:

- 1) Pintle Hitch secure and locked (Figure 1-F)
- 2) Safety Chain attached (Figure 1-D)
- 3) Breakaway Switch attached (Figure 2-E)
- 4) Lighting and brake Pigtail attached (Figure 2-H)
- 5) Front and rear jacks in up and locked position (Figure 1-C&A)
- 6) Any loose objects removed from unit
- 7) Check operation of brakes
- 8) Check lighting (turning, running, and brakes) (Figure 1-E)
- 9) Tires and tires air pressure (Figure 1-B)

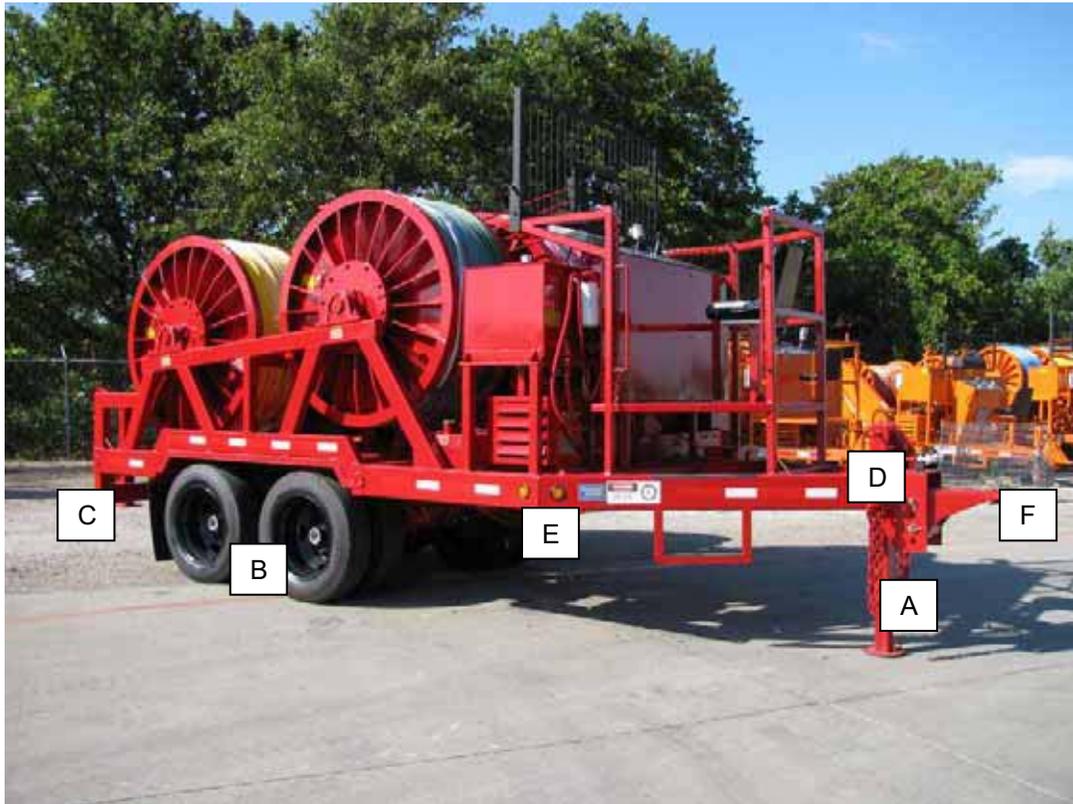


Figure 1 Machine Assembly

# SECTION "E" OPERATIONS

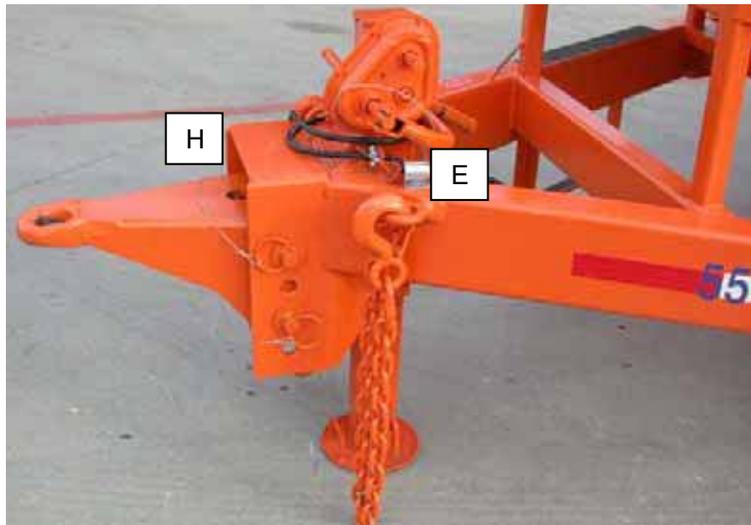


Figure 2

## FIELD SETUP

Position the trailer in line with the first pole and at least one and a half (1-1/2) times the distance from the pole or tower, as it is high (Example: If the utility pole or tower is 45 feet above the ground. The trailer should be positioned approximately 65 – 75 feet from the base of the pole.). This will give a good fleet angle from the stringing block to the puller or tensioner and help decrease the line pull. After you position the trailer, leave the unit either attached to the tow vehicle or anchor it securely. Lower the front and rear jacks to stabilize and level the unit.

**Ground the unit** properly to prevent the unit from becoming electrically energized and cause operator injury. Each unit has grounding bars already welded to the trailer for proper additional grounding attachments. Unit should be grounded to IEEE or your company's standard procedures.

### FIELD SET-UP CHECKLIST:

- Locate the unit on as level ground as possible. Line it up with the conductor to be pulled.
- Distance from utility pole or tower should be a minimum of 1½ times the height.
- Level the unit as follows:
  - 1) Lower the tongue of the trailer (Figure 1-F).
  - 2) Extend the rear stabilizers and lock (Figure 1-A).
  - 3) Raise the front jack until the trailer is level (Figure 1-C).
  - 4) Anchor the trailer securely.
  - 5) **"Ground the unit"** to prevent operator injury should the unit become electrically energized.

# SECTION “E” OPERATIONS

## PERFORM DAILY PREVENTATIVE MAINTENANCE

- Before starting the engine check:
  1. Engine oil level
  2. Engine fuel level
  3. Hydraulic system oil level
