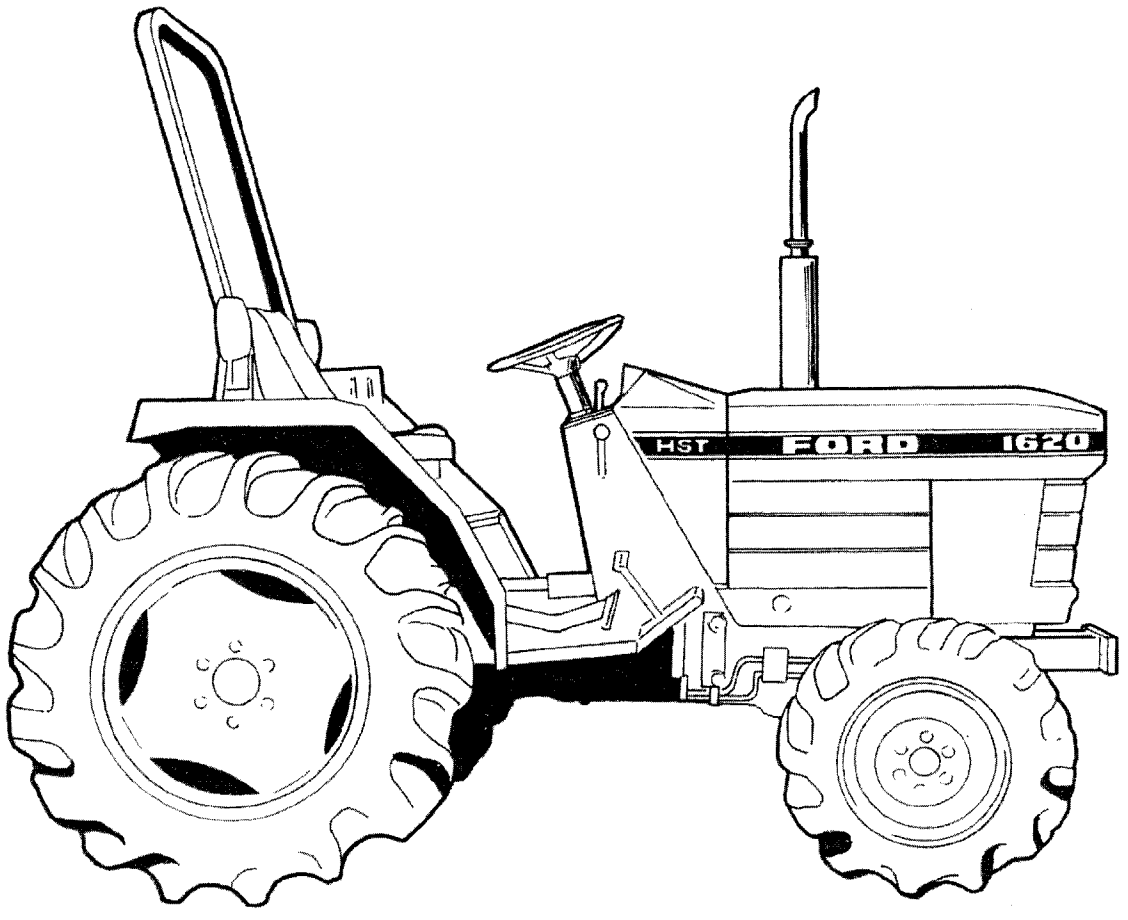
FORD

Service Manual

1620 Tractor

Supplement to 1320, 1520, 1720 Repair Manual



FOREWORD

Only components that are unique to the 1620 tractor will be contained in this manual. For all other components of the tractor, refer to the 1520 sections of the 13-15-1720 Repair Manual #40132030.

Each section contains information on general operating principles, detailed inspection and overhaul and, where applicable, troubleshooting, special tools and specifications.

The material contained in this Manual was correct at the time of going to print, but Ford New Holland, Inc. policy is one of continuous improvement and the right to change prices, specifications, equipment or design at anytime without notice is reserved. All data in this Manual is subject to production variations, so overall dimensions and weights should be considered as approximate only and the illustrations do not necessarily depict the unit to standard build specification.

FORD NEW HOLLAND, INC.

PRODUCTION DATE CODES AND SERIAL NUMBERS

The Tractor Identification Plate is located on the left side of the transmission case on the Ford 1620 Tractor and is stamped with the following information:

Production Identification Number — Two letter prefix followed by the Tractor Serial Number.

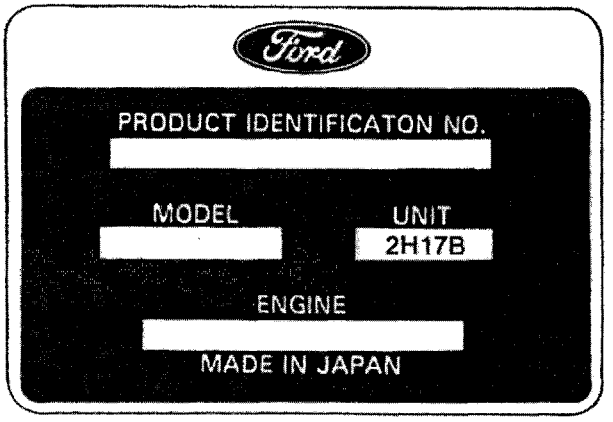
Whenever effecting repair or overhaul the relevant series information should be noted and used when referring to Service Bulletins and/or the Parts Catalog.

Model — Production Model Code

Unit — Production Unit Date Code*

Engine — Serial Number and Engine Production Date Code

TRACTOR SERIES IDENTIFICATION PLATE



First Number YEAR	First Letter MONTH	Second Number DAY OF MONTH	Second Letter PRODUCTION SHIFT
0 — 1990	A—Jan. G—July	01/28/29/30/31	A—Midnight
1 — 1991	B—Feb. H—Aug.		B—Day
2 — 1992	C—March J—Sept.		C—Afternoon
3 — 1993	D—April K—Oct.		
4 — 1994	E—May L—Nov.		
5 — 1995	F—June M—Dec.		

*Example of Production Unit Date Code 2 H 17 B

- 2 — Year of Final Assembly 1992
- H — Month of Year August
- 17 — Day of Month (Seventeen)
- B — Shift Period Day

SECTION 1
ENGINE SYSTEMS
ENGINE

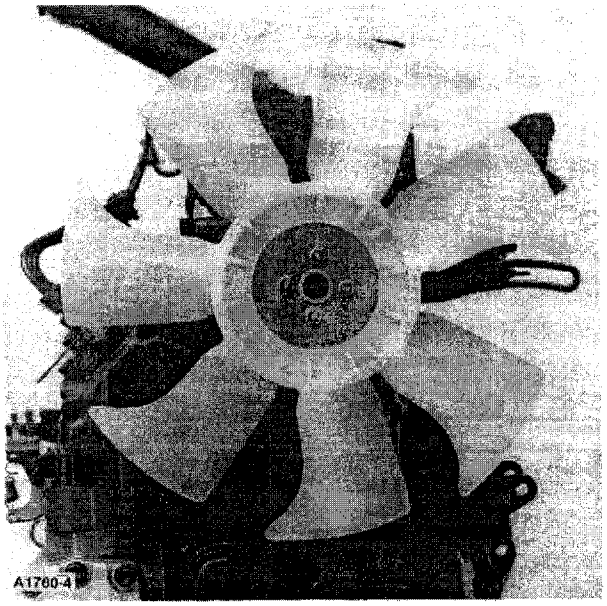
Engine Model Number **Figure 1-1**

DESCRIPTION

The 1620 tractor is equipped with a three-cylinder in-line engine. It is a four cycle, overhead valve liquid cooled, parent cylinder bored engine. The engine is identified by a code number cast into the lower right side of the cylinder block, Figure 1-1.

Engine Identification	Tractor Model	Horsepower
J843	1620	26.0

COOLING SYSTEM



Cooling Fan **Figure 1-2**

The 1620 tractor has the same cooling system as the 1520 tractor except for the following changes.

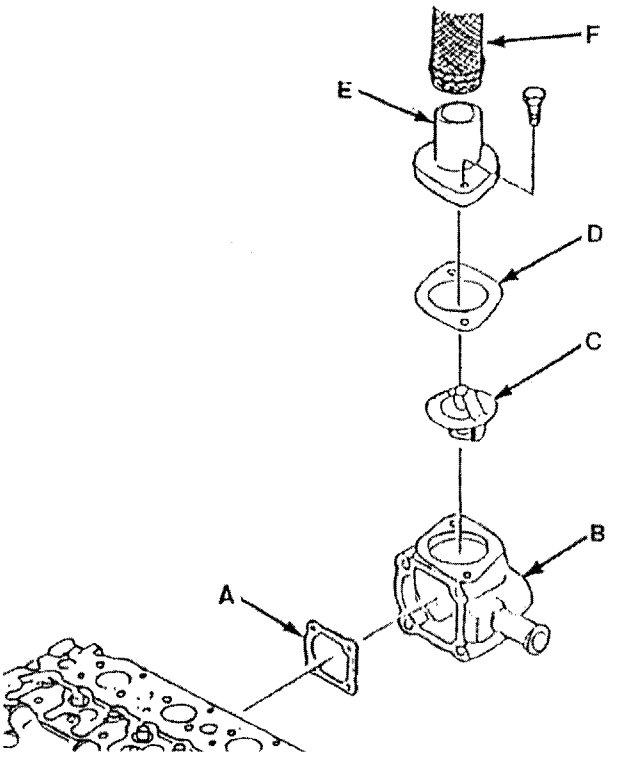
A. The 1620 has a seven blade fan as shown in Figure 1-2.

B. The thermostat housing, B, Figure 1-3, is a different configuration. The thermostat, C, operates at a higher temperature range.

THERMOSTAT

Removal (Refer to Figure 1-3)

1. Remove the radiator cap.
2. Open the coolant drain cock, located on the right side of the tractor engine compartment, and collect the coolant in a clean container.
3. Remove the radiator hose, F, and thermostat cover, E, from the thermostat housing, B.
4. Remove the thermostat, C, and gasket, D, from the thermostat housing.



