

1963 FORD

SERVICE

SPECIFICATIONS



1963 FORD SERVICE SPECIFICATIONS

**TRUCK, ECONOLINE, FALCON BUS
AND FALCON CLUB WAGON**

1

**GALAXIE, FAIRLANE,
FALCON AND THUNDERBIRD**

2

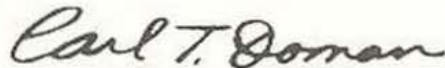
**SERVICE DEPARTMENT
FORD DIVISION**
 **MOTOR COMPANY**

FIRST PRINTING — SEPTEMBER 1962

FOREWORD

This booklet contains service specifications for the 1963 Ford Galaxie, Fairlane, Thunderbird, Falcon, Econoline, Falcon Station Bus, Falcon Club Wagon and Truck. The booklet is divided into two main parts as indicated on the title page. Part 1 covers the Ford Truck, Econoline, Falcon Station Bus and Falcon Club Wagon. Part 2 covers the Ford Galaxie, Fairlane, Thunderbird and Falcon.

The specifications contained in this booklet were in effect at the time the booklet 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
National Service Manager
FORD DIVISION
Ford Motor Company

1963 FORD SERVICE SPECIFICATIONS

PART 1—TRUCK, ECONOLINE, FALCON BUS AND FALCON CLUB WAGON

SECTION	PAGE
1. Engines.....	1-4
2. Ignition System and Governors.....	1-13
3. Fuel System.....	1-16
4. Cooling System.....	1-19
5. Clutches.....	1-19
6. Manual-Shift Transmissions.....	1-20
7. Automatic Transmissions.....	1-21
8. Rear Axles.....	1-27
9. Chassis Suspension.....	1-34
10. Steering.....	1-36
11. Brakes.....	1-37
12. Electrical.....	1-38
13. Refill Capacities.....	1-46

NOTE: All specifications are given in inches, unless otherwise indicated.

1. ENGINES

ENGINE IDENTIFICATION

PATENT PLATE SYMBOL	CUBIC INCH DISPLACEMENT
S	144 Six
T	170 Six
J	223 Six
B	262 Six
C	292 MD V-8
D	292 HD V-8
N	302 HD V-8
I	302 HD V-8
F	332 HD V-8
W	332 HD V-8
G	401 SD V-8
P	401 SD V-8
H	477 SD V-8
Q	477 SD V-8
R	534 SD V-8

GENERAL

ENGINE MODELS

144 Six	144
170 Six	170
223 Six	223
262 Six	262
MD V-8 (Medium Duty)	292
HD V-8 (Heavy Duty) 292, 302, and 332	
SD V-8 (Super Duty) 401, 477, and 534	

BRAKE HORSEPOWER—

Specified rpm

144 Six	85 at 4200
170 Six	101 at 4400
223 Six	135 at 4000
262 Six	152 at 4000
292 MD V-8 (2-V)	160 at 4000
292 HD V-8 (4-V)	171 at 3800
302 HD V-8 (2-V)	180 at 4000
302 HD V-8 (4-V)	187 at 3800
332 HD V-8 (2-V)	192 at 4000
332 HD V-8 (4-V)	200 at 3800
401 SD V-8 (2-V)	206 at 3600
401 SD V-8 (4-V)	226 at 3600
477 SD V-8 (2-V)	231 at 3400
477 SD V-8 (4-V)	253 at 3400
534 SD V-8	266 at 3200

MAXIMUM GROSS TORQUE—

Ft-Lbs at Specified rpm

144 Six	134 at 2000
170 Six	152 at 1800-2000

223 Six	200 at 1800-2400
262 Six	237 at 1800
292 MD V-8	270 at 1800-2000
292 HD V-8	274 at 2000-2600
302 HD V-8 (2-V)	276 at 2600
302 HD V-8 (4-V)	280 at 2600-2800
332 HD V-8 (2-V)	302 at 2400-2600
332 HD V-8 (4-V)	307 at 2600
401 SD V-8 (2-V)	341 at 1600-1800
401 SD V-8 (4-V)	343 at 2000-2600
477 SD V-8 (2-V)	412 at 1400-1800
477 SD V-8 (4-V)	415 at 2000-2600
534 SD V-8	481 at 1600-1800

TAXABLE HORSEPOWER

144 and 170	29.40
223	31.50
262	33.18
292	45.00
302	42.05
332	46.20
401	54.00
477 and 534	65.00

BORE AND STROKE

144	3.50 x 2.50
170	3.50 x 2.94
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 and 170	8.4:1
223	8.1:1
262	7.9:1
292	8.0:1
302 (4-V), 332 (4-V), 401, 477, and 534 V-8	7.5:1
302 (2-V)	7.1:1
332 (2-V)	7.0:1

FIRING ORDER

All Six's	1-5-3-6-2-4
All V-8's	1-5-4-8-6-3-7-2

GENERAL—Continued

COMPRESSION PRESSURE—

Sea Level at Cranking Speed

144 and 170	150-190
Other Engines	130-170

ENGINE IDLE RPM*

Manual-Shift

144 and 170	550-575
292 HD, 302, and 332	525-575
223 and 262	500-525
292 MD, 401, 477, and 534 ..	500-550

Automatic Transmissions

144 and 170	525-575
223	500-525
262, 292 MD, 292 HD, 302, and 332	475-525

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

ENGINE MANIFOLD VACUUM—

Inches of Mercury at Specified Engine Neutral Idle (Sea Level)

All Six's and 292 V-8	18*
Other Engines	17
*Except 144	16
170	17

OIL PRESSURE—

Hot at 2000 rpm

All Six's and 292, 302, and 332 V-8	35-55 psi
401, 477, and 534	35-65 psi

CYLINDER HEAD

GASKET SURFACE FLATNESS

144, 170, and 223—0.003 inch in any 6 inches or 0.007 overall.	
All Other Engines—0.003 inch in any 6 inches or 0.006 inch overall.	

VALVE ARRANGEMENT—

Front to Rear

All Six's	E-I-I-E-I-E-E-I-E-I-E
292, 302, and 332	E-I-I-E-E-I-E-I-E
401, 477, and 534	E-I-E-I-I-E-I-E

VALVE GUIDE BORE

DIAMETER—Standard

Intake

144 and 170	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 and 170	0.3115-0.3125
223 Six and 292 MD	0.3433-0.3440
262	0.3728-0.3735

All HD and SD Engines 0.4368-0.4375

VALVE SEAT WIDTH

Intake

144 and 170	0.070-0.080
223, 262, 292, 302, and 332	0.070-0.090
401, 477, and 534	0.090-0.110

Exhaust

144 and 170	0.070-0.080
223 and 292 MD	0.070-0.090
Other Engines	0.090-0.110

VALVE SEAT ANGLE

All Engines (Intake and Exhaust) 45°

VALVE SEAT RUNOUT

Maximum	0.002
---------------	-------

VALVE SEAT INSERT TO BORE INTERFERENCE FIT—Standard and Oversize

Intake and Exhaust

262 and 292HD	0.0015-0.0040*
Other HD and SD Engines	0.002-0.004
*Exhaust Only.	

VALVE SEAT INSERT BORE DIAMETER—Standard

Intake

302 and 332	2.1215-2.1230
401, 477, and 534	2.2165-2.2175

Exhaust

262, 292, 302, and 332 ..	1.6245-1.6260
401, 477, and 534	1.7405-1.7415

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 and 170	0.018
223, 262, and 292	0.019
302, 332, 401, 477, and 534	0.020

EXHAUST

144 and 170	0.018
223, 262, and 292	0.019
302 and 332	0.022
401, 477, and 534	0.020

VALVE MECHANISM—**Continued****Hot****INTAKE AND EXHAUST**

144 and 170	0.018
223 and 262	0.019
292	0.018
302, 332, 401, 477, and 534	0.020

VALVE FACE ANGLE

All Engines	44°
-------------------	-----

VALVE HEAD DIAMETER**Intake**

144	1.462-1.472
170	1.522-1.537
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 and 170	1.261-1.276
223 and 292 MD	1.505-1.520
262 and 292 HD	1.505-1.515
401, 477, and 534	1.630-1.640

**VALVE STEM TO
VALVE GUIDE CLEARANCE****Intake**

144 and 170	0.0008-0.0025
262	0.0008-0.0025
401, 477, and 534	0.0010-0.0026
Other Engines	0.0010-0.0024
Wear Limit (all engines)	0.0045

Exhaust

144 and 170	0.0018-0.0035
223 and 292 MD	0.0028-0.0042
262	0.0025-0.0042
292 HD	0.0018-0.0032
Other Engines	0.0024-0.0040
Wear Limit (all engines)	0.0055

VALVE STEM DIAMETER**Standard****INTAKE**

144 and 170	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 and 170	0.3090-0.3097
223 and 292 MD	0.3398-0.3405
262	0.3693-0.3703
292 HD	0.4343-0.4350
Other Engines	0.4335-0.4344

0.003 Oversize**INTAKE**

144 and 170	0.3130-0.3137
223 and 292	0.3446-0.3453
262	0.3740-0.3750
302 and 332	0.3740-0.3750
401, 477, and 534	0.4379-0.4388

EXHAUST

144 and 170	0.3120-0.3127
223 and 292 MD	0.3428-0.3435
262	0.3723-0.3733
292 HD	0.4373-0.4380
Other Engines	0.4365-0.4374

0.015 Oversize**INTAKE**

144 and 170	0.3250-0.3257
223 and 292	0.3566-0.3573
262	0.3860-0.3870
302 and 332	0.3860-0.3870
401, 477, and 534	0.4499-0.4508

EXHAUST

144 and 170	0.3240-0.3247
223 and 292 MD	0.3548-0.3555
262	0.3843-0.3853
292 HD	0.4493-0.4500
Other Engines	0.4485-0.4494

0.030 Oversize**INTAKE**

144 and 170	0.3400-0.3407
223 and 292	0.3716-0.3723
262, 302, and 332	0.4010-0.4020
401, 477, and 534	0.4649-0.4658

EXHAUST

144 and 170	0.3390-0.3397
223 and 292 MD	0.3698-0.3705
262	0.3993-0.4003
292 HD	0.4643-0.4650
Other Engines	0.4635-0.4644

VALVE FACE RUNOUT**Intake**

223 and 292 MD	0.0020
Other Engines	0.0015

Exhaust

All Engines	0.0015
-------------------	--------

**VALVE SPRING OUT-OF-
SQUARE—Maximum**

All Engines except 262	0.072
262	0.068

VALVE MECHANISM— Continued

VALVE SPRING FREE LENGTH—

Approximate

144 and 170	2.00
262	1.96
401, 477, and 534	2.07
Other Engines	2.09

VALVE SPRING PRESSURE—

Pounds at Specified Length

Valve Closed

144 and 170	47.75-56.25 at 1.585
	Wear Limit 43 at 1.585
262	71-79 at 1.65
	Wear Limit 64 at 1.65
401, 477, and 534	84-89 at 1.70
	Wear Limit 76 at 1.70
Other Engines	71-79 at 1.78
	Wear Limit 64 at 1.78

Valve Open

144 and 170	112-122 at 1.222
	Wear Limit 101 at 1.222
262	161-177 at 1.260
	Wear Limit 145 at 1.260
401, 477, and 534	178-192 at 1.28
	Wear Limit 161 at 1.28
Other Engines	161-177 at 1.39
	Wear Limit 145 at 1.39

VALVE SPRING ASSEMBLED

HEIGHT—Pad to Retainer

144 and 170	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

VALVE PUSH ROD RUNOUT—

Maximum

All Engines	0.025
-------------------	-------

ROCKER ARM SHAFT O.D.

144, 170, 223, 262, 292, 302, and 332	0.780-0.781
Other Engines	0.781-0.782

VALVE TAPPET DIAMETER—

Standard

223	0.4983-0.4989
292 and 262	0.4989-0.4995
144, 170, 302, 332, 401, 477 and 534	0.8740-0.8745

VALVE TAPPET TO TAPPET BORE CLEARANCE

223	0.0011-0.0027
	Wear Limit 0.0055
262 and 292	0.0005-0.0021
	Wear Limit 0.0055
Other Engines	0.0005-0.0020
	Wear Limit 0.005

ROCKER ARM TO ROCKER SHAFT CLEARANCE

144 and 170	0.002-0.0045
	Wear Limit 0.006
223, 262, and 292	0.002-0.004
	Wear Limit 0.007
302 and 332	0.002-0.004
	Wear Limit 0.008
401, 477, and 534	0.001-0.003
	Wear Limit 0.007

ROCKER SHAFT BORE DIAMETER

All Engines	0.783-0.784
-------------------	-------------

CAMSHAFT, TIMING CHAIN, AND TIMING GEARS CAMSHAFT END PLAY

All Engines	0.001-0.007
	Wear Limit 0.012

CAMSHAFT JOURNAL TO BEARING CLEARANCE

All Engines	0.001-0.003
	Wear Limit 0.006

CAMSHAFT JOURNAL RUNOUT

All Engines	0.005
-------------------	-------

CAMSHAFT JOURNAL OUT-OF-ROUND

144, 170, 262, 302, 332, 401, 477 and 534	0.0005
223 and 292	0.001

CAMSHAFT LOBE LIFT

Intake

144 and 170	0.2405
223 and 262	0.273
292	0.264
302 and 332	0.244
401, 477, and 534	0.278

CAMSHAFT, TIMING CHAIN, AND TIMING GEARS— Continued

Exhaust

144 and 170	0.2395
223 and 262	0.273
292	0.262
302 and 332	0.265
401, 477, and 534	0.278

LOBE LIFT LOSS—Maximum

Intake and Exhaust	0.005
--------------------------	-------

CAMSHAFT GEAR TO CRANKSHAFT GEAR BACKLASH 262, 302, 332, 401, 477, and 534

0.002-0.004

ASSEMBLED SPROCKET OR GEAR FACE RUNOUT

144, 170, 223, 262, and 292	0.006
Other Engines	0.001

TIMING CHAIN DEFLECTION

144, 170, 223, and 292	0.5
------------------------------	-----

CAMSHAFT JOURNAL DIAMETER—Standard

144 and 170	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 and 332	2.4738-2.4748
401, 477, and 534	2.474-2.475

*Nos. 2, 3, 4, and 5 journals only.