  4. The hydraulic oil shutoff valve is open, turned fully counterclockwise
  5. Hydraulic oil system pressure gauge reads zero
- After starting the engine check:
  1. Hydraulic system pressure gauge reads 350 PSI with directional control lever in the neutral position.
  2. Check for any fluid leaks.
  3. If there are any unusual noises, shut down engine immediately.
- After engine shutdown check:
  1. For any fluid leaks
  2. Loose nuts and bolts
  3. Hydraulic oil reservoir filler cap in place and secure.

# SECTION “E” OPERATIONS

## PAY OUT OF PULLING LINE

### Freewheeling Payout Mode

The freewheeling mode of the **PULLER** is to help payout and install the pulling rope through the stringing blocks.

First disengage the reel clutch with the lever located on each outboard drum flange; this will let the reel rotate easily. Increase the over-spin brake caliper pressure by turning the handle clockwise and decrease it by turning the handle counter-clockwise. By adjusting the over-spin brake this will keep control of the reel from freewheeling to fast.

**NOTE:** In this freewheeling mode, the engine does not need to be running.

### **Freewheeling Mode checklist**

- 1) Disengage reel drive hub
- 2) Apply over-spin brake
- 3) Pull the pulling rope off the reel



Figure 3 Reel Drive  
Disconnect



Figure 4 Brake  
Controls

### Hydraulic Pay-out Mode

To start the hydraulic pay-out mode make sure the unit has been properly set-up by location, securely anchored, and grounded properly. Be sure that the reel clutches are in the engaged position, if not rotate the reel by hand until the reel clutch can be engaged.

Apply the palm brake and start the engine, allow enough time for both the engine and hydraulic system oil to warm to operating temperature. Increase the engine RPM and release the palm brake move the directional control handle slightly into the payout position, to start paying out the pulling rope. The directional control-handle controls speed for payout.

### **Hydraulic Payout Mode checklist**

- 1) Engage reel drive hub
- 2) Apply palm brake
- 3) Start engine
- 4) Increase engine RPM

# SECTION "E"

## OPERATIONS

- 5) release palm brake
- 6) Move directional control handle into the payout position slowly.