Thermostat Removal **Figure 1-3**

A	Gasket	D	Gasket
B	Thermostat housing	E	Thermostat cover
C	Spring	F	Radiator hose

SPECIFICATIONS

General Specifications

Tractor Model	1715
Engine Model	J843
Number of Cylinders	3
Bore x Stroke	3.31 x 3.15 in. (84 x 80 mm)
Displacement	81.1 cu. in. (1330 cc)
Compression Ratio	22:1
Rated Speed	2600 rpm
Muffler	Vertical
Firing Order	1-2-3
Idle Speed	850 ± 50 rpm
Maximum No Load Speed	2800 ± 50 rpm
Cylinder Arrangement	In-line Vertical
Valve Arrangement	Overhead

Cylinder Block

Bore	
Standard	3.307-3.308 in. (84-84.019 mm)
Maximum	3.354 in. (85.2 mm)
Head Surface Warp	
Standard	0.002 in. (0.05 mm)
Maximum	0.005 in. (0.12 mm)
Re-Bore Size	
0.020 oversize 0.5 mm	3.315-3.334 in. (84.2-84.7 mm)
0.040 oversize 1.0	3.334-3.354 in. (84.7-85.2 mm)

Cylinder Head

Head Warp	
Standard	0.002 in. (0.05 mm)
Maximum	0.005 in. (0.12 mm)
Valve Seat Width	
Standard	0.063-0.071 in. (1.6-1.8 mm)
Maximum	0.098 in. (2.5 mm)
Valve Seat Sink	
Standard	0.0334-0.0453 in. (0.85-1.15 mm)
Maximum	0.071 in. (1.8 mm)
Valve Angle	45°

Piston — 1715

Diameter
- Standard ..... 3.303 in. (83.913-83.928 mm)
- Minimum ..... 3.295 in. (83.7 mm)

Bore Clearance
- Standard ..... 0.0034-0.0041 in. (0.088-0.106 mm)
- Maximum ..... 0.0118 in. (0.3 mm)

Piston Pin Bore
- Standard ..... 0.984-0.9843 in. (24.999-25.003 mm)
- Maximum ..... 0.0985 in. (25.0 mm)

Piston Pin Clearance
- Standard ..... 0.0-0.0002 in (−0.00 + 0.005 mm)
- Maximum ..... 0.0008 in. (0.02 mm)

Available Oversizes ..... 0.020 in. & 0.040 in. (0.5 mm & 1.0 mm)

Piston Pin

Diameter
- Standard ..... 0.984-0.9843 in. (24.996-25.0 mm)
- Maximum ..... 0.9834 in. (24.98 mm)

Pin-to-Bushing Clearance
- Standard ..... 0.0004-0.001 in. (0.01-0.25 mm)
- Maximum ..... 0.0031 in. (0.08 mm)

Piston Ring

End Gap
- 1st Compression
  - Standard ..... 0.008-0.014 in. (0.2-0.35 mm)
  - Maximum ..... 0.03937 in. (1.0 mm)
- 2nd Compression
  - Standard ..... 0.008-0.016 in. (0.20-0.40 mm)
  - Maximum ..... 0.0397 in. (1.0 mm)

Oil
- Standard ..... 0.008-0.016 in. (0.20-0.40 mm)
- Maximum ..... 0.03937 in. (1.0 mm)

Piston Ring — 1715

Compression Ring to Groove Side Clearance
- 1st Compression
  - Standard ..... 0.0027-0.0043 in. (0.07-0.11 mm)
  - Maximum ..... 0.010 in. (0.25 mm)
- 2nd Compression
  - Standard ..... 0.0015-0.0031 in. (0.04-0.08 mm)
  - Maximum ..... 0.010 in. (0.25 mm)

Oil Ring to Groove Side Clearance
- Standard ..... 0.0008-0.0024 in. (0.02-0.06 mm)
- Maximum ..... 0.006 in. (0.15 mm)

Ring Width
- 1st Compression ..... 0.079 in. (2.0 mm)
- 2nd Compression ..... 0.059 in. (1.5 mm)

Oil ..... 0.157 in. (4.0 mm)

Connecting Rod

Rod Twist
- Standard ..... 0.003 in. (0.08 mm)
- Maximum ..... 0.008 in. (0.2 mm)

Rod Bend
- Standard ..... 0.0020 in. (0.05 mm)
- Maximum ..... 0.0060 in. (0.15 mm)

Connecting Rod Side Play
- Standard ..... 0.004-0.012 in. (0.1-0.3 mm)
- Maximum ..... 0.028 in. (0.7 mm)

Crankshaft Bearing Clearance
- Standard ..... 0.001-0.003 in. (0.035-0.085 mm)
- Maximum ..... 0.008 in. (0.2 mm)

Crankshaft

Journal Diameter
- Standard ..... 2.281-2.282 in. (57.957-57.97 mm)
- Minimum ..... 2.259 in. (57.4 mm)

Crankshaft

Crankpin Diameter
- Standard ..... 1.730-1.731 in. (43.96-43.97 mm)
- Minimum ..... 1.708 in. (43.4 mm)

Runout
- Standard ..... 0.0012 in. (0.03 mm)
- Maximum ..... 0.0024 in. (0.06 mm)

Endplay
- Standard ..... 0.004-0.016 in. (0.1-0.4 mm)
- Maximum ..... 0.019 in. (0.5 mm)

Thrust Washer Thickness
- Standard ..... 0.116-0.118 in. (2.95-3.0 mm)
- Minimum ..... 0.110 in. (2.8 mm)

Cylinder Block Bearing Diameter
- Standard - ID x OD ..... 2.283 x 2.441 in. (58 x 62 mm)
- Maximum - ID ..... 2.289 in. (58.14 mm)

Journal to Cylinder Block Bearing Clearance
- Standard ..... 0.0017-0.0045 in. (0.044-0.116 mm)
- Maximum ..... 0.008 in. (0.2 mm)

Main Journal Regrind Size
- 0.010 undersize (0.25 mm) ..... 2.271-2.272 in. (57.707-57.720 mm)
- 0.020 undersize (0.50 mm) ..... 2.262-2.263 in. (57.457-57.470 mm)

Crankpin Regrind Size
- 0.010 undersize (0.25 mm) ..... 1.721-1.722 in. (43.714-43.725 mm)
- 0.020 undersize (0.50 mm) ..... 1.711-1.712 in. (43.464-43.475 mm)

Center Bearing to Crankshaft Clearance
- Standard ..... 0.0017-0.0040 in. (0.044-0.102 mm)
- Maximum ..... 0.0079 in. (0.2 mm)

Camshaft — 1715

Cam Height — Valve
- Standard: 1.341-1.343 in. (34.065-34.12 mm)
- Minimum: 1.327 in. (33.7 mm)

Bend
- Standard: 0.001 in. (0.03 mm)
- Maximum: 0.004 in. (0.1 mm)

Cam Height — Fuel
- Standard: 1.651-1.656 in. (41.94-42.06 mm)
- Minimum: 1.646 in. (41.8 mm)

Valves

Stem Diameter — Intake
- Standard: 0.2738-0.2744 in. (6.955-6.97 mm)
- Minimum: 0.271 in. (6.89 mm)

Stem Diameter — Exhaust
- Standard: 0.273-0.274 in. (6.94-6.95 mm)
- Minimum: 0.269 in. (6.84 mm)

Guide Clearance — Intake
- Standard: 0.001-0.002 in. (0.03-0.06 mm)
- Maximum: 0.008 in. (0.2 mm)

Guide Clearance — Exhaust
- Standard: 0.002-0.003 in. (0.04-0.065 mm)
- Maximum: 0.010 in. (0.25 mm)

Valve Margin
- Standard: 0.0364-0.0423 in. (0.925-1.075 mm)
- Maximum: 0.0197 in. (0.5 mm)

Valve Lash: 0.008 in. (0.2 mm)

Valve Spring — Free Height
- Standard: 1.378 in. (35 mm)
- Minimum: 1.319 in. (33.5 mm)

Valve Spring — Squareness
- Standard: 0.047 in. (1.2 mm)
- Maximum: 0.079 in. (2.0 mm)

Valves — 1715

Valve Spring — Compressed Height
- Standard: 17.86 lbs. (8.1 kg)@30.4 mm
- Maximum: 15.43 lbs. (7 kg)@30.4 mm

Valve Timing — Intake
- Open Before TDC: 10°
- Close After BDC: 46°

Valve Timing — Exhaust
- Open Before TDC: 46°
- Close After BDC: 16°

Push Rods

Length: 6.854-6.870 in. (174.1-174.5 mm)

Diameter: 0.248 in. (6.3 mm)

Valves — 1620

Stem Diameter — Intake
- Standard ..... 0.2738-0.2744 in. (6.955-6.97 mm)
- Minimum ..... 0.271 in. (6.89 mm)

Stem Diameter — Exhaust
- Standard ..... 0.273-0.274 in. (6.94-6.95 mm)
- Minimum ..... 0.269 in. (6.84 mm)

Guide Clearance — Intake
- Standard ..... 0.001-0.002 in. (0.03-0.06 mm)
- Maximum ..... 0.008 in. (0.2 mm)

Guide Clearance — Exhaust
- Standard ..... 0.002-0.003 in. (0.04-0.065 mm)
- Maximum ..... 0.010 in. (0.25 mm)

Valve Margin
- Standard ..... 0.0364-0.0423 in. (0.925-1.075 mm)
- Maximum ..... 0.0197 in. (0.5 mm)

Valve Lash ..... 0.008 in. (0.2 mm)

Valve Spring — Free Height
- Standard ..... 1.378 in. (35 mm)
- Minimum ..... 1.319 in. (33.5 mm)

Valve Spring — Squareness
- Standard ..... 0.047 in. (1.2 mm)
- Maximum ..... 0.079 in. (2.0 mm)

Valve Spring — Compressed Height
- Standard ..... 17.86 lbs. (8.1 kg)@30.4 mm
- Maximum ..... 15.43 lbs. (7 kg)@30.4 mm

Valve Timing — Intake
- Open Before TDC ..... 10°
- Close After BDC ..... 46°

Valve Timing — Exhaust
- Open Before TDC ..... 46°
- Close After BDC ..... 16°

Push Rods

- Length ..... 6.854-6.870 in. (174.1-174.5 mm)
- Diameter ..... 0.248 in. (6.3 mm)

Rocker Arm

Shaft Diameter
- Standard ..... 0.4587-0.4594 in. (11.65-11.668 mm)
- Minimum ..... 0.456 in. (11.57 mm)

Shaft to Rocker Clearance
- Standard ..... 0.0013-0.0027 in. (0.032-0.068 mm)
- Maximum ..... 0.008 in. (0.2 mm)

Lubrication System

Pressure Relief Valve
- Opening Pressure ..... 35-50 psi (2.3-3.4 bar)

Rotor to Vane Clearance
- Standard ..... 0.0004-0.006 in. (0.01-0.15 mm)
- Maximum ..... 0.010 in. (0.25 mm)

Rotor to Cover Clearance
- Standard ..... 0.004-0.006 in. (0.1-0.15 mm)
- Maximum ..... 0.008 in. (0.20 mm)

Rotor to Case Clearance
- Standard ..... 0.006-0.009 in. (0.14-0.22 mm)
- Maximum ..... 0.012 in. (0.30 mm)

Cooling System 1620

Type of system ..... Pressurized liquid w/recirculating by-pass
Water Pump:
- Type ..... Centrifugual
- Drive ..... V-belt
- Belt Deflection (Tension) ..... 7/16 to 9/16 inch (10 to 15 mm) when 20-25 lbs. (9-11 kg) is applied midway between pulleys

Fan Diameter ..... 13.39 in. (340 mm)
Thermostat
- Starts to Open ..... 180°F (82°C)
- Fully Open ..... 203°F (95°C)

