

1961 FORD

SERVICE SPECIFICATIONS



FORD DIVISION • FORD MOTOR COMPANY

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The '61-'66 Ford Pickup Resource

1961

FORD

SERVICE

SPECIFICATIONS

TRUCK AND
ECONOLINE

FORD
CAR,
THUNDER-
BIRD, AND
FALCON

SERVICE DEPARTMENT
FORD DIVISION
FORD MOTOR COMPANY

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FOREWORD

This booklet contains service specifications for the 1961 Ford Car, Thunderbird, Falcon, Econoline, and Truck.

The specifications contained in this booklet were in effect at the time the book was approved for printing. The Ford Division of Ford Motor Company reserves the right to discontinue models at any time, or change specifications or design, without notice and without incurring obligation.

Carl T. Doman

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National Service Manager
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PART I FORD TRUCKS

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ENGINES

NOTE: All specifications are given in inches unless otherwise noted.

ENGINE IDENTIFICATION

Truck

PATENT PLATE SYMBOL	CUBIC INCH DISPLACEMENT
C	292 MD
D	292 HD
F	332
J	223
N	302
P	401
Q	477
R	534
S	144

GENERAL

ENGINE MODELS AND PISTON DISPLACEMENT (Cubic Inches)

144 Six	144
223 Six	223
262	262
V-8 MD (Medium Duty)	292
HD (Heavy Duty)	292, 302, and 332
SD (Super Duty)	401, 477, and 534

BORE AND STROKE

144	3.50 x 2.50
223	3.625 x 3.60
262	3.718 x 4.03
292	3.75 x 3.30
302	3.625 x 3.66
332	3.80 x 3.66
401	4.125 x 3.75
477	4.50 x 3.75
534	4.50 x 4.20

COMPRESSION RATIO

144 Six	8.7:1
223 Six	8.1:1
262	8.0:1
292 HD V-8;	7.6:1
292 MD V-8	7.9:1
302	7.1:1
332	7.0:1
401, 477, 534	
SD V-8	7.5:1

TORQUE - (Foot-Pounds)

@ Specified rpm

1.44	138 @2000
223 Six	203 @2600
292 MD V-8	270 @2240
292 HD V-8	274 @2800
302 HD V-8	290 @2600
332 HD V-8	312 @2600
401 SD V-8	343 @2000-2600
477 SD V-8	412 @1400-1800
534 SD V-8	481 @1600-1800

VALVE ARRANGEMENT

(Front to Rear)

144	E-1-1-E-1-E-E-1-E-1-E
223	E-1-1-E-1-E-E-1-E-1-E
292, 302, and 332	E-1-1-E-E-1-E-1-E
401, 477, and 534	E-1-E-1-1-E-1-E

COMPRESSION PRESSURE

Sea Level @ Cranking Speed

144	770 ±10
All Engines (except 144)	150 ±20

GENERAL - (Continued)

TAXABLE HORSEPOWER

144	29.4
223	31.50
262	33.18
292	44.60
302	42.05
332	46.20
401	54.00
477 and 534	65.00

BRAKE HORSEPOWER

@ Specified rpm

144 Six	90 @ 4200
223 Six	139 @ 4200
292 MD V-8	172 @ 4000
292 HD V-8	180 @ 4000
302 HD V-8	194 @ 3800
332 HD V-8	205 @ 3800
401 SD V-8	226 @ 3600
477 SD V-8	231 @ 3400
534 SD V-8	266 @ 3200

FIRING ORDER

144	1-5-3-6-2-4
223 and 262 Six	1-5-3-6-2-4
All V-8's	1-5-4-8-6-3-7-2

OIL CAPACITY

144	3½ quarts
223, 292	5 quarts*
262	6 quarts*
302 and 332	8 quarts*
401, 477, and 534	9 quarts**

*Add one quart when changing oil filter.

**Add 2 quarts when changing oil filter.

ENGINE IDLE RPM*

Manual-Shift

144	500-550†
144	550-600‡
223, 262, 292MD, 401, 477, 534	500-550
292HD, 302, 332	525-575

Automatic Transmissions

144, 170	475-525†
144, 170	525-575‡
223, 262, 292MD, 292HD, 302, 332 ...	475-525

*Engine idle speed can be varied to suit operating conditions.

†Without positive crankcase ventilation.

‡With positive crankcase ventilation.

ENGINE IDLE MANIFOLD VACUUM

Inches of Mercury @ Specified

Engine Neutral Idle RPM

(sea level)

144	18
223, 292	18
Other Engines	17

OIL PRESSURE-

Hot @ 2000 rpm

144, 223, 262, 292, 302, and 332	35-55 psi
401, 477, 534	35-65 psi

RECOMMENDED OIL VISCOSITY*

@ Specified Ambient Temperature:

144 Engine	
Above + 70°F	SAE 30
+ 32° F to + 70° F	SAE 20-20W
+ 32° F to - 10° F	SAE 10-10W
Below - 10° F	SAE 5W
All Engines (Except 144)	
Above + 100° F	SAE 40
+ 32° F to + 100° F	SAE 30
+ 10° F to + 32° F	SAE 20-20W
+ 10° F to - 10° F	SAE 10W
Below - 10° F	SAE 5W

*Multi-viscosity oils may be used if they are certified by the supplier to satisfy ASTM-GIV Test Sequences which describe the minimum requirements for API oil classification "For Service MS."

RECOMMENDED MINIMUM A.P.I. CLASSIFICATION OF ENGINE LUBRICATING OILS

All Engines Except SD V-8* and 144 ..	MS-DS
144	MS
SD V-8	MS-S1

*For extreme heavy duty operation over 100° F. use S1 (Mil-L2104-A.)

CYLINDER HEAD

GASKET SURFACE FLATNESS All Engines—.033 inch (144 Engine—.002 inch) in any 6 inches or .006 inch overall.	VALVE SEAT RUNOUT Maximum 0.002 Wear Limit 0.0025
VALVE GUIDE BORE DIAMETER STANDARD Intake 144 0.3115-0.3125 223 and 292 0.3433-0.3440 262, 302 and 332 0.3728-0.3735 401, 477, and 534 0.4368-0.4375 Exhaust 144 0.3115-0.3125 223 and 292 MD 0.3433-0.3440 262 0.3728-0.3735 All HD and SD Engines 0.4368-0.4375	VALVE SEAT INSERT TO BORE INTERFERENCE FIT STANDARD AND OVERSIZE Intake and Exhaust 262 0.0015-0.0040 HD and SD Engines 0.002-0.004
VALVE SEAT WIDTH Intake 144 0.070-0.080 262 0.060-0.080 292 0.055-0.085 223, 302, and 332 0.070-0.090 401, 477, and 534 0.090-0.110 Exhaust 144 0.070-0.080 223 0.070-0.090 292 MD 0.065-0.095 262, 292 HD 0.085-0.100 Other Engines 0.090-0.110	VALVE SEAT INSERT BORE DIAMETER STANDARD Intake 302 and 332 2.1215-2.1225 401, 477, and 534 2.2165-2.2175 Exhaust 262, 292, 302, and 332 HD 1.6245-1.6260 401, 477, and 534 1.7405-1.7415
VALVE SEAT ANGLE All Engines (Intake and Exhaust) 45°	VALVE SEAT INSERT DIAMETER STANDARD Intake 302 and 332 2.1245-2.1255 401, 477, and 534 2.2195-2.2205 Exhaust 262, 292, 302, and 332 HD 1.6275-1.6285 401, 477, and 534 1.7435-1.7445

VALVE MECHANISM

VALVE LASH COLD Intake 144 0.016 223, 262, and 292 0.019 302, 332, 401, 477, and 534 0.020 Exhaust 144 0.016 223, 262, and 292 0.019 302, 332 0.022 401, 477, and 534 0.020 HOT Intake and Exhaust 144 0.016 223 and 262 0.019 292 0.018 302, 332, 401, 477, and 534 0.020	VALVE STEM DIAMETER STANDARD Intake 144 0.3100-0.3107 223 and 292 0.3416-0.3423 262 0.3710-0.3720 302 and 332 0.3711-0.3718 401, 477, and 534 0.4349-0.4358 Exhaust 144 0.3090-0.3097 223 and 292 0.3398-0.3405 262 0.3693-0.3703 All Other Engines 0.4335-0.4344 0.003 OVERSIZE Intake 144 0.3130-0.3137 223 and 292 0.3446-0.3453 262 0.3740-0.3750 302 and 332 0.3741-0.3748 401, 477, and 534 0.4379-0.4388 Exhaust 144 0.3120-0.3127 223 and 292 0.3428-0.3435 262 0.3723-0.3733 302, 332, 401, 477, and 534 0.4365-0.4374 0.015 OVERSIZE Intake 144 0.3250-0.3257 223 and 292 0.3566-0.3573 262 0.3860-0.3870 302 and 332 0.3861-0.3868 401, 477, and 534 0.4499-0.4508 Exhaust 144 0.3240-0.3247 223 and 292 MD 0.3548-0.3555 292 HD 0.4494-0.4500 302, 332, 401, 477, and 534 0.4485-0.4494 262 0.3848-0.3858 0.030 OVERSIZE Intake 144 0.3400-0.3407 223 and 292 0.3716-0.3723 262 0.4010-0.4020 302 and 332 0.4011-0.4018 401, 477, and 534 0.4649-0.4658 Exhaust 144 0.3390-0.3397 223 and 292 MD 0.3698-0.3705 262 0.3993-0.4003 292 HD 0.4643-0.0653 302, 332, 401, 477, and 534 0.4635-0.4644
VALVE HEAD DIAMETER Intake 144 1.462-1.472 223 and 262 1.775-1.785 292 1.642-1.652 302 and 332 1.920-1.930 401, 477, and 534 2.015-2.025 Exhaust 144 1.261-1.271 401, 477, and 534 1.630-1.640 All Other Engines 1.505-1.515	VALVE STEM TO VALVE GUIDE CLEARANCE Intake 144 0.0008-0.0025 - Wear Limit 0.0045 262 0.0008-0.0025 - Wear Limit 0.0055 401, 477, 534 0.0016-0.0030 - Wear Limit 0.0045 All Other Engines 0.0010-0.0024 - Wear Limit 0.0045 Exhaust 144 0.0018-0.0035 - Wear Limit 0.0055 223 and 292 MD 0.0028-0.0042 - Wear Limit 0.0055 262 0.0025-0.0042 - Wear Limit 0.0055 292 HD 0.0018-0.0032 - Wear Limit 0.0055 All Other Engines 0.0024-0.0040 - Wear Limit 0.0055

VALVE MECHANISM (Cont.)

VALVE FACE RUNOUT Intake and Exhaust 223 and 292 0.0015 - Wear Limit 0.0020 Other Engines.. 0.0025 - Wear Limit 0.0025	VALVE PUSH ROD RUNOUT (maximum) 144 0.25 Other Engines 0.020
VALVE SPRING OUT OF SQUARE (maximum) 144 0.069 262 0.068 Other Engines 0.072	ROCKER ARM SHAFT O.D. 144, 223, 262, 292, 302, and 332..0.780-0.781 Other Engines 0.781-0.784
VALVE SPRING FREE LENGTH (approximate) 144 2.00 262 1.96 401, 477, and 534 2.07 Other Engines 2.09	VALVE TAPPET DIAMETER STANDARD 223 0.4983-0.4989 292 and 262 0.4989-0.4995 144, 302, 332, 401, 477, and 534 0.8740-0.8745
VALVE SPRING PRESSURE Pounds @ Specified Length Valve Closed 144 47.75-56.25 Wear Limit 40 @1.585 401, 477, and 534 84-89 @1.70- Wear Limit 75 @1.70 Other Engines 71-79 @1.78- Wear Limit 64 @1.78 Valve Open 144 112-122 @1.222 Wear Limit 101 401, 477, and 534 178-192 @1.28- Wear Limit 160 @1.28 Other Engines 161-177 @ 1.39- Wear Limit 145 @1.39	VALVE TAPPET TO TAPPET BORE CLEARANCE 223 0.0011-0.0027-Wear Limit 0.0055 262, 292 .. 0.0005-0.0021-Wear Limit 0.0055 Other Engines 0.0005-0.0020-Wear Limit 0.0030 ROCKER ARM TO ROCKER SHAFT CLEARANCE 144 0.002-0.004-Wear Limit 0.006 223 Six, and 292 0.002-0.004-Wear Limit 0.008 302 and 332... 0.002-0.005-Wear Limit 0.006 401, 477,534.. 0.001-0.004-Wear Limit 0.007
VALVE SPRING ASSEMBLED HEIGHT - Pad To Retainer 144 1-9/16-1-39/64 262 1-5/8-1-11/16 401, 477, and 534 1-11/16-1-23/32 Other Engines 1-3/4-1-25/32	ROCKER SHAFT BORE DIAMETER All Engines 0.783-0.784

CAMSHAFT, TIMING CHAIN, AND TIMING GEARS

CAMSHAFT END PLAY 144 0.003-0.007 Wear Limit 0.012 Other Engines. 0.001-0.007-Wear Limit 0.012	CAMSHAFT JOURNAL RUNOUT All Engines 0.005
CAMSHAFT JOURNAL TO BEARING CLEARANCE All Engines... 0.001-0.003-Wear Limit 0.006	CAMSHAFT JOURNAL OUT-OF-ROUND All Engines 0.0005-Wear Limit 0.001

CAMSHAFT, TIMING CHAIN, AND TIMING GEARS (Cont.)