### PULLING

#### Operation Procedures as a Puller

When operated as a puller the unit is to pull the conductor against the resistance of a tensioner at the opposite end of the set-up. The **PULLER** handles the speed and pull of the conductor. The **TENSIONER** on the other end is in control (during the pull) of the amount of sag or tension on the conductor. This is controlled by increasing or decreasing brake or hydraulic pressure on the bullwheels or drum.

To start the pulling procedure make sure the unit has been properly set-up by location, securely anchored, and grounded properly. Be sure that the reel clutches are in the engaged position, if not rotate the reel by hand until the reel clutch can be engaged. Apply the palm brake and start the engine, allow enough time for both the engine and hydraulic system oil to warm to operating temperature. Next, set the system hydraulic pressure by increasing the RPM's of the engine to operating speed. Pull the directional control handle into the pull-in position to check the hydraulic pressure on the hydraulic gauge. Twist the control knob clockwise to increase the pressure to maximum pressure of not more than 4,750 PSI (this will ensure that the maximum system pressure is operating properly). Decrease the pressure to 800 -1000 PSI by turning the control knob counter-clockwise, this will be your starting linepull pressure.

**NOTE: Always adjust your starting and operating pressure lower to allow the puller to stall out before damaging or over stressing the conductor or utility poles if the pulling rope or conductor is hung up.**

**Note: The following instructions only apply to units with a post type levelwind.** Center your levelwind, by using the levelwind directional control on the console, and open the top fairlead roller and insert the pulling rope. Close and secure the fairlead, and position the levelwind to where the pulling rope is coming off the reel. Use the Levelwind Directional Control on the console to control the post type levelwind during the pull-in mode. The levelwind helps wind the pulling rope onto the pulling reel in an even manner. Return the directional control handle into the neutral position.

**For units without the post type levelwind, the diamond lead-screw levelwind should be used.**

You are now ready to pull in the conductor. Signal or radio the tensioner position that you are going to start the pull. Release the palm brake and pull the directional control lever into the pull-in position slightly. The reel should start to rotate and take up slack on the pulling rope. It is recommended that you pull slowly until the conductor is through the first set of blocks and then signal or radio the tensioner to see if everything is OK to increase the line speed.

If the reel starts to slow down or stalls, increase the pressure setting by turning the pressure control knob clockwise, you do not need to adjust or increase the directional control handle once the line speed has been adjusted. Once the reel starts turning give the control pressure knob an additional  $\frac{3}{4}$  to 1 turn to allow a margin of safety between the actual pulling pressure and maximum linepull pressure. During the pull, the unit may stall or slow down due to the increase of rope on the reel and the weight of the conductor. This will make it necessary to increase the system pressure accordingly.

**NOTE: Always operate near the minimum pressure required to make the pull. NEVER start a pull at maximum system pressure.**

# SECTION "E"

## OPERATIONS

As the pulling rope and conductor comes to the last span and/or last stringing block, signal or radio the tensioner that you are slowing down and stopping. The **PULLER** will slow down the pull by moving the directional control toward neutral position. Once stopped apply the palm brake to stop the drum from spinning backwards. The **TENSIONER** will increase the pressure on the brakes so the bullwheels will not rotate or payout any more conductor. To pull the conductor up to sag the **PULLER** will release the palm brake and increase the system pressure until the reel starts to rotate. Once the conductor is to sag and reel comes to a stop, apply the palm brake and put the directional control into neutral. This should hold the conductor so it can be caught off and terminated.