Radiator Cap Pressure Rating ..... 3 psi (0.9 bar)
Coolant ..... Ethylene glycol and water in a 50/50 mixture.
- Capacity ..... Liters 5.6 Qts. U.S. 5.9 Qts. Imp. 4.9

Bolt Torque Values

Description	
Connecting Rod Caps	36.2-39.8 lbs. ft. (49.0-53.9 Nm)
Flywheel Bolts	43.4-50.6 lbs. ft. (59.0-69.0 Nm)
Main Bearing Holders	36.2-39.8 lbs. ft. (49.0-53.9 Nm)
Bearing Holder Retaining Bolts (M10)	36.2-39.8 lbs. ft.(49.0-53.9 Nm)
Rear Bearing Cover Plate Retaining Bolts	9.4-12.3 lbs. ft. (12.7-16.7 Nm)
Tachometer Drive Shaft Plate	6.5-9.4 lbs. ft. (8.8-12.7 Nm)
Crankshaft Pulley Nut	202.5-245.9 lbs. ft. (274.4-333.2 Nm)
Oil Pump Relief Valve	43.4-50.6 lbs. ft. (58.8-68.6 Nm)
Front Mounting Bolts	3.62-5.06 lbs. ft. (4.9-6.86 Nm)
Injection Pump Delivery Valve Holder	28.9-32.5 lbs. ft. (39.2-44.1 Nm)
Engine Oil Transfer Tube Banjo Bolts	7.2-9.4 lbs. ft. (9.8-12.7 Nm)
Head Bolts	65.1-68.7 lbs. ft. (88-94 Nm)

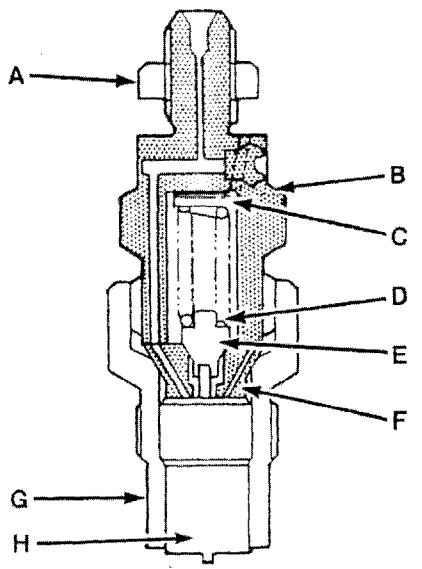
Metric Bolt Torque Specifications

Bolt Size	Grade No.	Coarse Thread			Fine Thread		
		Pitch (mm)	Pounds-Feet	Newton-Meters	Pitch (mm)	Pounds-Feet	Newton-Meters
M6	4T	1.0	3.6— 5.1	4.9— 6.9	—	—	—
	7T		6.1—8.3	8.3—11.3			
	10T		8.7—11.6	11.8—15.7			
M8	4T	1.25	9.4—12.3	12.7—16.7	1.0	11.2—14.8	15.2—20.1
	7T		16.6—21.0	22.6—28.4		19.5—25.3	26.5—34.3
	10T		21.0—26.8	28.4—36.3		22.4—29.7	30.4—40.2
M10	4T	1.5	18.8—24.6	25.5—33.3	1.25	21.0—26.8	28.4—36.3
	7T		32.5—41.2	44.1—55.9		36.2—46.3	49.0—62.8
	10T		39.8—51.4	53.9—69.6		42.7—54.2	57.9—73.5
M12	4T	1.75	27.5—34.7	37.3—47.1	1.25	31.8—40.5	43.1—54.9
	7T		48.5—61.5	65.7—83.4		55.0—69.4	74.5—94.1
	10T		68.0—85.4	92.2—116		73.1—93.3	99.0—127
M14	4T	2.0	46.3—59.3	62.8—80.4	1.5	51.4—64.4	69.6—87.3
	7T		76.7—96.9	104—131		86.1—109	117—148
	11T		102—129	139—175		108—137	147—186
M16	4T	2.0	63.6—81.0	86.3—110	1.5	67.3—84.6	91.2—115
	7T		110—136	140—184		116—142	157—192
	11T		152—188	206—255		163—199	221—270
M18	4T	2.0	83.9—104	114—141	1.5	96.9—120	131—163
	7T		145—174	196—235		170—206	230—279
	11T		203—246	275—333		221—271	299—368
M20	4T	2.5	106—132	144—179	1.5	127—156	172—211
	7T		177—213	240—289		203—246	275—333
	11T		268—325	363—441		293—358	397—485

SPECIAL TOOLS

	Tool No.
Seal Protector — Timing Gear Cover — Crankshaft	FNH 01584
Driver — Piston Pin	FNH 01585
Valve Guide Seal — Installer	FNH 01587
Driver Handle — Use With Tools 1585 & 1587	FNH 07778
Adaptor — Compression Test	FNH 00120
Engine Oil Pump Installer	FNH 00117
Engine Oil Pump Remover	FNH 11097
Engine Oil Pressure Test Fitting	FNH 00011

SECTION 2
FUEL SYSTEM
INJECTORS



Injector Assembly **Figure 2-1**

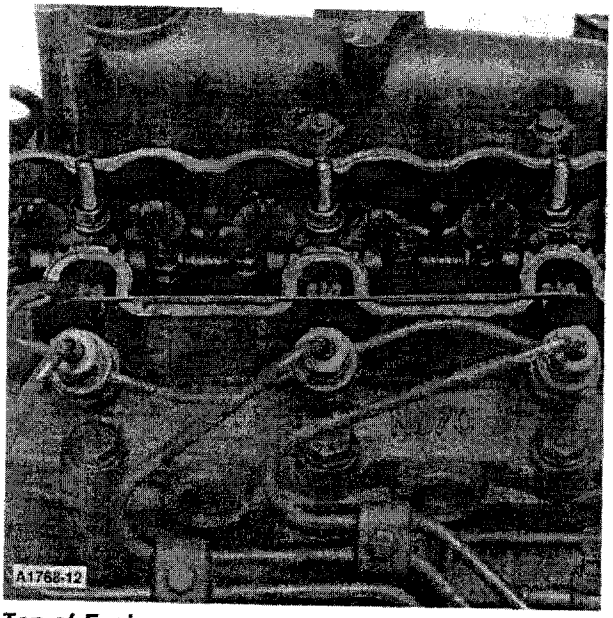
A	Nut	E	Push rod
B	Body	F	Distance piece
C	Shim	G	Nozzle nut
D	Spring	H	Nozzle assembly

DESCRIPTION AND OPERATION

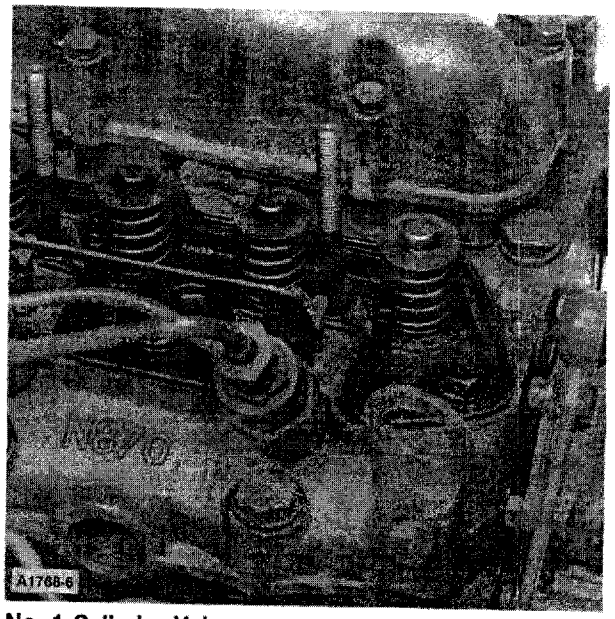
Throttle type injectors are used in all engine applications. The injectors have a 0.039 in. (1.0 mm) single orifice and are set at 2150 psi (148 bar).

The pressure adjustment is made by adding or deleting shims, C, Figure 2-1, from the top of the injector pressure adjusting spring. The throttle type injectors have an injection angle of 4°. The injection pipes are 0.055 in. (1.4 mm) inside diameter and are the same length for each cylinder to keep the injection intervals in time.