CAMSHAFT LOBE LIFT Intake 144 0.2405 223 and 262 0.273 292 0.264 302 and 332 0.244 401, 477, and 534 0.278 Exhaust 144 0.2395 223 and 262 0.273 292 MD 0.262 302 and 332 0.265 401, 477, and 534 0.278	TIMING CHAIN DEFLECTION 144, 223, 262, and 292 0.5" MAXIMUM ALLOWABLE LOBE LIFT LOSS Intake and Exhaust-Except SD Engines. 0.005 Intake and Exhaust-SD Engines 0.008 CAMSHAFT JOURNAL DIAMETER STANDARD 144 1.8095-1.8105 223, 262, and 292 1.9255-1.9265 302 and 332 2.1238-2.1248* 401, 477, and 534 2.370-2.371* Front Journal 302, 332, 401, 477, and 534... 2.4738-2.4748 *Nos. 2, 3, 4, and 5 journals only.
CAMSHAFT GEAR TO CRANKSHAFT GEAR BACKLASH 302, 332, 401, 477, and 534 0.002-0.004	

CAMSHAFT BEARINGS

Inside Diameter 144 1.8115-1.8125 223, 262 and 292 1.9275-1.9285 302 and 332 2.126-2.127* 401, 477, and 534 2.372-2.373* *Nos. 2,3,4, and 5 bearings only-No. 1 bearing 2.476-2.477.	Location in relation to Front Face of Block Cam Bearing Bore - No. 1 bearing only (below) 144 0.115-0.125 223, 292, 302, and 332 0.005-0.020 401, 477, and 534 0.310-0.330
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FLYWHEEL

CONVENTIONAL AND OVERDRIVE TRANSMISSION ASSEMBLED FLYWHEEL CLUTCH FACE RUNOUT (Maximum)

All Engines 0.010

CRANKSHAFT

MAIN BEARING JOURNAL DIAMETER STANDARD 144 2.2486-2.2490 223, 262, and 292 2.4980-2.4988 302 and 332 2.6230-2.6238 401, 477, and 534 3.1246-3.1254	CONNECTING ROD JOURNAL DIAMETER 144 2.1236-2.1240 223 and 262 2.2980-2.2988 292 2.1880-2.1888 302 and 332 2.2482-2.2490 401, 477, and 534 2.7092-2.7100
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CRANKSHAFT (Cont.)

MAIN BEARING JOURNAL RUNOUT 144 0.0025 – Wear Limit 0.0035 223 and 262 0.003 – Wear Limit 0.004 292 0.002 – Wear Limit 0.003 Other Engines 0.002 – Wear Limit 0.003	MAIN BEARING JOURNAL THRUST FACE RUNOUT All Engines 0.001
CONNECTING ROD AND MAIN BEARING JOURNALS OUT-OF-ROUND All Engines 0.0004 – Wear Limit 0.0006	CRANKSHAFT FREE END PLAY 144 0.004-0.006 – Wear Limit 0.012 All Engines . 0.004-0.008 – Wear Limit 0.012
CONNECTING ROD AND MAIN BEARING JOURNALS TAPER All Engines 0.0003 – Wear Limit 0.001	ASSEMBLED FLYWHEEL CLUTCH FACE RUNOUT All Engines 0.010
THRUST BEARING JOURNAL LENGTH 144 1.275-1.277 223 and 262 1.359-1.361 292, 302, and 332 1.124-1.126 401, 477, and 534 1.279-1.281	ASSEMBLED FLYWHEEL O. D. RUNOUT 144, 223, 262, and 292 0.007 Other Engines 0.006
	ASSEMBLED SPROCKET OR GEAR FACE RUNOUT 223, 262, and 292 0.006

MAIN BEARINGS

JOURNAL CLEARANCE 144 0.001-0.003 – Wear Limit 0.006 223 0.0006-0.0028 – Wear Limit 0.0038 292 0.0006-0.0032 – Wear Limit 0.0042	302 and 332 0.0012-0.0032 – Wear Limit 0.0042 401, 477, and 534 0.0018-0.0039 – Wear Limit 0.0049
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CONNECTING ROD

PISTON PIN BUSHING I.D. STANDARD 144 0.9107-0.9112 223, 262, and 292 0.9122-0.9125 302 and 332 0.9122-0.9125 401, 477, and 534 1.2201-1.2204	PISTON PIN BUSHING OUT-OF-ROUND AND TAPER 144 0.0003 All Engines (Except 144) 0.0002
BEARING BORE DIAMETER 144 2.2390-2.2394 223 and 262 2.4230-2.4238 292 2.3120-2.3128 302 and 332 2.4002-2.4010 401, 477, and 534 2.9032-2.9040	CONNECTING ROD ASSEMBLY (Assembled to crankshaft) Side Clearance 144 0.004-0.011 – Wear Limit 0.014 223 0.003-0.009 – Wear Limit 0.012 292 0.006-0.016 – Wear Limit 0.019 302, 332 ... 0.006-0.016 – Wear Limit 0.017 401, 477, and 534 0.006-0.014 – Wear Limit 0.017

CONNECTING ROD (Cont.)

BEARING BORE OUT-OF-ROUND AND TAPER 144 0.0002 Other Engines 0.0004	CONNECTING ROD Twist Total Difference (maximum*) All Engines 0.012 Bend Total Difference* All Engines 0.004 *Pin bushing and crankshaft bearing bore must be parallel and in the same vertical plane within the specified total difference at ends of 8-inch-long bar measured 4-inches on each side of rod.
CONNECTING ROD LENGTH (Center to center) 144 4.854-4.856 223 6.258-6.262 262 6.043-2.047 292 MD 6.320-6.324 292 HD 6.250-6.254 302 and 332 7.064-7.066 401, 477, and 534 7.739-7.741	

CONNECTING ROD BEARINGS

BEARING TO CRANKSHAFT CLEARANCE 144 0.0005-0.0027 223 and 262 0.0006-0.0025 – Wear Limit 0.0035 292 0.0005-0.0024 – Wear Limit 0.0034	302 and 332 ... 0.0006-0.0027 – Wear Limit 0.0036 401, 477, and 534 0.0017-0.0036 – Wear Limit 0.0039
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PISTON

PISTON DIAMETER STANDARD (color coded red) 144 3.4976-3.4982 223 and 302 3.6236-3.6242 262 3.7167-3.7173 292 3.7486-3.7492 332 3.7986-3.7992 401 4.1233-4.1239 477 and 534 4.4983-4.4989	0.003 OVERSIZE 144 3.5000-3.5006 223 and 302 3.6260-3.6266 262 3.7191-3.7197 292 3.7510-3.7516 332 3.8010-3.8016 401 4.1257-4.1263 477 and 534 4.5007-4.5013
STANDARD (color coded blue) 144 3.4988-3.4994 223 and 302 3.6248-3.6254 262 3.7179-3.7185 292 3.7498-3.7504 332 3.7998-3.8004 401 4.1245-4.1251 477 and 534 4.4995-4.5001	PISTON TO BORE CLEARANCE (Bottom of skirt) 144 0.0018-0.0036 262 0.0021-0.0027 401, 477, and 534 0.0011-0.0029 – Wear Limit 0.005 All Other Engines 0.0008-0.0026 – Wear Limit 0.005

PISTON PIN

PISTON PIN DIAMETER STANDARD (color coded green) 401, 477, and 534 1.2198-1.2201 Other Engines 0.9120-0.9123 0.002 OVERSIZE (color coded yellow) 401, 477, and 534 1.2218-1.2221 All Other Engines 0.9140-0.9143 0.001 OVERSIZE (color coded blue) 401, 477, and 534 1.2208-1.2211 All Other Engines 0.9130-0.9133	PISTON PIN LENGTH 144, 223, 262, and 292..... 3.010-3.030 302 3.008-3.028 332 3.156-3.176 401 3.335-3.350 477 and 534 3.840-3.855 PISTON PIN TO PISTON CLEARANCE (Loose) 401, 477, and 534 0.0003-0.0005—Wear Limit 0.001 Other Engines 0.0001-0.0003—Wear Limit 0.0008
PISTON PIN TO CONNECTING ROD BUSHING CLEARANCE (Loose) All Engines 0.0001-0.0005 Wear Limit All Engines 0.001	

PISTON RINGS

SIDE CLEARANCE Compression Ring 144 0.0024-0.0041 223, 262, and 292 0.0019-0.0036—Wear Limit 0.006 302 and 332 0.0024-0.0091—Wear Limit 0.006 401, 477, and 534 0.0030-0.0045—Wear Limit 0.006 *Except 332 Engine: 0.0025-0.0024 at top; 0.003-0.005 at bottom. Oil Ring 223, 262, and 292 Snug 302 and 332 0.0028-0.0052—Wear Limit 0.007 401, 477, and 534 0.0014-0.0031—Wear Limit 0.007	Oil Ring All Engines 0.1859-0.1866 †Two rings used per groove. Width specified is for one ring. RING GAP WIDTH Compression Ring (Standard Bore) 144 0.010-0.020 223, 262, and 292* 0.010-0.025 302 and 332 . . Top Ring 0.010-0.031 Bottom Ring ... 0.012-0.027 SD Engines. Top Ring 0.016-0.031 Other Rings.... 0.013-0.028 Oil Ring (Standard Bore) 144 0.015-0.055 223 and 292 0.015-0.062* 302 and 332 0.010-0.028† 401, 477, and 534 0.013-0.033 *Steel rail. †At top 0.010 — 0.025 at bottom.
RING WIDTH Compression Ring 144, 262, and 292 0.0774-0.0781 All Other Engines 0.0930-0.0935* *Except 332 Engine: 0.0930-0.0935 at top; 0.0930-0.0940 at bottom.	

CYLINDER BLOCK

CYLINDER BORE DIAMETER (Standard spreads for 8 grades). 144 3.500-3.5012 223 3.6250-3.6274 262 3.7150-3.7214 292 3.7500-3.7524 302 3.6250-3.6274 332 3.8000-3.8024 401 4.1250-4.1274 477 and 534 4.5000-4.5024	CYLINDER BORE OUT-OF-ROUND (maximum) 144, 223, 262, and 292 0.0010—Wear Limit 0.003 Other Engines 0.0005—Wear Limit 0.003 HEAD GASKET SURFACE FLATNESS 144 0.002 inch in any 6 inches or 0.006 inch overall Other Engines . 0.003 inch in any 6 inches or 0.006 inch overall
CYLINDER BORE TAPER All Engines 0.001—Wear Limit 0.005	

OIL PUMP (Gear Type)

RELIEF VALVE SPRING TENSION (Pounds @ specified length) 223 9.55-10.05 @1.56	GEAR END CLEARANCE (pump assembled) 223 0.003-0.006
RELIEF VALVE CLEARANCE 223 0.002-0.004	DRIVEN GEAR TO SHAFT CLEARANCE 223 0.001-0.002
DRIVE SHAFT TO HOUSING BEARING CLEARANCE 223 0.0015-0.0029	GEAR TO HOUSING RADIAL CLEARANCE 223 0.001-0.005

OIL PUMP (Rotor Type)

RELIEF VALVE SPRING TENSION (Pounds @ specified length) 144 8.6-9.5 @1.078 223 9.0-9.6 @1.53 292, 302, and 332 8.7-9.9 @1.71 401, 477, and 534 10.7-11.9 @1.07	ROTOR ASSEMBLY END CLEARANCE (Pump assembled) All Engines 0.0011-0.0041 OUTER RACE TO HOUSING RADIAL CLEARANCE All Engines 0.006-0.012
RELIEF VALVE CLEARANCE All V-8 Engines 0.0015-0.0029	DRIVE SHAFT LENGTH (Rotor assembly face to shaft end) 144 2.36-2.38 292, 302, and 332 3.36-3.38 401, 477, and 534 2.67-2.69
DRIVE SHAFT TO HOUSING BEARING CLEARANCE All Engines 0.0015-0.0029	

TORQUE LIMITS (Foot-Pounds)

MAIN BEARING CAP BOLTS (Oiled threads) 144 65-75 223 and 262 95-105 292 80-90 302 and 332 120-130 401,477, and 534 150-164	OIL PICK-UP TUBE TO OIL PAN 292 28-32 302 and 332 10-12
CYLINDER HEAD BOLTS (Oiled threads) 144 and 292MD 65-75 292HD 70-80 223 and 262 95-105 302 and 332 95-110 401,477, and 534 130-150	CRANKCASE VENTILATION ADAPTER TO CYLINDER BLOCK 144 6-9 223 8-10 292 3-5
OIL PAN TO CYLINDER BLOCK 144 7-9 Other Engines 9-13	FUEL PUMP TO CYLINDER BLOCK OR CYLINDER FRONT COVER 144 and 223 12-15 292 23-28
OIL FILTER ADAPTER TO CYLINDER BLOCK 144 50-60 302 and 332 20-25 401,477, and 534 12-15	MANIFOLD TO CYLINDER HEAD Intake 23-28 Exhaust - 302 and 332 12-15 144 13-18 Other Engines 23-28
OIL FILTER CENTER BOLT 401,477, and 534 45-50 Other Engines 20-25	FLYWHEEL TO CRANKSHAFT 401,477, and 534 100-110 Other Engines 75-85
OIL COOLER TO CYLINDER BLOCK 401,477, and 534 20-25	OIL PUMP TO CYLINDER BLOCK 223 Six 30-35 144,262,292,302 and 332 12-15 401,477 and 501 23-28
CYLINDER FRONT COVER 144,223 and 262 6-9 292 12-15 302,332,401,477, and 534 23-28	OIL PUMP COVER PLATE Rotor 6-9 Gear 12-15
WATER OUTLET HOUSING All Other Engines 23-28 144,292 12-15	VALVE ROCKER ARM ADJUSTING SCREW (Self-locking-type-minimum torque to rotate) 144,223,292,302, and 332 3
VALVE ROCKER ARM COVER 144 3-5 292,302, and 332 2.0-2.5 All Other Engines 4-7	VALVE ROCKER ARM ADJUSTING NUT 401,477, and 534 30-35
WATER PUMP TO CYLINDER BLOCK OR FRONT COVER 144 and 292 12-15 Other Engines 23-28	CAMSHAFT SPROCKET OR GEAR TO CAMSHAFT 144,223,262, and 292 35-45 302,332,401,477,534 20-24
OIL PICK-UP TUBE TO OIL PUMP 144 12-15 223,262,292,302, and 332 10-12	DAMPER OR PULLEY TO CRANKSHAFT 144 45-55 223,262, and 292 70-90 302,332,401,477, and 534 130-145

TORQUE LIMITS (Cont.)