CAMSHAFT BEARINGS INSIDE DIAMETER—ASSEMBLED

144 and 170	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

144 and 170	0.115-0.125
223, 262, 292, 302, and 332	0.005-0.020
401, 477, and 534	0.310-0.330

FLYWHEEL ASSEMBLED FLYWHEEL CLUTCH FACE RUNOUT

All Engines	0.010
-------------------	-------

ASSEMBLED FLYWHEEL O. D. RUNOUT

144, 223, 262, and 292	0.007
Other Engines	0.006

CRANKSHAFT

MAIN BEARING JOURNAL DIAMETER—Standard

144 and 170	2.2482-2.2490
223 and 292	2.4980-2.4988
262	2.4976-2.4984
302 and 332	2.6230-2.6238
401, 477, and 534	3.1246-3.1254

CONNECTING ROD JOURNAL DIAMETER

144 and 170	2.1232-2.1240
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

MAIN BEARING JOURNAL RUNOUT

144 and 170 ..	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

CONNECTING ROD AND MAIN BEARING JOURNALS OUT-OF-ROUND

All Engines	0.0004
-------------------	--------

CONNECTING ROD AND MAIN BEARING JOURNALS TAPER

All Engines	0.0003
-------------------	--------

THRUST BEARING JOURNAL LENGTH

144 and 170	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

MAIN BEARING JOURNAL THRUST FACE RUNOUT

All Engines	0.001
-------------------	-------

CRANKSHAFT—

Continued

CRANKSHAFT FREE END PLAY

All Engines	0.004-0.008
Wear Limit	0.012

MAIN BEARINGS

JOURNAL CLEARANCE

144 and 170	0.0007-0.0025
223	0.0009-0.0033
262	0.0009-0.0034
292 MD	0.0006-0.0030
292 HD	0.0008-0.0032
302 and 332	0.0012-0.0032
401, 477, and 534	0.0018-0.0039

CONNECTING ROD

PISTON PIN BUSHING OR BORE I.D.—

Standard

144 and 170	0.9107-0.9112
401, 477, and 534	1.2201-1.2204
Other Engines	0.9122-0.9125

BEARING BORE DIAMETER

144 and 170	2.2390-2.2398
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

PISTON PIN BUSHING

OUT-OF-ROUND AND TAPER

144 and 170	0.0002
Other Engines	0.0004

CONNECTING ROD SIDE CLEARANCE—Assembled to

Crankshaft

144 and 170	0.004-0.008
Wear Limit	0.014
223 and 262	0.005-0.011
Wear Limit	0.014
292	0.006-0.016
Wear Limit	0.019
302 and 332	0.006-0.014
Wear Limit	0.019
401, 477, and 534	0.006-0.014
Wear Limit	0.017

BEARING BORE OUT-OF-ROUND AND TAPER

144 and 170	0.0002
Other Engines	0.0004

CONNECTING ROD LENGTH—

Center to Center

144	4.854-4.856
170	4.714-4.716
223	6.258-6.262
262	6.043-6.047
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

TWIST TOTAL DIFFERENCE—

Maximum*

All Engines	0.012
-------------	-------

CONNECTING ROD 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

BEARINGS

BEARINGS TO CRANKSHAFT CLEARANCE

144 and 170	0.0008-0.0023
223	0.0008-0.0028
262	0.0006-0.0025
292 MD	0.0005-0.0024
292 HD	0.0007-0.0025
302 and 332	0.0006-0.0027
401, 477, and 534	0.0017-0.0036

PISTON

PISTON DIAMETER

Standard—Color Coded Red

144 and 170	3.4976-3.4982
223 and 302	3.6236-3.6242
262	3.7152-3.7158
292	3.7486-3.7492
332	3.7986-3.7992
401	4.1233-4.1239
477 and 534	4.4983-4.4989

Standard—Color Coded Blue

144 and 170	3.4988-3.4994
223 and 302	3.6248-3.6254
262	3.7164-3.7170
292	3.7498-3.7504
332	3.7998-3.8004

PISTON—Continued

401.....	4.1245-4.1251
477 and 534	4.4995-4.5001

0.003 Oversize

144 and 170	3.5000-3.5006
223 and 302	3.6260-3.6266
262.....	3.7176-3.7182
292.....	3.7510-3.7516
332.....	3.8010-3.8016
401.....	4.1257-4.1263
477 and 534	4.5007-4.5013

PISTON TO BORE CLEARANCE**—Bottom of Skirt**

144 and 170	0.0018-0.0036
	Wear Limit 0.008
262	0.0014-0.0032
401, 477, and 534	0.0011-0.0029
	Wear Limit 0.008
All Other Engines	0.0008-0.0026
	Wear Limit 0.008

PISTON PIN DIAMETER**Standard**

401, 477, and 534	1.2198-1.2201
Other Engines	0.9120-0.9123

0.001 Oversize

401, 477, and 534	1.2208-1.2211
Other Engines (Except 144 and 170)	
	0.9130-0.9133

0.002 Oversize

401, 477, and 534	1.2218-1.2221
Other Engines (Except 144 and 170)	
	0.9140-0.9143

PISTON PIN LENGTH

144, 170, 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**

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**

401, 477, and 534	0.0001-0.0006
Other Engines (Except 144 and 170)	
	0.0001-0.0005
Wear Limit (all engines)	0.001

**PISTON RINGS
SIDE CLEARANCE****Compression Ring**

144, 170, 223, 262, and 292	0.0019-0.0036
	Wear Limit 0.006
302 and 332 Top Ring ..	0.0024-0.0041
Bottom Ring	0.003-0.005
	Wear Limit 0.006
401, 477, and 534 Top and Intermediate Rings ..	0.0029-0.0046
Bottom Ring	0.0025-0.0045
	Wear Limit 0.006

Oil Ring

144, 170, 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

RING WIDTH**Compression Ring****Top Ring**

144, 170, 262, and 292 ..	0.0774-0.0781
---------------------------	---------------

Bottom Ring

144 and 170	0.0770-0.0780
223 and 262	0.0929-0.0936
292	0.0774-0.0781

Other Engines

Top and Intermediate Rings	0.0929-0.0936
Bottom Ring	0.0930-0.0940

Oil Ring*

302, 332, 401, 477, and 534	0.1859-0.1866
--------------------------------------	---------------

*Width specified is for one ring. Two rings used per groove on 302 and 332.

RING GAP WIDTH**Compression Ring—Standard
Bore**

144 and 170	0.010-0.020
223, 262, and 292	0.010-0.025

PISTON RINGS

Continued

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 and 170	0.015-0.055*
223, 262, and 292	0.015-0.062*
302 and 332	0.010-0.028†
401, 477, and 534	0.013-0.033

*Steel rail.

†Top ring, 0.010-0.025 bottom ring.

CYLINDER BLOCK

CYLINDER BORE DIAMETER—

144 and 170	3.500-3.5024
223 and 302	3.6250-3.6274
262	3.7190-3.7214
292	3.7500-3.7524
332	3.8000-3.8024
401	4.1250-4.1274
477 and 534	4.5000-4.5024

CYLINDER BORE TAPER

All Engines . . 0.001-Wear Limit 0.005

CYLINDER BORE OUT-OF-ROUND—Maximum

144, 170, 223, 262, and 292	0.0010
	Wear Limit 0.003
Other Engines	0.0005
	Wear Limit 0.003

HEAD GASKET SURFACE FLATNESS

144, 170, 223, and 262	0.003 inch in any 6 inches or 0.007 inch overall
Other Engines	0.003 inch in any 6 inches or 0.006 inch overall

ROTOR-TYPE OIL PUMP

RELIEF VALVE SPRING

TENSION—Pounds at Specified Length

144 and 170	8.6-9.5 at 1.078
223 and 262	9.0-9.6 at 1.53
292, 302, and 332	8.7-9.9 at 1.71
401, 477, and 534	10.7-11.9 at 1.07

RELIEF VALVE CLEARANCE

All Engines . . . 0.0015-0.0029

DRIVE SHAFT TO HOUSING BEARING CLEARANCE

223 and 262	0.0025-0.0039
Other Engines	0.0015-0.0029

ROTOR ASSEMBLY END

CLEARANCE—Pump Assembled

All Engines . . . 0.0011-0.0041

OUTER RACE TO HOUSING RADIAL CLEARANCE

All Engines . . . 0.006-0.012

TORQUE LIMITS—Ft-Lbs

MAIN BEARING CAP BOLTS—

Oiled Threads

144 and 170	60-70
223 and 262	95-105
292	80-90
302 and 332	120-130
401, 477, and 534	150-165

CYLINDER HEAD BOLTS—

Oiled Threads

144, 170, and 292	65-75
223, 262, 302, and 332	105-115
401, 477, and 534	130-150

OIL PAN TO CYLINDER BLOCK

144 and 170	7-9
Other Engines	9-13

OIL FILTER ADAPTER TO CYLINDER BLOCK

401, 477, and 534	12-15
Other Engines	50-60

OIL FILTER CENTER BOLT

401, 477, and 534	45-50
Other Engines (Except 144 and 170)	20-25

OIL COOLER TO CYLINDER BLOCK

401, 477, and 534 . . . 20-25

CYLINDER FRONT COVER

144 and 170	7-9
223 and 262	6-9
292	12-15
302, 332, 401, 477, and 534	23-28

TORQUE LIMITS—Ft-Lbs— Continued

WATER OUTLET HOUSING

144, 170, and 292	12-15
Other Engines	23-28

VALVE ROCKER ARM COVER

144 and 170	3-5
292, 302, and 332	2.0-2.5
Other Engines	4-7

WATER PUMP TO CYLINDER BLOCK OR FRONT COVER

144, 170, and 292	12-15
Other Engines	23-28

OIL PICK-UP TUBE TO OIL PUMP

292, 302, and 332	10-12
Other Engines	12-15

OIL PICK-UP TUBE TO OIL PAN

292	28-32
302 and 332	10-12

CRANKCASE VENTILATION ADAPTER TO CYLINDER BLOCK

144 and 170	6-9
292	1-1.5

FUEL PUMP TO CYLINDER BLOCK OR CYLINDER FRONT COVER

144, 170, and 223	12-15
262 and 292	23-28

MANIFOLD TO CYLINDER HEAD Intake

All Engines	23-28
-------------------	-------

Exhaust

144 and 170	13-18
302 and 332	12-15
Other Engines	23-28

FLYWHEEL TO CRANKSHAFT

401, 477, and 534	100-110
Other Engines	75-85

OIL PUMP TO CYLINDER BLOCK

223	30-35
401, 477, and 501	23-28
Other Engines	12-15

OIL PUMP COVER PLATE

All Engines	6-9
-------------------	-----

VALVE ROCKER ARM SELF- LOCKING ADJUSTING SCREW

144, 170, 223, 262, 292, 302, and 332	3*
--	----

*Minimum torque to rotate.

VALVE ROCKER ARM ADJUSTING NUT

401, 477, and 534	30-35
-------------------------	-------

CAMSHAFT SPROCKET OR GEAR TO CAMSHAFT

144, 170, 223, 262, and 292	35-45
302, 332, 401, 477, and 534	20-24

DAMPER OR PULLEY TO CRANKSHAFT

144 and 170	45-55
223 and 292	70-90
262, 302, 332, 401, 477, and 534	140-150

CAMSHAFT THRUST PLATE TO BLOCK

All Engines	12-15
-------------------	-------

VALVE ROCKER SHAFT SUPPORT TO CYLINDER HEAD

144 and 170	30-35
223 and 262	50-60
292	12-15
302 and 332	22-25

VALVE PUSH ROD CHAMBER COVER

401, 477, and 534	5-8*
Other Engines	2.0-2.5

*8 on center end bolts; 5 on side bolts

ENGINE GOVERNOR TO CYLINDER BLOCK

401, 477, and 534	23-28
-------------------------	-------

CONNECTING ROD NUTS

144 and 170	19-24
401, 477, and 534	60-65
Other Engines	40-45

ENGINE FRONT SUPPORT Insulator Assembly to Engine Front Mount

144 and 170	18-24
223, 262, 292, 302, and 332	45-55

TORQUE LIMITS—Ft-Lbs— Continued

**Engine Front Mounting Bracket
to Engine Front Support**
401, 477, and 534.... 45-55 (1/2-20)

ENGINE REAR SUPPORT

Insulator to Rear Engine Mount

144 and 170..... 23-29
401, 477, and 534... 100-160 (5/8-18)
Other Engines..... 70-90 (9/16-18)

**Engine Rear Support to
Flywheel Housing**

401, 477, and 534... 85-105 (1/2-13)

2. IGNITION SYSTEM AND GOVERNORS

IGNITION TIMING

ENGINE	RECOMMENDED SETTING	
	Automatic Transmission	Manual- Shift
144 and 170.....	—	4°
223 Six.....	4°	4°
262 Six.....	—	2°
292 MD V-8.....	6°	6°
292, 302, and 332 HD V-8; 401, 477, and 534 SD V-8.....	8°	8°

COIL

ALL ENGINES

Primary Resistance

Ohms..... 1.40-1.54 (75°F.)

