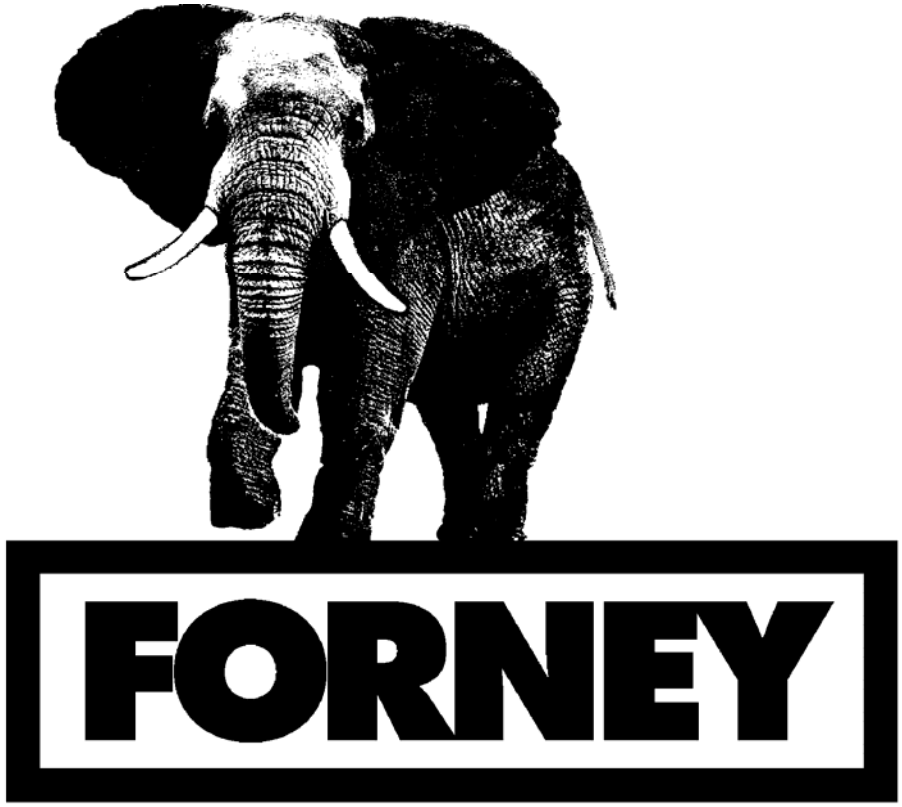
INSTRUCTION MANUAL
F-502
COMPRESSION TESTING MACHINE
MN-F-502



Contents

Warranty, Service and Return Policy
F-502 Series Testing Machines

Statement of Warranty

Subject to the terms and conditions as stated herein, Forney Inc. warrants all F-502 Series testing machines to be free from defects in material, and factory workmanship, for a period of twenty-four (24) months from the date of shipment from Hermitage, Pennsylvania.

Terms and Conditions of Warranty

A. If within 24 months from the date of shipment from the Forney factory, the F-502 Series tester malfunctions, is noted defective or not complying with the stated A.S.T.M. specification, you must contact the Forney service department for disposition under warranty. Forney Inc. will repair, replace, or credit, (at Forney option and expense), all items found defective while under warranty. Items not manufactured by Forney, will carry the vendor warranty extended by the vendor to Forney Inc. Some items in this category include: digital equipment, pressure transducers, hydraulic pumps & valves, and computer printers.
B. Items not covered under warranty are those considered to be maintainable such as: O-rings and back-up rings, fittings, hoses, filters, etc.

C. The warranty does not cover expenses, either direct or indirect, that may arise from the use or inability to use these products. Liability for financial losses, injury or damage caused to persons or property, are the sole responsibility of the purchaser. The warranty does not cover the second owner in the event of resale. The warranty does not cover on-site calibration or transportation costs due to replacement or repair of warranted items.

D. The warranty is void if defects result from misuse, negligent handling, improper installation, or accidental damage caused by fire, water, or an act of God.

E. Forney Inc. reserves the right to make improvements in materials and design on products without notice and without obligation to incorporate the same improvements on previously manufactured products.