CONNECTING ROD NUTS 144 19-24 401,477, and 534 60-65 All Other Engines 40-42	ENGINE GOVERNOR TO CYLINDER BLOCK 401,477, and 534 23-28
CAMSHAFT THRUST PLATE TO BLOCK All Engines 12-15	ENGINE FRONT SUPPORT Insulator Assembly To Engine Front Mount 144 23-28 223,292,302, and 332 45-55 (1/2-20) 35-45 (7/16-20)
VALVE ROCKER SHAFT SUPPORT TO CYLINDER HEAD 144 30-35 223 and 262 45-55 292 12-15 302 and 332 22-25	Engine Front Mounting Bracket To Engine Front Support 401,477, and 534 45-55 (1/2-20)
VALVE PUSH ROD CHAMBER COVER 223 (Inch-Pounds) 15-20 292,302, and 332 2.0-2.5 401,477, and 534 5 and 10* *10 on center end bolts; 5 on side bolts	ENGINE REAR SUPPORT Insulator To Rear Engine Mount 144 23-29 401,477, and 534 100-150 (5/8-18) All Other Engines 70-90 (9/16-18)
	Engine Rear Support To Flywheel Housing 401,477, and 534 90-100 (1/2-13)

TORQUE LIMITS FOR VARIOUS SIZE BOLTS

CAUTION: If any of the torque limits listed in this table disagree with any of those listed in the preceding tables, the limits listed in the preceding tables prevail.

Size (Inches)	1/4-20	1/4-28	5/16-18	5/16-24	3/8-16	3/8-24
Torque (Foot-Pounds)	6-9	6-9	12-15	15-18	23-28	30-35
Size (Inches)	7/16-14	7/16-20	1/2-13	1/2-20	9/16-18	5/8-18
Torque (Foot-Pounds)	45-50	50-60	60-70	70-80	85-95	130-145

IGNITION TIMING

INITIAL IGNITION TIMING (B.T.D.C.)

144	2°
223 and 292 MD V-8	4°
All HD and SD V-8*	
With regular fuel of 85-88 octane	4°
With regular fuel of 88-90 octane	6°
With regular fuel of 90-92 octane	8°
With regular fuel of 92 octane or more or premium fuel	10°
*All octane numbers obtained through the research method.	

DISTRIBUTOR-GENERAL

SIX CYLINDER ENGINE		SHAFT END PLAY CLEARANCE	
Breaker Arm Spring Tension (Ounces)	17-20	(inches)	
Contact Spacing (Inches)	0.024-0.026	144 Engine	0.022-0.033
Dwell Angle at Idle Speed	35°-38°	Six Cylinder Engine	0.005-0.008
		All V-8 Engines	0.022-0.030
ALL V-8 ENGINES		292 (Distance from bottom of mounting flange to bottom of gear)	4.991-4.996
Breaker Arm Spring Tension (Ounces)	17-20	302, and 332 (Distance from bottom of mounting flange to bottom of gear)	4.927-4.953
Contact Spacing (Inches)	0.014-0.016	401, 477, and 534 (Distance from bottom of mounting flange to bottom of gear)	5.111-5.116
Dwell Angle at Idle Speed	26°-28 1/2°		

ADVANCE CHARACTERISTICS**LOADOMATIC DISTRIBUTORS**

223 SIX ENGINE (COAF 12127-G)

Distributor RPM	Advance (Degrees)	Vacuum (Inches of Mercury)
450	0	0.38
650	2-1/2- 3-1/2	0.79
1100	6-3/4- 7-3/4	2.85
1400	8-3/4- 9-3/4	4.33
1800	10-1/4-11-1/4	5.99

DUAL ADVANCE DISTRIBUTORS

292 MD V-8 ENGINES (COTF-12127-B)

VACUUM ADVANCE. Set test stand to 0° at 1000 rpm and 0 inches of vacuum.

Distributor RPM	Advance (Degrees)	Vacuum (Inches of Mercury)
1000	0-1	5
1000	3-3/4- 6-3/4	10
1000	5-1/2- 8-1/2	13

Maximum vacuum advance limit 8-1/2°

CENTRIFUGAL ADVANCE. Set test stand to 0° at 250 rpm.

Distributor RPM	Advance (Degrees)	Vacuum (Inches of Mercury)
550	0	0
700	3/4- 1-3/4	0
900	3-1/4- 4-1/4	0
1150	5-1/2- 6-1/2	0
1600	8-1/2-10	0
1800	9-1/4-10-3/4	0

Maximum advance 10-3/4°

ADVANCE CHARACTERISTICS — (Cont.)**DUAL ADVANCE DISTRIBUTORS (Cont.)**

401, 477 and 534 SD V-8 ENGINES (COTF-12127-C)

VACUUM ADVANCE. Set test stand to 0° at 1000 rpm and 0 inches of vacuum.

Distributor RPM	Advance (Degrees)
1000	0- 2-1/2
1000	5- 7-3/4
1000	5-1/2-8-1/2
Maximum Advance Limit	8-1/2°

CENTRIFUGAL ADVANCE. Set test stand to 0° at 250 rpm and 0 inches of vacuum.

Distributor RPM	Advance (Degrees)	Vacuum (Inches of Mercury)
350	0	0
500	1-1/4- 2-1/4	0
1100	10-1/4-11-3/4	0
1400	12-1/4-13-3/4	0
Maximum Advance Limit	13-1/4°	

CENTRIFUGAL ADVANCE DISTRIBUTORS

Set test stand to 0° at 250 rpm

292 HD V-8 ENGINES (COTF-12102-C and D)

Distributor RPM	Advance (Degrees)
400	0
500	1/2- 1-1/2
900	5-1/2- 6-1/2
1250	8-1/2- 9-1/2
2000	10-3/4-12-1/4
Maximum Advance Limit	18°

302 AND 332 HD V-8 ENGINES (COTF-12102-E AND F)

Distributor RPM	Advance (Degrees)
500	0
850	1- 2
1175	3-1/4- 4-1/2
2000	9-10-1/2
Maximum Advance Limit	18°

COIL**ALL ENGINES**

Amperage Draw	
Primary Resistance	Engine Stopped 4.5
(Ohms)*	Engine Idling 2.5
Secondary Resistance	*Primary Circuit
(Ohms)	Resistor 1.30-1.40 (75° F.)

CONDENSER

SPARK PLUGS

ALL ENGINES	144 (Champion F14-Y)
Capacity (Microfarads) 0.21-0.25	223 and 292 MD (Champion 860)
Minimum Leakage (Megohms) 5	Other Engines (Champion F-10)
Maximum Series Resistance (Ohms) 1	PLUGS
	Size 18mm
	Gap (Inches) 0.028-0.032
	(144 Engine) 0.032-0.036
	Torque (Foot-Pounds) 15-20

GOVERNORS

VACUUM GOVERNOR	GOVERNED SPEED—ENGINE RPM
THROTTLE ACTUATING MECHANISM	LOAD NO LOAD
Spring Color	Conventional Drive
All HD V-8 Engines Blue	Transmission..... 3600 3800
Spring Position	Automatic
All HD V-8 Engines No. 1	Transmission..... 3800 4000
Upper By-Pass Jet	MECHANICAL GOVERNOR
HD Engine 25	Spring Color (Governor Spring) Pink*
292, 302 and 332 HD Engines 26	GOVERNED SPEED—ENGINE RPM
Lower By-Pass Jet	NO LOAD
HD Engine 26	(SD Engine) 2500-3700
292, 302 and 332 HD Engines 25	*If governed speeds below 3300 rpm are desired, governor spring color coded brown must be used.

FUEL PUMPS

MECHANICAL FUEL PUMP	ELECTRIC FUEL PUMP
FUEL PUMP PRESSURE (psi at 500 Engine rpm)	FUEL PUMP PRESSURE (psi at 11.8–12.3 volts)
144, 223 and 292 MD 3.5-5.5	All Engines 2
292 HD and 302 HD 3.5-6.5	MINIMUM FUEL PUMP VOLUME
MINIMUM FUEL PUMP VOLUME (Flow at 500 engine rpm)	Engine 1 quart flow
All Engines 1 Pint in 30 seconds	302 and 332 HD V-8 Within 40 seconds
	401 SD V-8 Within 36 seconds
	477 SD V-8 Within 33 seconds
	534 SD V-8 Within 30 seconds

CARBURETORS

SINGLE-BARREL CARBURETORS

The following carburetors are used on engines that are equipped with the positive crankcase ventilation system.	10,000–15,000 feet C1TE–9510–V and –Y 61 C1TE–9510–AC–AD and –Z 62 C1UE–9510–A 50 C1UE–9510–B 50
C1TE–9510–AC .. Manual–Shift Transmission C1TE–9510–AD ... Automatic Transmission C1TE–9510–Z .. Manual–Shift Transmission C1UE–9510–A .. Manual–Shift Transmission	C1TE Float Setting (Initial Setting Only) 13/64 ± 1/64 inch from the roof of the float chamber to the lowest point of the float, carburetor inverted.
The following carburetors are used on engines that are not equipped with the positive crankcase ventilation system.	C1UE Float Setting (Initial Setting Only) 11/64 ± 1/64 inch from roof of float chamber to lowest point of float, carburetor inverted.
C1TE–9510–V... Manual–Shift Transmission C1TE–9510–Y..... Automatic Transmission C1UE–9510–B... Manual–Shift Transmission	C1TE Fuel Level Setting 11/16 ± 1/32 inch below economizer piston mounting surface.
Main Metering Jet Identification No.	C1UE Fuel Level Setting 23/32 inch below power valve mounting surface. Tolerance – 1/32 inch.
0–5,000 feet C1TE–9510–V and –Y 65 C1TE–9510–AC–AD, and –Z 66 C1UE–9510–A 53 C1UE–9510–B 53	C1TE Venturi Size 1-1/4 inches C1UE Venturi Size 1-1/8 inches
5,000–10,000 feet C1TE–9510–V and –Y 63 C1TE–9510–AC–AD and –Z 64 C1UE–9510–A 52 C1UE–9510–B 52	Spark Control Valve Identification No. 55
	Anti–Stall Dashpot Clearance C1TE–9510–Y and C1TE–9510–AD 0.060–0.090
	Initial Idle Mixture Adjustment 1–1-1/2 turns open Power Valve Opens at 4–7 inches of mercury

CARBURETORS (Continued)

DUAL CARBURETORS

The following carburetors are used on engines that are equipped with the positive crankcase ventilation system.

C1TE-9510-AG used with 292 MD and manual-shift transmission.

C1TE-9510-AF used with 292 MD and automatic transmission.

C1TE-9510-AE used with 292 MD and manual-shift transmission, or automatic transmission.

C1TE-9510-D used with 401 SD V-8

C1TE-9510-J used with 477 SD V-8

5,000-10,000 feet

C1TE-9510-AG, -AF and -K 49

C1TE-9510-AE 50

C1TE-9510-E and -L 48

C1TE-9510-D 55

C1TE-9510-J 56

10,000-15,000 feet

C1TE-9510-AG, -AF and -K 47

C1TE-9510-AE 48

C1TE-9510-E and -L 46

C1TE-9510-D 53

C1TE-9510-J 54

Power Valve Identification No.

All Altitudes

C1TE-9510-AG, -AF, -AE, -E, -L, and -K 65

C1TE-9510-D 35

C1TE-9510-J 55

Power Valve opens at

C1TE-9510-AE and -K 6-9 inches of mercury

C1TE-9510-AF, -AG, -L, and -AF 7-10 inches of mercury

C1TE-9510-D 4-7 inches of mercury

C1TE-9510-J... 5.5-8.5 inches of mercury

Dry Float Setting (Initial Setting Only)

7/8 inch clearance between the bottom of the float and fuel bowl with the bowl inverted.

Fuel Level Setting

Lower edge of sight plug opening $\pm$ 1/16 inch.

Venturi Size 1-1/32 inches

Anti-Stall Dashpot Clearance

C1TE-9510-L, and -AF 0.060-0.090

Initial Idle Mixture Adjustment 1-1/2 turns open

Main Metering Jet Identification No.

0-5,000 feet

C1TE-9510-AG, -AF, and -K 51

C1TE-9510-AE 52

C1TE-9510-E and -L 50

C1TE-9510-D 57

C1TE-9510-J 58

CARBURETORS (Continued)

4-BARREL CARBURETORS

The following carburetors are used on engines that are equipped with the positive crankcase ventilation system.

C1TE-9510-A used with the 292 HD and a manual-shift transmission or an automatic transmission.

C1TE-9510-F used with the 302 HD and a manual-shift transmission or an automatic transmission.

C1TE-9510-B used with the 332 HD and a manual-shift transmission or an automatic transmission.

C1TE-9510-G used with 401 SD V-8

C1TE-9510-C used with 477 SD V-8

C1TE-9510-H used with 534 SD V-8

The following carburetors are used on engines that are not equipped with the positive crankcase ventilation system.

C1TE-9510-AM used with the 292 HD and a manual-shift transmission or an automatic transmission.

C1TE-9510-AN used with the 302 HD and a manual-shift transmission or an automatic transmission.

C1TE-9510-B used with the 332 HD and a manual-shift transmission or an automatic transmission.

C1TE-9510-G used with 401 SD V-8

C1TE-9510-C used with 477 SD V-8

C1TE-9510-H used with 534 SD V-8

Main Metering Jet Identification No.

Primary

0-5,000 feet

C1TE-9510-A, -AM, and -B 52

C1TE-9510-F and -AM 51

C1TE-9510-G and -H 49

C1TE-9510-C 50

5,000-10,000 feet

C1TE-9510-A, -B, and -AN 50

C1TE-9510-F, -AM, and -C 49

C1TE-9510-G 48

10,000-15,000 feet

C1TE-9510-A, -B, -AN, and -C 48

C1TE-9510-F, -AM, -G, and -H 47

Secondary

0-5,000 feet

C1TE-9510-A, and -AM 58

C1TE-9510-F and -H 62

C1TE-9510-B and -AN 64

C1TE-9510-G and -C 65

5,000-10,000 feet

C1TE-9510-A and -AM 56

C1TE-9510-F and -H 60

C1TE-9510-B and -AN 62

C1TE-9510-C and -G 63

10,000-15,000 feet

C1TE-9510-A 65

C1TE-9510-F and -H 58

C1TE-9510-B and -AN 60

C1TE-9510-AM 54

C1TE-9510-C and -G 61

Power Valve Identification No.