Secondary Resistance

Ohms..... 8000-8800 (75°F.)

Amperage Draw

Engine Stopped..... 4.5

Engine Idling..... 2.5

CONDENSER

ALL ENGINES

Capacity-Microfarads..... 0.21-0.25

Minimum Leakage-Megohms..... 5

Maximum Series Resistance-Ohms. 1

SPARK PLUGS

144 and 170..... (Autolite BF-82)

223 and 292 MD... (Autolite BTF-6)

All Other Engines... (Autolite BTF-31)

Size..... 18mm

Gap-144, 170, 223, and

292 MD..... 0.032-0.036

All Other Engines..... 0.028-0.032

Torque (Ft-Lbs)..... 15-20

GOVERNORS

VACUUM GOVERNOR

Throttle Actuating Mechanism

Spring Color

292 HD..... Violet

302 and 332 HD..... Blue

Spring Position..... No. 1

Upper Bypass Jet

292 HD, 302 HD, and 332 HD..... 26

Lower Bypass Jet

292 HD, 302 HD and 332 HD.... 25

Governed Speed-Engine rpm

LOAD NO LOAD

292 HD, 302, and 332

Manual-Shift

Transmission. 3400-3800 3600-4000

292 HD, 302, and 332

Automatic

Transmission... 3800 4000

MECHANICAL GOVERNOR

Spring Color

(Governor Spring)..... Pink*

Governed Speed-Engine rpm

NO LOAD

401..... 2500-3700

477..... 2500-3600

534..... 2500-3400

*If governed speeds below 3300 rpm are desired, governor spring color coded brown must be used.

DISTRIBUTOR—General
ALL SIX CYLINDER ENGINES

Breaker Arm Spring Tension—

Ounces 17-20

Contact Spacing 0.024-0.026

Dwell Angle at Idle Speed... 35°-38°

ALL V-8 ENGINES

Breaker Arm Spring Tension—

Ounces 17-20

Contact Spacing 0.014-0.016

Dwell Angle at Idle Speed 26°-28-1/2°

SHAFT END PLAY—**Distributor Removed**

144 and 170 0.022-0.033

223 and 262 0.005-0.008

All V-8 Engines 0.022-0.030

GEAR LOCATION144 and 170—Distance from bottom
of gear to bottom of mounting
rib 2.510-2.515223 and 262—Distance between base
and gear 0.005-0.008292—Distance from bottom of
mounting flange to bottom
of gear 4.991-4.996302 and 332—Distance from bottom
of mounting flange to bottom
of gear 4.927-4.953401, 477, and 534—Distance from
bottom of mounting flange to
bottom of gear 3.077-3.071**ADVANCE CHARACTERISTICS****NOTE:** The advance characteristics given apply to the distributor with the indicated number only. The distributor number is stamped on the distributor housing or on a plate attached to the distributor housing.**LOADOMATIC DISTRIBUTORS****144 Six (C3UF-12127-E)** Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
500	0.30	1-2
800	0.80	4-3/4-5-3/4
1200	1.80	8-9
1600	3.00	10-11
2000	3.90	11-21-1/4
Advance Limit	10.00	13-1/2

170 Six (C3UF-12127-D) Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
600	0.45	1/4-1-1/4
800	0.75	3-1/2-4-1/2
1200	1.75	7-8
1600	2.90	9-3/4-10-3/4
2000	3.70	11-12-1/4
Advance Limit	10.00	15

223 Six (C3TF-12127-D) Set test stand to: 250 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
500	0.30	1-2-1/4
600	0.45	3-1/2-4-1/2
1200	1.75	7-1/2-8-1/2
1600	3.10	9-10-1/4
2000	4.20	10-11-1/4
Advance Limit	8.00	14-3/4

IGNITION SYSTEM AND GOVERNORS 1-15

262Six (C2TF-12127-A) Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
400	0.42	0- 1-1/4
800	1.03	5- 6
1000	1.62	7-3/4- 8-3/4
1200	2.32	8-1/2- 9-1/2
2000	5.65	8-1/2- 9-1/2
1600	7.30	10-3/4-12-1/4
Advance Limit	10.00	13

DUAL ADVANCE DISTRIBUTORS

292 MD V-8 (C3TF-12127-A)

VACUUM ADVANCE. Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
1000	6	0- 1
1000	9	1- 4
1000	12	3-1/2- 6-1/2
Advance Limit		20

CENTRIFUGAL ADVANCE. Set test stand to: 250 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
500	0	1- 2
700	0	5- 6
1000	0	8- 9-1/4
1500	0	11-12-1/4
2000	0	13-3/4-15-1/4
Advance Limit	Not Applicable	

302 and 332 HD V-8 (C2TF-12102-D) with Governor

VACUUM ADVANCE. Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
1000	7-1/2	1- 4-1/4
1000	11	5- 7-3/4
1000	14	5-1/2- 8-1/2
Advance Limit	20	8-1/2

CENTRIFUGAL ADVANCE. Set test stand to: 250 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
325	0	0
425	0	3/4- 1-3/4
600	0	6- 7
800	0	8- 9
2000	0	10-3/4-12-1/4

Standard Transmission Governor at Distributor rpm

Opens at 1800
Closes at 1900

Automatic Transmission Governor

Opens at 1900
Closes at 2000

DUAL ADVANCE DISTRIBUTORS —Continued**401, 477, and 534 SD V-8 (COTF-12127-C—Standard and C3TF-12127-H—Transistorized)****VACUUM ADVANCE.** Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
1000	5-1/2	0- 2-1/2
1000	9	5- 7-3/4
1000	10	5-1/2- 8-1/2
Advance Limit	20	8-1/2

CENTRIFUGAL ADVANCE. Set test stand to: 250 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum-Inches of Mercury	Advance- Degrees
350	0	0
500	0	1-1/4- 2-1/4
1100	0	10-1/4-11-3/4
1400	0	12-1/4-14-1/4
Advance Limit	2500	14-1/4

CENTRIFUGAL ADVANCE DISTRIBUTOR WITH GOVERNOR**292 HD V-8 (COTF-12102-C)**

Set test stand to: 250 rpm, 0°, 0 inches of Mercury.

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
Advance Limit	18

Engine Governor at Distributor rpm.

Opens	1800
Closes	1900

3. FUEL SYSTEM**FUEL PUMPS****MECHANICAL FUEL PUMP****Fuel Pump Pressure—****psi at 500 rpm**

144, 170, 223, 262, and 292 MD 3.3-5.5

292 HD..... 3.5-6.5

302 and 332 HD..... 3.5-7.0

Minimum Fuel Pump Volume—**Flow at 500 rpm**

All Engines... 1 Pint within 30 seconds

Minimum Intake Static**Vacuum at 500 rpm**

All Engines..... 6.0

ELECTRIC FUEL PUMP**Fuel Pump Minimum Volume—****at 11.8—12.3 volts at 2 psi****ENGINE 1 QUART FLOW**

401 SD V-8..... Within 36 seconds

477 SD V-8..... Within 33 seconds

534 SD V-8..... Within 30 seconds

CARBURETORS**SINGLE-BARREL****Identification**

Part No., Prefix and Suffix, appear on upper edge of main body above mounting stud hole (accelerator pumside).

C3UF-9510-A-144 and Manual-Shift Transmission.

C3UF-9510-B-170 and Manual-Shift Transmission.

C3TF-9510-C-Parcel Delivery with 223 and Manual-Shift Transmission.

C3TF-9510-D-Parcel Delivery with 223 and Automatic Transmission.

C3TF-9510-A-223 and Manual-Shift Transmission.

C3TF-9510-B-223 and Automatic Transmission.

C3TF-9510-E-262 and Manual-Shift Transmission.

Main Metering Jet Ident. No.

0-5,000 feet	
C3UF-9510-A.....	52F
C3UF-9510-B.....	57F
C3TF-9510-E.....	69F
C3TF-9510-A, B, C, and-D.....	65F
5,000-10,000 feet	
C3UF-9510-A.....	50F
C3UF-9510-B.....	55F
C3TF-9510-E.....	67F
C3TF-9510-A, B, C, and-D.....	63F
10,000-15,000 feet	
C3UF-9510-A.....	48F
C3UF-9510-B.....	53F
C3TF-9510-E.....	65
C3TF-9510-A, B, C, and-D.....	61

Float Setting—Dry

From bottom of float to airhorn, with airhorn inverted $\pm 1/64$ inch.

All Carburetors.....1 inch.

Venturi Size

C3TF-9510-A, B, C, D, and-E	1-13/64
C3UF-9510-A.....	1-1/64
C3UF-9510-B.....	1-7/64

Spark Control Valve Ident. No.

C3UF-9510-A and-B.....	Red
All others.....	Plain

Anti-Stall Dashpot Clearance

C3TF-9510-D-1-1/2-2 turns out, with diaphragm bottomed.

Initial Idle Mixture Adjustment

144, 170.....	3-4 turns open
223, 262.....	4-5 turns open

Power Valve Opens at—inches of mercury

All C3TF-9510-E.....	5.5-7.5
C3UF-9510-A, and-B, and C3TF-9510-C and-D.....	6-8

DUAL Identification

Part No. appears on choke plate flange.

C3TF-9510-H-292 LD and manual-shift transmission.

C3TF-9510-J-292 LD and automatic transmission.

C3TE-9510-K-292 MD with manual-shift or automatic transmission.

C3TE-9510-E-302 HD

C3TE-9510-B-332 HD

C3TE-9510-G-401 SD

C3TE-9510-D-477 SD

Main Metering Jet Ident. No.

0-5,000 feet	
C3TE-9510-K,	

C3TF-9510-H, and-J.....	48
C3TE-9510-B.....	62
C3TE-9510-D, and-E.....	58
C3TE-9510-G.....	57
5,000-10,000 feet	
C3TE-9510-K,	
C3TF-9510-H, and-J.....	46
C3TE-9510-B.....	60
C3TE-9510-D, and-E.....	56
C3TE-9510-G.....	55
10,000-15,000 feet	
C3TE-9510-K,	
C3TF-9510-H, and-J.....	44
C3TE-9510-B.....	58
C3TE-9510-D, and-E.....	54
C3TE-9510-G.....	53

Power Valve Ident. No., or color

ALL ALTITUDES

C3TE-9510-E.....	45
C3TE-9510-K,	

C3TF-9510-H, and-J.....Green

C3TE-9510-G.....35

C3TE-9510-B and-D.....55

POWER VALVE OPENS AT

C3TE-9510-B.....6.5-9.5 inches of mercury

C3TE-9510-K, C3TF-9510-H, and-J.....7-10 inches of mercury

C3TE-9510-E.....2-5 inches of mercury

C3TE-9510-G.....4-7 inches of mercury

C3TE-9510-D.....5.5-8.5 inches of mercury

Dry Float Setting—

Initial Setting Only

Top of float parallel with top of fuel bowl, bowl inverted (except 292).

292 Engines—21/32" from top surface of main body to top surface of float, with float in uppermost position.

Fast (Cold) Idle Adjustment

0.010-0.015 inch clearance between fast idle screw and fast idle cam.

Fuel Level Setting

Lower edge of sight plug opening $\pm 1/16$ inch (except 292).

292 Engines—29/32" below top surface of main body.

CARBURETORS— Continued

Venturi Size

C3TE-9510-K, C3TF-9510-H, and -J	1-1/32 inches
C3TE-9510-B, -D, -E, and -G	1-3/16 inches

Anti-Stall Dashpot Clearance

	0.060-0.090
--	-------------

Governor By-Pass Jet No.

C3TE-9510-B and -E	Upper 29
	Lower 59

Initial Idle Mixture Adjustment

	1-1-1/2 turns open
--	--------------------

4-BARREL

Identification

Part No. appears on choke plate flange.

C3TE-9510-F-292 HD and Manual-Shift transmission or Automatic transmission.

C3TE-9510-K-302 HD V-8
C3TE-9510-L-332 HD V-8
C3TE-9510-H-401 SD V-8
C3TE-9510-C-477 SD V-8
C3TE-9510-D-534 SD V-8

Main Metering Jet Identification No.

PRIMARY

0-5,000 feet	
C3TE-9510-F	52
C3TE-9510-K and -L	52
C3TE-9510-H and -D	49
C3TE-9510-C	50

5,000-10,000 feet

C3TE-9510-F, -K, and -L	50
C3TE-9510-C	49
C3TE-9510-H, and -D	48

10,000-15,000 feet

C3TE-9510-C, -F, -K, and -L	48
C3TE-9510-H, and -D	47

SECONDARY

0-5000 feet	
C3TE-9510-F	58
C3TE-9510-D	62
C3TE-9510-H, -C, and -L	65
5,000-10,000 feet	

C3TE-9510-F	56
C3TE-9510-D	60
C3TE-9510-H, -C, and -L	63
10,000-15,000 feet	
C3TE-9510-F	54
C3TE-9510-D	58
C3TE-9510-H, -C, and -L	61

Power Valve Identification No.

All Altitudes

C3TE-9510-D, and -F	45
C3TE-9510-C, and -H	35
C3TE-9510-K	25
C3TE-9510-L	
0-5,000 feet	65
5,000-15,000 feet	40

POWER VALVE OPENS AT

C3TE-9510-D	2.5-5.5 inches of mercury
C3TE-9510-F	3.5-7.5 inches of mercury
C3TE-9510-C and -H	3-6 inches of mercury
C3TE-9510-K	2-5 inches of mercury
C3TE-9510-L	5-1/2-8-1/2 inches of mercury

Depopper Valve Identification No.