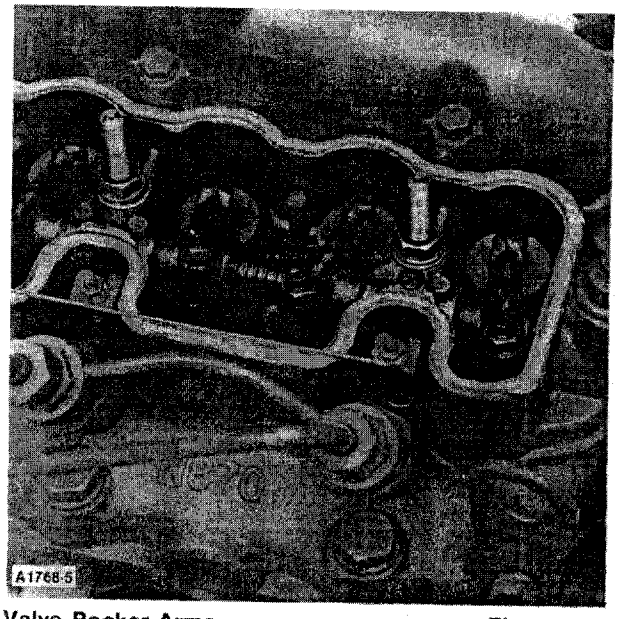
INJECTION PUMP



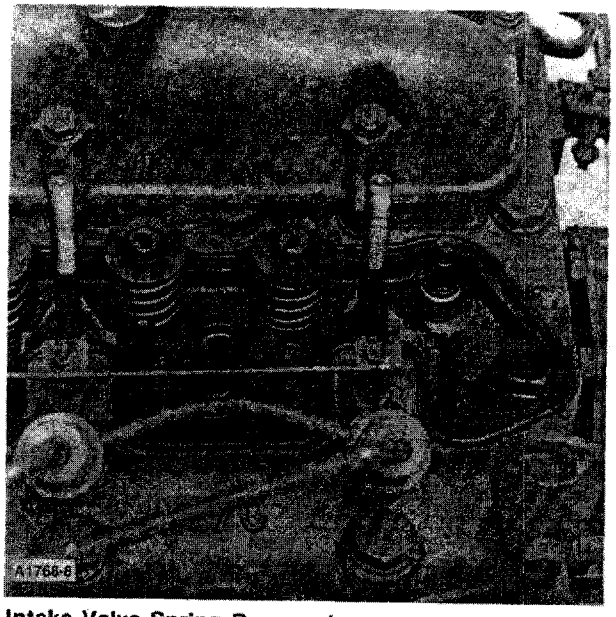
Top of Engine Figure 2-2



No. 1 Cylinder Valves Figure 2-4



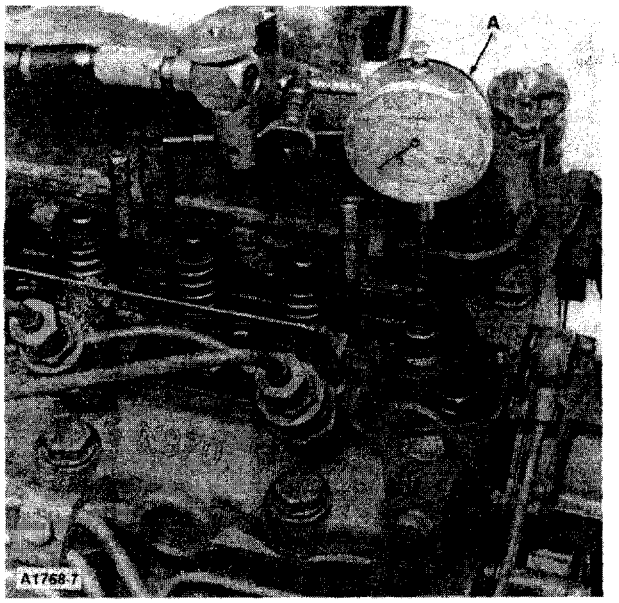
Valve Rocker Arms Figure 2-3



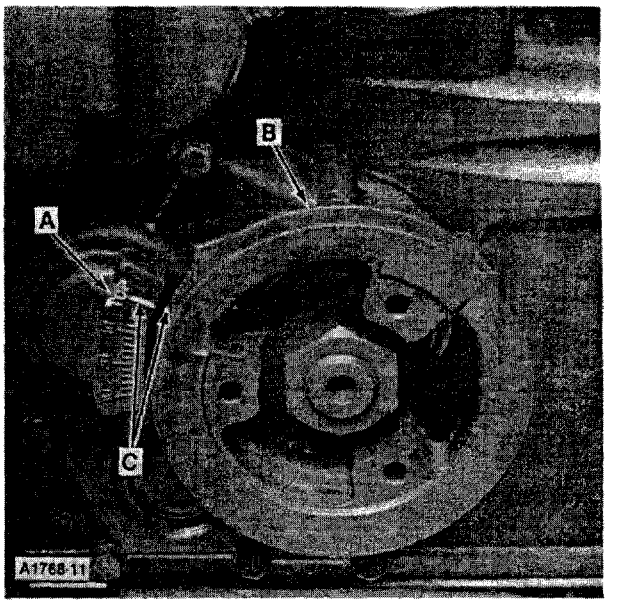
Intake Valve Spring Removed Figure 2-5

INJECTION PUMP SPILL TIMING PROCEDURES

1. Remove the valve cover from the top of the engine, Figure 2-2.
2. Find top dead center of the No. 1 cylinder piston travel. (No. 1 is the closest cylinder to the engine fan.) No. 1 cylinder must be on the compression stroke. (Intake and exhaust rocker arms will be loose.) Figure 2-3.
3. Remove the rocker arm housing and rocker arm assembly from the engine, Figure 2-4.
4. Remove the keepers and spring from No. 1 cylinder intake valve, Figure 2-5.



Dial Indicator **Figure 2-6**
A Dial indicator



Top Mark **Figure 2-7**
A Top mark
B Damper pulley
C Timing marks

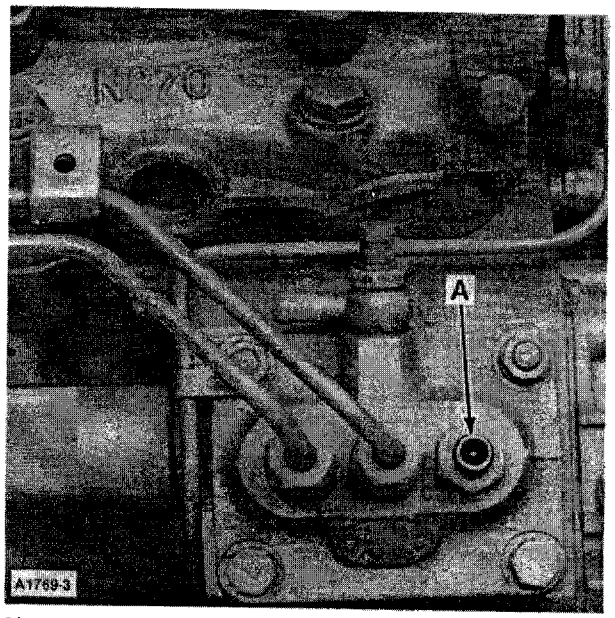
5. To verify true top dead center of piston travel, install a dial indicator, A, Figure 2-6, on the valve stem. Be sure the valve stem is sitting on top of the piston. Rotate the crankshaft until the indicator needle reverses direction. The point the needle reverses direction is true top dead center. At this time verify that the timing mark, C, Figure 2-7, on the crankshaft pulley, B, is in-line with the "TOP" mark, A, on the timing scale.

   If the mark on the crankshaft pulley is not in-line with the "TOP" mark, verify piston top dead center. If the pulley mark is slightly off, remark the pulley and proceed.

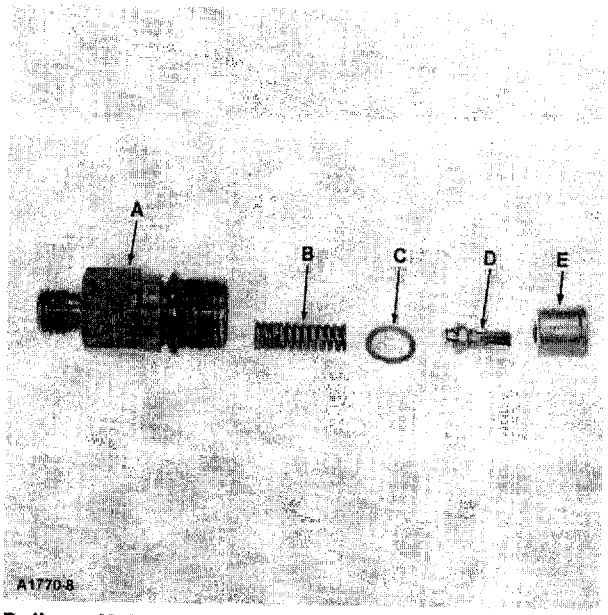
   NOTE: Color the timing mark on the crankshaft pulley and appropriate marks on the timing scale to increase visability.

6. Reinstall the valve spring, keepers, rocker arm assembly, housing and valve cover.

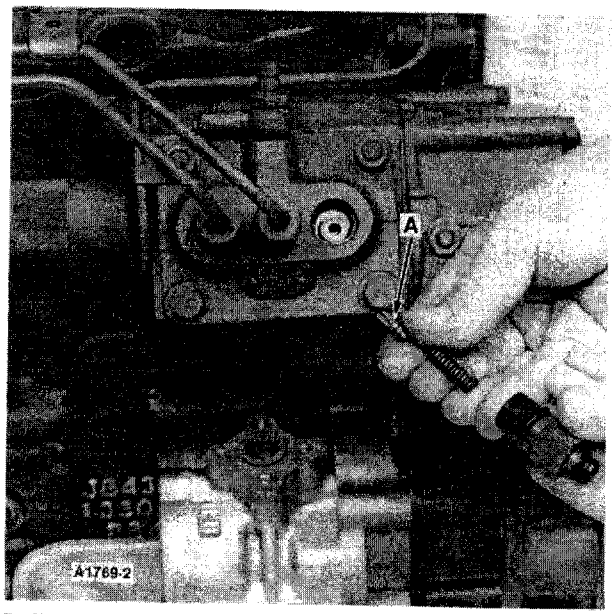
7. Shut off the fuel supply to the injection pump at the fuel filter.



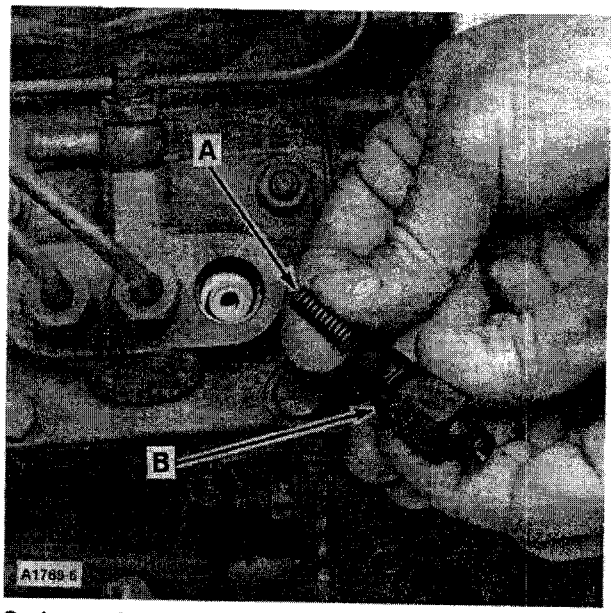
No. 1 Injection Pump Port **Figure 2-8**
A No. 1 Port



Delivery Valve Parts Identification **Figure 2-10**
A Holder
B Spring
C Washer
D Piston
E Delivery valve seat



Delivery Valve Piston **Figure 2-9**
A Piston



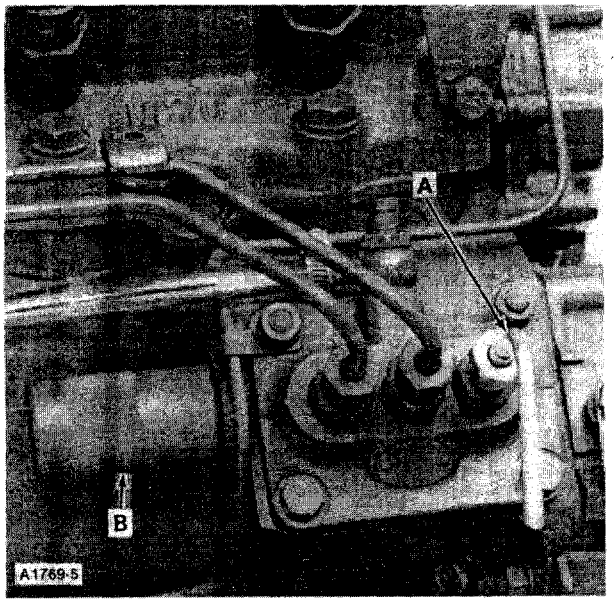
Spring and Holder **Figure 2-11**
A Spring
B Holder

8. Remove the No. 1 injection line, Figure 2-8.

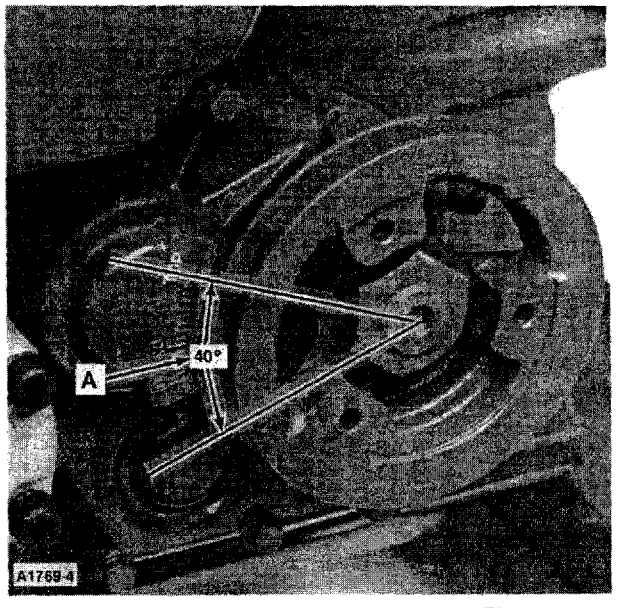
9. Remove the delivery valve piston, A, Figure 2-9, from No. 1 delivery valve.