0-5,000 feet

C1TE-9510-B 65

C1TE-9510-AM, -A, and -H 45

C1TE-9510-AN and -F 25

C1TE-9510-C and -G 35

5,000-10,000 feet

C1TE-9510-AM, -A, and -H 45

C1TE-9510-F and -AN 25

C1TE-9510-B 40

C1TE-9510-C and -G 35

10,000-15,000 feet

C1TE-9510-AM, -A, and -H 45

C1TE-9510-F and -AN 25

C1TE-9510-B 40

C1TE-9510-C and -G 35

Power Valve Opens at

C1TE-9510-AM and -A 5-8 inches of mercury

C1TE-9510-F, -AN, and -H ... 2.5 inches of mercury

C1TE-9510-B 6.5-9.5 inches of mercury

C1TE-9510-C and -G 3-6 inches of mercury

CARBURETORS (Continued)**4-BARREL CARBURETORS
(Continued)**

Depoppler Valve Identification No. All carburetors 215	Venturi Size Primary and Secondary 1-1/16 inches
Dry Float Initial Setting Primary 7/8 inch clearance between the bottom of the float and the fuel bowl with the bowl inverted. Secondary 3/4 inch clearance between the bottom of the float and the fuel bowl with the bowl inverted.	Initial Idle Mixture Adjustment 1-1-1/2 turns open Fast (Cold) Idle Adjustment 0.010-0.015 inch clearance between the fast idle screw and the fast idle cam.
Fuel Level Setting Primary and Secondary Lower edge of the sight plug opening $\pm$ 1/16 inch.	Governor By-Pass Jet Number CITE-9510-A, -F, -B, -AM, and -AN Upper 26 Lower 25

FUEL TANK CAPACITIES

Tank Type	Truck Model	Approximate Capacity (U.S. Gallons)
Standard	F-, C-, and T-Series (cab models)	18
	B-Series	30
	P-Series and F-100, F-250, F-350 Series (cowl models)	17
	F-500 thru 950 (cowl series) H and HT Series	18 50
Optional (Mounted Outside of Frame)	P-400 and P-500, F-500 through 600, C-550 through 600 P-350	30
Optional (Saddle)	F-, C-, and T-Series (700 through 1100)	125
Optional (Step)	F- and T-Series (750 through 1100)	50
Optional (Cylindrical)	H-, HT-, F-, C-, and T-Series (700 through 1100)	60

WATER PUMP, DRIVE BELTS, AND THERMOSTATS

WATER PUMP DRIVE ARRANGEMENT	Crankshaft and Power Steering Pump Pulley All Engines 1/4 inch Generator and Pump Pulley All Engines, Except SD 1/2 inch Crankshaft and Air Compressor All Engines 1/2 inch
144 Single belt drives water pump, fan, and generator. F - and T-Series Trucks 223-Single belt drives water pump, fan, and generator. 302 and 332 HD-Front belt drives fan. Rear belt drives water pump and generator. 292 MD and HD-Two rear belts drive fan, water pump, and generator. Front belt drives air compressor. 401, 477, and 534 SD-Two front belts drive water pump and alternator. Rear belt drives air compressor. C-Series Trucks 292 MD and HD-Rear belt drives fan, water pump, and generator. Front belt drives air compressor. 302 and 332 HD-Front belt drives air compressor. Rear belt drives water pump and generator. 401, 477, and 534 SD-Front belt drives water pump and alternator. Rear belt drives air compressor.	THERMOSTAT Front (Low Temperature Thermostat) OPENS °F 144, 223; 292 MD and HD; 302 and 332 HD; 401, 477, and 534 SD. 157-162-Fully Open 182 Front (High Temperature Thermostat) OPENS °F. 144 173-183 - Fully Open 200 223; 292 MD and HD; 302, and 332 HD 175-180 - Fully Open 200 Rear Thermostat OPENS °F. SD V-8 Engines.. 142-147 - Fully Open 160
DRIVE BELT DEFLECTION	
Fan and Crankshaft Pulley All Engines 1/2 inch	

CLUTCHES

CLUTCH ADJUSTMENTS	
Part Name	Inches
Clutch Master Cylinder Fluid Level (Below Top)	1/2
Slave Cylinder Push Rod Adjusting Nut Clearance	1/4
Initial Pedal Free Travel— Econoline	7/8–1-1/8
(F–, T–, P and B–Series)	3/16–3/8
C–Series	1/8–1/4
Final Pedal Free Travel— All except C–Series	2

Part Name	Inches
C–Series	1–13/16
Clutch Housing Alignment (Maximum Deviation from Plane)	0.007
Bore Alignment	0.010
Maximum Shim to Correct Alignment	0.010
Maximum Clutch Finger Height Difference Single Disc	0.031
Double Disc	0.020

CLUTCHES (Cont.)

CLUTCH TORQUE LIMITS (Foot-Pounds)			NOMENCLATURE	NUTS AND/ OR BOLTS	TORQUE LIMITS
NOMENCLATURE	NUTS AND/ OR BOLTS	TORQUE LIMITS			
Bolt Pressure Plate Cover to Flywheel	5/16-18 3/8-18	18-25 25-30	Bolt Clutch Housing to Engine Block	7/16-14	40-45
			Bolt Clutch Slave Cylin- der to Clutch Housing	7/16-14	40-45

MANUAL-SHIFT TRANSMISSIONS

LUBRICANT REFILL CAPACITIES		TORQUE LIMITS (Foot-Pounds)		
Transmission Type and Make	Approximate Capacity (Pints)	NOMENCLATURE	NUTS AND/ OR BOLTS	TORQUE LIMITS
3-Speed (Ford B9TR-7004-A and B)	2-3/4	Bolt-Reverse Lock- out Plunger Retainer	11/16-16	80-100
3-Speed (Ford B9TR-7003-A and B)	3-1/2	Bolt-Flywheel Hous- ing to Engine Block	7/16-14	40-50
Overdrive (Warner T-86-G or H)	3-1/4	Bolt & Nut Insulator to Trans. Assy. Front & Rear (Aux. Trans. only)	3/4-16	195-235
3-Speed Medium Duty (Warner T-89C)	3-1/2	Bolt-Output Shaft Bearing Retainer to Trans. Case	3/8-16 7/16-14 1/2-18	20-25 30-38 50-62
3-Speed Heavy Duty (Warner T-87E)	5-1/2		5/8-11	96-120
4-Speed (Warner T-98A)	8	Bolt-Gear Shift Lever Tower to Gearshift Housing	3/8-16 7/16-14	20-25 30-38
5-Speed Medium Duty (Clark 250-V or 251-VO)	9	Bolt-Clutch Housing to Trans. Case	7/16-14 5/8-11 9/16-12	30-38 96-120 70-90
5-Speed Heavy Duty (Clark 265-V or 264-VO)	11-1/2	Nut-Clutch Housing to Trans. Case	7/16-20 5/8-18 9/16-18	35-45 115-140 81-102
5-Speed (Spicer 5652 and 5756-B)	13	Bolt-Rear Mounting Bracket to Aux. Trans.	7/16-14	40-45
5-Speed (Spicer 6352, 6453-A, and 6852-G)	17	Nut-Rear Support Plate to Trans. Aux. Case	5/8-18	115-140
8-Speed (Fuller R-46)	17			
3-Speed Auxiliary (Spicer 5831-C or D)	4			
3-Speed Auxiliary (Spicer 7231-B and D)	8			
4-Speed Auxiliary (Spicer 8341-A)	12			

MANUAL SHIFT TRANS. (Cont.)

TORQUE LIMITS (Foot - Pounds) (Cont.)

NUTS AND/ TORQUE NOMENCLATURE OR BOLTS LIMITS			NUTS AND/ TORQUE NOMENCLATURE OR BOLTS LIMITS		
Bolt & Nut Brake Support Plate to Transmission Support Plate	1/2-20	58-72	Bolt & Nut-Bellcrank Mounting Bracket to Crossmember	3/8-16 3/8-24	20-25 24-30
Nut-U-Joint Flange to Transmission Output Shaft	1.00-20 1-1/2-18 1-1/4-18	90-125 275-350 225-275	Bolt & Nut-Bellcrank to Mounting Bracket	9/16-18	100-120
Nut-Input Shaft Yoke to Aux. Trans.	1-1/4-18	275-350	Nut-Handbrake Drum to U-Joint Flange (Motor End)	7/16-20 1/2-20 3/8-24	45-50 75-80 30-35
Bolt & Nut Bracket (Aux.) Trans. Control to #3 Crossmember	3/8-24	24-30	Nut-Handbrake Anchor Bar to Trans. Case (except 5-speed Extra-Heavy Duty)	9/16-18	100-110
Bolt or Nut-Support Trans.(Rear)to Frame Siderails (8-Speed) Transmission only)	7/16-20	45-55	Nut-Handbrake Anchor Bar to Trans. Case (5-Speed Extra-Heavy Duty only)	9/16-18	120-130
Stud & Nut-Insulator to Trans.Rear Sup- port (8-Speed Trans. only)	3/4-16	90-110	Bolt-Bellcrank to Trans.	3/8-16	20-25
Nut-Trans.Rear Mount Plate to Insulator Stud & Trans.Support (8-Speed Trans. only)	3/4-16	195-235	Bolt-Reverse Lockout Plunger Retainer	11/16-16	80-100
Bolt-Parking Brake to Transmission Bearing Retainer	5/8-18 7/16-20 3/8-24 1/2-20	180-220 50-70 24-30 45-55	Bolt-Countershaft Rear Bearing Retainer	5/16-18 3/8-16 7/16-14 1/2-13	25-30 35-40 45-55 60-70
Nut-Drum Parking Brake to Companion Flange	3/8-24 7/16-20	35-45 50-70	Bolt-Converter Hous- ing to Flywheel Housing	3/8-16	20-25
Nut-Bellcrank to Transmission	9/16-18	70-90	Bolt-Flywheel Hous- ing to Engine Block	7/16-14	40-50
Bolt-Lever Assy. to Transmission	3/8-16	20-25	Bolt-Rear Cross Shaft Housing to Adapter or Trans. Assy.	7/16-14	30-38
Bolt-Support to Transmission	3/8-16	20-25	Lock Nut-Front Shift Control Rod to U-Joint	3/4-16	160-180

CLUTCHES (Cont.)

CLUTCH TORQUE LIMITS (Foot-Pounds)			NOMENCLATURE	NUTS AND/ OR BOLTS	TORQUE LIMITS
NOMENCLATURE	NUTS AND/ OR BOLTS	TORQUE LIMITS			
Bolt Pressure Plate Cover to Flywheel	5/16-18 3/8-18	18-25 25-30	Bolt Clutch Housing to Engine Block	7/16-14	40-45
			Bolt Clutch Slave Cylin- der to Clutch Housing	7/16-14	40-45

MANUAL-SHIFT TRANSMISSIONS

LUBRICANT REFILL CAPACITIES		TORQUE LIMITS (Foot-Pounds)		
Transmission Type and Make	Approximate Capacity (Pints)	NOMENCLATURE	NUTS AND/ OR BOLTS	TORQUE LIMITS
3-Speed (Ford B9TR-7004-A and B)	2-3/4	Bolt-Reverse Lock- out Plunger Retainer	11/16-16	80-100
3-Speed (Ford B9TR-7003-A and B)	3-1/2	Bolt-Flywheel Hous- ing to Engine Block	7/16-14	40-50
Overdrive (Warner T-86-G or H)	3-1/4	Bolt & Nut Insulator to Trans. Assy. Front & Rear (Aux. Trans. only)	3/4-16	195-235
3-Speed Medium Duty (Warner T-89C)	3-1/2	Bolt-Output Shaft Bearing Retainer to Trans. Case	3/8-16 7/16-14 1/2-18 5/8-11	20-25 30-38 50-62 96-120
3-Speed Heavy Duty (Warner T-87E)	5-1/2	Bolt-Gear Shift Lever Tower to Gearshift Housing	3/8-16 7/16-14	20-25 30-38
4-Speed (Warner T-98A)	8	Bolt-Clutch Housing to Trans. Case	7/16-14 5/8-11 9/16-12	30-38 96-120 70-90
5-Speed Medium Duty (Clark 250-V or 251-VO)	9	Nut-Clutch Housing to Trans. Case	7/16-20 5/8-18 9/16-18	35-45 115-140 81-102
5-Speed Heavy Duty (Clark 265-V or 264-VO)	11-1/2	Bolt-Rear Mounting Bracket to Aux. Trans.	7/16-14	40-45
5-Speed (Spicer 5652 and 5756-B)	13	Nut-Rear Support Plate to Trans. Aux. Case	5/8-18	115-140
5-Speed (Spicer 6352, 6453-A, and 6852-G)	17			
8-Speed (Fuller R-46)	17			
3-Speed Auxiliary (Spicer 5831-C or D)	4			
3-Speed Auxiliary (Spicer 7231-B and D)	8			
4-Speed Auxiliary (Spicer 8341-A)	12			

MANUAL SHIFT TRANS. (Cont.)

TORQUE LIMITS (Foot - Pounds) (Cont.)