F. To qualify for warranty, all repairs or modifications must be authorized by Forney Inc. All serial numbers must be intact and unaltered

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Freight Carrier Damage

Claims for equipment damaged in transit must be returned to the freight carrier by the receiver. Visible damage must be reported immediately or shipment rejected. Concealed damage must be reported within fifteen (15) days from receipt of shipment, in accordance with the freight carrier's regulations.

Serial Number: _____ Date: _____

Installation Procedure

1. Before uncrating, inspect to see that no visual damage has occurred during shipment. If damage has occurred, notify the delivering carrier immediately.

2. Locate the packing list and carefully uncrate and remove. Check parts and units against the packing list to make sure the shipment is complete.

3. It is recommended that the machine be located in an area where the atmosphere is free from acidic or contaminating fumes, which could possibly accelerate corrosion to, machined surfaces or electrical contacts.

4. Machines equipped with electronic load monitors should be located in a heated lab type environment where humidity or condensation is not a problem.

5. A dedicated electric outlet is strongly recommended to help insure that proper electric is provided to the unit.

6. An inline surge suppressor (TA-1235-55) should be installed to protect against power surges and lightning strikes.

7. The machine should be positioned allowing sufficient space at the side and rear for calibration, servicing, and working space.

8. The machine should be accurately leveled.

9. Clean off the machine surfaces that have been coated with rust preventative using any suitable non-corrosive safety solvent. Wipe machined surfaces with a clean, oiled cloth to minimize rusting.

10. If the oil reservoir has been drained for shipment, fill with Dexron III Automatic Transmission Fluid.

ACCESSORIES (METHOD OF INSTALLATION)

F- 502F Series Machine Accessories:

All accessories for this machine are held in place by a draw rod (Part # TM-3300-16). Spacers can be used when changing from one size specimen to another to close down the daylight opening between the top of the specimen, and the bottom of the accessory.

Accessory Installation

1. Stack the testing accessory and spacer (or spacers) on the machine work platen.
2. Slide the draw rod through the center hole in the top of the machine and then through the spacer (or spacers) that will be used with the testing accessory.
3. Thread the draw rod into the testing accessory by turning the T-Nut at the top of the draw rod clockwise, and securing it tightly into the accessory.
4. Turn the hand wheel clockwise while holding the T-Nut at the top of the draw rod firmly. Continue turning the hand wheel until the testing accessory and spacers are drawn up tightly to the top block of the frame.

Safety Features (F-502 Models)

1. An adjustable relief valve on the pump protects the testing machine from becoming overloaded.
2. A limit switch has been installed and will shut off the power to the electric motor & pump assembly if the piston should be extended beyond the 2 ½" travel limit.
3. Fragment guards are standard equipment and have been installed to protect the operator from flying debris.

Calibration after Installation

Forney Testing Machines are factory-calibrated in accordance with applicable specifications. During the calibration procedure, all accuracy adjustments are made, along with setting the safety devices. Even though the testing machine is completely factory calibrated and serviced, ASTM requires a second calibration or verification of the machine after delivery and setup, to insure the highest degree of accuracy possible.

Calibration & Service

Forney Inc. offers complete on-site calibration & service that is coordinated through our Authorized Regional Service Representatives. (See Pages 16-22)

Replacement Parts

When ordering parts, refer to the applicable model and serial number of your testing machine. This information can be found on the data tag attached to your machine.

Sequence of Operation
Testers Equipped with Control Valve, HA-0619

1. Motor switched off, carefully center specimen in testing machine.
2. Turn Control Knob No. 2 clockwise to a snug position.
3. Position Valve Control Handle No. 1 to the “Metered Advance” position.
4. Turn on the electric pump.
5. If a fast preload is desired, position Valve Control Handle No. 1 to “Full Advance”.
6. Watch the load monitor closely and when the desired preload has been attained, move Valve Control Handle No. 1 to the “metered” position.
7. To increase the rate of loading, turn Control Knob No 2 counterclockwise.
8. To decrease the rate of loading, turn Control Knob No. 2 clockwise.
9. To hold pressure at any desired point, position Valve Control Handle No. 1 to the “Hold” position.
10. To release pressure so that the platen will return after a test has been completed, position Valve Control Handle No. 1 to the “Retract” position.