All carburetors	215
-----------------	-----

Dry Float Initial Setting

PRIMARY AND SECONDARY

Top of float to be parallel with top of fuel bowl, bowl inverted.

Fuel Level Setting

PRIMARY AND SECONDARY

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

Venturi Size

Primary and Secondary 1-1/16 inches

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.

Governor Bypass Jet No.

C3TE-9510-F, -K, and -L	
Upper	26
Lower	25

4. COOLING SYSTEM

WATER PUMP, DRIVE BELTS AND THERMOSTATS DRIVE BELT ARRANGEMENT

Econoline

144 and 170—Single belt drives water pump, fan and generator.

F- and T-Series

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

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.

DRIVE BELT TENSION

Measured with snap-on type gauge (tool T63L-8620-A) except on high mounted fan belts.

Fan and Crankshaft Pulley

HIGH MOUNTED FAN

302 and 332 1/2 inch deflection

Crankshaft and Power Steering Pump Pulley

All Engines New 120-150 lbs.
Used *90-120 lbs.

Generator and Pump Pulley

All Engines, Except SD

..... New 90-120 lbs.
Used *60-90 lbs.

Dual Belt

Front New 90-120 lbs.

Rear New 85-135 lbs.

Front Used *60-90 lbs.

Rear Used *55-100 lbs.

Crankshaft and Air Compressor

All Engines New 120-150 lbs.
Used *90-120 lbs.

Alternator and Water Pump

401, 477, and 534 (Dual Belt)

Front New 120-150 lbs.

Rear New 115-165 lbs.

Front Used *90-120 lbs.

Rear Used *85-130 lbs.

*Belt operated for a minimum of 10 minutes is considered a used belt.

THERMOSTAT

Front—Low Temperature

Thermostat

OPENS °F.

144, 170, 223, 262, and 292

..... 155-162—Fully Open 182

302, 332, 401, 477, and 534

..... 157-162—Fully Open 182

Front—High Temperature

Thermostat

OPENS °F.

144 and 170 185-192

..... Fully Open 210-212

223, 262, and 292 174-181

..... Fully Open 201

302, 332, 401, 477, and 534 177-182

..... Fully Open 202

Rear Thermostat

OPENS °F.

SD V-8 Engines 142-147

..... Fully Open 160

5. CLUTCHES

ADJUSTMENTS

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 5/32-1/4

Final Pedal Free Travel—

All except C-Series 2

C-Series 1-1/2

Total Pedal Travel . . . 8-1/16 x 8-1/4

Clutch Housing Alignment (Maximum
Deviation from Plane) 0.007

Bore Alignment 0.010

Maximum Shim to Correct
Alignment 0.010

TORQUE LIMITS—Ft-Lbs

Pressure Plate to	
Flywheel Bolt	20-25 (5/16-18)
	25-30 (3/8-16)

Clutch Housing to Engine

Block Bolt	40-45 (7/16-14)
Clutch Slave Cylinder to Clutch	
Housing Bolt	30-38 (7/16-14)

6. MANUAL-SHIFT TRANSMISSIONS**TORQUE LIMITS—Ft-Lbs**

Reverse Lockout Plunger Retainer	
Bolt	80-100 (11/16-16)
Flywheel Housing to Engine Block	
Bolt	40-50 (7/16-14)
Insulator to Trans. Assy. Front & Rear Bolt & Nut (Aux. Trans. only)	
	195-235 (3/4-16)
Output Shaft Bearing Retainer to Trans. Case Bolt . . .	20-25 (3/8-16)
	30-38 (7/16-14)
	50-62 (1/2-13)
	96-120 (5/8-11)
Gear Shift Lever Tower to Gearshift Housing Bolt	20-25 (3/8-16)
	30-35 (7/16-14)
Clutch Housing to Trans. Case Bolt	30-38 (7/16-14)
	96-120 (5/8-11)
	70-90 (9/16-12)
Clutch Housing to Trans. Case Nut	35-45 (7/16-20)
	115-140 (5/8-18)
	81-102 (9/16-18)
Rear Mounting Bracket to Aux. Trans. Bolt	40-45 (7/16-14)
Rear Support Plate to Trans. Aux. Case Nut	115-140 (5/8-18)
Brake Support Plate to Transmission Support Plate Bolt & Nut	58-72 (1/2-20)
U-Joint Flange to Transmission Output Shaft Nut . . .	90-125 (1.00-20)
	275-350 (1-1/2-18)
	225-275 (1-1/4-18)
Input Shaft Yoke to Aux. Trans. Nut	275-350 (1-1/4-18)
Bracket (Aux.) Trans. Control to No. 3 Crossmember Bolt & Nut	24-30 (3/8-24)
Support Trans. (Rear) to Frame Side rails Bolt or Nut (8-Speed Transmission only) . . .	40-55 (7/16-20)
Insulator to Trans. Rear Support Stud	

& Nut (8-Speed Trans. only)

	90-110 (3/4-16)
Trans. Rear Mount Plate to Insulator Stud & Trans. Support Nut (8-Speed Trans. only)	195-235 (3/4-16)
Parking Brake to Transmission Bearing Retainer Bolt	180-220 (5/8-18)
	50-70 (7/16-20)
	24-30 (3/8-24)
	45-55 (1/2-20)
Drum Parking Brake to Companion Flange Nut	35-45 (3/8-24)
	50-70 (7/16-20)
	75-80 (1/2-20)
Bellcrank to Transmission Nut	70-90 (9/16-18)
Lever Assy. to Transmission Bolt	20-25 (3/8-16)
Support to Transmission Bolt	20-25 (3/8-16)
Bellcrank Mounting Bracket to Crossmember Bolt & Nut	20-25 (3/8-16)
	24-30 (3/8-24)
Bellcrank to Mounting Bracket Bolt & Nut	100-120 (9/16-18)
Handbrake Anchor Bar to Trans. Case Nut (except 5-Speed Extra-Heavy Duty)	100-110 (9/16-18)
Handbrake Anchor Bar to Trans. Case Nut (5-Speed Extra-Heavy Duty only)	120-130 (9/16-18)
Bellcrank to Trans. Bolt	20-25 (3/8-16)
Reverse Lockout Plunger Retainer Bolt	80-100 (11/16-16)
Countershaft Rear Bearing Retainer Bolt	25-30 (5/16-18)
	35-40 (3/8-16)
	45-55 (7/16-14)
	60-70 (1/2-13)
Converter Housing to Flywheel Housing Bolt	20-25 (3/8-16)
Flywheel Housing to Engine Block Bolt	40-50 (7/16-14)
Rear Cross Shaft Housing to Adapter or Trans. Assy. Bolt	30-38 (7/16-14)

TORQUE LIMITS—Ft-Lbs— Continued

Front Shift Control Rod to U-Joint Lock Nut	160-180 (3/4-16)
Countershaft and Reverse Idler Shaft Retainer Bolt	25-30 (5/16-18)
	25-37 (3/8-16)
	18-25 (3/8-16)†
	40-45 (7/16-14)
	80-85 (1/2-13)**
Gear Shift Housing to Transmission Case Bolt	20-25 (5/16-18)
	35-40 (3/8-16)
	30-35 (3/8-16)††
	45-50 (7/16-14)
Power Take Off Cover to Trans. Case Bolt	20-30 (3/8-16)
Input Shaft Bearing Retainer to Transmission Case Bolt	25-30 (5/16-18)
	25-30 (3/8-16)
	40-45 (7/16-14)
Countershaft Front Bearing Retainer Bolt	25-30 (5/16-18)
	25-35 (3/8-16)
	50-55 (7/16-14)
Aux. Transmission Case to Transmission Case Nut or Bolt	110-115 (1/2-20)
Countershaft Bearing Lock Nut (8-Speed)	225-275 (1-1/4-18)
Countershaft Bearing Lock Nut (5-Speed Extra H.D. & 5-Speed Exclusive)	350-450 (1-1/4-18)
Countershaft Bearing Lock Nut (5-Speed Exclusive H.D.)	350-450 (1-1/2-18)
Auxiliary Countershaft Bearing Lock Nut (8-Speed)	250-300 (1-1/2-18)
Main Shaft Bearing Lock Nut (8-Speed)	300-350 (2-1/2-16)
Input Shaft Bearing Lock Nut (8-Speed)	250-300 (2-1/8-16)

Gear Shifter Rod Gate Bolt (8-Speed)	50-60 (7/16-20)
Reverse Shift Lever Pivot Pin Nut (8-Speed)	100-115 (1/2-20)
Aux. Trans. Shift Bar Position Finder Screw (8-Speed) ..	25-30 (9/16-18)

†5-Speed Medium Duty only.

**Torque for 5-Speed Heavy Duty Exclusive is 65-75.

††3-Speed Heavy Duty and 4-Speed only.

TRANSFER CASE—4-Wheel Drive Trucks

Transfer Case to Support Stud	96-120 (5/8-11)
Stud Transfer Case to Support Nut	70-90 (5/8-18)
Transfer Case Control Lever Bracket to Trans. Bolt	20-25 (5/16-18)
	30-35 (3/8-16)

MANUAL-SHIFT TRANSMISSION CONTROLS

Transfer Case Control Lever Pivot Bolt to Control Lever Bracket	45-55 (1/2-20)*
Transfer Case Mtg. Bracket to No. 3 C/M	25-35 (3/8-24)*
Transfer Case Control Lever Bracket to Trans. Bolt	20-25 (5/16-18)*
	30-35 (3/8-16)*
Rear Cross Shaft Housing to Adapter or Trans. Assembly Bolt	30-38 (7/16-14)†
Aux. Trans. Insulator Frame Brackets to Trans. Assy. Bolt & Nut	90-110 (3/4-16)

*4-Wheel Drive Truck

†C-Series Truck

7. AUTOMATIC TRANSMISSIONS

HD CRUISE-O-MATIC

CHECKS AND ADJUSTMENTS

Transmission End Play	0.010-0.029 (Plus end play between output shaft ball bearing and retainer—not to exceed a total of 0.044).
-----------------------------	--

Turbine and Stator End Play—Maximum (V-8 engines)	0.060
---	-------

HD CRUISE-O-MATIC—Continued

Stator One-Way Clutch

(V-8 engines) Lockup at 10 ft-lbs torque.

Front Band Adjustment Torque to 10 in-lbs, and back off screw one full turn.

Rear Band Adjustment Torque to 10 ft-lbs, and back off screw 1-1/2 turns.

Primary Sun Gear Shaft Ring End Gap 0.002-0.009

Accelerator Pedal Height Adjustment..... **223 P-Series**—1-7/8 from bottom of crossover shaft bracket on intake manifold to intersecting point of centerlines of crossover shaft and accelerator pedal.**292 P-Series**—9/16 above horizontal plane measured at attaching point of pedal rod and crossover shaft.**223, 292—F-100, 250, and 350**—4-5/16 from floor pan to pedal rod and crossover shaft connecting point.**FLUID PRESSURE RANGES**

Engine Speed	Selector Lever Position	Gauge Reading (psi)
Idle	All	57-69
1000	DR, D1, or D2	80-85
Stall	Dr, Lo, D1 or D2	153-170
Stall	Lo or R	203-214

GEAR RATIOS

Gear	Selector Lever Position	Gear Ratio
Neutral	N	—
Second	Dr, D1 or D2	1.48:1
Third	Dr, D1 or D2	1.00:1
First	D1 or Lo	2.40:1
Reverse	R	2.00:1

STALL SPEEDS—rpm

223 Six 1400-1600

292 V-8 1500-1700

TORQUE LIMITS—Ft-Lbs

Converter Cover to Converter Impeller Bolts (6 Cyl.) 15-28

Converter Impeller Hub to Converter Impeller Housing Bolts..... 8-10

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 Lock Nut 35-40

Front Band Adjusting Screw Lock Nut	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*
Converter Housing to Transmission Case Bolts	35-45
Front Pump to Transmission Case Bolts	17-22
Front Servo to Transmission Case Bolts	30-35
Rear Servo to Transmission Case Bolts	40-50
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
Case Assembly-Oil Cooler Inlet & Outlet Pipe Plugs	10-15
Front Servo 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*
*In-Lbs	

TRANSMATIC DRIVE

GENERAL

Dry Weight (including parking brake)	510 lbs.
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

STALL SPEED LIMITS—rpm

Converter Operation	
302 HD V-8	2150-2350
332 HD V-8	2250-2450

Hydraulic Retarder Operation

302 HD V-8	2900*
332 HD V-8	3000*
*Maximum	

TORQUE LIMITS—Ft-Lbs

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 to Case Mounting Bolts	42-50
Dust Shield to Flywheel Housing	6-9

TRANSMATIC DRIVE— Continued

Converter Pump Cover Nuts . . .	19-23	Converter Pressure Regulator Valve Retainer Screws	24-36*
Hydraulic Retarder Control Valve Body Bolts	15-18	Downshift Timing Valve Cover Screws	24-36*
Oil Transfer Plate Bolts	8-10	Main Control Valve Body Cover Screws	24-36*
Downshift Timing Valve Body Bolts	8-10	Exhaust Regulator Valve Body Cover Screws	24-36*
Control Valve Body Bolts	4- 6	Power Take-Off Cover Bolts. . .	15-20
Oil Pan Bolts	8-10	Support Transmission (Rear) to Frame Siderails Bolt or Nut .	40-45
Oil Filter Cover Nut	8-10	Support To Transmission Rear Insulators Bolt or Nut	(1/2-20) 40-60 (1/2-13) 50-70
Converter Pump Hub Bolts . . .	9-11	Converter Housing to Flywheel Housing	23-28
Converter Stator Support Sleeve Bolts	17-20	Converter to Flywheel	43-47
Front Oil Pump Bolts	15-18		*In-Lbs
Front Pitot Tube Screws	30-48*		
Rear Oil Pump Bolts	15-18		
Converter Lube Supply Cover Screws	24-36*		

WEAR LIMITS

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

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

Rear Sub-Assemblies

Intermediate, Low, and Reverse Clutch Plates (Minimum thickness)	0.286
Intermediate Clutch Apply Plates (Maximum coning)	0.008
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 DRIVE—Continued**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)	
		Heavy Duty	
		Closed Throttle	Full Throttle
All Positions	1200	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

TRANSMATIC DRIVE—Continued**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)
3-6	Third	Lockup, Low-Splitter, Intermediate-Range	2700	Maximum*	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

8. REAR AXLES

GENERAL

AXLE SHAFT FLANGE STUD NUT TORQUE LIMITS

Thread	
Size	Ft-Lbs
7/16-20.....	50-70
1/2-20.....	80-100
3/4-16.....	200-250

ECONOLINE AXLE RATIOS AND GEAR IDENTIFICATION

Ratio	Driven	
	Gear	Pinion
3.50:1.....	35*	10*
4.00:1.....	36*	9*

*No. of teeth.