TORQUE LIMITS (Foot - Pounds) (Cont.)			NOMENCLATURE	NUTS AND/ OR BOLTS	TORQUE LIMITS
NOMENCLATURE	NUTS AND/ OR BOLTS	TORQUE LIMITS			
Bolt & Nut Brake Support Plate to Transmission Support Plate	1/2-20	58-72	Bolt & Nut-Bellcrank Mounting Bracket to Crossmember	3/8-16 3/8-24	20-25 24-30
Nut-U-Joint Flange to Transmission Output Shaft	1.00-20 1-1/2-18 1-1/4-18	90-125 275-350 225-275	Bolt & Nut-Bellcrank to Mounting Bracket	9/16-18	100-120
Nut-Input Shaft Yoke to Aux. Trans.	1-1/4-18	275-350	Nut-Handbrake Drum to U-Joint Flange (Motor End)	7/16-20 1/2-20 3/8-24	45-50 75-80 30-35
Bolt & Nut Bracket (Aux.) Trans. Control to #3 Crossmember	3/8-24	24-30	Nut-Handbrake Anchor Bar to Trans. Case (except 5-speed Extra-Heavy Duty)	9/16-18	100-110
Bolt or Nut-Support Trans.(Rear)to Frame Siderails (8-Speed) Transmission only)	7/16-20	45-55	Nut-Handbrake Anchor Bar to Trans. Case (5-Speed Extra-Heavy Duty only)	9/16-18	120-130
Stud & Nut-Insulator to Trans.Rear Sup- port (8-Speed Trans. only)	3/4-16	90-110	Bolt-Bellcrank to Trans.	3/8-16	20-25
Nut-Trans.Rear Mount Plate to Insulator Stud & Trans.Support (8-Speed Trans. only)	3/4-16	195-235	Bolt-Reverse Lockout Plunger Retainer	11/16-16	80-100
Bolt-Parking Brake to Transmission Bearing Retainer	5/8-18 7/16-20 3/8-24 1/2-20	180-220 50-70 24-30 45-55	Bolt-Countershaft Rear Bearing Retainer	5/16-18 3/8-16 7/16-14 1/2-13	25-30 35-40 45-55 60-70
Nut-Drum Parking Brake to Companion Flange	3/8-24 7/16-20	35-45 50-70	Bolt-Converter Hous- ing to Flywheel Housing	3/8-16	20-25
Nut-Bellcrank to Transmission	9/16-18	70-90	Bolt-Flywheel Hous- ing to Engine Block	7/16-14	40-50
Bolt-Lever Assy. to Transmission	3/8-16	20-25	Bolt-Rear Cross Shaft Housing to Adapter or Trans. Assy.	7/16-14	30-38
Bolt-Support to Transmission	3/8-16	20-25	Lock Nut-Front Shift Control Rod to U-Joint	3/4-16	160-180

AUTOMATIC TRANSMISSIONS (Cont.)

FORDOMATIC AND HD CRUISE-O-MATIC STALL SPEEDS

Engine	Engine Stall Speeds (rpm)	
	Fordomatic	HD Cruise-O-Matic
223 Six	1400-1600	1380-1580
292 V-8	1500-1700	1500-1700

FLUID PRESSURE RANGES

Engine Speed	Selector Lever Position	Gauge Reading (psi)	
		Fordomatic	HD Cruise-O-Matic
Idle	All	52-67	56-68
1000	DR, D1, or D2	80-85	80-85
Stall	Dr or Lo	137-157	—
Stall	D1 or D2	—	150-170
Stall	R	184-204	196-216
Stall	Lo	—	196-216

GEAR RATIOS — FORDOMATIC AND HD CRUISE-O-MATIC

Gear	Selector Lever Position		Clutch Applied	Band Applied	Gear Ratio
	Fordomatic	HD Cruise-O-Matic			
Neutral	N	N	None	None	—
Second	Dr	D1 or D2	Front	Front	1.48:1
Third	Dr	D1 or D2	Front	None	1.00:1
			and Rear		
First	Lo	D1 or Lo	Front	Rear*	2.40:1
Reverse	R	R	Rear	Rear	2.00:1

* In first gear D1, the planet carrier is held against rotation by the one-way clutch.

FORDOMATIC SHIFT POINTS (approximate)

Truck Model	Automatic Shifts (mph)						Manual Shift (mph)
	Dr.						Lo
	Min. Throttle	Max. Throttle	Min. Throttle	Max. Throttle	Max. Throttle	Max. Throttle	
F-100	2-3	2-3	3-2	3-2	1-2	2-1	2-1
	8-17	43-60	5-8	40-56	27-39	8-19	11-21

AUTOMATIC TRANSMISSIONS (Cont.)

HD CRUISE-O-MATIC SHIFT POINTS (approximate)

Truck Model	Automatic Shifts (mph)								Manual Shift (mph)
	D1		D1 or D2		D1	D1 or D2	D1	D2	
	Min.	Max.	Min.	Max.	Min.	Max.	Max.	Min.	Lo
F-250	6-11	25-40	8-20	40-62	3-8	36-58	16-27	3-8	12-22
P-350									
P-400	5-10	22-38	7-19	35-58	3-7	31-54	14-26	3-7	11-20
P-500									
F-350									

FORDOMATIC AND HD CRUISE-O-MATIC TORQUE SPECIFICATIONS

Name	Foot Pounds
Converter Cover to Converter Impeller Bolts (6 Cyl.)	15-28
Converter Impeller Hub to Converter Impeller Housing Bolts	8-10
Converter Housing to Transmission Case Bolts	40-45
Front Pump to Transmission Case Bolts	17-22
Front Servo to Transmission Case Bolts	30-35
Rear Servo to Transmission Case Bolts	40-45
Planetary Support to Transmission Case Bolts	20-25
Upper Valve Body to Lower Valve Body Bolts	4-6
Control Valve Body to Transmission Case Bolts	8-10
Pressure Regulator Assembly to Transmission Case Bolts	17-22
Extension Assembly to Transmission Case Bolts	28-38
Oil Pan to Transmission Case Bolts	10-13
Case Assembly—Gage Hole Plugs	7-15
Rear Band Adjusting Screw Locknut	35-40
Front Band Adjusting Screw Locknut	20-25
Manual Control Lever Nut	35-40
Inner Throttle Lever Nut	17-20
Front Pump Cover Screws	25-35*
Rear Pump Cover Screws (1/4-inch)	80-90*
Rear Pump Cover Screws (10-24)	25-35*
Governor Inspection Cover Screws	50-60*
Converter Cover Drain Plug	15-28
Converter Housing to Engine Bolts	45-50
Starter Attaching Bolts	15-20
Governor Valve Body to Counterweight Screws	50-60*
Governor Valve Body Cover Screws	20-30*
Pressure Regulator Cover Screws	20-30*
Control Valve Body Screws	20-30*
Flywheel to Converter Nuts & Bolts	15-28

* Inch - Pounds

AUTOMATIC TRANSMISSIONS (Cont.)**FORDOMATIC AND HD CRUISE-O-MATIC TORQUE SPECIFICATIONS (Cont.)**

NAME	FOOT-POUNDS
Case Assembly – Oil Cooler Inlet & Outlet Pipe Plugs	10-15
Front Serve Release Piston to Servo Piston Bolts (V-8)	20-30*
Lower Valve Body Cover Side Plate to Lower Body Cover Bolts	20-30*
Control Valve Body Cover to Lower Body Screws	20-30*

* Inch-Pounds

TRANSMATIC DRIVE**GENERAL SPECIFICATION**

Dry Weight (Including Parking Brake)	.510 lbs.
Oil Specifications	Ford Automatic Transmission Fluid B8A-19582-A
Maximum Torque Converter Multiplication	F and C Series 2.8:1 T Series 3.5:1
Front Pump Capacity	12 gpm at 2000 rpm
Rear Pump Capacity	6 gpm at 2000 rpm
Power Take-Off Mountings	2, SAE Regular Duty
Power Take-Off Drive Gear	57-Tooth, 6/8 Pitch
Power Take-Off Drive Gear Speed	Max. 0.72 Engine Speed
Lockup Clutch	Single Plate Type, Hydraulic Applied
Total Torque Ratio Coverage:	
Low (First) Gear Stall	F and C Series 14.83:1 T Series 18.54:1
High (Sixth) Gear Lockup	1.00:1

TORQUE SPECIFICATIONS

NAME	FOOT-POUNDS
Range Selector Shaft Nut	14-17
Throttle Valve Shaft Nut	14-17
Rear Bearing Retainer Bolts	42-50
Low Clutch Reaction Housing Anchor Bolt	35-40
Intermediate Clutch Reaction Housing Anchor Bolt	35-40
Reverse Clutch Reaction Housing Anchor Bolt	35-40
Low and Reverse Piston Housing Anchor Bolt	17-20
Intermediate Piston Housing Anchor Bolt	17-20
Rear Pitot Tube Mounting Bolts	10-12
Output Flange Bolt	83-100
Parking Brake Drum to Output Shaft Flange	70-80
High-Range Clutch Diaphragm Anchor Bolts	17-20
Converter Housing Mounting Bolts	42-50
Dust Shield to Flywheel Housing	6-9
Converter Pump Cover Nuts	19-23
Hydraulic Retarder Control Valve Body Bolts	15-18
Oil Transfer Plate Bolts	8-10

AUTOMATIC TRANSMISSIONS (Cont.)**TRANSMATIC DRIVE (Cont.)****TORQUE SPECIFICATIONS (Cont.)**

NAME	FOOT-POUNDS
Downshift Timing Valve Body Bolts	8-10
Control Valve Body Bolts	4-6
Oil Pan Bolts	8-10
Oil Filter Cover Nut	8-10
Converter Pump Hub Bolts	9-11
Converter Stator Support Sleeve Bolts	17-20
Front Oil Pump Bolts	15-18
Front Pitot Tube Screws	30-48*
Rear Oil Pump Bolts	15-18
Converter Lube Supply Cover Screws	24-36*
Converter Pressure Regulator Valve Retainer Screws	24-36*
Downshift Timing Valve Cover Screws	24-36*
Main Control Valve Body Cover Screws	24-36*
Exhaust Regulator Valve Body Cover Screws	24-36*
Power Take-off Cover Bolts	15-20
Bolt or Nut-Support Transmission (Rear) to Frame Siderails	45-50
Bolt or Nut-Support To Transmission Rear Insulators	(1/2-20) 40-60 (1/2-13) 50-70

* Inch - Pounds

WEAR LIMITS – INCHES**TORQUE CONVERTER, LOCKUP CLUTCH, AND FRONT PUMP**

Converter Cover Bushing – maximum clearance between bushing and turbine shaft	0.006
Lockup Clutch Plate – minimum thickness	0.170
Roller Race – Minimum O.D.	2.841
Stator Support Bushing – maximum clearance between bushing and turbine shaft	0.005
Thrust Washer – minimum thickness	0.085
Front Pump Driven Gear – minimum O.D.	4.743

AUTOMATIC TRANSMISSION (Cont.)
TRANSMATIC DRIVE (Cont.)
WEAR LIMITS (Cont.)

SPLITTER MECHANISM, HIGH-RANGE CLUTCH, AND POWER TAKE-OFF DRIVE GEAR	
Turbine Shaft Bushing—maximum clearance between bushing and output shaft	0.007
Thrust Washer—minimum thickness	0.085
Splitter Planet Carrier—no scoring permissible.	
High-range and High-splitter Internal Teeth Clutch Plates—minimum thickness	0.140
High-range and High-Splitter External Teeth Clutch and Reaction Plates—maximum coning	0.005
High-range Clutch Housing Bushing—maximum clearance between bushing and diaphragm hub	0.008
Splitter Sun Gear Bushing—maximum clearance between bushing and planet carrier	0.015
Low-splitter Clutch Plate—minimum thickness	0.234

TRANSMISSION REAR SUB-ASSEMBLIES

Intermediate, Low, and Reverse Clutch Plates—minimum thickness	0.286
Intermediate, Low, and Reverse Clutch Apply Plates—maximum coning	0.008
Thrust Washers—minimum thickness	0.085
Output Shaft Bushing—maximum clearance between bushing and splitter output shaft ..	0.010
Rear Oil Pump Drive Gear—minimum O.D.	4.743

TRANSMATIC TRANSMISSION LUBRICANT CAPACITY

	Pints
Dry Capacity	38
Refill (Converter and Heat Exchanger not Drained)	26

STALL SPEED LIMITS

	Engine Model	Engine Speed (rpm)
Converter Operation	302 HD V-8	2150-2350
	332 HD V-8	2250-2450
Hydraulic Retarder Operation	332 HD V-8	3000 Maximum
	302 HD V-8	2900 Maximum

AUTOMATIC TRANSMISSIONS (Cont.)
TRANSMATIC DRIVE (Cont.)

SHIFT POINTS AT FULL THROTTLE AND FULL LOAD

Upshifts			Downshifts	
Shift	Engine Speed (rpm)		Shift	Engine Speed (rpm)
	Full Throttle (at Detent)	Max. Throttle (thru Detent)		Max. Throttle (thru Detent)
Converter To Lockup	2250 2450	2400 2600	2-1	2800 2600
1-2	3725 3775	No Shift	Lockup To Converter	2200 2100
Converter To Lockup	2250 2450	2400 2600	4-3	2700 2500
3-4	3725 3775	No Shift	Lockup To Converter	2200 2100
Converter To Lockup	2250 2450	2400 2600	6-5	2825 2600
3-4	3725 3775	No Shift	5-4	2850 2600
4-5	3725 3775	No Shift	4-3	2700 2500
5-6	3725 3775	No Shift	Lockup To Converter	2200 2100

AUTOMATIC TRANSMISSIONS (Cont.)**TRANSMATIC DRIVE (Cont.)****MAIN PRESSURE CHECK — CONVERTER OPERATION — ENGINE IDLE**

Selector Lever Position	Gear	Engine Speed (rpm)	Throttle Position at Transmission	Gauge Readings (psi)
N		475-500	Closed	100 Minimum
R		400-450	Closed	50 Minimum
3-4, 3-5, 3-6	Third	400-450	Closed	50 Minimum
1-2	First	400-450	Closed	50 Minimum

MAIN PRESSURE CHECK — CONVERTER OPERATION

Selector Lever Position	Engine Speed (rpm)	Gauge Readings (psi)			
		Medium Duty		Heavy-Duty	
		Closed Throttle	Full Throttle	Closed Throttle	Full Throttle
All Positions	1200	155 Minimum	175 Minimum	155 Minimum	200 Minimum

MAIN PRESSURE CHECK — HYDRAULIC RETARDER OPERATION

Selector Lever Position	Throttle Position at Transmission and Engine	Retarder Pedal Position	Minimum Main Pressure (psi)
N	At Stop	At Stop	125

AUTOMATIC TRANSMISSIONS (Cont.)**TRANSMATIC DRIVE (Cont.)****PRESSURE CHECK — CONVERTER LOCKUP OPERATION — MAXIMUM THROTTLE**

Selector Lever Position (Drive Shaft Disconnected)	Gear	Clutches Applied	Engine Speed (rpm)	Throttle Position at Transmission	Gauge Readings (psi)	
					Medium-Duty	Heavy-Duty
3-6	Third	Lockup, Low-Splitter, Intermediate-Range	2700	Maximum*	97-113	107-125

* Depress accelerator pedal stop to prevent upshift. Then increase engine speed.