FUNCTIONS OF THE HA-0619 CONTROL VALVE

(REFER TO FIG. 1)

Metered Advanced Position

This position of the Control Handle No. 1 allows the operator to adjust the rate of loading. Using Control Knob No. 2 as the adjustment, turn the control knob clockwise for a decrease and counterclockwise for an increase in the rate of load.

Full Advance Position of Control Handle No. 1

This places the machine in a rapid advance, non-controlled rate. This is used chiefly for setting a pre-load or positioning the crosshead.

Hold Position of Control Handle No. 1

This position holds the pressure constant on the specimen.

Control Knob No. 2

With valve Control Handle No. 1 in the metered advance position, this knob allows the operator to accurately control the loading rate. Turn the control knob clockwise for a decrease, and counterclockwise for an increase in the rate of load.

Retract Position of Control Handle No. 1

This position channels oil from the pump to the reservoir releasing pressure from the specimen, and allowing the piston to retract.

Note: During operation, the flow control valve will go through a significant temperature rise. Do not be alarmed, as this rise will not affect the operation of the testing machine.

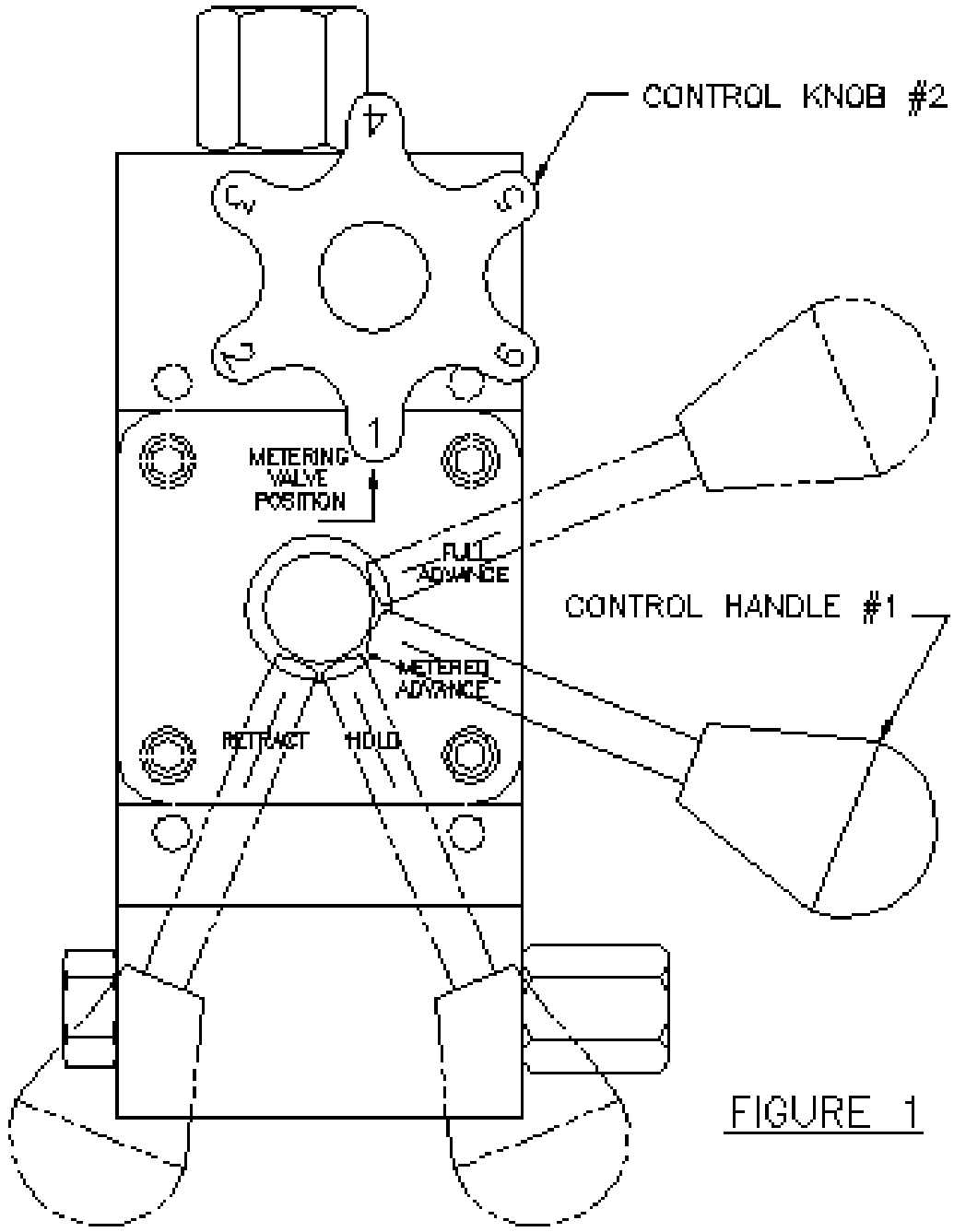


FIGURE 1

FUNCTIONS OF CONTROLS
HA-0619 CONTROL VALVE

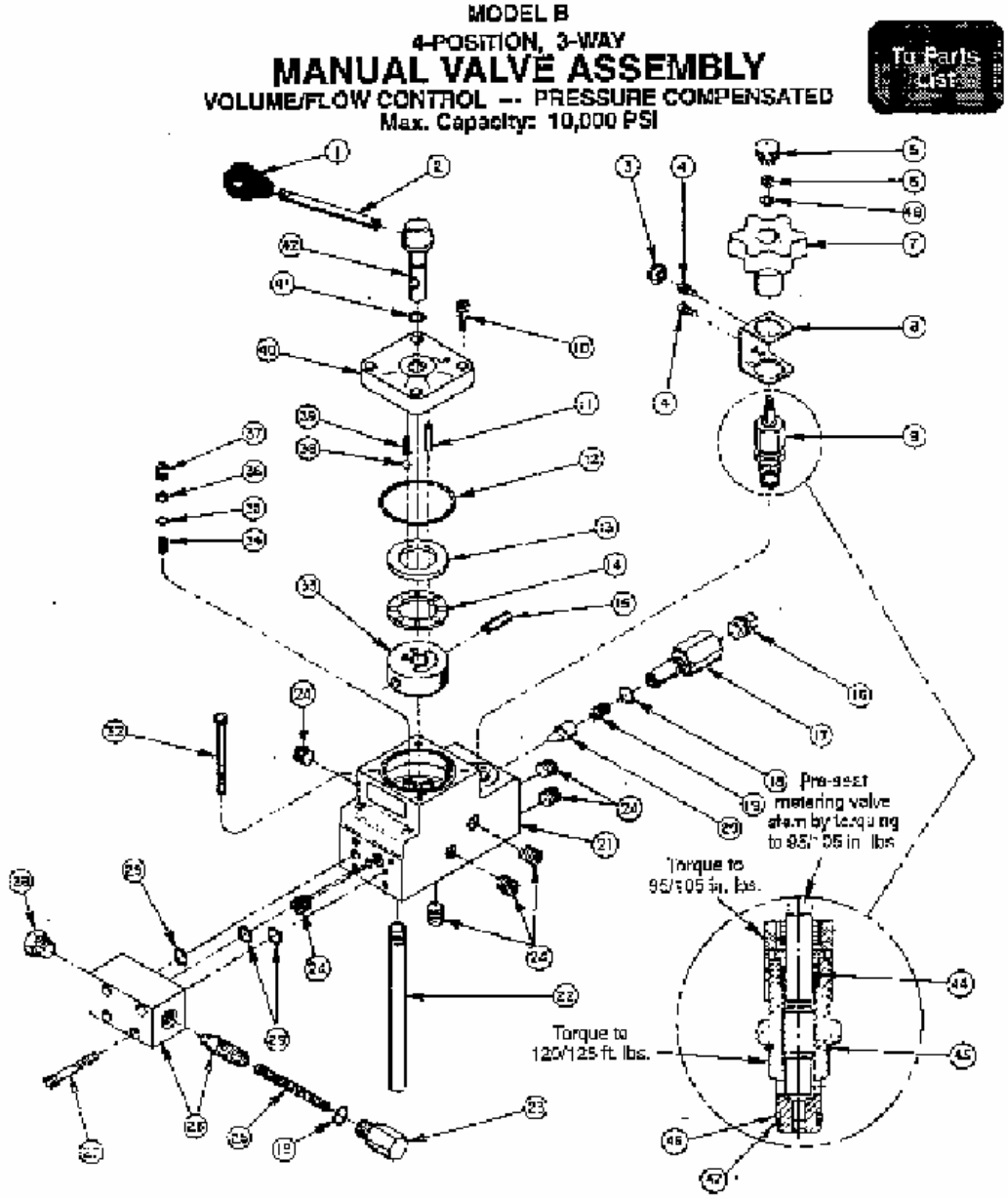
SPX POWER TEAM

Form No. 101373

Parts List for:

60916-FORN

MODEL B
4-POSITION, 3-WAY
MANUAL VALVE ASSEMBLY
VOLUME/FLOW CONTROL -- PRESSURE COMPENSATED
Max. Capacity: 10,000 PSI



Control Valve Parts List

ITEM No.	PART No.	NO. Req`d,	DESCRIPTION
1	250885	1	Knob
2	21639	1	Stud
5	11455	1	Snap Plug
6	11010	1	Machine Nut (#10-32 UNF)
7	44708	1	Valve Knob
9	302938	1	Flow Control Valve
10	10008	4	Socket Cap Screw (1/4-20 x ¾"LG.)
11	11916	1	Roll Pin
12	11229	1	O-ring (2 3/8" x 2 3/16" x 3/32")
13	11227-1	1	Bearing Race
14	11228	1	Thrust Bearing
15	10496	1	Roll Pin (5/16" x 1" Lg.)
16	11127	1	Plug (3/8" NPTF)
17	302939	1	Adaptor
18	10300	2	O-Ring (.468 ID x .078 cs)
19	10425	1	Compression Spring (3/8" x ¾")
20	20771	1	Poppet
21	64528	1	Valve Body
22	21298	1	Drain Line
23	204748	1	Spring Retainer Fitting
24	15134	1	Pipe Plug (1/16" NPTF)
25	207404	1	Compression Spring (5/16" x 2 7/16" Lg.)
26	302953	1	Spool & Body Assembly
27	10022	4	Socket Head Cap Screw