### Summary for Puller:

#### Operation as a Puller checklist

- 1) Engage reel drive hub
- 2) Apply palm brake
- 3) Start engine
- 4) Set the System Hydraulic Pressure
  - a) Increase the engine rpm's to operation speed
  - b) Move directional control handle into the pull-in position
  - c) Check Maximum system pressure by turning the pressure control knob clockwise and increase pressure to a maximum of 4,750 PSI.
  - d) Decrease system pressure to 800- 1,000 PSI by turning the control knob counter-clockwise.
  - e) Return directional control to neutral position
- 5) Signal or radio the tensioner that the pull is starting
- 6) Release the palm brake
- 7) Move the directional control slightly into the pull-in position
- 8) Adjust hydraulic system pressure if the unit stalls or slow down accordingly.
- 9) As the pull ends, slow down by turning the system pressure knob counter-clockwise. After the reel stops apply the palm brake.
- 10) Tensioner is to tighten down the brakes on the bullwheels or apply the palm brake.
- 11) Release the palm brake on the puller and increase the system pressure by turning the control knob clockwise until the reel starts rotating. Increase the pressure until the conductor is pulled up to sag.
- 12) Once conductor sag has been achieved, stop the reel and apply the palm brake. The directional control handle then can be positioned into neutral.
- 13) Conductor is to be terminated

# SECTION "F"

## ROUTINE MAINTENANCE

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# SECTION "F"

## ROUTINE MAINTENANCE



The Wagner-Smith Company Model T-4DP-115 is a self contained Trailer Mounted Four Drum Puller with air brakes. This unit must be given regular care and operated in accordance with instructions.

Since this unit has an advanced designed hydraulic system it is extremely important that the hydraulic system be kept clean. It is suggested that a good periodic preventative maintenance schedule be followed in maintaining this unit.

When receiving this unit, it should be checked for damage from shipping. Also the following checks should be made:

# SECTION “F”

## ROUTINE MAINTENANCE

### BEFORE STARTING ENGINE

1. All mounting bolts and nuts for tightness.
2. Check the engine oil level (Fig. 1).
3. Do the following BEFORE STARTING THE ENGINE for the first time each day:
  - **IMPORTANT: NEVER operate the engine with the oil level below the lower mark or above the higher mark on the dipstick.**
4. Check engine oil level on dipstick. Add oil as required, using seasonal viscosity grade oil. (See DIESEL ENGINE OIL in Fuels, Lubrications, and Coolant Section for oil specification in engine manual in Section “J” of this manual.)



Figure 1 Engine  
Oil Dipstick

5. Check coolant system level (Fig. 2).
  - Check the coolant level when the engine is cold. Coolant level should be at bottom of filler neck. Fill the radiator (Fig. 2) with proper coolant solution if the level is low. (See ADDING COOLANT in Service As Required Section in engine manual in Section “J” of this manual). Check overall cooling system for leaks.

**CAUTION: Explosive release of fluids from pressurized cooling system can cause serious burns.**

**Only remove the filler cap when the engine is cold or when cool enough to touch with bare hands. Slowly loosen the cap to first stop to relieve pressure before removing completely.**



Figure 2  
Radiator

6. Check air cleaner dust unloader (Fig. 3).
  - The air cleaner has an automatic dust unloader valve (Fig. 3A), squeeze the unloader valve on air cleaner assembly to clear away any dust buildup.

**IMPORTANT: Maximum air intake restriction is 6.25 kPa (0.06 bar) (1.0 PSI) (25 in. H<sub>2</sub>O). A clogged air cleaner element will cause excessive intake restriction and a reduced air supply to the engine.**

# SECTION "F"

## ROUTINE MAINTENANCE



Figure 3 Air Cleaner  
Dust Unloader

7. Check key switch (Fig. 4).
  - Turn key switch to "ON" position and if panel on Engine Diagnostic Gauge lights up.



Figure 4 Key  
Switch

8. Check fuel filter (Fig. 5).
  - Check the transparent fuel filter bowl for water and dust. If dust deposits are visible, replace the filter and clean filter bowl. (See REPLACE FUEL FILTER ELEMENT, in Lubrication and Maintenance/400 hour/6 Month Section in engine manual in Section "J" of this manual.)

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## ROUTINE MAINTENANCE



Figure 5 Fuel Filter

9. Check engine compartment.
  - Make a thorough inspection of the engine compartment. Look for oil or coolant leaks, worn fan and accessory drive belts, loose connections and trash buildup, and have repairs made as needed if leaks are found.

**NOTE: Wipe all fittings, caps, and plugs before performing any maintenance to reduce the chance of system contamination.**

10. Inspect:
  - a. Radiator for leaks and trash buildup.
  - b. Air intake system hoses and connections for cracks and loose clamps.
  - c. Fan, alternator, and accessory drive belts for cracks, breaks or other damage.
  - d. Water pump for coolant leaks.