**PRESSURE CHECK FOR RANGE AND HIGH-SPLITTER CLUTCHES—
CONVERTER LOCKUP OPERATION—CLOSED THROTTLE**

Selector Lever Position (Drive Shaft Disconnected)	Gear	Clutches Applied	Engine Speed (rpm)	Throttle Position at Transmission	Gauge Readings (psi)
1-2	Second	Lockup, High-Splitter, Low Range	2000	Closed	65-75
3-4	Fourth	Lockup, High-Splitter, Intermediate-Range	2000	Closed	65-75
3-6	Sixth	Lockup, High-Splitter, High-Range	2000	Closed	65-75

GOVERNOR PRESSURE CHECK — G1 AND G2

Selector Lever Position (Drive Shaft Disconnected)	Gear	Engine Speed (rpm)	Throttle Position at Transmission	Gauge Readings (psi)	
				G1 Limits	G2 Limits
3-6	Sixth	2800	Closed	60-70	60-70

REAR AXLE LUBRICANT CAPACITIES					
Axle Make and Model	Axle Type	Approximate Capacity (Pints)	Axle Make and Model	Axle Type	Approximate Capacity (Pints)
Ford Spicer	1-Speed	2	Eaton	1-Speed	21
44	1-Speed	4.5	1892	1-Speed	21
60	1-Speed	6	1893	1-Speed	21
Timken	1-Speed	4.5	1911	1-Speed	24
B-140	1-Speed	11	1350	2-Speed	13
C-100	1-Speed	15	8802	1-Speed	22
D-100	1-Speed	15	8803	1-Speed	22
F-104	1-Speed	15	9503	1-Speed	24
F-106	1-Speed	15	13602	2-Speed	13
H-140	1-Speed	20	13800	2-Speed	13
QT-241	1-Speed	34	16802	2-Speed	20
QT-341	2-Speed	32	16803	2-Speed	20
R-141	1-Speed	28	17800	2-Speed	19
R-202	1-Speed	36	17801	2-Speed	19
R-302	2-Speed	34	18803	2-Speed	22
RT-241	1-Speed	32	19503	2-Speed	24
RT-341	1-Speed	32	22M	Tandem	Forward Axle - 10 Rearward Axle - 10 Power Divider - 7
U-200	1-Speed	38	28M	Tandem	Forward Axle - 17 Rearward Axle - 17 Power Divider - 9
U-300	1-Speed	34	30D-P	Tandem	Forward Axle - 22 Rearward Axle - 20
QH	Tandem	Forward Axle - 34 Rearward Axle - 31	34M	Tandem	Forward Axle - 23 Rearward Axle - 23 Power Divider - 3
LH	Tandem	Forward Axle - 32.5 Rearward Axle - 32	34D-P	Tandem	Forward Axle - 24 Rearward Axle - 22
Eaton	2-Speed	13	38D-R	Tandem	Forward Axle - 24 Rearward Axle - 22 Power Divider - 3
1350	2-Speed	13			
1614	1-Speed	17			
1615	1-Speed	17			
1618	1-Speed	20			
1619	1-Speed	20			
1790-A	1-Speed	22			
1791-A	1-Speed	22			

ECONOLINE REAR AXLE RATIOS AND GEAR IDENTIFICATION			F-100 REAR AXLE ADJUSTMENTS FORD AXLE	
Ratio	No. of Teeth Driven Gear	Pinion		Inches
3.50:1	35	10	Backlash Between Driven Gear and Pinion	0.004-0.009
4.00:1	36	9	Backlash Maximum Variation Between Teeth	0.003
			Maximum Runout of Backface of Ring Gear as Assembled	0.003
			Thickness-Differential Side Gear Thrust Washers	0.030-0.032
			Thickness-Differential Pinion Gear Thrust Washers	0.030-0.032

F-100, F-250 AND P-350 REAR AXLE ADJUSTMENTS - SPICER		F-100 REAR AXLE TORQUE LIMITS - FORD AXLE	
	Inches		Foot-Pounds
Backlash Between Drive Gear and Pinion	0.008-0.013	Differential Bearing Cap Screws	70-80
Backlash Maximum Variation Between Teeth	0.002	Differential Bearing Adjusting Nut Lock Bolts	15-20
Maximum Runout at Backface of Gear (Assembled)	0.003	Carrier to Housing Stud Nuts	30-40
Pinion Bearing Preload	10-30 inch-pounds	Pinion Retainer to Carrier Cap Screws	30-40
		Drive Gear Attaching Bolts	65-75
		Rear Axle Shaft Bearing Retainer Bolts	30-35
		Minimum Torque Required to Tighten Pinion Nut to Obtain Correct Pinion Bearing Preload	175
		Pinion Bearing Preload (Inch-Pounds)- New Bearings	17-27
		Pinion Bearing Preload (Inch-Pounds)- Used Bearings	8-12
		Differential Bearing Preload	2-1/2-3 notches tight

SPICER AXLE TORQUE LIMITS FOOT-POUNDS		
	Axle Model	
	44 & 44-4F	60
Pinion Shaft Nut	200-220	200-220
Differential Bearing Cap Bolts	70-90	70-90
Drive Gear Attaching Bolts	35-55	70-90
Cover to Housing Bolts	15-25	15-25

ECONOLINE REAR AXLE TORQUE LIMITS	
Rear Cover Bolts	15-25
Differential Bearing Cap Screws	40-50
Differential Bearing Adjusting Nut Locks	
Bolts	12-20
Universal Joint Flange Axle End to Universal Joint Bearing Assembly Nuts	10-14
Drive Gear Attaching Cap Screws	40-50
Rear Axle Shaft Bearing Retaining Nuts	
Minimum Torque Pinion Bearing Preload	140
Pinion Bearing Preload (Inch Pounds)	
New Bearings	17-27
Used Bearings	10-16
Differential Bearing Preload	2-1/2-3 notches tight

DRIVE GEAR ATTACHING BOLT TORQUE LIMITS - TIMKEN AND EATON AXLES	
Thread Size	Torque Limits (Foot-Pounds)
3/8 - 16	39 - 42
7/16 - 14	61 - 66
1/2 - 20	94 - 102
9/16 - 18	132 - 145
5/8 - 18	186 - 205
3/4 - 16	325 - 360

AXLE SHAFT FLANGE STUD NUT TORQUE LIMITS	
Thread Size	Torque Limits (Foot-Pounds)
7/16 - 20	50 - 70
1/2 - 20	80 - 100
3/4 - 16	200 - 250

BEARING PRELOAD (TIMKEN AND EATON)

Axle Model			Pinion Shaft Nut – Thread Size and Torque Limits (Foot-Pounds)	Press Ram Pressure for Preload Check (Tons)	Pinion and Cross Shaft Bearing Preload (Inch- Pounds)	Backlash Limits (Inches)	Differential Bearing Preload Adjusting Nut Notches Tighter from Zero End Play
T I M K E N	Single- Speed Single Reduction	B-140-N	7/8-20 175-250	5	5-15	0.006-0.012	2
		C-100-N	1-20 300-400	6	5-15	0.006-0.012	2
		D-100-N	1-20 300-400	6	5-15	0.006-0.012	2
		F-104-N	1-20 300-400	6	5-15	0.006-0.012	2
		F-106	1-20 300-400	6	5-15	0.006-0.012	2
		H-140	1-20 300-400	6	5-15	0.006-0.012	2
	Single- Speed Double Reduction	U-200, 241	1-1/2-18 800-1100	14	5-15	0.020-0.026	2
	2-Speed Double Reduction	U-300	1-1/2-18 800-1100	14	5-15	0.020-0.026	2

REAR AXLES (Cont.)

BEARING PRELOAD (TIMKEN AND EATON) (Cont.)

Axle Model			Pinion Shaft Nut – Thread Size and Torque Limits (Foot-Pounds)	Press Ram Pressure for Preload Check (Tons)	Pinion and Cross Shaft Bearing Preload (Inch- Pounds)	Backlash Limits (Inches)	Differential Bearing Preload Adjusting Nut Notches Tighter from Zero End Play
E A T O N	Single Speed	1614-1615	1-1/8-18 325-450	15	15-35	0.008-0.015	1-1/2-2
		1790-A-1791-A	1-1/4-12 325-450				1-1/2-2
		1892-1893	1-1/4-12 400-600				1-1/2-2
		1911	1-1/4-12 400-600				1-1/2-2
	2-Speed	1350	1-20 225-350	15	15-30	0.006-0.016	1-1/2-2
		13602	1-20 225-350				1-1/2-2
		13800	1-20 225-350				1-1/2-2
		16802-3	1-1/8-18 325-450				1-1/2-2
		17800-1	1-1/4-12 400-600				1-1/2-2
		18802-3	1-1/4-12 400-600				1-1/2-2
		19503	1-1/4-12 400-600				1-1/2-2
	Tandem	22M (Forward)	1-1/4-18 400-600	15	15-35	0.008-0.015	2
		22M (Rearward)	1-1/8-18 325-450				2
		28M (Forward)	1-1/4-18 400-600				2
		28M (Rearward)	1-1/8-18 325-450				2
		32M (Forward)	1-3/4-12 600-800				2
		32M (Rearward)	1-1/4-12 400-600				2
		38D (Forward)	1-1/4-12 400-600				1-1/2-2
		38D (Rearward)	1-1/4-12 400-600				1-1/2-2

REAR AXLES – (Cont.)

TIMKEN AND EATON SINGLE-SPEED SINGLE REDUCTION REAR AXLE TORQUE LIMITS (Foot-Pounds)

		Pinion Shaft Nut	Pinion Bearing Retainer to Carrier Housing	Carrier to Axle Housing	Differential Case	Rear Cover to Axle Housing	Differential Bearing Cap Bolts to Carrier
T I M K E N	B-140-N	175-250	23-31	53-69	23-31	—	80-106
	C-100-N	300-400	23-31	53-69	80-105	—	110-145
	D-100-N	300-400	53-69	53-69	80-105	—	110-145
	F-104	300-400	53-69	53-69	80-105	—	110-145
	F-106	300-400	53-69	53-69	80-105	—	110-145
	H-140	300-400	53-69	53-69	80-105	—	110-145
E A T O N	1614-1615	325-450	100-125	80-100	80-100	35-40	175-200
	1790-A, 1791-A	325-450	100-125	150-175	80-100	35-40	175-200
	1892-1893	400-600	100-125	150-175	80-100	35-40	225-250
	1911	400-600	150-175	150-175	100-125	35-40	225-250
	22M (Rearward)	325-450	100-125	50-70	80-100	35-40	150-175
	28M (Rearward)	325-450	100-125	80-100	80-100	35-40	150-175
	34M (Rearward)	400-600	100-125	150-175	80-100	35-40	150-175
	38D (Single Reduction Rearward) ...	400-600	100-125	150-175	80-100	—	225-250

REAR AXLES – (Cont.)

EATON TWO-SPEED AND DOUBLE REDUCTION REAR AXLE TORQUE LIMITS (Foot-Pounds)

	Axle Models							
	1350	13602	13800	16802-3	17800-1	18802-3	19503	38D (Double Reduction Rearward)
Pinion Shaft Nut	200-325	325-450	325-450	325-450	400-600	400-600	400-600	400-600
Pinion Bearing Retainer to Carrier Housing	100-125	100-125	100-125	100-125	100-125	100-125	100-125	100-125
Carrier to Axle Housing	50-70	50-70	50-70	80-100	150-175	160-185	125-150	150-175
Gear Support Case	50-70	50-70	50-70	80-100	125-150	125-150	125-150	125-150
Differential Case	50-70	50-70	50-70	50-70	80-100	80-100	80-100	80-100
Inspection Cover to Housing	35-50	35-50	35-50	35-50	35-50	35-50	35-50	—
Differential Bearing Cap to Carrier Bolts ..	150-175	150-175	150-175	175-200	225-250	225-250	225-250	225-250
Bearing Adjuster Lock Bolts	100-125	100-125	100-125	100-125	150-175	150-175	150-175	150-175
Electric Shift Unit-Mounting Nuts	50-70	50-70	50-70	50-70	50-70	50-70	50-70	—

TIMKEN DOUBLE REDUCTION REAR AXLES TORQUE LIMITS (Foot-Pounds)

	Axle Models			Axle Models	
	U-200	U-300		U-200	U-300
Carrier to Housing	160-205	160-205	Differential Case Bolts	150-164	370-405
Pinion Cage to Carrier Housing	110-145	110-145	Shift Unit (Mounting)	—	23-31
Pinion Flange Nut	800-1100	800-1100	Shift Unit Lock Nut, Set Screw and Clamp Screw....	—	30-35
Cross Shaft Bearing Cage and Cover	110-145	110-145	Shift Shaft Travel Adjusting Screw Lock Nuts	—	55-60
Cross Shaft Bearing Retainer Plate	92-101	92-101			

REAR AXLES – (Cont.)