28	11953	1	Plug
29	10269	3	O-Ring (3/8" x 9/16" x 3/32")
32	10855	4	Socket Head Cap Screw (1/4-20 x 2 ¾")
33	44686	1	Rotor
34	10146	4	Compression Spring (19/64" O.D. x 7/16" Lg.)
35	10266	4	O-Ring ¼" x 3/8" x 1/16")
36	12184	4	Backup Washer (Teflon)
37	207381	4	Shear Seal
38	10375	1	Steel Ball
39	16320	1	Compression Spring (1/4" O.D. X ¾" Lg.)
40	201814	1	Valve Body Cap
41	10268	1	O-Ring (3/8" x ½" x 1/16")
42	207380	1	Valve Stem
44	10267	1	O-Ring (7/16" x 5/16" x 1/16")
45	10527	1	O-Ring (13/16" x .644 x .087)
46	15500	1	Backup Washer (9/16" x 7/16" x .048)
47	12098	1	O-Ring (9/16" x 7/16" x 1/16")
48	10241	1	Lockwasher

SPX POWER TEAM VALVE # HA-0619

REPAIR PARTS

PART #	DESCRIPTION
HA-0619-47	Valve Knob
HA-0619-48	Compression Spring (19/64 O.D.X 7/16 Lg.)
HA-0619-49	Flow Control Valve
HA-0619-51	Spool & Body Assembly
HA-0619-53	Spring Washer
HA-0619-54	O-Ring (1/4x3/8x1/16)
HA-0619-55	Teflon Backup Washer
HA-0619-56	Shear Seal
HA-0619-57	Rotor
HA-0619-58	Roll Pin (5/16x1Lg.)
HA-0619-59	O-Ring (2 3/8 x 2 3/16 x 3/32)

The above list includes the most common repair parts requested, and the part numbers can be used to order from a Forney sales associate.