**NOTE: It is normal for a small amount of leakage to occur as the engine cools down and parts contract. Excessive coolant leakage may indicate the need to replace the water pump seal. Contact your engine distributor or servicing dealer for repairs.**

11. Check hydraulic system oil level (Fig. 6).
  - Oil level must be on full mark before daily startup.
  - Operating oil temperature should range in the following:
    - 40° F Intermittent, cold start
    - 220° F Continuous
    - 240° F Intermittent



Figure 6 Hyd. Oil Level Gauge w/Temp. Indicator

12. Hydraulic reservoir shutoff valve is open (Fig. 7).
  - The shutoff valve (Fig. 7A) is located in the suction line of the pump, between the reservoir and filter. Turn the valve handle counterclockwise until fully opened. When the system needs service turn valve handle clockwise until fully closed.

# SECTION "F"

## ROUTINE MAINTENANCE



Figure 7 Oil Reservoir  
Shutoff Valve

13. Check fuel gauge (Fig. 8).



Figure 8  
Fuel Gauge

14. Hydraulic system gauge should read zero (Fig. 9).

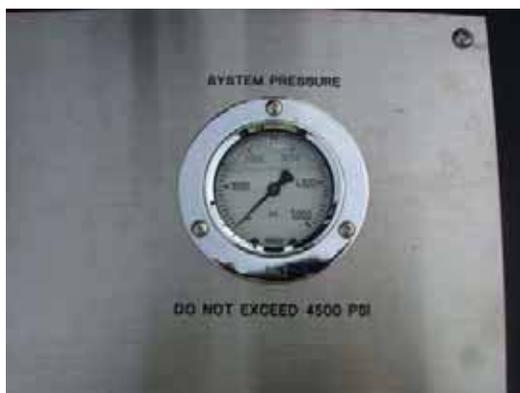


Figure 9 Hyd.  
System Gauge

# SECTION "F"

## ROUTINE MAINTENANCE

### AFTER STARTING ENGINE

1. For any fuel leaks.
2. For any hydraulic oil leaks.
3. Hydraulic system gauge.
  - Hydraulic system pressure gauge (Fig. 9) should read at about 350 PSI with directional control lever (Fig. 10) in the neutral position.
  - Hydraulic system pressure gauge (Fig. 9) should read at about 1,000 PSI with directional control lever (Fig. 13) in the payout position and the brake set (Fig. 11).
  - With the brake set (Fig. 11) and the directional control lever (Fig. 14) in the pull-in position, and using the pressure control (Fig. 12) to change the pressure, it should be adjustable from 500 – 4,750 PSI.



Figure 10 Directional Control Lever



Figure 11 Hydraulic Brake



Figure 12 Hyd. System Pressure Control

4. With the brake released (Fig. 11), to place the directional control lever (Fig. 14) slightly to the pull-in position, the reel drive will rotate toward the pull-in direction slowly. To move the directional control lever (Fig. 14) further into the pull-in position the speed of the reel drive will increase. To return the directional control lever (Fig.10) to the neutral position will stop the reel drive from rotating. To place the directional control lever (Fig. 13) into the pay-out position the reel drive will rotate in the opposite direction. In the event that the reel will not completely stop when the lever is returned to the neutral position see Sundstrand Service Manual in Section "J" of this manual for adjusting instructions.

# SECTION "F"

## ROUTINE MAINTENANCE



Figure 13 Directional Control in Pay-Out Position

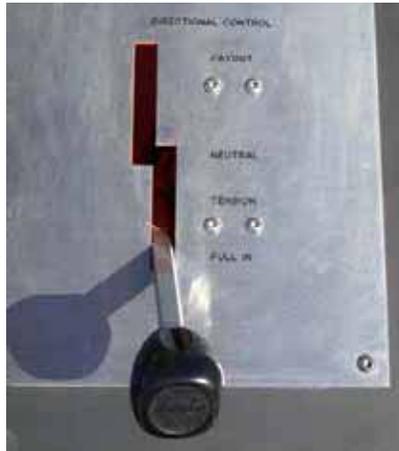


Figure 14 Directional Control in Pull-In Position

5. Check drive chain and sprockets (Fig. 15).
  - Chain should be tight (Fig. 15).
  - Sprockets should be in alignment (Fig. 15).