10. Refer to Figure 2-10 for parts identification.

11. Reinstall the spring, A, Figure 2-11, and holder, B, into the injection pump and tighten the holder securely.



Spill Tube and Shut-Off Solenoid **Figure 2-12**
A Spill tube



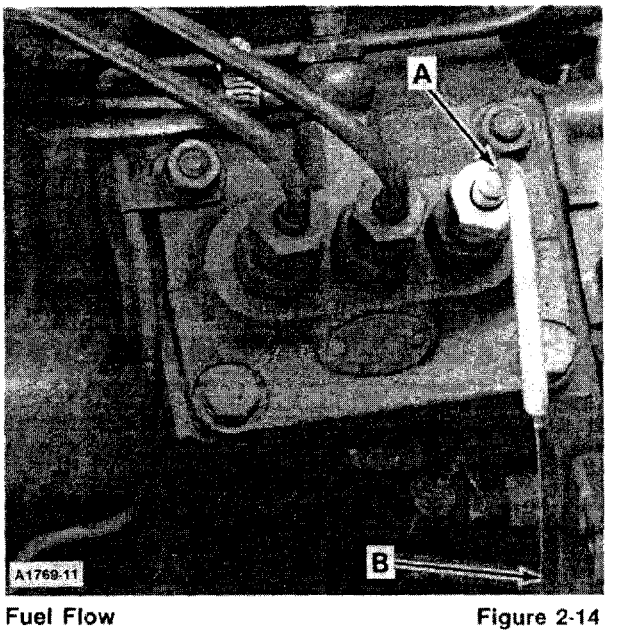
Crankshaft Rotated **Figure 2-13**
A 40°

12. Fabricate a spill tube, A, Figure 2-12, from a disgarded injection line and install the tube on the No. 1 port on the injection pump.

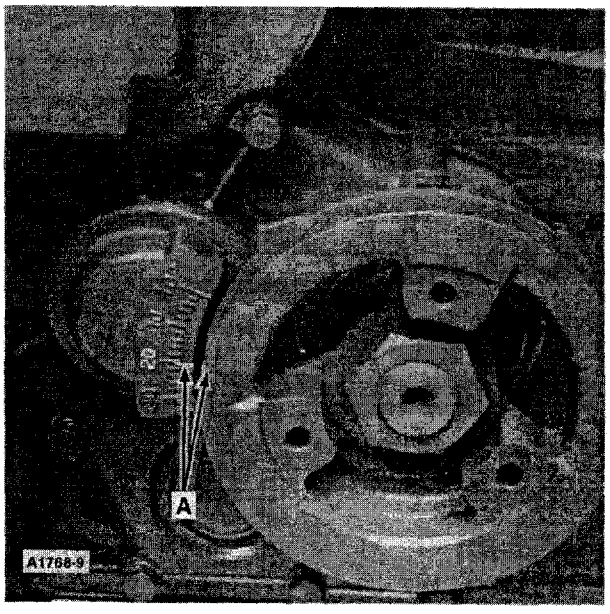
13. Remove the fuel shut-off solenoid, B, Figure 2-12, from the injection pump.

14. Rotate the crankshaft counterclockwise (viewed from the front of the engine) approximately 40 degrees, Figure 2-13.

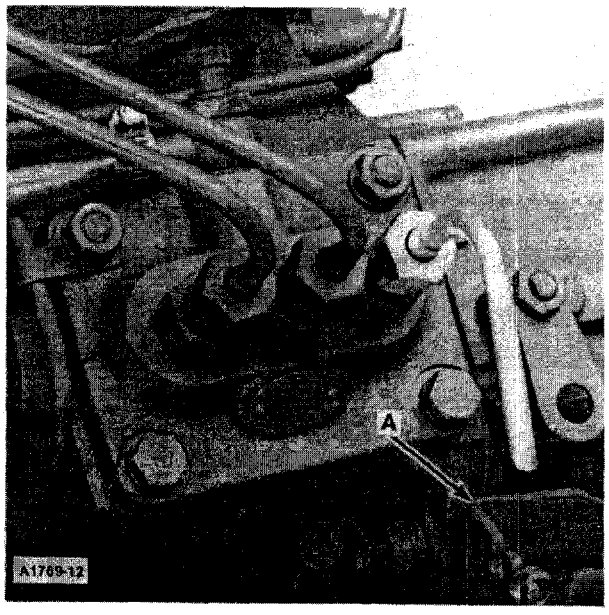
15. Turn on the fuel supply to the injection pump. Fuel, B, Figure 2-14, should flow out of the spill tube, A, on No. 1 cylinder port.



Fuel Flow **Figure 2-14**
A Spill tube
B Fuel flow



Timing Marks **Figure 2-15**
A Timing marks



Fuel Not Flowing **Figure 2-16**
A No fuel flow

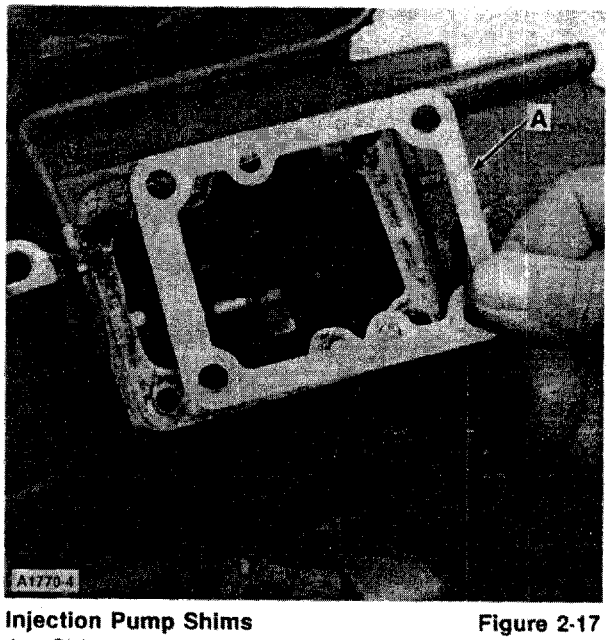
16. Rotate the crankshaft clockwise. When the timing mark on the crankshaft pulley is in-line with the 21 to 23 degree marks on the timing scale, A, Figure 2-15, fuel should stop flowing from the spill tube as shown in Figure 2-16.

17. If fuel does not stop flowing at the appropriate timing mark, the injection pump timing must be adjusted by adding or removing shims, A, Figure 2-17, located between the injection pump and engine block.

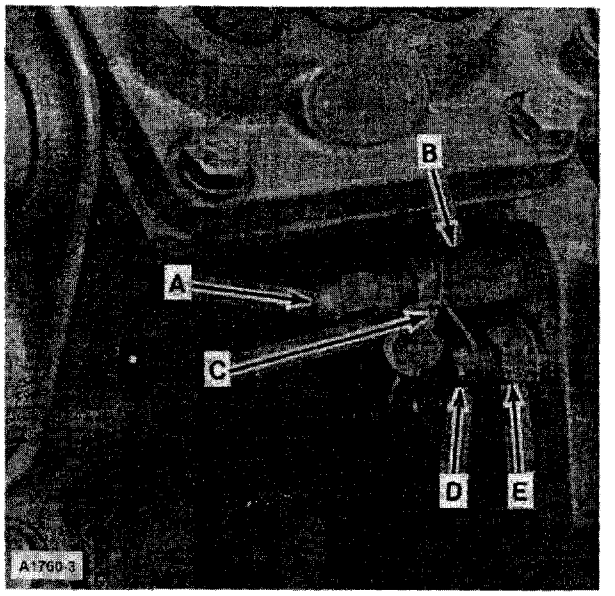
18. Adding shims will retard the pump timing and removing shims will advance the pump timing.

    NOTE: A shim thickness of 0.010" (0.25 mm) will change the pump timing by 1 degree.

19. Assemble all components that were removed from the engine and fuel system.



Injection Pump Shims **Figure 2-17**
A Shims



Smoke Screw and High Idle Adjustment **Figure 2-18**

A Acorn nut
B Jam nut
C Seal wire
D High idle screw
E Jam nut

SMOKE SCREW ADJUSTMENT PROCEDURE

Refer to Figure 2-18

1. Cut the seal wire, C, from the smoke screw assembly.
2. Loosen the long jam nut, B.
3. To determine the correct fuel adjustment, have the engine at operating temperature. Starting at low idle position, accelerate the engine to high idle. During this acceleration you should observe a slight amount of black exhaust smoke. If the smoke is not present, turn the acorn nut, A, counterclockwise to increase the fuel and smoke. If the smoke is excessive turn the acorn nut clockwise to decrease the fuel and smoke. The correct adjustment is only obtained by smoke observation and acceleration performance.
4. Tighten the long jam nut, B.

NOTE: If the smoke screw is turned excessively in the clockwise direction a lack of engine rpm and a flat acceleration will be present.

If the smoke screw is turned excessively in the counterclockwise direction excessive smoke will be present and engine damage may occur due to an overfuel condition.

HIGH IDLE ADJUSTMENT

Refer to Figure 2-18

1. Cut the seal wire, C, from the high idle adjustment screw, D.
2. Loosen jam nut, E.
3. Turn the adjustment screw, D, counterclockwise to increase rpm and clockwise to decrease rpm. Determine the correct high idle position by the tachometer reading on the tractor. The 1620 tractor engine should have a high idle (no load) speed of 2800 rpm.
4. Tighten jam nut, E.
5. Install a new seal wire.

FUEL INJECTION PUMP SPECIFICATIONS

Fuel Injection Pump (Field check)

Use the following standards when checking, adjusting or rebuilding the fuel injection pump.