SPX POWER TEAM VALVE REPAIR KIT # HA-0619-62

The SPX Power Team Valve Repair Kit includes the following parts:

		QTY.
HA-0619-48	Compression Spring	4
HA-0619-53	Spring Washer	4
HA-0619-54	O-Ring 3/8x1/4x1/16	4
HA-0619-55	Teflon Backup Washer	4
HA-0619-56	Shear Seal	4
HA-0619-57	Rotor	1
HA-0619-58	Roll Pin 5/16x1	1
HA-0619-59	O-Ring 2 3/8 x 2 3/16 x 3/32	1

We recommend that you contact a FORNEY authorized service technician to service and install repair parts on your machine.

F-SERIES
EQUIPPED WITH SPX POWER TEAM PUMP

The oil reservoir has been filled prior to shipment with Dexron III Automatic Transmission Fluid.

NEVER OPERATE THE ELECTRIC PUMP WITHOUT OIL!!!

Keep the oil level to approximately 1" to 1 ½" from the top of the reservoir with the hydraulic piston in the testing machine retracted all the way.

NOTE: The reservoir capacity of the ¾ hp. pump is 2 gallons, and the reservoir capacity for the ½ hp. pump is 7 quarts.

The electric pump operates on 115/220 volts, 50/60 cycles, single phase current unless otherwise ordered. If the voltage of the pump is changed, be absolutely sure the rotation is in the correct direction according to the arrow on the motor.

The electric pump is practically noiseless when idling; however, as pressure builds up, the pumping noise gradually increases, but this is not cause for alarm. If the pump becomes excessively noisy, check the filter element for possible dirt particles.

Operating Instructions
SPX Power Team Pump

This two-stage hydraulic pump incorporates precision design and engineering features, which make it the most outstanding pump of its kind on the market. All moving parts are made from high-grade tool steel, heat-treated, machined, ground and lapped to extremely close tolerances to assure efficient operation and long life. Peak efficiency for either continuous or intermittent operation is assured at the full range of pressures up to 10,000 P.S.I. You will have uninterrupted, trouble free service if you keep it clean and use only high grade, Dexron III Automatic Transmission Fluid.

NOTE: The reservoir capacity of the ¾ hp. pump is 2 gallons, and the reservoir capacity for the ½ hp pump is 7quarts.

How to Operate the Pump

1. Check the oil level in the reservoir to be sure it is at the correct level.

2. Make sure all valve and hose connections are tight.

3. Plug in the power cord.

4. Set the control valve in the hold or retract position,

5. Turn on the power switch to your pump and let the pump idle for a few minutes.

6. Use the control valve to advance the piston out to its full travel limit of (2 ½") several times to eliminate air from the system.
   DO NOT EXTEND BEYOND THE 2 ½" TRAVEL LIMIT!

The pump is now ready to be put into regular operation using the control valve to perform testing operations.

Preventive maintenance
F-502F Series Machines

Keeping this unit clean and the oil free of dirt will increase the life of the pump & valve

The reservoir should be drained, cleaned, and replenished with clean oil at least once a year or more often if possible. The frequency of the oil change will depend on the general working conditions, hours of use, and the overall cleanliness and care given to the pump & valve.

The following operations should be performed with the power off and the piston should be retracted.

Draining & Cleaning the system

Using a 3/16" Allen wrench, loosen the Allen head screws and remove the loading valve from the cover plate, to perform the following steps.

1. Thoroughly clean the pump exterior before the pump interior is removed from the reservoir.
2. Remove the Phillips head screws that fasten the motor and pump assembly to the reservoir.
3. Lift the pump and motor off the reservoir carefully to avoid damaging the gasket or any internal components.
4. Clean the inside of the reservoir and fill it half full of clean ATF DEXRON III.
5. Place the pump and motor assembly back into the reservoir and secure with 2 machine screws assembled on the opposite corners of the housing.
6. Connect a hose to the pressure port that the valve was sitting on; place the other end of the hose in the hole next to the port.
7. Run the pump for several minutes and then disconnect the motor & pump assembly.
8. Drain & clean the inside of the reservoir.
9. Clean or replace the screen on the pump.
10. Fill the reservoir with clean Dexron III Automatic Transmission Fluid to the proper level.