TORQUE LIMITS—Ft-Lbs

Rear Cover Bolts.....	15-25
Differential Bearing	
Cap Screws.....	40-50
Differential Bearing Adjusting	
Nut Lock Bolts.....	12-20
Ring Gear Attaching	
Cap Screws.....	40-50
Universal Joint Flange Axle	
End to Universal Joint Bearing	
Assembly Nuts.....	10-14
Rear Axle Shaft Bearing Retaining	
Nuts.....	30-35
Minimum Torque Pinion	
Bearing Preload.....	140
Pinion Bearing Preload	
New Bearings.....	17-27*
Used Bearings.....	10-16*
Differential Bearing	
Preload.....	2-1/2-3 notches tight

*In-Lbs.

FORD AXLE—F-100 RATIOS AND GEAR IDENTIFICATION

Ratio	Driven	
	Gear	Pinion
3.70 to 1.....	37*	10*
3.89 to 1.....	35*	9*
4.11 to 1.....	37*	9*

*No. of teeth.

ADJUSTMENTS

Backlash Between Driven	
Gear and Pinion.....	0.004-0.009
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

TORQUE LIMITS—Ft-Lbs

Differential Bearing Cap Screws	70-80
Differential Bearing Adjusting	
Nut Lock Bolts.....	15-20
Carrier to Housing Stud Nuts..	30-40
Pinion Retainer to Carrier	
Cap Screws.....	30-40
Drive Gear Attaching Bolts....	65-75
Rear Axle Shaft Bearing	
Retainer Bolts.....	30-35
Minimum Torque Pinion	
Bearing Preload.....	175
Pinion Bearing Preload	
New Bearings.....	17-27*
Pinion Bearing Preload	
Used Bearings.....	8-12*
Differential Bearing	
Preload.....	2-1/2-3 notches tight

*In-Lbs.

SPICER AXLE—F-100, F-250 and P-350

ADJUSTMENTS

Backlash Between Drive Gear	
and Pinion.....	0.008-0.013
Backlash Maximum Variation	
Between Teeth.....	0.002
Maximum Runout at Backface of	
Gear (Assembled).....	0.003
Pinion Bearing Preload.....	10-30*

*In-Lbs.

TORQUE LIMITS—Ft-Lbs

	Axle Model	
	44 & 44-4F	60
Pinion Shaft		
Nut.....	200-220	200-220
Differential Bearing		
Cap Bolts..	70-90	70-90

SPICER AXLE—F-100, F-250, and P-350— Continued

Drive Gear Attaching		
Bolts	35-55	70-90
Cover to Housing		
Bolts	15-25	15-25

TIMKEN AND EATON AXLES DRIVE GEAR ATTACHING BOLT TORQUE LIMITS

Thread		
Size		Ft-Lbs
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

TANDEM SUSPENSION TORQUE LIMITS—Ft-Lbs Eaton Models 22M, 28M, 32M and 38D

Spring Aligning Set Screws..	100-150
Plate to Support Beam Saddle	
Bolts	100-150
Support Beam Saddle Cap	
Stud Nut.....	150-200
Support Beam Shaft Nuts...	350-400
Torque Arm Bracket to Frame	
Cross Member Bolts	65-75
Torque Arm Stud Nut.....	200-450*
Axle Shaft Flange	
Stud Nuts	(7/16-20) 50-70
	(1/2-20) 80-100
	(3/4-16) 200-250

*Truck Model T-700, 175-225 Ft-Lbs

TANDEM FORWARD AXLE TORQUE LIMITS—Ft-Lbs Eaton Models 32MF, 30DS*, 30DP, 34DS*, 34DP**, 38DS* and 38DP****

Input Shaft Nut (Outer)	175-200
Input Shaft Nut (Inner)	
Model 32MF Only.....	325-450
Power Divider Differential	
Case Bolts.....	50-70
Drive Pinion Nut	
Model 32MF.....	600-800
Other Models	500-700
Output Shaft Nut (Outer) ...	175-200

Output Shaft Nut (Inner)	
Model 32MF Only.....	325-450
Power Divider Cover to Power	
Divider Case Bolts	
Model 32MF Only.....	80-100
Power Divider Cover to Carrier	
All Models (Except 32MF)...	100-125
Bearing Covers to Power Divider	
Case and Cover Bolts.....	80-100
Power Divider Case to Carrier Bolts	
Model 32MF Only.....	80-100
Carrier to Housing Bolts or Nuts	
Model 32MF.....	150-175
Models 30DS and 30DP...	80-100
Models 34DS, 34DP, 38DS	
and 38DP	160-185
Differential Bearing Cap Bolts	
Models 32MF, 30DS	
and 30DP	175-200
Models 34DS, 34DP, 38DS	
and 38DP	225-250
Lockout Shift Bracket to Power	
Divider Bolts	
Model 32MF Only.....	50-70
Pinion Inner Bearing Sleeve	
Set Screw	
Model 32MF Only.....	80-100
Differential Case Bolts or Capscrews	
Model 30DP	50-70
Other Models	80-100
Pinion Bearing Cage to Power	
Divider	
Model 32MF Only.....	100-125
Pinion Bearing Cage to Carrier	
All Models (Except 32MF)...	100-125
Gear Support Case	
Model 30DP	80-100
Models 34DP and 38DP...	125-150
Inspection Cover to Housing	
Models 30DS and 30DP...	35-50
Models 34DS, 34DP, 38DS	
and 38DP	50-70
Differential Bearing Adjuster Lock	
Models 30DS and 30DP...	100-125
Models 34DS, 34DP, 38DS	
and 38DP	150-175
Oil Collector Drum to Differential	
Models 34DS and 38DS...	35-50
Lockout Shift Lever Bracket to	
Carrier Cover	
All Models (Except 32MF)...	35-50
*DS—Single Reduction	
**DP—Double Reduction	

TIMKEN AND EATON AXLES—Continued
BEARING PRELOAD—Timken

Axle Model			Pinion Shaft Nut—Thread Size and Torque Limits (Ft-Lbs)	Press Ram Pressure for Preload Check (Tons)	Pinion and Cross Shaft Bearing Preload (In-Lbs)	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, D-100-N, F-104-N, F-106, & H-140	1-20 300-400	6	5-15	0.006-0.012	2
		R-141-P	1-1/2-18 800-1100	14	5-15	0.006-0.012	2
	Single-Speed Double Reduction	R-202, RT-241-P, U-200, & 241	1-1/2-18 800-1100	14	5-15	0.020-0.026	1-3/4-2-1/2
		QT-241-P	1-1/4-18 700-900	11			
	2-Speed Double Reduction	QT-341-P	1-1/4-18 700-900	11	5-15	0.020-0.026	2
		R-302-P, RT-341-P, & U-300	1-1/2-18 800-1100	14			
	Tandem	LHD	1-1/4-18 700-900	11	5-15	0.006-0.012	2
		QHD	1-1/2-18 800-1100	14			

TIMKEN AND EATON AXLES—Continued
BEARING PRELOAD—Eaton

Axle Model			Pinion Shaft Nut—Thread Size and Torque Limits (Ft-Lbs)	Press Ram Pressure for Preload Check (Tons)	Pinion and Cross Shaft Bearing Preload (In-Lbs)	Backlash Limits (Inches)	Differential Bearing Preload Adjusting Nut Notches Tighter from Zero End Play
E A T O N	Single-Speed	1614, 1615, 1618 or 1619 1790-A or 1791-A 1892 or 1893 1911	1-1/8-18 325-450 1-1/4-12 325-450 1-1/4-12 400-600 1-1/4-12 400-600	15	15-35	0.006-0.016	2
	2-Speed	1350 13800 16802-3 17800-1 18802-3 19503	1-20 225-350 1-20 225-350 1-1/8-18 325-450 1-1/4-12 400-600 1-1/4-12 400-600 1-1/4-12 400-600	15	15-35	0.006-0.016	2
	Tandem	22M (Forward) 22M (Rearward) 28M (Forward) 28M (Rearward) 32M (Forward) 32M (Rearward) 38D (Forward) 38D (Rearward)	1-1/4-18 400-600 1-1/8-18 325-450 1-1/4-18 400-600 1-1/8-18 325-450 1-3/4-12 600-800 1-1/4-12 400-600 1-1/4-12 400-600 1-1/4-12 400-600	15	15-35	0.006-0.016	2

TIMKEN AND EATON AXLES—Continued

TIMKEN AND EATON SINGLE-SPEED SINGLE REDUCTION REAR AXLE TORQUE LIMITS—Ft-Lbs

		Pinion Shaft Nut	Pinion Bearing Retainer	Carrier to Axle Housing	Differential Case	Rear Cover	Differential Bearing Cap
TIMKEN	C-100-N	300-400	23-31	53-69	80-105	—	110-145
	D-100-N, F-104, F-106 & H-140	300-400	53-69	53-69	80-105	—	110-145
	B-140-N	200-275	—	54-58	34-37	—	92-101
	R-141-P	800-1100	82-91	160-180	185-205	—	470-520
EATON	1614, 1615, 1618 or 1619	325-450	100-125	80-100	80-100	35-50	175-200
	1790-A or 1791-A	400-600	100-125	150-175	80-100	35-40	(LH) 175-200 (RH) 150-175
	1892 or 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
	22MR (Rearward)	325-450	100-125	50-70	80-100	—	150-175
	28MR (Rearward)	325-450	100-125	80-100	80-100	—	150-175
	32MR (Rearward)	325-450	100-125	150-175	80-100	—	(LH) 150-175 (RH) 175-200
	30RS (Rearward)	325-450	100-125	80-100	80-100	—	175-200
	34RS (Rearward)	400-600	100-125	160-185	80-100	—	(LH) 195-200 (RH) 150-175
	38RS (Rearward)	400-600	100-125	160-185	80-100	—	(LH) 175-200 (RH) 150-175

TIMKEN AND EATON AXLES—Continued**EATON TWO-SPEED AND DOUBLE REDUCTION REAR AXLE TORQUE LIMITS—Ft-Lbs**

	1350, 13800, and 13802	9503, 17800, 17801, and 19503	16802-3	18802-3	30RP (Rearward)	34RP and 38RP (Rearward)
Pinion Shaft Nut	225-350	400-600	325-450	400-600	325-450	400-600
Pinion Bearing Retainer to Carrier Housing	100-125	100-125	100-125	100-125	100-125	100-125
Carrier to Axle Housing	50-70	150-175	80-100	160-185	80-100	160-185
Gear Support Case	50-70	125-150	80-100	125-150	80-100	125-150
Differential Case	50-70	80-100	50-70	80-100	50-70	80-100
Inspection Cover to Housing	35-50	35-50	35-50	35-50	—	—
Differential Bearing Cap to Carrier Bolts	150-175	225-250	175-200	225-250	175-200	225-250
Bearing Adjuster Lock Bolts	100-125	150-175	100-125	150-175	100-125	150-175

TIMKEN AND EATON AXLES—Continued
TIMKEN DOUBLE REDUCTION REAR AXLE TORQUE LIMITS—Ft-Lbs

Timken Model	Q-246-P	Q-346-P	R-202	R-302	RT-241	RT-341	U-200	U-300
Differential Bearing Cap Capscrews	290-320	290-320	470-520	470-520	290-320	290-320	570-630	570-630
Differential Case Bolt Nuts	185-205	185-205	320-360	320-360	320-360	320-360	320-360	320-360
Differential Case and Gear Bolt Nuts	185-205	185-205	320-360	320-360	320-360	320-360	320-360	320-360
Pinion Shaft Nut	700-900	700-900	800-1100	800-1100	700-900	700-900	800-1100	800-1100
Cross Shaft Bearing Cage Capscrews	116-129	116-129	116-129	116-129	116-129	116-129	116-129	116-129
Cross Shaft Cover Capscrews	82-91	82-91	—	—	—	—	—	—
Cross Shaft Bearing Retainer Capscrews	41-45	41-45	64-71	64-71	41-45	41-45	91-101	91-101
Pinion Cage Capscrews	116-129	116-129	116-129	116-129	116-129	116-129	116-129	116-129
Inspection Cover Capscrews	26-29	26-29	26-29	26-29	26-29	26-29	26-29	26-29
Carrier to Housing Stud Nuts and Capscrews	160-180	160-180	160-180	160-180	160-180	160-180	160-180	160-180
Shift Fork Set Screw Jamb Nut	—	30-33	—	30-33	—	30-33	—	30-33
Shift Unit Mounting Stud Nuts or Capscrews	—	26-29	—	26-29	—	26-29	—	26-29
Shift Unit Hole Cover Capscrews	26-29	—	26-29	—	26-29	—	26-29	—
Differential Bearing Adjuster Lock Screws	—	—	15-17	15-17	15-17	15-17	15-17	15-17