Standards for Injection Pump Adjustment

Model of Engine

J843-1620 Model 1620

Pump Assembly Item No.
No. 104135-3010 Model 1620

Standards for Adjusting the Injection Pump

1. Rotating direction . . . . Clockwise when observed from the driving side
2. Nozzle NPDN4PDN117
3. Nozzle Holder 1051481170
4. Nozzle valve opening pressure:
   1620 . . . . . 2150 ± 71 psi (148 bar
5. Injection pipe:
   Model 1620 . . . 0.55 in. x 0.236 in. O.D. x 13.4 in. length (1.4 mm x 6 mm O.D. x 340 mm length)
6. Oil flowing pressure . . . . . 2.8 psi (0.19 bar)
7. Test oil . . . . . Light oil

SPECIFICATIONS

Injection Pump

Pump Manufacturer Assembly Number Model 1620	Zexel Corporation 104135-3010
Type All models	In-line
Timing (Before TDC) Model 1620	21-23°
Timing (Piston height at injection start BTDC) Model 1620	0.100-0.123 in. (2.54-3.13 mm)
Injection Nozzle Nozzle type	Throttle
Needle valve diameter 1620	0.157 in. (0.4 mm)
Pintle diameter 1620	0.039 in. (1 mm)
Injection Pressure 1620	2150 psi (148 bar)
Spray angle	4°
Service Adjustments Idle Speed 1620	850 rpm
Maximum no-load speed (high idle) Model 1620	2800 rpm

Torque Specifications

Delivery valve holder	28.9-32.5 lbs.-ft. (39.2-44.1 Nm)
Injector Assembly	43-51 lbs.-ft. (59-69 Nm)

SECTION 3
ELECTRICAL
SPECIFICATIONS

Battery

Amp-Hr. Capacity	70
Voltage	12
No. of Cells	6
Ground Polarity	Neg.

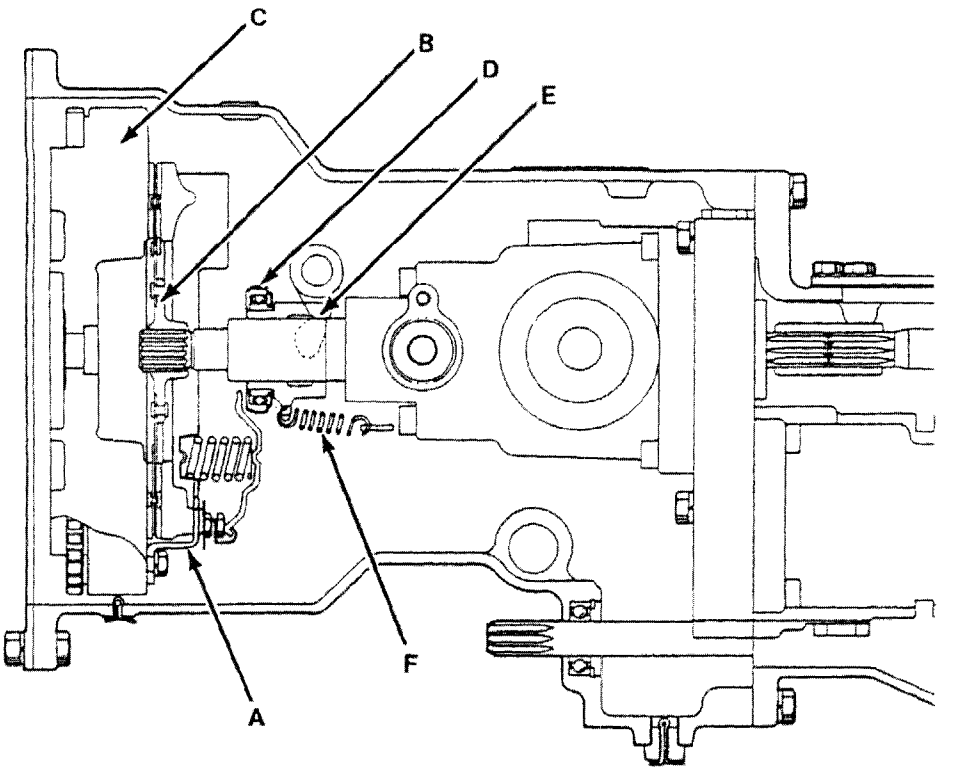
Starter Motor

Clutch	Overrunning
Current Draw	
No Load	130 Amp.
Load	
RPM — No Load Bench Test	4000
Armature Shaft — Max. Runout	0.002 in. (.05 mm)
Commutator Runout	0.002 in. (.05 mm)
Commutator Diameter — Minimum	1.26 in. (32 mm)
Commutator — Insulation Minimum Depth	0.008 in. (.2 mm)
Brush Minimum Length	0.433 in. (11 mm)

Alternator

Model	Mitsubishi
Rating	35 Amps at 12 Volts Max
Rotor Coil Resistance	3-4 ohm at 68°F (20°C)
Stator Coil Resistance	14 ohm at 68°F (20°C)
Slip Ring — Std. Diameter	1.299 in. (33 mm)
Slip Ring Wear Limit	1.276 in. (32.4 mm)
Brush Length	
Std	0.71 in. (18 mm)
Wear Limit	0.315 in. (8 mm)
Drive Belt Tension	0.19 in. (5 mm)

SECTION 4
CLUTCHES



Clutch Assembly — Figure 4-1

A Clutch pressure plate
B Clutch disc
C Flywheel
D Clutch release bearing
E Hub
F Return Spring

DESCRIPTION AND OPERATION

A single disc clutch, Figure 4-1, is standard equipment on the Model 1620 tractor equipped with the hydrostatic drive transmission.

Refer to Figure 4-1

The clutch assembly consists of the clutch pressure plate, A, clutch disc, B, flywheel, C, release bearing, D, and hub assembly, E.

The clutch disc is a dry metallic type assembly, which is mechanically operated. The clutch disc is installed between the flywheel and the pressure plate assembly. The clutch pressure plate is attached to the flywheel with six bolts.

In the engaged position, the spring loaded pressure plate presses the clutch disc into contact with the engine flywheel. The power flow from the engine is transmitted by the friction between the clutch disc linings and the surfaces of the flywheel and the clutch pressure plate.

The clutch pedal assembly, D, is connected by an adjustable rod, A, to a bellcrank and cross shaft assembly, C, on which a fork is mounted, Figure 4-2.

The fork engages a sliding release bearing hub assembly. When the clutch pedal is applied, the release bearing comes in contact with the ends of the clutch release levers in the pressure plate. Depressing the clutch pedal causes the cross shaft and fork to move the release bearing forward and depress the pressure plate release levers. This action draws the pressure plate away from the clutch disc, releasing the disc from contact with the flywheel.

The friction drive from the engine is then disconnected to enable gear changes to take place.

After a gear change is made and the clutch pedal is released, the release bearing and hub are returned to the free position by a spring attached to a hanger.

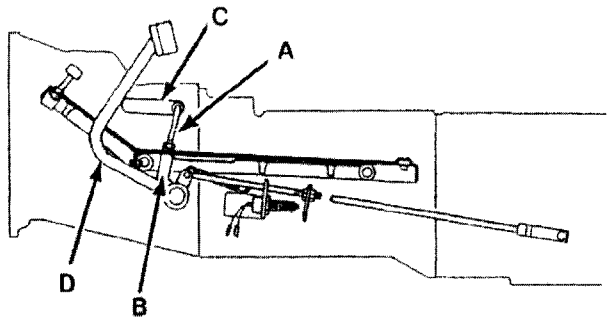
The main springs of the pressure plate assembly then reassert pressure on the plate moving it forward to press the clutch disc into contact with the flywheel and re-establish the drive to the transmission.

The release bearing is pre-lubricated and never requires greasing.

The pressure plate assembly is not repairable and must be replaced as a complete assembly if service is required.

The lever height is adjustable and should be checked whenever the clutch is removed or a new clutch is installed.

ADJUSTMENT



Free-Play Adjustment Rod **Figure 4-2**

A Adjustment rod
B Clevis
C Cross shaft bellcrank
D Clutch pedal assembly

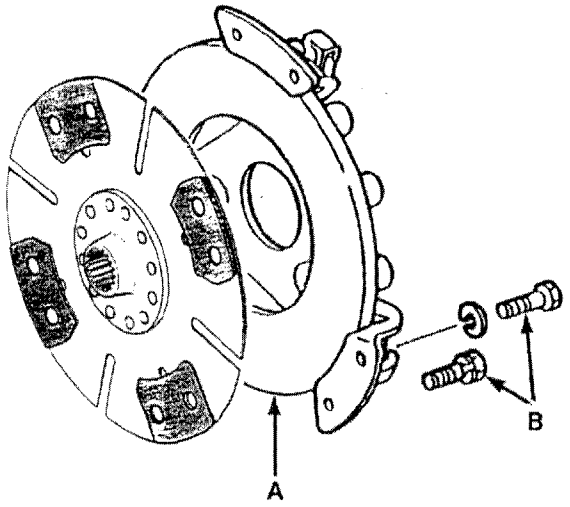
FREE-PLAY ADJUSTMENT

Refer to Figure 4-2

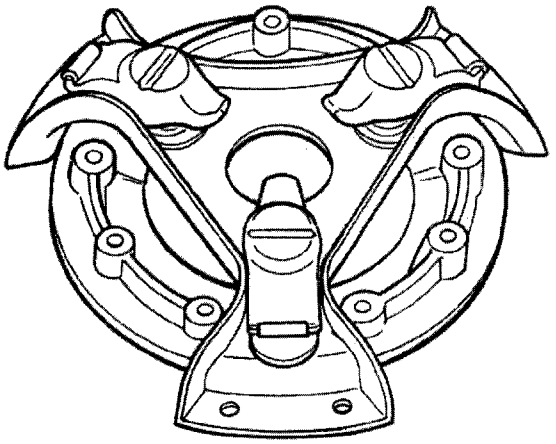
The only single clutch required is to check the clutch pedal free travel. This is the amount of pedal movement from the fully released position to the point where resistance is first encountered.

1. Remove the cotter pin securing the adjustment rod, A, to the bellcrank.
2. Lengthen or shorten the clevis to obtain 0.79-1.18 in. (20-30 mm) of free-play in the pedal travel.
3. Reposition the adjustment rod to the bellcrank and secure with a new cotter pin.

OVERHAUL



Single Clutch Removal — Figure 4-3
A Clutch assembly B Mounting bolts



Pressure Plate Assembly — Figure 4-4

Overhaul of the single clutch is limited to removing the clutch and inspection and adjustment of the release finger height.

REMOVAL

Refer to Figure 4-3

1. Separate the tractor between the engine and clutch housing. See Section 12, "Separating the Tractor."

2. Remove the six pressure plate retaining bolts, B, and remove the clutch assembly, A, from the flywheel.

   NOTE: Loosen the attaching bolts gradually and evenly to prevent distorting the pressure plate assembly.

INSPECTION

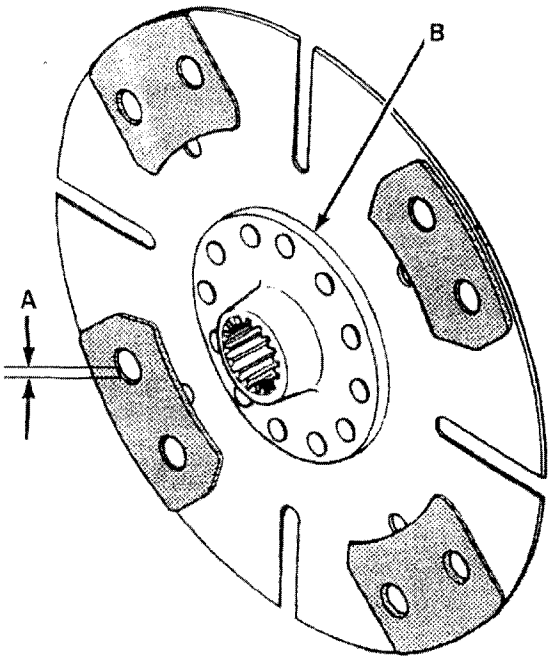
Refer to Figure 4-4

1. Inspect the pressure plate face for scoring, cracking or overheating. Minor imperfections may be removed by resurfacing the pressure plate face.