NOTE: The reservoir capacity of the ¾ hp. pump is 2 gallons, and the reservoir capacity for the ½ hp pump is 7quarts.

11. Place the pump & motor assembly with the gasket on the reservoir and tighten all the screws.

Preventive Maintenance
F-502F Series Machines

Checking & maintaining the oil level

1. Check the oil level in the reservoir by removing the plastic cap on the top of the cover plate, the oil level should come to within 1" to 1 ½" of the cover plate with the piston retracted. If the level is okay, replace the cap.
2. When it is necessary to add oil to the reservoir, remove the cap and fill the reservoir to the proper level with DEXRON III AUTOMATIC TRANSMISSION FLUID. **(Do Not Overfill)**

NOTE: The reservoir capacity of the ¾ hp. pump is 2 gallons, and the reservoir capacity for the ½ hp pump is 7quarts.

How to Fill the Reservoir with Hydraulic Oil

1. Viewing the top of the reservoir, you will notice a plastic screw-in-plug. This is the fill hole for hydraulic oil. Clean the area around the plug to remove all dust and grit before removing the screw-in-plug. Any foreign particles in the oil could damage pump surfaces resulting in loss of performance.

2. Insert a clean funnel with filter.

3. Fill with oil to within 1" to 1½" from the top of the filler hole.

4. Replace the plug.

Bleeding air from the system

Upon initial start up, air can accumulate within the hydraulic system. The trapped air can cause the system to advance slowly or surge and make the motor become noisy. To remove the trapped air, try the following steps.

1. With oil in the unit and the machine ready to operate under zero load, advance the piston or platen out toward the 2 ½" travel limit of the machine and then retract to the starting position. DO NOT ADVANCE PAST THE TRAVEL LIMIT OF 2 ½". This should be done several times to work the air out of the system. If this does not remove all of the trapped air, you can perform step #2.

2. With oil in the unit and the machine ready to operate under zero load, loosen a couple of turns, but do not remove, a hose fitting that is situated higher than the rest of the hose fittings in the system. Run the pump until a steady flow of oil, free of air bubbles is observed. Re-Tighten the fitting.

Forney Authorized Service Representatives
Revised December 12, 2001

Name and Address	Territory
A&A Enterprises (11455) 12421 Charloma Dr. Tustin, CA 92780 Phone: (714) 730-7726 Fax: (714) 730-3685 Attn: W.P. "Bunk" Haines & Ricky Gore	California(Fresno&South) Guam Saipan Kwajalein
American Calibration & Testing(32926) 34 Forest Park Ave. N. Billerica,MA 01862-1333 Phone: (978) 670-2361 Fax: (978) 671-6423 Attn: Gordon Mooney	Connecticut Long Island Maine Massachusetts New Hampshire New York City Rhode Island Vermont
Applied Technical Services, Inc.(19372) 1280 Field Parkway Marietta, GA 30066 Phone: (770) 514-3299 Fax: (678) 819-1055 Attn: Lee Oxendine or Darren Black	Alabama Georgia S. Carolina Tennessee(east of Nashville)
Arizona Calibration (18318) 761 S. Roca Mesa, AZ 85204 Phone: (480) 641-2994 Fax: (480) 854-0996 Mobile: (480) 859-7494 Pager: (602) 210-2994 Attn: Mike Gourde	Arizona New Mexico S. Colorado S. Nevada S. Utah

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National Calibration, Inc.
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Salt Lake City, Utah 84120
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Fax: 801-972-3653
Attn: Rod Wickham

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295 Old County Rd. Suite #2
San Carlos, CA 94070
Phone: (650) 591-2177
Fax: (650) 591-2328
Attn: Brian Richardson or Dave Mazza

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Pyrometeric Service Company (19860)
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Seattle, WA 98108
Phone: (206) 762-8307
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