TANDEM SUSPENSION TORQUE LIMITS

Eaton Models 22M, 28M, 32M, 38D	Foot-Pounds	Eaton Models 22M, 28M, 32M, 38D	Foot-Pounds
Spring Aligning Set Screws	100-150	Torque Arm Stud Nut	200-450*
Plate to Support Beam Saddle Bolts	150-200		7/16-20 50-70
Support Beam Saddle Cap Stud Nut	150-200	Axle Shaft Flange Stud Nuts	1/2 -20 80-100
Support Beam Shaft Nuts	350-400		3/4 -16 200-250
Torque Arm Bracket to Frame Cross Member Bolts ...	65-75		

*Truck Model T-700, 175-225 foot-pounds

TANDEM FORWARD AXLE TORQUE SPECIFICATIONS (Foot-Pounds)

Eaton Model	22M	28M	34M	38D
Input Shaft Nut (Outer)	325-450	325-450	325-450	500-700
Input Shaft Nut (Inner)	325-450	325-450	325-450	-
Power Divider Differential Case Bolts	25-35	25-35	50-70	50-70
Drive Pinion Nut	400-600	400-600	600-800	400-600
Output Shaft Nut (Inner)	325-450	325-450	325-450	-
Output Shaft Nut (Outer)	325-450	325-450	325-450	500-700
Power Divider Cover to Power Divider Case Bolts	80-100	80-100	80-100	-
Power Divider Cover to Carrier	-	-	-	100-125
Oil Seal Retainer to Power Divider Case and Cover Bolts	80-100	80-100	80-100	80-100
Power Divider Case to Carrier Bolts	80-100	80-100	80-100	-
Carrier to Housing Bolts or Nuts	50-70	80-100	150-175	150-175
Differential Bearing Cap Bolts	150-175	150-175	175-200	225-250
Lockout Shift Bracket to Power Divider Bolts	25-35	25-35	50-70	50-70
Pinion Bearing Retainer Set Screw	80-100	80-100	80-100	-
Oil Collector Cap Screw	18-25	18-25	18-25	-
Axle Shaft Flange Stud Nuts	80-100	80-100	80-100	200-250

CHASIS SUSPENSION FRONT WHEEL ALIGNMENT

	Front Axle Capacity (Pounds)	Caster* (Degrees)	Camber † (Degrees)	Toe-In (Inches)	King Pin Inclination (Degrees)
F-100, F-250 (except 4-Wheel Drive)	2600	3	1	1/16	4
F-100, F-250 (4-Wheel Drive Only)	3000	3 1/4	1 1/2	1/16	7 1/2
F-350, P-350	3800	4	1	1/16	4
P-400	3800	3	1	1/16	4
F-500, B-500	4000	4	1	1/16	4
P-500 (137-inch wheelbase)	4700	3	1	1/16	4
P-500 (154-inch wheelbase)	4700	3 1/2	1	1/16	4
F-600, B-600	4700	4	1	1/16	4
F-600, B-600, F-700, B-700, F-750 (cowl model), B-750	6000	4	1	1/16	5 1/2
F-750 (except cowl model), F-800, T-700	6000	3 5/32	1	1/16	5 1/2
F-700, B-700, F-750 (cowl model), B-750	7000	4	1	1/16	5 1/2
F-750 (except cowl model), F-800, T-700, T-750	7000	3	1	1/16	5 1/2
F-800, T-750	9000	3 5/32	1	1/16	5 1/2
F-800, T-800	11,000	3 5/32	1	1/16	5 1/2
T-800	15,000	3 5/32	1	1/16	6
C-550, C-600, C-700, C-750, C-800	All	3	1	1/16	5 1/2

Camber 1°, Maximum camber variation between wheels - 1/4°, Toe in, 1/16 inch.

*Maximum caster variation between wheels-1/2°.

†Four wheel drive. Caster, 3-1/4°, Camber, 1-1/2°, King Pin Inclination, 7-1/2°.

WHEEL NUT TORQUE

Model	Wheel Type	Bolt Size	Foot- Pounds*
Econoline	Disc	3/4-16	55-85
F-100, F-250, P-350	Disc	1/2-20	65-75
F-350, P-400	Disc	5/8-18	175-200†
F, B, P-500, C-550, F, C, B-600	Disc	3/4-16	400-500
F, C, B, T-700, F, C, B, T-750, F, C, T-800	Disc	1-1/8-16	400-500
F, C, B-700, F, C, B-750, F, C-800, F, C-850, F, C-950, F, C-1000, F, C-1100	Cast	5/8-11	170-180
T-700	Cast	5/8-11 (Front) 9/16-12 (Rear)	170-200 120-145
T-750, T-800, T-850, T-950	Cast	5/8-11	170-200

*Torque specifications are for lubricated bolt threads.

†For 17.5 x 5.25 Single Wheels, 125-140.

CHASSIS SUSPENSION – (Cont.)

SPINDLE BOLTS AND BUSHINGS

Truck Model	Maximum Outside Diameter of Bolt (Inches)	Maximum Inside Diameter of Bushing (Inches)
F-100, F-250	0.859	0.861
F-350, P-350, P-400	0.921	0.923
F-500, B-500, P-500, F-600, B-600	1.129	1.131
C-550, C-600	1.234	—
F-700, B-700, T-700, F-750, B-750	1.234	—
With 6000-lb. front axle		
F-700, B-700, T-700, C-700, C-750, F-800, F-850	1.234	—
With 7000-lb. front axle		
T-750, C-800, T-800, C-850, T-850, F-950, C-950, T-950, F-1000, C-1000, F-1100, C-1100	1.436	—
With 9000-lb. front axle		
F-800, C-800, T-800, F-850, C-850, T-850, F-950, C-950, T-950, F-1000, C-1000, F-1100, C-1100	1.309–1.607 (tapered bolt)	—
With 11,000-lb. front axle		
T-800, T-850, C-950, T-950, F-1000, C-1000, F-1100, C-1100	1.309–1.794 (tapered bolt)	—
With 15,000-lb. front axle		

SPRING CLIP (U-BOLT) NUT TORQUE LIMITS

Truck Model	Front Spring Clip		Rear Spring Clip	
	Bolt Size	Torque (Foot-Pounds)	Bolt Size	Torque (Foot-Pounds)
Econoline	7/16–20	50–60	7/16–20	30–40
F-100	9/16–18	108–125	9/16–18	108–125
F-250, F-350, P-350, P-400	9/16–18	108–125	5/8–18	165–185
F-500, B-500, F-600, B-600	9/16–18	108–125	3/4–16	240–260
P-500, C-550, C-600	5/8–18	165–185	3/4–16	240–260
F-700, B-700, C-700, F-750, B-750, C-750, F-800, C-800, F-850, C-850	5/8–18	165–185	3/4–16	240–260
F-950, C-950, F-1000, C-1000, F-1100, C-1100	5/8–18	165–185	7/8–14	375–400
T-700, T-750, T-800, T-850, T-950	5/8–18	165–185	7/8–14	250–300
	5/8–18	165–185	7/8–14	375–400

CHASSIS SUSPENSION (Cont.)

TUBELESS TIRES

Tire Size and Ply Rating	D.C. Rim Type	Revolutions per Mile (New Tires)	Maximum Load Capacity (Pounds)	Pressure (psi)
6.50 x 13–4	4½J	—	—	24
6.50 x 16–6	4½K, 5K, 6L	731	1215	36
6.70 x 15–4	5K	753	1065	24
6.70 x 15–6	5K	753	1215	30
7 x 17.5–6	5.25	710	1520	45
7.10 x 15–6	5K	732	1300	30
7 x 22.5–6	5.25	587	1870	50
7 x 22.5–8	5.25	587	2180	65
8 x 17.5–6	5.25	676	1735	45
8 x 17.5–8	5.25	676	2060	60
8 x 19.5–8	5.25	609	2440	65
8 x 22.5–8	5.25, 6.0	558	2740	65
8 x 22.5–10	5.25, 6.0	558	2980	75
9 x 22.5–10	6.0, 6.75	540	3330	70
9 x 22.5–12	6.75	540	3600	80
10 x 22.5–10	6.75, 7.5	520	3960	70
11 x 22.5–12	7.5, 8.25	504	4580	75
11 x 24.5–12	7.5	480	4880	75
12 x 22.5–12	8.25	489	5150	75
12 x 22.5–14	8.25	489	5540	85
12 x 24.5–12	8.25	464	5480	75

TUBE TIRES

Tire Size and Ply Rating	Rim Type	Wheel Type	Revolutions per Mile (New Tires)	Maximum Load Capacity (Pounds)	Pressure (psi)
6.50 x 16–6	A	4½K, 5K, 6L	731	1215	36
7.00 x 17–6	C	5.5	637	1740	45
7.00 x 18–8	C	5.0	617	2140	60
7.50 x 16–6	B	5.5F	650	1815	45
7.50 x 17–8	C	5.5	617	2440	65
7.50 x 20–8	C, F	6.0	564	2740	65
7.50 x 20–10	C, F	6.0	564	2980	75
8.25 x 20–10	C, F	6.0	543	3330	70
8.25 x 20–10	C, D, F	6.5	543	3330	70
8.25 x 20–12	C, D, F	6.5	543	3600	80
9.00 x 20–10	C, D, F	6.5	523	3960	70

Rim Types: A—Drop Center

B—Semi Drop Center

C—Two Piece Firestone – RH 5° Adv. Rim

D—Three Piece Firestone – RH 5° Non-Demountable Rim

E—Three Piece Firestone – VA 5° Non-Demountable Rim

F—Three Piece Firestone – R 5° Demountable Rim

CHASSIS SUSPENSION (Cont.)**TUBE TIRES (Cont.)**

Tire Size and Ply Rating	Rim Type	Wheel Type	Revolutions per Mile (New Tires)	Maximum Load Capacity (Pounds)	Pressure (psi)
9.00 x 20-10	D, F	7.0	523	3960	70
10.00 x 20-12	D, F	7.0, 7.5	507	4580	75
10.00 x 20-14	D, F	7.0, 7.5	507	4930	85
10.00 x 22-12	D, F	7.5	482	4880	70
11.00 x 20-12	D, F	7.5	492	5150	70
11.00 x 20-14	D, F	7.5	492	5540	85
11.00 x 20-4	E, G	8.0	482	6900	100
11.00 x 22-4	E, G	8.0	459	7300	100
11.00 x 22-12	D, F	7.5	468	5480	70
11.00 x 22-14	D, F	7.5	468	5900	80

Rim Types: D-Three Piece Firestone - RH 5° Non-Demountable Rim

E-Three Piece Firestone - VA 5° Non-Demountable Rim

F-Three Piece Firestone - R 5° Demountable Rim

G-Three Piece Firestone - VA 5° Demountable Rim

FRAME DIMENSIONS

Truck Model	Width at Front (Inches)	Width at Rear (Inches)	Front-End Dip (Inches)
†F-100, F-250, P-350	34	34	1/4
F-350, F-500, F-600, B-500, B-600	34*	34*	1-3/4
C-500, C-600	38	34	4-1/32
P-400 (P-500 137-inch Wheelbase)	34	34	1-3/4
P-500 (154-inch Wheelbase)	34	34	1-3/4
B-700, B-750	34	34	4
C-700, C-750, C-800, C-850, C-950	38	34	4-1/32
C-100, C-1100	38	34	4-1/32
F-700, F-750, F-800, F-850, F-950	34	34	4
F-1000, F-1100	34	34	4
T-700	34	34	4
T-750, T-800, T-850, T-950	34-1/8	34-1/8	4

* B-600, 34-1/16

†Rear Axle Kick-up, F-100-250, P-350, 2 inches

STEERING GEAR ADJUSTMENTS

Truck Model Application	Worm Bearing Pre-load* (Inch-Pounds)	Worm to Roller Mesh† (Inch-Pounds)
Econoline F-100, F-250	3-6	8-13
F-100-250 (4 Wheel Drive), F-350-500-600, B-500-600	4-9	20-1/4-27
P-350-400-500	2-1/4-6-3/4	11-18
F-600 thru 800, T-700-750, B-600, 650, 700	6-3/4-11-1/4	22-31
C-550-600-700	5-10	13-22
T-750, 800; F-800 (Power Steering)	7-11	25-31
F-800, C-800, T-800	7-11	25-31
C-750, 800	5-9	14-22

*Pull to keep wheel moving.

†Pull through high point - includes worm bearing pre-load.

STEERING – (Cont.)**STEERING LINKAGE TORQUE LIMITS**

Nomenclature	Nuts and/or Bolts and Torque Limits (Ft. Lbs.)				
Bolt & Nut-Spindle Connecting Rod Clamp	3/8-24 25-35	1/2-20 40-50	1/2-20* 50-55		
Bolt & Nut-Steering Gear Assembly to Frame	7/16-20 45-60	1/2-20 75-90	7/16-14 30-40		
Bolt & Nut-Steering Gear Arm (Steering Idler Arm)	5/8-18 180-220				
Nut-Steering Wheel Assembly to Steering Shaft & Worm Assembly	5/8-18 35-55	7/8-20 35-55			
Nut-Drag Link	1/2-20 45-55	9/16-18 70-90	3/4-16 80-100	7/8-14 90-110	
Nut-Spindle Connecting Rod Ball	1/2-20 45-55	9/16-18 60-75	5/8-16 70-80	3/4-16 90-110	7/8-14 100-120
Piston Rod Eye Stud Nut	5/8-18 70-90	5/8-16 90-110			
Cylinder Mounting and Bushing Stud Nut	5/8-18 115-140				
Cylinder Piston Jam Nut	1/2-20 58-72				
Cylinder Mounting Bracket to Frame Bolt	1/2-20 58-72				
Drag Link Stud Nut	1/2-20 45-55	9/16-18 70-90	3/4-16 80-100	7/8-14 90-110	
Idler Shaft to Idler Support Nut	1-14 40-50	1-1/4-12 40-50			
Control Valve Body Bolts	20-25				
Valve Spool Bolt	8-12				
Pitman Arm Clamp Lock Nut	220				

*Used on F-C-900-1000-1100, T-750-800-900.

STEERING – (Cont.)