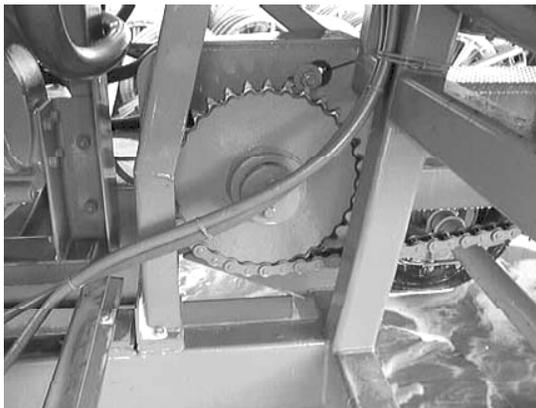


Figure 15 Drive Chain and Sprockets

### A DAILY INSPECTION SHOULD BE MADE EACH DAY THE UNIT IS IN USE

1. Before starting the engine check:
  - a. Engine oil level (Fig. 1).
  - b. Engine fuel level (Fig. 8).
  - c. Hydraulic system oil level (Fig. 6).
  - d. The hydraulic oil shutoff valve is open, turned fully counterclockwise (Fig. 7).
  - e. Hydraulic oil system pressure gauge reads zero (Fig. 9).
2. After starting the engine check:
  - a. Hydraulic system pressure gauge (Fig. 9) reads 350 PSI with directional control lever (Fig. 10) in the neutral position.
  - b. Check for any fluid leaks.
  - c. If there is any unusual noises shut down engine immediately.
3. After engine shutdown check:
  - a. For any fluid leaks.
  - b. Loose nuts and bolts.
  - c. Hydraulic oil reservoir filler cap in place and secure.

# SECTION “F”

## ROUTINE MAINTENANCE

### EACH 50 HOUR INSPECTION

1. Check for water in hydraulic oil (water will cause the oil to look milky).

### EACH 100 HOUR INSPECTION

1. Perform 50 hour inspection.
2. Refer to engine manual in Section “J” of this manual.
3. Check battery fluid level (Fig. 17).



Figure 17  
Battery

Because the battery is the “heart” of the electrical system, periodic checks are necessary to keep functioning properly. Keep the battery fluid level to bottom of filler neck with distilled water. If water is added during freezing weather, run the engine 20 to 30 minutes before shutting it off. This mixes the added water with the electrolyte and will prevent it from freezing and damaging the battery. Have the battery charge checked regularly during extreme cold weather.

Keep battery clean by wiping it with a damp cloth. Keep all connections clean and tight. Remove any corrosion, and wash the terminals with a solution of 1 part baking soda and 4 part's water. Tighten all connections securely.

Coat the battery terminals and connectors with a mixture of petroleum jelly and baking soda to retard corrosion.

**CAUTION: Keep fire away from the top of open battery cells. Combustible gas is always present.**

4. Check the drive chain for alignment (Fig. 15).
5. Sprockets must be aligned accurately. This can best be accomplished by checking with a straight edge along the finished sides of the sprockets. Chain should be lubricated with a **Synthetic lubricant with molybdenum disulfide anti-wear additive.**

### EACH 200 HOURS/3 MONTHS INSPECTION

1. Perform 100 hour inspection.
2. Refer to engine owners and operator's manual.
3. Grease Reel Shaft Bearings (Figs. 18 & 19).