9. CHASSIS SUSPENSION

FRONT WHEEL ALIGNMENT

Truck Model	Front Axle Capacity (Pounds)	Caster* (Degrees)	Camber (Degrees)	Toe-In (Inches)	King Pin Inclination (Degrees)
Econoline	2050	5	1	3/32**	7-1/2
F-100, F-250 (except 4-Wheel Drive)....	2600	3	1	1/16-3/16	4
F-100, F-250 (4-Wheel Drive)...	3000	4	1-1/2	1/16-3/16	7-1/2
F-100, F-250 (4-Wheel Drive)...	3500	4	1-1/2	1/16-3/16	8
F-350	3800	4	1	1/16-3/16	4
P-350	3800	4-1/2	1	1/16-3/16	4
P-400	3800	3	1	1/16-3/16	4
F-500, B-500	4000	4	1	1/16-3/16	4
P-500 (137-inch wheelbase)	4700	3	1	1/16-3/16	4
P-500 (154-inch wheelbase)	4700	3-1/2	1	1/16-3/16	4
F-600, B-600	4700	4	1	1/16-3/16	4
F-600, B-600, F-700, B-700, F-750 (cowl model), B-750	6000	4	1	1/16-3/16	5-1/2
F-750 (except cowl model), F-800, T-700	6000	4	1	1/16-3/16	5-1/2
F-700, B-700, F-750 (cowl model), B-750	7000	4	1	1/16-3/16	5-1/2
F-750 (except cowl model), F-800, T-700, T-750	7000	3	1	1/16-3/16	5-1/2
F-800, T-750	9000	3-1/4	1	1/16-3/16	5-1/2
F-800, T-750, T-800...	11,000	3-1/4	1	1/16-3/16	5-1/2
T-800	15,000	3-1/4	1	1/16-3/16	8
C-550, C-600, C-700, C-750, C-800	All	3	1	1/16-3/16	5-1/2
C-950 thru 1100	15,000	3	1	1/16-3/16	8
F-850, 950	7000	3	1	1/16-3/16	5-1/2
F-850 thru 1100 H-950, 1000, T-850, 950	9000	3-1/4	1	1/16-3/16	5-1/2
F-850 thru 1100; T-850, 950, H-950, 1000; HT-850, 950...	11,000	3-1/4	1	1/16-3/16	5-1/2
F-1000, 1100; T-850, 950, H-950, 1000; HT-850, 950	15,000	3-1/4	1	1/16-3/16	8

*Maximum Caster variation between wheels—1/2°, except Econoline—3/4°.

** ± 1/32 inch.

WHEEL NUT TORQUE

Truck Model	Wheel Type	Bolt Size	Ft-Lbs*
Econoline	Disc	1/2-20	55-85
F-100, F-250, P-350	Disc	1/2-20	65-90
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)	170-200 120-150
T-750, T-800, T-850, T-950	Cast	5/8-11	170-200

*Torque specifications are for clean and dry bolt threads.

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

WHEEL BEARING NUT TORQUE

		Ft-Lbs
Adjusting Nut	Econoline	11-1/2-13-1/2*
	Other	50-80†
Lock Nut		100-150

*Torque to specification and then back off to nearest slot.

†Torque to specification and then back off 1/4 to 1/3 turn.

SPRING CLIP (U-BOLT) NUT TORQUE LIMITS

Truck Model	Front Spring Clip		Rear Spring Clip	
	Bolt Size	Torque (Ft-Lbs)	Bolt Size	Torque (Ft-Lbs)
Econoline	7/16-20	50-60	7/16-20	30-40
F-100	9/16-18	100-120	9/16-18	100-120
F-250, F-350, P-350, P-400	9/16-18	100-120	5/8-18	155-195
F-500, B-500, F-600, B-600	9/16-18	100-120	3/4-16	220-260
P-500, C-550, C-600	5/8-18	155-195	3/4-16	220-260
F-700, B-700, C-700, F-750, B-750, C-750, F-800, C-800, F-850, C-850	5/8-18	155-195	3/4-16	220-260
F-950, C-950, F-1000, C-1000, F-1100, C-1100	5/8-18	155-195	7/8-14	360-440
T-700, T-750, T-800	5/8-18	155-195	7/8-14	250-300
T-850, T-950	5/8-18	155-195	7/8-14	360-440

10. STEERING

STEERING GEAR ADJUSTMENTS

Truck Model Application	Gear Series	Identification No. on Casting	Worm Bearing Pre-Load* (In-Lbs)	Worm to Roller Mesh† (In-Lbs)
P-100	335(4D)	—	4-1/2—10-1/8	13-1/2—27
Econoline, F-100, F-250	T & C 525	—	3-6	8—13
F-100-250 (4 Wheel Drive), F-350-500-600, B-500-600	335(Y4D)	—	4-1/2—10-1/8	13-1/2—27
P-350-400-500	335(4D)	—	4-1/2—10-1/8	13-1/2—27
F-700-750, B-700-750	375(Y50)	5DC36	4-1/2—11-1/4	15-3/4—28-1/8
F-750-950, T-700-750		5DC35		
C-550-600-700	375(5J)	5JC00	6-3/4—11-1/4	24-3/4—31-1/2
F-800-1100, T-750-950	400(6D)	6DC43	5-1/2—11-1/4	20-1/4—31-1/2
	500(7D)	7DC98	6-3/4—13-1/2	20-1/4—30-1/2
C-750-1100	400(6J)	6JC03	6-3/4—11-1/4	24-3/4—31-1/2
H-HT-HD-HDT	500(7D)	6JC10	9 —13-1/2	23-1/8—34-1/4
H-HT-HD-HDT	500(7J)	7JC32	9 —16-1/4	21-1/8—34-1/4
C-800-1100		7JC31		

*Pull to keep wheel moving.

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

STEERING LINKAGE TORQUE LIMITS—Ft-Lbs

Spindle Connecting Rod	
Clamp Bolt and Nut	24-30 (3/8-24)
	45-55 (1/2-20)
	35-45 (7/16-20)
	60-80 (5/8-18)
Steering Gear Assembly to	
Frame Bolt and Nut	45 (7/16-14)†
	60 (7/16-20)†
	72 (1/2-20)†
Econoline	30-40 (7/16-14)
Steering Gear Pitman arm or Idler	
Arm Bolt and Nut	135-220 (5/8-18)
Steering Wheel Assembly to	
Steering Shaft and Worm	
Assembly Nut	35-55
Drag Link Nut	45 (1/2-20)*
	70 (9/16-18)*
	80 (3/4-16)*
	90 (7/8-14)*
Spindle Connecting Rod	
Ball Nut	45-55 (1/2-20)
	60-75 (9/16-18)

Piston Rod Eye	
Stud Nut	70-90 (5/8-18)
	90-110 (3/4-16)
Cylinder Mounting and	
Bushing Stud Nut	115-140 (5/8-18)
Cylinder Piston	
Jam Nut	58 (1/2-20)*
Cylinder Mounting Bracket	
to Frame Bolt	58 (1/2-20)*
Idler Shaft to Idler	
Support Nut	40-50 (1-14)†
	40-50 (1-1/4-12)†
Control Valve Body Bolt	20-25
Valve Spool Bolt	8-12

60 (5/8-16)*
90 (3/4-16)*
165 (7/8-14)*

*Torque to specification and then tighten to nearest cotter pin slot.

†Torque to specification and then back off to nearest cotter pin slot.

POWER STEERING PUMP

PRESSURES—psi

Shut-Off Valve Open 40-65*

Shut-Off Valve Closed 1000-1150

*Engine idling and wheels straight ahead.

11. BRAKES

HYDRAULIC BRAKE PEDAL FREE TRAVEL

All Trucks 3/16-3/8

AIR COMPRESSOR GOVERNOR

Cut-Out Pressure 100-105 psi

Cut-In Pressure 80-85 psi

AIR RESERVOIR SAFETY VALVE

Release Pressure 150 psi

VACUUM BOOSTER HYDRAULIC PRESSURES—

Minimum psi at 20 Inches
Vacuum

Midland (Hy-Power) Diaphragm
5-1/16 Inches Effective Diameter
and 1 Inch Slave Cylinder

Diameter 560
8-1/8 Inches Effective Diameter
and 7/8 Inch Slave Cylinder
Diameter 960

Bendix (Hydrovac) Diaphragm
10-1/4 Inches Effective Diameter
and 7/8 Inch Slave Cylinder
Diameter 1420

Bendix (Hydrovac) Piston
6-3/4 Inches Effective Diameter
and 1 Inch Slave Cylinder
Diameter 625
9-1/2 Inches Effective Diameter
and 1-3/16 Inches Slave
Cylinder Diameter 1325

Bendix (Hydrovac)
Tandem Piston
9-1/2 Inches Effective Diameter
and 1-1/8 Inches Slave
Cylinder Diameter 1300

12. ELECTRICAL

BATTERIES

Part Number	Charge	Plates	Amp. Hours
C3DF-10653-E	Wet	54	40
C3AF-10655-G	Wet	66	55
C3TF-10655-F	Wet	78	70
C3AF-10655-L	Wet	66	70
FDV-10655-E		114	150*
C3TF-10655-B		126	155*

*2 used on each vehicle.

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.

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

GENERATOR—General 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 at 30 amperes

ALTERNATOR—General Data

Rectifier Diodes	
Forward Resistance	5-30 ohms
Back Resistance	Infinity
Alternator Pulley Nut Torque	40 ft-lbs
Alternator Brushes Maximum Wear Limit	0.35

GENERATORS AND ALTERNATORS

Part Number	Watts at 15 Volts	Generator rpm Charge Starts	Rate Maximum		Field Current Amps. at 12 Volts—75°F.	Brushes		
			Amperes	Generator rpm		Number Used	Original Length (Inches)	Spring Tension (Ounces)
C1TF-10000-BK, BL, BM, BN, BV	450	1390	30	2525	1.2-1.8	2	0.90	20-26
C1TF-10300-D, E	900	740	60	2600	2.4-3.0	2	3/8	4-5
C1DF-10000-C	375	1420	25	2610	1.2-1.8	2	0.90	20-26
C1TF-10000-Z	600	1550	40	2650	1.2-1.8	2	0.90	20-26
C1TF-10000-BY	450	1390	30	2525	1.2-1.8	2	0.90	20-26
C1TF-10000-DA	450	1390	30	2525	1.2-1.8	2	7/8	20-26

VOLTAGE REGULATION SETTING

Ford Part No.	Make	Current Rating	Current Regulation	Voltage Regulation at 75° F.	Cut-Out Closing at 75° F.	Cut-Out Opening Reverse Current (Amps)
C1TF-10505-A, B	Ford	30	28-32	14.6—15.4	12.2—13.0	8.0
C1TF-10505-C	Ford	40	38-42	14.6—15.4	12.2—13.0	8.0
C2TF-10316-B	Leece-Neville	60	58-62	13.5—14.3	5.6—6.4	4.5 Max.
C0DF-10505-A	Ford	25	23-27	14.6—15.4	12.2—13.2	8.0

**VOLTAGE REGULATION SETTING VERSUS
AMBIENT AIR TEMPERATURE—Standard Generator
Regulator**

Ambient Temperature °F.	Voltage Regulation Setting (Volts)
25	15.1-15.9
35	15.0-15.8
45	14.9-15.7
55	14.8-15.6
65	14.7-15.5
75	14.6-15.4
85	14.5-15.3
95	14.3-15.1
105	14.2-15.0
115	14.1-14.9
125	13.9-14.7
135	13.8-14.6
145	13.6-14.4

**VOLTAGE REGULATION SETTING
VERSUS AMBIENT AIR TEMPERATURE—
Ford Alternator Regulator**

Ambient Temperature °F.	Voltage Regulation Setting (Volts)
25	14.4-15.0
50	14.3-14.9
75	14.1-14.7
100	13.9-14.5
125	13.8-14.4
150	13.6-14.2
175	13.5-14.1

STARTER MOTOR

Part No.	Min. Torque at 5 Volts		Maximum No Load Amperage at 12 Volts	Type of Drive	No. Brushes Used	Brush Mfg. Length (Min.) (Inches)	Brush Wear Limit (Inches)	Brush Spring Tension (Ounces)
	Ft-Lbs (Min.)	Load (Amp.) (Max.)						
Ford C2AF-11001-B	14.8	580	110	Folo- Thru	4	0.50	Half Size	45
Ford C2DF-11001-E	8	450	70	Overrunning Clutch	4	0.46	Half Size	45
LEECE NEVILLE C1TF-11001-B	9.6	500	70	Folo- Thru	4	0.46	Half Size	45
Autolite 2700011-B9FT 11001-A	17.2	525	60	Folo- Thru	4	0.46	Half Size	42-53
Lucas C2TF-11001-A			73	Positive Engagement				
Delco C3TF-11001-A				Positive Engagement				