2. Inspect the release levers for wear or damage.

3. Inspect the release lever pivot pins and springs for excess wear or damage.

   Replace the pressure plate assembly if damaged.



Clutch Disc Assembly **Figure 4-5**

A Disc wear limit 0.12 in. (3 mm)
B Clutch hub

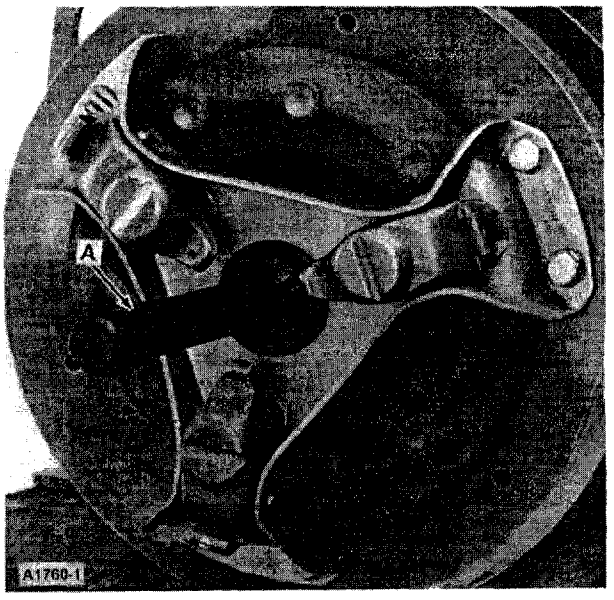
Refer to Figure 4-5

4. Inspect the clutch disc lining for excess wear. Replace the clutch disc if the lining is worn to less than 0.012 in. (0.3 mm) from the top of the rivet head.

5. Inspect the clutch lining for indications of overheating, scoring, or oil impregnation in the lining.

6. Inspect the hub spline, B, for excess wear.

If any damage to the disc is apparent, replace the clutch disc assembly.



Clutch Installation **Figure 4-6**

A Alignment arbor FNH 00091

INSTALLATION

Refer to Figure 4-6

IMPORTANT: When installing a new pressure plate assembly, the pressure plate friction surface must be wiped clean with a suitable solvent to remove the protective film.

1. Lightly lubricate the hub splines of the transmission input shaft using a high temperature lubricant.

2. Using the Clutch Alignment Arbor Tool No. FNH 00091, A, position the clutch disc on the engine flywheel.

3. Position the clutch pressure plate on the flywheel and install the six attaching bolts.

   NOTE: Tighten the attaching bolts evenly to 16-21 lbs.-ft. (23-28 N·m).

SPECIFICATIONS

	MODEL 1620
ITEM	**SINGLE CLUTCH**
No. of Clutch Plates	**1 (2 Facings, Each 4 Linings)**
Facing: Outside Diameter Inside Diameter Thickness	 8.346 in.(212 mm) 5.43 in. (138 mm) 0.1811 in. (3.0 mm)
Height of Release Lever	2.3 ± 0.0197 in. (54 ± 0.5 mm)
Clearance between drive shaft and clutch disc Allowable clearance limit	0.0078-0.0137 in. (0.2-0.35 mm) 0.0236 in. (0.6 mm)
Clearance between drive shaft and clutch disc in the rotational direction Allowable clearance limit	0.0019-0.0039 in. (0.050-0.1 mm) 0.0098 in. (0.25 mm)
Clearance between retainer and release hub Allowable clearance limit	0.0009-0.0039 in. (0.025-0.1 mm) 0.0314 in. (0.8 mm)
Length of release hub return spring	1.28 in. (32.5 mm)
Thickness of clutch disc Allowable limit	0.30 in. (7.6 mm) 0.24 in. (6.2 mm)
Depth of clutch disc rivets Allowable limit	0.0394 in. (1.0 mm) 0.012 in. (0.3 mm)
Height of release lever from flywheel surface Allowable limit	2.13 in. (54 mm) 2.09-2.16 in. (53.2-54.8 mm)
Deflection of clutch disc	Max. 0.039 in. (1.0 mm)
Standard clutch pedal free-play Maximum allowable free-play	0.79-1.18 in. (20-30 mm) 1.57 in. (40 mm)

*Bolt clearance: Standard — 0.059-0.063 in. (1.5-1.6 mm)

BOLT TORQUES

Flywheel Mounting Bolts .....43-51 lbs.-ft. (59-69 Nm)
Clutch Mounting Bolts .....16-21 lbs.-ft. (22.6-28.4 Nm)

SPECIAL TOOLS

Alignment tool arbor.....FNH 00091

Clutch finger height adjustment gauge.....FNH 01300

SECTION 5
TRANSMISSION

SPECIFICATIONS

HYDROSTATIC TRANSMISSION

Type	HVFD - 23C 23-M3
Theoretical displacement of the pump	0-1.41 cu. in./rev. (0-23.4 cc/rev.)
Theoretical displacement of the motor	1.41 cu. in./rev. (23.4 cc/rev.)
Theoretical displacement of the charge pump	0.38 cu. in./rev. (6.2 cc/rev.)
Maximum input speed	2700 rpm
High pressure relief valve	3981 psi (274 bar)
Output speed	2510 rpm - at 2133 psi (147 bar)
Output torque	59 lbs.-ft. (79 N·m) at (274 bar), 3981 psi
Charge pump relief valve	61-81 psi (4.2-5.5 bar) at 2500 rpm
Swash plate tilt angle (pump)	0-18°
Swash plate tilt angle (motor)	18°
Operating moment	Max. 13 lbs.-ft. (17.6 N·m) N = 1000 260 rpm hp = 50 200 kg/cm²

BOLT TORQUES

Hydrostatic transmission cover screws	1.4-1.9 lbs.-ft. (2-2.5 N·m)
Charge pump housing bolts	12-14 lbs.-ft. (16-19 N·m)
Hydrostatic transmission port block retaining bolts	23-28 lbs.-ft. (31-38 N·m)

BOLT TORQUE SPECIFICATIONS

Bolt Size	Grade No.	Coarse Thread			Fine Thread		
		Pitch (mm)	Pounds-Feet	Newton-Meters	Pitch (mm)	Pounds-Feet	Newton-Meters
M6	4T	1.0	3.6— 5.1	4.9— 6.9	—	—	—
	7T		6.1—8.3	8.3—11.3			
	10T		8.7—11.6	11.8—15.7			
M8	4T	1.25	9.4—12.3	12.7—16.7	1.0	11.2—14.8	15.2—20.1
	7T		16.6—21.0	22.6—28.4		19.5—25.3	26.5—34.3
	10T		21.0—26.8	28.4—36.3		22.4—29.7	30.4—40.2
M10	4T	1.5	18.8—24.6	25.5—33.3	1.25	21.0—26.8	28.4—36.3
	7T		32.5—41.2	44.1—55.9		36.2—46.3	49.0—62.8
	10T		39.8—51.4	53.9—69.9		42.7—54.2	57.9—73.5
M12	4T	1.75	27.5—34.7	37.3—47.1	1.25	31.8—40.5	43.1—54.9
	7T		48.5—61.5	65.7—83.4		55.0—69.4	74.5—94.1
	10T		68.0—85.4	92.2—116		73.1—93.3	99.0—127
M14	4T	2.0	46.3—59.3	62.8—80.4	1.5	51.4—64.4	69.6—87.3
	7T		76.7—96.9	104—131		86.1—109	117—148
	11T		102—129	139—175		108—137	147—186
M16	4T	2.0	63.6—81.0	86.3—110	1.5	67.3—84.6	91.3—115
	7T		110—136	149—184		116—142	157—192
	11T		152—188	206—255		163—199	221—270
M18	4T	2.0	83.9—104	114—141	1.5	95.9—120	313—163
	7T		145—174	196—235		170—206	131—279
	11T		203—246	275—333		221—271	299—368
M20	4T	2.5	106—132	144—179	1.5	127—156	172—211
	7T		177—213	240—289		203—246	275—333
	11T		268—325	363—441		293—358	397—485

SECTION 6
POWER TAKE-OFF SYSTEMS

SPECIFICATIONS

BOLT TORQUE SPECIFICATIONS

Bolt Size	Grade No.	Coarse Thread			Fine Thread		
		Pitch (mm)	Pounds-Feet	Newton-Meters	Pitch (mm)	Pounds-Feet	Newton-Meters
M6	4T	1.0	3.6— 5.1	4.9— 6.9	—	—	—
	7T		6.1—8.3	8.3—11.3			
	10T		8.7—11.6	11.8—15.7			
M8	4T	1.25	9.4—12.3	12.7—16.7	1.0	11.2—14.8	15.2—20.1
	7T		16.6—21.0	22.6—28.4		19.5—25.3	26.5—34.3
	10T		21.0—26.8	28.4—36.3		22.4—29.7	30.4—40.2

SECTION 7
DIFFERENTIAL — REAR AXLE AND BRAKES

SPECIFICATIONS

DIFFERENTIAL ASSEMBLY

Clearance Between Differential Pinion and Pinion Shaft	0.004 in (0.1 mm)
Allowable Limit	0.020 in. (0.5 mm)
Differential Gear Thrust Washer Thickness	0.047 in. (1.2 mm)
Allowable Limit	0.035 in. (0.9 mm)
Differential Gear and Differential Pinion Backlash	0.004-0.012 in. (0.1-0.3 mm)
Allowable Limit	0.020 in. (0.5 mm)
Drive Pinion Pre-load	15.4-19.8 lbs. (7-9 kg)
Drive Pinion and Ring Gear Backlash	0.004-0.006 in. (0.1-0.15 mm)
Allowable Limit	0.012 in. (0.3 mm)

BRAKES

Brake Discs	
Lining Groove Depth	0.004 in. (0.1 mm)
Allowable Limit	0.0 in. (0.0 mm)
Stators Level Difference	
Allowable Limit	0.004 in. (0.1 mm)
Clearance of Pedal Shaft and Bushing	0.002-0.014 in. (0.05-0.35 mm)
Allowable Limit	0.039 in. (1.0 mm)
Brake Pedal Free Play	1.38-1.77 in. (35-45 mm)

SECTION 8
HYDRAULIC SYSTEM
SPECIFICATIONS

Hydraulic Pump
- Type ..... Gear
- Pump Capacity ..... 6.87 gpm (26.1 lpm)
- Hydraulic Oil ..... Ford 134C
- Pump Speed (rpm) ..... 2115 rpm
- Engine Speed (rpm) ..... 2500 rpm

System Relief Valve Setting ..... 2130 ± 70 psi (147 ± 5 bar)

Lift Cylinder Diameter ..... 2.76 in. (70 mm)

Maximum Lift Capacity ..... 2865 lbs. (1280 kg.)