# SECTION "F"

## ROUTINE MAINTENANCE



Figure 18 Reel  
Shaft Bearings

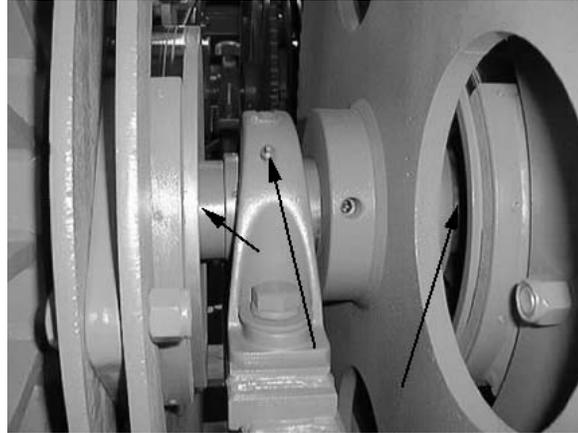


Figure 19 Reel  
Shaft Bearings

The amount of grease that the bearing will take for a particular application can only be determined by experience. If excess grease is applied to the bearing it will cause overheating. It will be necessary to remove grease fitting to permit excess grease to escape. When establishing a relubricating schedule, note that a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals. **Use a No. 2 Lithium base grease or equivalent.**

### EACH 600 HOUR/I-YR INSPECTION

1. Check Air Intake System.

**IMPORTANT: The air intake system must not leak. Any leak, no matter how small, may result in engine failure due to abrasive dirt and dust entering the intake system.**

2. Inspect all intake hoses (piping) for cracks. Replace as necessary.
3. Check clamps on piping which connect the air cleaner to engine. Tighten clamps as necessary. This will help prevent dirt from entering the air intake system through loose connections causing internal engine damage.
4. Inspect the rubber dust unloader valve on the bottom of air cleaner for cracks or plugging. Replace as necessary.

**IMPORTANT: See engine maintenance manual for detailed instructions on servicing the air filter.**

### HYDRAULIC SYSTEM

**CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting fuel or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles that eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.**

**If any fluid is injected into the skin, a doctor familiar with this type injury must surgically remove it within a few hours or gangrene may result. Doctors unfamiliar with this type of injury may call the Deere & Company Medical Department in Moline, Illinois, or another knowledgeable medical source.**

# SECTION “F”

## ROUTINE MAINTENANCE

1. Fluid and Filter Maintenance
2. Change Hydraulic Fluid Filter (Fig. 23).

Unless otherwise specified on the applicable unit specification, should not produce more than 5 in Hg at the charge pump when new and should be changed when inlet vacuum is 10 in Hg. Exceeding these values may result in charge pump cavitation, aerated fluid and life reduction of the transmission. These values apply at normal operating speeds and temperatures. Cold weather startups may exceed these values.

Before removing the oil filter element (Fig. 23) turn off oil flow to filter by closing valve (Fig. 24A). After replacing filter be sure to reopen valve (Fig. 24A) before restarting the system.

**It is recommended that the fluid and filter be changed every 2,000 hours.**



Figure 23: Hydraulic Fluid Filter



Figure 24: Hydraulic Oil Shutoff

It may be necessary to change the fluid more frequently than the above intervals if the fluid becomes contaminated with foreign matter (dirt, water, grease, etc.) or if the fluid has been subjected to temperature levels greater than the recommended maximum. Never reuse fluid.

The filter should be changed whenever the fluid is changed or whenever the filter indicator shows that it is necessary to change the filter.

Hydraulic fluid for all Wagner-Smith hydraulic systems use **Exxon Unavis-N ISO Grade 46**. Consult Wagner-Smith before using any other hydraulic fluids.

**CAUTION: Do Not Mix Hydraulic Fluids.**

### PUMPS AND MOTORS SERVICING

1. For servicing the Sundstrand Pump (42R28) see the Sundstrand Service Manual (BLN-10093 Rev. A) and for Sundstrand Motor (MMF-035) see Sundstrand Service Manual (BLN-9991) in Section “J” of this manual.

# WARRANTY

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The manufacturer agrees to furnish to the purchaser any part or parts found so defective without expense to the owner of such equipment and will install said parts free of cost to the owner, at the manufacturer's plant in Burleson, Texas, or such other place closer to the location of the equipment, as may be designated by the manufacturer.

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No representative of the manufacturer has authority to change this warranty on this contract in any manner whatsoever, and no attempt to repair or promise to repair or improve the equipment covered by this contract by any representative of the manufacturer shall waive any consideration of the contract, change, or extend this warranty in any manner whatsoever.

The warranty hereinabove is effective only if the purchaser reasonably maintains the equipment and it is kept lubricated and otherwise used according to the manufacturer's instructions.

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