POWER STEERING PUMP APPLICATIONS AND PRESSURES

Pump Type	Truck Model	Front Axle (Rated Capacity)	PRESSURES	
			Engine – Idling Wheels Straight Ahead Shut-Off Valve Open	Shut-Off Valve Closed
ROLL (with Bushings)	F-100, 250	2600	50-60 psi	900-1050 psi at 2500 Engine rpm
	F-350-600 P-350-500 B-500-600	3800 thru 6000	60-70 psi	
	F, B, -700 T-700 (292 V-8)	6000	55-65 psi	
ROLL (with Ball Bearings)	F-, T-750-1100 C-850-1100 B-750 T-700 (332 V-8)	6000 thru 9000		
	F, T, -800	11000		
	C-550, 700	6000 7000		
	T-800 F-, T-850, 950 F-1000, 1100 C-800-1100	11000 15000		
				1100-1300 psi at 1500 Engine rpm

BRAKES

**HYDRAULIC BRAKE PEDAL
FREE TRAVEL**

All Trucks	3/16–3/8 inch
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VACUUM BOOSTER MINIMUM HYDRAULIC PRESSURES

Make and Type	Effective Diameter (Inches)	Slave Cylinder Diameter (Inches)	Minimum Hydraulic Pressure (psi) at 20 Inches Vacuum	Truck Application
Midland (Hy-Power) Diaphragm	5-1/16	1	560	F-100
	8-1/8	7/8	960	F-500, F-600 B-500, B-600 C-550, C-600 P-500
Bendix (Hydrovac) Diaphragm	10-1/4	7/8	1420	F-700, F-750, F-800, F-850 B-700, B-750 C-700, C-750, C-800, C-850
Bendix (Hydrovac) Piston	6-3/4	1	625	F-350 P-350, P-400
	9-1/2	1-3/16	1325	F-950 C-950 T-700
Bendix (Hydrovac) Tandem Piston	9-1/2	1-1/8	1300	T-750, T-800, T-850

AIR COMPRESSOR GOVERNOR

Cut-out Pressure	100–105 psi
Cut-in Pressure	80–85 psi

AIR RESERVOIR SAFETY VALVE

Release Pressure	150 psi
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GENERATORS

Part Number	Watts @ 15 Volts	Generator rpm Charge Starts	Rate	Maximum	Field Current Amps. @12 Volts-Hot	Brushes		
			Amperes	Generator rpm		Number Used	Original Length (Inches)	Spring Tension (Ounces)
Ford C1TF-10000-A	450	1300	30	2525	1.2-1.8	2	0.86	40
Ford C1TF-10000-H	450	1300	30	2525	1.2-1.8	2	0.90	20-26
Ford C1TF-10000-K	350	1300	30	2525	1.2-1.8	2	0.90	20-26
Ford C1TF-10000-L	450	1300	30	2525	1.2-1.8	2	0.90	20-26
Ford C1TF-10000-M	450	1300	30	2525	1.2-1.8	2	0.90	20-26
Leece-Neville C1TF-10300-DandE	640*	750	60	3400	2.4-3.0	-	-	-
Ford C00F-10000-C	375	1400	25	2450	1.2-1.8	2	0.86	32-40
Ford C00F-10000-D	450	1300	30	2550	1.2-1.8	2	0.86	32-40
C0AF-10000-B	450	1300	30	2525	1.2-1.8	2	0.86	32-40
C0AF-10000-G	450	1300	30	2525	1.2-1.8	2	0.86	32-40
C0TF-10000-C	600	1550	40	2650	1.2-1.8	2	0.86	40
C0TF-10000-J	450	1300	30	2525	1.2-1.8	2	0.86	32-40
C1TF-10000-A	450	1300	30	2525	1.2-1.8	2	0.86	40
C1TF-10000-AA								

* @ 14 volts

GENERATOR DATA

Generator Commutator Maximum Runout	0.002 inch
Generator Brushes Maximum Wear Limit	5/8 inch
Maximum External Circuit Resistance (Generator Armature Terminal to Battery Positive Terminal	1.0 volt @ 30 amperes

ALTERNATOR DATA

Alternator Variation Between Phases	
Maximum - Under Load	0.3 volt
Maximum - No Load	1.5 volts
Alternator Pulley Nut Torque	40 foot-pounds

VOLTAGE REGULATION SETTING

Part Number	Current Rating	Cut-in Voltage	Voltage Regulation (Amps.)	Current Regulation	Reverse Current to Open (Amps.)
C1TF - 10505 - A, B	30	12.0-12.8	14.6-15.4	28-32	6-9
B6A - 10175 - B	60	5.6-6.4	13.5-14.3	58-62	-
B8E - 10505 - C (Ford)	40	12.4-13.2	14.6-15.4	38-42	8
C1TF - 10505 - D	40	12.5-13.9	14.2-14.9	38-42	2-6
CODF - 10505 - A	25	12.4-13.2	14.6-15.4	23-27	-

VOLTAGE REGULATION SETTING VERSUS AMBIENT AIR TEMPERATURE

Ambient Temperature °F	Voltage Regulation Setting (Volts)	
	Standard Regulator (Ford and Bosch)	40 Amp. Low Cut-In (Auto-Lite)
25	15.1-15.9	14.3-15.2
35	15.0-15.8	14.3-15.2
45	14.9-15.7	14.3-15.1
55	14.8-15.6	14.3-15.0
65	14.7-15.5	14.3-14.9
75	14.6-15.4	14.2-14.9
85	14.5-15.3	14.1-14.8
95	14.3-15.1	14.1-14.7
105	14.2-15.0	14.0-14.7
115	14.1-14.9	14.0-14.6
125	13.9-14.7	13.9-14.5
135	13.8-14.6	13.8-14.4
145	13.6-14.4	13.8-14.4

ELECTRICAL (Cont.)
STARTER MOTOR

Part Number	Normal Engine Cranking Speed	Min. Torque @5 Volts		Maximum No Load Amperage @12 Volts	Normal Current Draw Under Load	Type of Drive	No. Brushes Used	Brush Mfg. Length (Min.) (Inches)	Brush Wear Limit (Inches)	Brush Spring Tension (Ounces)
		Foot Pounds (Min.)	Load (Amp.) (Max.)							
Ford C00F-11001-D	250-290	15.5	670	70	105-115	Roller Clutch	4	0.43-0.46	Half Size	48-56
Ford B6A-11002-A	150-180	15.5	550	80	210	Folo-Thru	4	0.43-0.46	Half Size	48-56
Delco B7T-11002-A	150-160	14.2	525	80	210	Positive Action	4	0.61-0.63	Half Size	35
Auto-Lite B8QH-11002-A	140-160	17.2	525	60	210	Folo-Thru	4	0.46-0.48	Half Size	42-53
Delco		17.5	525	60	210	Folo-Thru	4	0.75	Half Size	24 Minimum
Auto-Lite B8C-11002-A	140-160	15.5	550	85	210	Positive Action	4	0.46-0.48	Half Size	42-53
Ford FAY-11001-A		14.8	580	110	210	Folo-Thru	4	0.43-0.46	Half Size	48-56
Ford B6P-11001-A		14.8	580	110	210	Folo-Thru	4	0.43-0.46	Half Size	48-56
Ford CIVF-11001-C		15.5	670	70	210	Positive Action	4	0.46-0.48	Half Size	42-53
Delco B9TF-11001-A		17.5	525	60	210	Folo-Thru	4	0.75	Half Size	24

**ELECTRICAL (Cont.)
BATTERIES**

Part Number	Charge	Plates	Amp. Hours
C1TF-10655-A, and 10657-A.....	Dry	114	150
CODF-10655-A	Wet	54	40
CODF-10655-E	Dry	54	55
B9A-10655-A.....	Wet	66	55
B6A-10655-E.....	Wet	78	70
B9A-10655-C.....	Wet	66	70
B6A-10654-C.....	Dry	78	70

ALLOWABLE FAST CHARGE TIME

Specific Gravity	Fast Charge Up To
1.150 or less	1 hour
1.150 to 1.175	3/4 hour
1.175 to 1.200	1/2 hour
1.200 to 1.225	1/4 hour
Above 1.225.....	Slow Charge only

BATTERY FREEZING TEMPERATURES

Specific Gravity	Freezing Temperature
1.280	-90° F.
1.250	-62° F.
1.200	-16° F.
1.150	+ 5° F.
1.100	+19° F.

ELECTRICAL (Cont.)
FUSE AND CIRCUIT BREAKER CHART

Circuit	Protective Device	Location
Headlamps	Circuit Breaker	Integral with Headlamp Switch
Auxiliary Lamps (Instruments Dome, Park and Rear)	Light Duty Truck 3AG-15	Fuse Panel
	Heavy Duty Truck Circuit Breaker	Integral with Headlamp Switch
Turn Signals	Trucks SFE-7.5 Fuse	Fuse Panel
	Econoline SFE-14 Fuse	
Radio	SFE-7.5 Fuse	Fuse Panel
Heater Blower	SFE-14 Fuse	Fuse Panel
Electric Windshield Wiper	Circuit Breaker	Mounts on Windshield Wiper Motor Mounting Bracket
Electric Fuel Pump	SFE-7.5 Fuse	Fuse Panel
Spotlight	Econoline SFE-14 Fuse	Cartridge in Feed Wire
	Light Duty Truck SFE-7.5 Fuse	Cartridge in Feed Wire
	Heavy Duty Truck SFE-7.5 Fuse	Fuse Panel
Pump Assembly (W/S Wiper Vacuum)	3AG-10 Fuse	Cartridge in Feed Wire
Cigar Lighter	Light Duty Truck Sulphur Disc	Back of Lighter Socket
	Heavy Duty Truck SFE-14	Fuse Panel
Overdrive	3AG-15	Open Clips on O/D Relay
Two-Speed Axle	Circuit Breaker	Fuse Panel

ELECTRICAL (Cont.)
BULB CHART

Description	Candle Power or Wattage	Trade Number
EXTERIOR LAMPS		
Head Lamps Single -- High/Low Beam	50/40 W	6012
Dual Lo-Beam (#2)	50/37.5 W	4002
Hi-Beam (#1)	37.5 W	4001
Front Turn Signal/Parking	32/4 C.P.	1034
Front Parking Only	4 C.P.	67
Independent Turn Signal, Front & Rear	32 C.P.	1073
Rear Turn Signal & Stop/Tail	32/4 C.P.	1034
Rear License Lamp Only	4 C.P.	67
Marker	4 C.P.	67
Spot Lamps	30 W	4435
INTERIOR LAMPS		
Instrument Panel Indicators		
Hi-Beam	2 C.P.	57

BULB CHART (Cont'd)

Description	Candle Power or Wattage	Trade Number
Oil Pressure	2 C.P.	57
Generator	2 C.P.	57
Turn-Signal	2 C.P.	57
Tachometer	2 C.P.	57
Differential Lockout	1.5 C.P.	1445
W/S Wiper Vacuum Pump Switch	1 C.P.	53
Retarder Oil Temperature Signal	1.5 C.P.	1445
Air Pressure Gauge	2 C.P.	57
Instrument Cluster Illumination	2 C.P.	57
Cigar Lighter Socket	1.5 C.P.	1445
Heater Control	2 C.P.	57
Radio Dial	2 C.P.	57
Transmission Control Selector	1.5 C.P.	1445
INTERIOR ILLUMINATION		
Dome Lamp	15 C.P.	1003

CAPACITY CHART

ENGINE COOLING SYSTEM CAPACITIES

Engine	Truck Model	Approximate Capacity* (Quarts)
144 Six	Econoline, P-100	8.9***
223 Six	F-100, F-250, F-350, F-500, F-600, B-500, B-600 .. P-100, P-350, P-400, P-500	18 18-1/2
262 Six	F-600, B-600	18
	C-550, C-600	28
292 MD V-8	F-100, F-250, F-350 (with single rear wheels) ... F-500, F-600	18
	B-500, 600	
	F-350 (with dual rear wheels), F-700, B-700, T-700	22
	B-500, 600 (with Transmatic)	23-1/2
	P-350, P-400, 500	18-1/2
	F-B-700	22
	C-550, C-600, C-700	28**
292 HD V-8	B-500, 600	18
	B-700	22
	B-500, 600	18
	C-550, C-600	28**
302 HD V-8	F-700	24
	T-700, B-700	26**
	C-700	29**
332 HD V-8	F-750, 800, B-750	22
	T-750, T-800	26**
	C-750, C-800, C-900	29**
401 SD V-8	F-850, F-950, T-850, T-950	46
	C-850, C-950	51
	H-950, HT-850	51
477 SD V-8	F-850, F-950, 1000, 1100; T-850, 950	46
	C-850, C-950, 1000, 1100	51
	H-950, HT-850	51
534 SD V-8	F-1000, 1100; T-850, 950	46
	C-1000, 1100	51
	H-950, H-1000, HT-850, HT-950	51

*Add 1 quart for trucks equipped with heater.

**Add 1½ quarts for trucks equipped with Transmatic transmission.

***Add 2 quarts for heater.

CAPACITY CHART – (Cont.)

FUEL TANK CAPACITIES

Tank Type	Truck Model	Approximate Capacity (U.S. Gallons)
Standard	Econoline	14
	F-, C-, and T-Series (cab models)	18
	B-Series	30
	P-Series and F-100-250-350 (cowl models)	17
	F-500 through 950 (cowl models)	18
Optional (Mounted Out- side of Frame)	P-400 and P-500	30
	F-Series (500-800); C-Series (550-800)	
	T-Series (700-800)	
Optional Auxiliary Tanks		
Cylindrical Saddle Step	F-, C-, and T-Series (700 through 1100)	
	H-950, 1000; HT-850, 950	50 or 60
	F-, C-, and T-Series (700 through 1100)	125
	F- and T-Series (700 through 1100)	50 or 60

OIL CAPACITY

Engines	Capacity
144	3-1/2 quarts*
262	6 quarts*
223 and 292	5 quarts*
302 and 332	8 quarts*
401, 477, and 534	9 quarts**

*Add one quart when changing oil filter.

**Add 2 quarts when changing oil filter.

CARBURETOR OIL BATH AIR CLEANER

Engines	Capacity
223	1 Pint
262, 292, 302,	1 Quart
332	3-1/4 Pints
401-477-534	3 Pints

CAPACITY CHART (Cont.)
TRANSMISSION LUBRICANT REFILL CAPACITIES

Transmission Type and Make	Approximate Capacity (Pints)
3-Speed (Ford B9TR-7004-A & B)	2-3/4
3-Speed (Ford B9TR-7003-A & B)	3-1/2
Overdrive (Warner T-86-G or H)	3-1/4
3-Speed Medium Duty (Warner T-89C)	3-1/2
3-Speed Heavy Duty (Warner T-87E)	5-1/2
4-Speed (Warner T-98A)	8
5-Speed Medium Duty (Clark 250-V or 251-VO)	9
5-Speed Heavy Duty (Clark 265-V or 264-VO)	11-1/2
5-Speed (Spicer 5652 and 5756-B)	13
5-Speed (Spicer 6352, 6453-A, and 6852-G)	17
8-Speed (Fuller R-46)	17
3-Speed Auxiliary (Spicer 5831-C or -D)	4
3-Speed Auxiliary (Spicer 7231-B and -D)	8
4-Speed Auxiliary (Spicer 8341-A)	12
Fordomatic and HD Cruise-O-Matic	20