FUSE AND CIRCUIT BREAKER CHART

Circuit		Protective Device	Location
Headlights		Circuit Breaker	Integral with Headlamp Switch
Auxiliary Lamps (Instruments Dome, Park and Rear)	Light Duty Truck	3AG-15 or AGC-15	Fuse Panel
	Heavy Duty Truck	Circuit Breaker	Fuse Panel
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	Integral with Wiper Switch
Electric Fuel Pump		SFE-7.5 Fuse	Fuse Panel (F-750 model 84—Cartridge in feed wire)
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	Clips on O/D Relay
Two-Speed Axle		Circuit Breaker	Fuse Panel

BULB CHART

Description	Candle Power or Wattage	Trade Number
EXTERIOR LAMPS		
Headlights Single—High/Low Beam	50/40 W	6012
Headlights (Diesel Cab)	50/40 W	6013
Front Turn Signal/Parking	32/4 C.P.	1157
Front Parking Only	4 C.P.	1155
Independent Turn Signal, Front & Rear	32 C.P.	1156
Rear Turn Signal & Stop/Tail	32/4 C.P.	1157
Rear License Light Only	4 C.P.	1155
Marker	4 C.P.	1155
Spot Lights	30 W	4405 *
Spot Lights	30 W	4435 *
INTERIOR LAMPS		
Hi-Beam	2 C.P.	1895
Oil Pressure	2 C.P.	1895
Generator	2 C.P.	1895
Turn-Signal	2 C.P.	1895
Tachometer	2 C.P.	1895
Differential Lockout	1.5 C.P.	1895
W/S Wiper Vacuum Pump Switch	1 C.P.	1895
Retarder Oil Temperature Signal	1.5 C.P.	53
Air Pressure Gauge	2 C.P.	1895
Instrument Cluster Illumination	2 C.P.	1895
Cigar Lighter Socket	1.5 C.P.	1445
Heater Control	2 C.P.	1895
Radio Dial	2 C.P.	1895
Transmission Control Selector	1.5 C.P.	1895
INTERIOR ILLUMINATION		
Dome and Cargo Light	15 C.P.	1003

*No. 4405 has 4" lens

No. 4435 has 5" lens

13. REFILL CAPACITIES

ENGINE COOLING SYSTEM CAPACITIES

Engine	Truck Model	Approximate Capacity* (Quarts)
144 and 170 Six	Econoline and P-100.....	9 †
223 Six	F-100, 250, and 350	13-1/2
	F-500 and 600, B-500 and 600.....	18
	P-100, 350, 400, and 500	18-1/2
262 Six	F-600, B-600	20
	C-550 and 600.....	23
292 MD V-8	F-100, 250, and 350	16-1/2
	P-350, F-500, 600, and 700, B-500, 600, and 700	22
	P-400 and 500.....	23
	C-550, 600, and 700	28
292 HD V-8	F-500 and 600, B-500 and 600.....	22
	C-550 and 600.....	28
302 HD V-8	C-700.....	29
	F-700, B-700	24
	T-700.....	26†
332 HD V-8	B-750, F-750	24
	F-800, T-750, and 800.....	26†
	C-750 and 800, CT-750 and 800.....	29†
401 SD V-8	F-800 and 950, T-850 and 950.....	46†
	C-850 and 950, CT-850 and 950, H-950 and 1000, HT-850 and 950.....	51
477 SD V-8	F-850, 950, 1000, and 1100, T-850 and 950	46
	C-850, 950, 1000, and 1100, CT-850 and 950, H-950 and 1000, HT-850 and 950.....	51
534 SD V-8	F-1000 and 1100, T-850 and 950	46
	C-1000 and 1100, CT-850 and 950	52
	H-950 and 1000, HT-850 and 950.....	51

*Add 1 quart for trucks equipped with heater.

†Add 1-1/2 quarts for trucks equipped with Transmatic transmission.

‡Add 2 quarts for heater.

CARBURETOR OIL BATH AIR CLEANER

Engines	Capacity
144, 170, 223, and 292.....	1 pint
262, 302, and 332	1 quart
401, 477, and 534	3-1/4 pints

FUEL TANK CAPACITIES

Tank Type	Truck Model	Capacity*
Standard	Econoline	14
	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)	18
	H and HT Series	50
Optional (Mounted Outside of Frame)	P-350, P-400, and P-500, F-500 through 600, and C-550 through 600	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

*Approximate capacity U.S. gallons.

TRANSMISSION LUBRICANT 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
HD Cruise-O-Matic	20
4-Wheel Drive Transfer Case	4-1/2
Transmatic Drive	Dry 38 Refill 26

CRANKCASE

Engines	Capacity
144 and 170	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 two quarts when changing oil filter.

REAR AXLE LUBRICANT CAPACITIES

Axle Make and Model	Axle Type	Approximate Capacity (Pints)	Axle Make and Model	Axle Type	Approximate Capacity (Pints)
Spicer 2414 and 2464 (Front Axle)*	1-Speed	3-3/4	Eaton 1893	1-Speed	21
Ford	1-Speed	2-1/2	1911	1-Speed	24
Ford	1-Speed	4-1/2	1350	2-Speed	13
Spicer 44	1-Speed	4-1/2	8802	1-Speed	22
60	1-Speed	6	8803	1-Speed	22
70	1-Speed	6	9503	1-Speed	24
			13800	2-Speed	13
Timken C-100	1-Speed	15	13802	2-Speed	13
D-100	1-Speed	15	16802	2-Speed	20
F-104	1-Speed	15	16803	2-Speed	20
F-106	1-Speed	15	17800	2-Speed	19
Q-246-P	1-Speed	34	17801	2-Speed	19
Q-346-P	2-Speed	32	18802	2-Speed	22
R-141	1-Speed	28	18803	2-Speed	22
R-202	1-Speed	36	19503	2-Speed	24
R-302	2-Speed	34	22M	Tandem	Forward Axle-10 Rearward Axle-10 Power Divider-7
RT-241	1-Speed	32	30D-P	Tandem	Forward Axle-22 Rearward Axle-20
RT-341	2-Speed	34	34M	Tandem	Forward Axle-23 Rearward Axle-23 Power Divider-3
U-200	1-Speed	38	34D-S	Tandem	Forward Axle-22 Rearward Axle-22
U-300	2-Speed	39	34D-P	Tandem	Forward Axle-24 Rearward Axle-22
LHDA and LHAR	Tandem	Forward Axle-32-1/2 Rearward Axle-32	38D-R	Tandem	Forward Axle-24 Rearward Axle-22
Eaton 1350	2-Speed	13	30DSA	Tandem	Forward Axle-22
1614	1-Speed	17	30RSA	Tandem	Rearward Axle-20
1615	1-Speed	17	34MFH&A	Tandem	Forward Axle with Power Divider-23
1618	1-Speed	17	34MRH&A	Tandem	Rearward Axle-23
1619	1-Speed	17	34DSH&A	Tandem	Forward Axle-22
1790-A	1-Speed	22	34RSH&A	Tandem	Rearward Axle-22
1791-A	1-Speed	22	34DPH&A	Tandem	Forward Axle-24
1892	1-Speed	21	34RPH&A	Tandem	Rearward Axle-22

*Add 1/2 pint for each steering knuckle on the 2414.

Add 1 pint for each steering knuckle on the 2464.

1963 FORD SERVICE SPECIFICATIONS

PART 2—GALAXIE, FAIRLANE, FALCON AND THUNDERBIRD

SECTION	PAGE
1. Engines.....	2-2
2. Ignition System	2-11
3. Fuel System.....	2-16
4. Cooling System	2-19
5. Clutches.....	2-20
6. Manual-Shift Transmissions	2-20
7. Automatic Transmissions	2-21
8. Rear Axles.....	2-25
9. Chassis Suspension.....	2-27
10. Steering.....	2-29
11. Brakes.....	2-32
12. Electrical	2-33
13. Refill Capacities	2-43

NOTE: All specifications are given in inches,
unless otherwise indicated.

1. ENGINES

ENGINE IDENTIFICATION

Patent Plate Symbol	Cubic Inch Displacement
S	144 Six
U	170 Six
V	223 Six
L	221 V-8
F	260 V-8
X	352 V-8
Z, P, or M	390 V-8
B and G	406 V-8

GENERAL

ENGINE MODELS

Falcon 144 Six	144
Falcon 170 Special	170
Fairlane Six	170
Mileage Maker Six	223
221 V-8	221
260 V-8	260
352 V-8	352
390 V-8 (4-V)	390
390 Police Interceptor V-8	390
390 High Performance V-8 (6-V)	390
406 High Performance V-8 (4-V)	406
406 High Performance V-8 (6-V)	406

BRAKE HORSEPOWER—

Specified rpm

Falcon 144 Six	85 at 4200
Fairlane Six and Falcon 170 Special	101 at 4400
Mileage Maker Six	138 at 4200
221 V-8	145 at 4400
260 V-8	164 at 4400
352 V-8	220 at 4300
390 V-8 (4-V)	300 at 4600
390 Police Interceptor V-8	330 at 5000
390 High Performance V-8 (6-V)	340 at 5000
406 High Performance V-8 (4-V)	385 at 5800
406 High Performance V-8 (6-V)	405 at 5800

MAXIMUM GROSS TORQUE—

Ft-Lbs at Specified rpm

Falcon 144 Six	134 at 2000
Fairlane Six and Falcon 170 Special	156 at 2400

Mileage Maker Six	203 at 2200
221 V-8	216 at 2200
260 V-8	258 at 2200
352 V-8	336 at 2600
390 V-8 (4-V)	427 at 2800
390 Police Interceptor V-8	427 at 3200
390 High Performance V-8 (6-V)	430 at 3200
406 High Performance V-8 (4-V)	444 at 3400
406 High Performance V-8 (6-V)	448 at 3500

COMPRESSION RATIO

Falcon 144, Fairlane Six, Falcon 170 Special, 221 V-8 and 260 V-8	8.7:1
Mileage Maker Six	8.4:1
352 V-8	8.9:1
390 V-8	10.5:1
406 V-8	11.5:1

TAXABLE HORSEPOWER

144 and 170	29.40
223	31.54
221	39.20
260	46.20
352	51.20
390	52.49
406	54.56

BORE AND STROKE

144	3.50 x 2.50
170	3.50 x 2.94
221	3.50 x 2.87
223	3.625 x 3.60
260	3.80 x 2.87
352	4.00 x 3.50
390	4.05 x 3.78
406	4.13 x 3.784

FIRING ORDER

144, 170 and 223	1-5-3-6-2-4
221, 260, 352, 390 and 406	1-5-4-2-6-3-7-8

COMPRESSION PRESSURE—

Sea Level at Cranking Speed

144 and 170	150-190
221, 223 and 260	130-170
352, 390 and 406	160-200

GENERAL—Continued

ENGINE IDLE RPM*

Manual-Shift

390 Police Interceptor V-8...	575-600
All 390 High Performance V-8 (6-V) and 406 V-8 Engines	675-700
Other Engines	500-525

Automatic Transmission (Drive Range)

390 Police Interceptor V-8...	550-575
390 V-8 (6-V)	675-700
All Engines	475-500

*If equipped with air conditioner, it should be run for at least 20 minutes before setting idle speed. Also, idle speed can be varied to suit operating conditions.

ENGINE IDLE MANIFOLD

VACUUM—Inches of Mercury

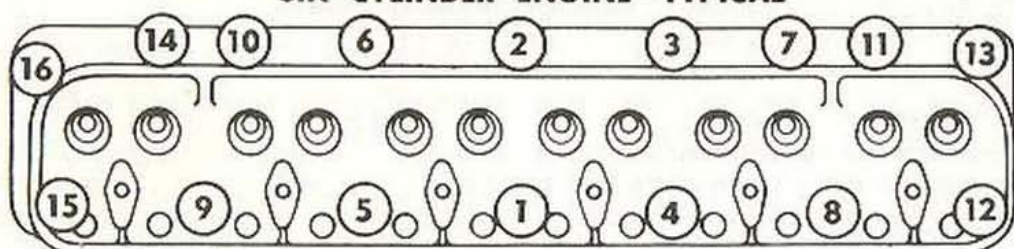
at Specified Engine Idle rpm (Sea Level)

144 and 221	16
170	17
Other Engines	18

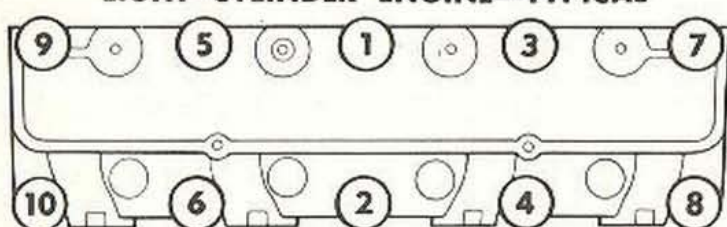
OIL PRESSURE—Hot at 2000 rpm

390 Police Interceptor V-8	62-72 psi
390 V-8 (6-V)	45-70 psi
406 V-8	40-55 psi
Other Engines	35-55 psi

SIX CYLINDER ENGINE—TYPICAL



EIGHT CYLINDER ENGINE—TYPICAL



CYLINDER HEAD BOLT TIGHTENING SEQUENCE

A1433-A

CYLINDER HEAD

GASKET SURFACE FLATNESS

144, 170 and 223—	0.003 in any 6 inches or 0.007 inches overall.
Other Engines—	0.003 inch in any 6 inches or 0.006-inch overall.