Safety Valve Setting ..... 3625 ± 290 psi (250 ± 20 bar)

Remote Control Valve Relief Valve Setting ..... 1607 + 71 -0

BOLT TORQUE SPECIFICATIONS

Bolt Size	Grade No.	Coarse Thread			Fine Thread		
		Pitch (mm)	Pounds-Feet	Newton-Meters	Pitch (mm)	Pounds-Feet	Newton-Meters
M8	4T	1.25	9.4—12.3	12.7—16.7	1.0	11.2—14.8	15.2—20.1
	7T		16.6—21.0	22.6—28.4		19.5—25.3	26.5—34.3
	10T		21.0—26.8	28.4—36.3		22.4—29.7	30.4—40.2
M10	4T	1.5	18.8—24.6	25.5—33.3	1.25	21.0—26.8	28.4—36.3
	7T		32.5—41.2	44.1—55.9		36.2—46.3	49.0—62.8
	10T		39.8—51.4	53.9—69.6		42.7—54.2	57.9—73.5
M12	4T	1.75	27.5—34.7	37.3—47.1	1.25	31.8—40.5	43.1—54.9
	7T		48.5—61.5	65.7—83.4		55.0—69.4	74.5—94.1
	10T		68.0—85.4	92.2—116		73.1—93.3	99.0—127

Flow Control — Cylinder Head ..... 48.5-61.5 lbs.-ft. (65.7-83.4 N·m)
Hydraulic Pump Bolts ..... 16-20 lbs.-ft. (22-28 N·m)

SECTION 9
STEERING SYSTEMS

SPECIFICATIONS

Oil Pump Capacity ..... 1.5 gal @ 2500 engine rpm

Power Steering Type ..... Full hydraulic

Steering Cylinder
- Stroke — 2WD ..... 7.29 in. ± 1/16 (187 ± 1.25 mm)
- Stroke — 4WD ..... 7.21 in. ± 1/16 (185 ± 1.25 mm)
- Inside Diameter ..... 1.36 in. (35 mm)

Relief Valve Pressure ..... (1400-1500 psi)

Oil Specification ..... Ford 134

Steering Cylinder
- Piston-to-Tube Clearance ..... 0.027 in. (0.7 mm) max.
- Anchor Pin-to-Bushing Clearance
  - Piston Rod Eye ..... 0.019 in. (0.5 mm) max.
  - Tube Eye ..... 0.019 in. (0.5 mm) max.
- Cylinder Rod-to-Gland
  - Bushing Clearance ..... 0.012 in. (0.3 mm) max.

TORQUE SPECIFICATIONS

P/S Cylinder Gland Head ..... 94 lbs.-ft. (127 N·m)
P/S Cylinder Piston Nut ..... 26 lbs.-ft. (35 N·m)

Anchor Pin Retaining Bolt ..... 9-12 lbs.-ft. (12-16 N·m)

Power Steering Pump Bolts ..... 16-20 lbs.-ft. (21-27 N·m)

BOLT TORQUES

Bolt Size	Grade No.	Coarse Thread			Fine Thread		
		Pitch (mm)	Pounds-Feet	Newton-Meters	Pitch (mm)	Pounds-Feet	Newton-Meters
M8	4T	1.25	9.4—12.3	12.7—16.7	1.0	11.2—14.8	15.2—20.1
	7T		16.6—21.0	22.6—28.4		19.5—25.3	26.5—34.3
	10T		21.0—26.8	28.4—36.3		22.4—29.7	30.4—40.2
M10	4T	1.5	18.8—24.6	25.5—33.3	1.25	21.0—26.8	28.4—36.3
	7T		32.5—41.2	44.1—55.9		36.2—46.3	49.0—62.8
	10T		39.8—51.4	53.9—69.6		42.7—54.2	57.9—73.5
M12	4T	1.75	27.5—34.7	37.3—47.1	1.25	31.8—40.5	43.1—54.9
	7T		48.5—61.5	65.7—83.4		55.0—69.4	74.5—94.1
	10T		68.0—85.4	92.2—116		73.1—93.3	99.0—127

SECTION 10
FRONT AXLE AND RELATED PARTS
SPECIFICATIONS

TWO WHEEL DRIVE

King Pin Inclination (fixed)	8°
Toe-In	0-3/16 in. (0-0.5 mm)
Caster (fixed)	0°
Camber (fixed)	3°
Pivot Shaft to Bushing Clearance	0.001-0.006 in. (0.02-0.15 mm)
Wear Limit	0.012 in. (0.3 mm)
Front Axle End Play — Maximum	0.008 in. (0.2 mm)
Shims Available	0.008 in. (0.2mm)
	0.020 in. (0.5 mm)

FOUR WHEEL DRIVE

Differential Pinion Gear to Pinion Shaft Clearance	0.004 in. (0.1 mm)
Differential Pinion Gear Thrust Washer Thickness	0.047 in. (1.2 mm)
Differential Side Gear to Pinion Gear Backlash	0.004-0.006 in. (0.1-0.15 mm)
Drive Pinion Bearing Pre-Load	28.7-37.4 lbs. pull (13-17 kg)

Differential Housing Pivot	
Trunnion to Bushing Clearance —	
Front	0.001-0.007 in. (0.02-0.2 mm)
Maximum	0.014 in. (0.35 mm)
Rear	0.001-0.006 in. (0.02-0.16 mm)
Maximum	0.014 in. (0.35 mm)
King Pin Inclination (fixed)	10°

Camber (fixed)	2°
Final Pinion Gear to Bevel Gear Backlash	0.008-0.016 in. (0.2-0.4 mm)
Front Axle Pivot End Play	0.012 in. (0.3 mm)
Maximum	0.023 in. (0.6 mm)
Front Wheel Toe-In	0-3/16 in. (0-5 mm)

SECTION 11
WHEELS AND TIRES
SPECIFICATIONS

BOLT TORQUE SPECIFICATIONS

Bolt Size	Grade No.	Coarse Thread			Fine Thread		
		Pitch (mm)	Pounds-Feet	Newton-Meters	Pitch (mm)	Pounds-Feet	Newton-Meters
M6	4T	1.0	3.6— 5.1	4.9— 6.9	—	—	—
	7T		6.1—8.3	8.3—11.3			
	10T		8.7—11.6	11.8—15.7			
M8	4T	1.25	9.4—12.3	12.7—16.7	1.0	11.2—14.8	15.2—20.1
	7T		16.6—21.0	22.6—28.4		19.5—25.3	26.5—34.3
	10T		21.0—26.8	28.4—36.3		22.4—29.7	30.4—40.2
M10	4T	1.5	18.8—24.6	25.5—33.3	1.25	21.0—26.8	28.4—36.3
	7T		32.5—41.2	44.1—55.9		36.2—46.3	49.0—62.8
	10T		39.8—51.4	53.9—69.9		42.7—54.2	57.9—73.5
M12	4T	1.75	27.5—34.7	37.3—47.1	1.25	31.8—40.5	43.1—54.9
	7T		48.5—61.5	65.7—83.4		55.0—69.4	74.5—94.1
	10T		68.0—85.4	92.2—116		73.1—93.3	99.0—127
M14	4T	2.0	46.3—59.3	62.8—80.4	1.5	51.4—64.4	69.6—87.3
	7T		76.7—96.9	104—131		86.1—109	117—148
	11T		102—129	139—175		108—137	147—186
M16	4T	2.0	63.6—81.0	86.3—110	1.5	67.3—84.6	91.3—115
	7T		110—136	149—184		116—142	157—192
	11T		152—188	206—255		163—199	221—270
M18	4T	2.0	83.9—104	114—141	1.5	95.9—120	313—163
	7T		145—174	196—235		170—206	131—279
	11T		203—246	275—333		221—271	299—368
M20	4T	2.5	106—132	144—179	1.5	127—156	172—211
	7T		177—213	240—289		203—246	275—333
	11T		268—325	363—441		293—358	397—485

SECTION 12
SEPARATING THE TRACTOR

SPECIFICATIONS

Lubricant

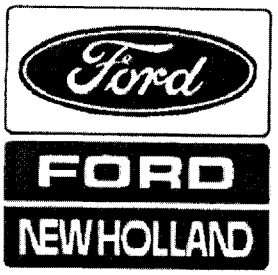
Transmission, Rear Axle and Hydraulic System - Oil ..... Ford 134

Front Axle ..... Ford 134

Ford Sealant (Gasket Eliminator) ..... Ford L51831 or Loctite Gasket Eliminator 518

METRIC BOLT TORQUE SPECIFICATIONS

Bolt Size	Grade No.	Coarse Thread			Fine Thread		
		Pitch (mm)	Pounds-Feet	Newton-Meters	Pitch (mm)	Pounds-Feet	Newton-Meters
M6	4T 4T 4.8	1.0	3.6— 5.1	4.9— 6.9	—	—	—
	7T 7T 8T 8.8		6.1—8.3	8.3—11.3			
	10T 10T 11T		8.7—11.6	11.8—15.7			
M8	4T	1.25	9.4—12.3	12.7—16.7	1.0	11.2—14.8	15.2—20.1
	7T		16.6—21.0	22.6—28.4		19.5—25.3	26.5—34.3
	10T		21.0—26.8	28.4—36.3		22.4—29.7	30.4—40.2
M10	4T	1.5	18.8—24.6	25.5—33.3	1.25	21.0—26.8	28.4—36.3
	7T		32.5—41.2	44.1—55.9		36.2—46.3	49.0—62.8
	10T		39.8—51.4	53.9—69.9		42.7—54.2	57.9—73.5
M12	4T	1.75	27.5—34.7	37.3—47.1	1.25	31.8—40.5	43.1—54.9
	7T		48.5—61.5	65.7—83.4		55.0—69.4	74.5—94.1
	10T		68.0—85.4	92.2—116		73.1—93.3	99.0—127
M14	4T	2.0	46.3—59.3	62.8—80.4	1.5	51.4—64.4	69.6—87.3
	7T		76.7—96.9	104—131		86.1—109	117—148
	11T		102—129	139—175		108—137	147—186
M16	4T	2.0	63.6—81.0	86.3—110	1.5	67.3—84.6	91.3—115
	7T		110—136	149—184		116—142	157—192
	11T		152—188	206—255		163—199	221—270
M18	4T	2.0	83.9—104	114—141	1.5	95.9—120	313—163
	7T		145—174	196—235		170—206	131—279
	11T		203—246	275—333		221—271	299—368
M20	4T	2.5	106—132	144—179	1.5	127—156	172—211
	7T		177—213	240—289		203—246	275—333
	11T		268—325	363—441		293—358	397—485



40132022 (Supp. to SE4602) 693

Printed in U.S.A.