VALVE ARRANGEMENT—

Front to Rear

144, 170 and 223	 E-I-I-E-I-E-E-I-E-I-E
221 and 260	 Right Head I-E-I-E-I-E-I-E
	Left Head E-I-E-I-E-I-E-I-E
352, 390 and 406	 E-I-E-I-I-E-I-E

VALVE GUIDE BORE DIAMETER— Standard Intake and Exhaust

144, 221, 170 and 260	.. 0.3115-0.3125
223	 0.3433-0.3440
352, 390 and 406	 0.3728-0.3735

VALVE SEAT WIDTH—

Intake and Exhaust

144 and 170	 0.070-0.080
221 and 260	 0.060-0.080
223, 352, 390 and 406	 0.070-0.090

VALVE SEAT ANGLE

406	 Intake 30°, Exhaust 45°
Other Engines (Intake and Exhaust)	 45°

VALVE SEAT RUNOUT

Maximum (221 and 260)	 0.0015
Maximum (Other Engines)	 0.002
Wear Limit	 0.0025

VALVE MECHANISM**VALVE LASH—MECHANICAL
LIFTERS****Cold****INTAKE AND EXHAUST**

390 Police Interceptor and 406 V-8.....	0.028
--	-------

Hot**INTAKE**

390 Police Interceptor and 406 V-8.....	0.025
--	-------

EXHAUST

390 Police Interceptor and 406 V-8.....	0.025
--	-------

VALVE CLEARANCE**Silent Valve Lash**

223	0.025*
-----------	--------

Hydraulic Valve Lifters

144 and 170	0.067-0.200†
221 and 260	0.082-0.152†
352 and 390	0.083-0.183†

*Clearance specified is obtained at the valve stem tip with the eccentric spring compressed.

†Clearance specified is obtained at the valve stem tip with the lifter collapsed.

VALVE HEAD DIAMETER**Intake**

144	1.462-1.472
170	1.522-1.537
223	1.775-1.785
221 and 260	1.582-1.597
352, 390 and 406.....	2.022-2.037

Exhaust

144 and 170	1.261-1.276
223	1.505-1.520
221 and 260	1.381-1.396
352 and 390	1.551-1.566
406	1.645-1.660

VALVE STEM TO VALVE**GUIDE CLEARANCE****Intake**

144 and 170	0.0008-0.0025
	Wear Limit 0.0045
221 and 260	0.0008-0.0025
	Wear Limit 0.0045
Other Engines.....	0.0010-0.0024
	Wear Limit 0.0045

Exhaust

144 and 170	0.0018-0.0035
	Wear Limit 0.0055
221 and 260	0.0018-0.0035
	Wear Limit 0.0055

390 Police and 406	0.0020-0.0034
	Wear Limit 0.0055
Other Engines.....	0.0028-0.0042
	Wear Limit 0.0055

VALVE STEM DIAMETER**Standard****INTAKE**

144, 170, 221 and 260	0.3100-0.3107
223.....	0.3416-0.3423
352, 390 and 406.....	0.3711-0.3718

EXHAUST

144, 170, 221 and 260	0.3090-0.3097
223.....	0.3398-0.3405
352 and 390	0.3693-0.3700
406.....	0.3701-0.3708

0.003 Oversize**INTAKE**

144, 170, 221 and 260	0.3130-0.3137
223.....	0.3446-0.3453
352, 390 and 406.....	0.3741-0.3748

EXHAUST

144, 170, 221 and 260	0.3120-0.3127
223.....	0.3428-0.3435
352 and 390	0.3723-0.3730
406.....	0.3731-0.3738

0.015 Oversize**INTAKE**

144, 170, 221 and 260	0.3250-0.3257
223.....	0.3566-0.3573
352, 390 and 406.....	0.3861-0.3868

EXHAUST

144, 170, 221 and 260	0.3240-0.3247
223.....	0.3548-0.3555
352 and 390	0.3843-0.3850
406.....	0.3851-0.3858

0.030 Oversize**INTAKE**

144, 170, 221 and 260	0.3400-0.3407
223.....	0.3716-0.3723
352, 390 and 406.....	0.4011-0.4018

EXHAUST

144, 170, 221 and 260	0.3390-0.3397
223.....	0.3698-0.3705
352 and 390	0.3993-0.4000
406.....	0.4001-0.4008

VALVE FACE RUNOUT**Intake**

221, 223, 260, 352, 390 and 406	0.002
144 and 170	0.0015

Exhaust

144, 170 and 223.....	0.0015
223 and 260	0.002
352, 390 and 406.....	0.002

VALVE MECHANISM—

Continued

VALVE SPRING OUT OF SQUARE—Maximum

All Engines..... 0.072

VALVE SPRING FREE LENGTH—Approximate

144 and 170..... 2.00
223..... 2.33
221 and 260..... 2.15
352..... 2.26
390 Police Interceptor V-8..... 2.06
390 V-8 (4-V)..... 2.15
390 V-8 (6-V) and 406 V-8..... 2.06

VALVE SPRING PRESSURE—

Pounds at Specified Length

Valve Closed

144 and 170..... 47.75-56.25 at 1.585
Wear Limit 43 at 1.585
223..... 97-105 at 1.780
Wear Limit 88 at 1.780
221 and 260..... 57-63 at 1.770
Wear Limit 52 at 1.770
352..... 94-104 at 1.820
Wear Limit 85 at 1.820
390 V-8 (4-V)..... 74-84 at 1.820
Wear Limit 67 at 1.820
390 Police Interceptor V-8,
390 V-8 (6-V) and
406 V-8..... 80-90 at 1.820
Wear Limit 72 at 1.820

Valve Open

144 and 170..... 112-122 at 1.222
Wear Limit 101 at 1.222
223..... 160-178 at 1.410
Wear Limit 144 at 1.410
221 and 260..... 161-178 at 1.380
Wear Limit 145 at 1.380
352..... 180-198 at 1.420
Wear Limit 162 at 1.420
390 V-8 (4-V)..... 190-208 at 1.420
Wear Limit 171 at 1.420
390 Police Interceptor V-8,
390 V-8 (6-V) and
406 V-8..... 255-280 at 1.320
Wear Limit 230 at 1.320

VALVE SPRING ASSEMBLED HEIGHT—Pad to Retainer

144 and 170..... 1-9/16—1-39/64
221, 223 and 260..... 1-3/4—1-25/32
352 and 390..... 1-13/16—1-27/32

390 Police Interceptor V-8

..... 1-5/16—1-21/64
406..... 1-51/64—1-53/64

VALVE PUSH ROD RUNOUT—

Maximum

221 and 260..... 0.015
Other Engines..... 0.025

VALVE PUSH ROD RUNOUT—

ROCKER ARM SHAFT O.D.

144, 170 and 223..... 0.780-0.781
352, 390 and 406..... 0.8385-0.8395

VALVE TAPPET DIAMETER—

Standard

223..... 0.4983-0.4989
Other Engines..... 0.8740-0.8745

VALVE TAPPET TO TAPPET

BORE CLEARANCE

223..... 0.0011-0.0027
Wear Limit 0.0055
Other Engines..... 0.0005-0.0020
Wear Limit 0.005

HYDRAULIC VALVE LIFTER

LEAK DOWN RATE—Maximum

144, 170, 221, 260, 352
and 390..... 10-100 Seconds

ROCKER ARM TO ROCKER

SHAFT CLEARANCE

144 and 170..... 0.002-0.0045
Wear Limit 0.006
223..... 0.002-0.004
Wear Limit 0.006
352, 390 and 406..... 0.0035-0.0055
Wear Limit 0.0065

ROCKER SHAFT

BORE DIAMETER

144, 170 and 223..... 0.783-0.784
352, 390 and 406..... 0.843-0.844

ROCKER ARM ECCENTRIC

PLUNGER SPRING

Free Length—Approximate

223..... 1.52
Pressure—Pounds at
Specified Length
223..... 5.75-6.25 at 1.17
Wear Limit 5.5 at 1.17

CAMSHAFT AND

TIMING CHAIN

CAMSHAFT END PLAY

All Engines..... 0.001-0.007
Wear Limit 0.012

CAMSHAFT AND TIMING CHAIN—Continued**CAMSHAFT JOURNAL TO BEARING CLEARANCE**

All Engines	0.001-0.003
Wear Limit	0.006

CAMSHAFT JOURNAL RUNOUT

All Engines	0.005
-------------	-------

CAMSHAFT JOURNAL OUT-OF-ROUND

144, 170, 221 and 260	0.0005
223, 352, 390 and 406	0.001
Wear Limit	0.0015

CAMSHAFT LOBE LIFT**Intake**

144 and 170	0.232
Wear Limit	0.227
223	0.260
Wear Limit	0.255

221 and 260	0.2375
Wear Limit	0.2325

352	0.232
Wear Limit	0.227

390 V-8 (4-V)	0.2316
Wear Limit	0.2266

390 V-8 (6-V)	0.2576
Wear Limit	0.2526

390 Police Interceptor V-8	0.264
Wear Limit	0.259

406 V-8	0.298
Wear Limit	0.293

Exhaust

144 and 170	0.232
Wear Limit	0.227

223	0.260
Wear Limit	0.255

221 and 260	0.2375
Wear Limit	0.2325

352	0.232
Wear Limit	0.227

390 V-8 (4-V)	0.2316
Wear Limit	0.2266

390 V-8 (6-V)	0.2576
Wear Limit	0.2526

Police Interceptor 390 V-8	0.264
Wear Limit	0.259

406 V-8	0.298
Wear Limit	0.293

ASSEMBLED SPROCKET FACE RUNOUT

All Engines	0.006
-------------	-------

TIMING CHAIN DEFLECTION

All Engines	0.5
-------------	-----

CAMSHAFT JOURNAL DIAMETER—Standard

144 and 170	1.8095-1.8105
223	1.9255-1.9265
352, 390 and 406	2.1238-2.1248
221 and 260	No. 1 2.0805-2.0815
	No. 2 2.0655-2.0665
	No. 3 2.0505-2.0515
	No. 4 2.0355-2.0365
	No. 5 2.0205-2.0215

CAMSHAFT BEARINGS**INSIDE DIAMETER—Assembled**

144 and 170	1.8115-1.8125
223	1.9275-1.9285
352, 390 and 406	2.1258-2.1268
221 and 260	No. 1 2.0825-2.0835
	No. 2 2.0675-2.0685
	No. 3 2.0525-2.0535
	No. 4 2.0375-2.0385
	No. 5 2.0225-2.0235

LOCATION IN RELATION TO FRONT FACE OF BLOCK CAM BEARING BORE—**No. 1 Bearing Only**

144 and 170	0.115-0.125
Other Engines	0.005-0.020

FLYWHEEL**ASSEMBLED FLYWHEEL CLUTCH FACE RUNOUT**

All Engines	0.010
-------------	-------

ASSEMBLED FLYWHEEL O.D. RUNOUT

All Engines	0.007
-------------	-------

CRANKSHAFT**MAIN BEARING JOURNAL DIAMETER—Standard**

144, 170, 221 and 260	2.2482-2.2490
223	2.4980-2.4988
352, 390 and 406	2.7484-2.7492

CONNECTING ROD JOURNAL DIAMETER

144, 170, 221 and 260	2.1232-2.1240
223	2.2980-2.2988
352, 390 and 406	2.4380-2.4388

CRANKSHAFT—

Continued

MAIN BEARING JOURNAL RUNOUT

144 and 170	0.0025
Wear Limit	0.0035
223	0.003
Wear Limit	0.004
221 and 260	0.002
Wear Limit	0.003
352, 390 and 406	0.002
Wear Limit	0.003

CONNECTING ROD AND MAIN BEARING JOURNALS OUT-OF-ROUND

All Engines	0.0004
-------------	--------

CONNECTING ROD AND MAIN BEARING JOURNALS TAPER

All Engines	0.0003
-------------	--------

THRUST BEARING JOURNAL LENGTH

144 and 170	1.275-1.277
223	1.359-1.361
221 and 260	1.137-1.139
352, 390 and 406	1.124-1.126

MAIN BEARING JOURNAL THRUST FACE RUNOUT

All Engines	0.001
-------------	-------

CRANKSHAFT FREE END PLAY

All Engines	0.004-0.008
Wear Limit	0.012

MAIN BEARINGS JOURNAL CLEARANCE

144 and 170	0.0007-0.0025
Wear Limit	0.0030
223	0.0009-0.0033
Wear Limit	0.0038
221 and 260	0.0006-0.0026
Wear Limit	0.0034
352 and 390	0.0006-0.0031
Wear Limit	0.0039
390 Police Interceptor	
No. 1	0.0008-0.0012
No. 2, 3, 4 and 5	0.0010-0.0031
406	
No. 1	0.001-0.002
No. 2, 3, 4 and 5	0.001-0.0031

CONNECTING ROD PISTON PIN BUSHINGS I.D.—Standard

144, 170, 221 and 260	0.9107-0.9112
-----------------------	---------------

223	0.9122-0.9125
352, 390 and 406	0.9752-0.9755

BEARING BORE DIAMETER

144, 170, 221 and 260	2.2390-2.2398
223	2.4230-2.4238
352, 390 and 406	2.5907-2.5915

PISTON PIN BUSHING OUT-OF-ROUND

223	0.0002
352, 390 and 406	0.0004

PISTON PIN BUSHING TAPER

223	0.0002
352, 390 and 406	0.0003

CONNECTING ROD SIDE CLEARANCE—Assembled to Crankshaft

144 and 170	0.004-0.008
Wear Limit	0.014
223	0.005-0.011
Wear Limit	0.014
221, 260, 352 and 390	0.006-0.016
Wear Limit	0.019
406	0.014-0.024
Wear Limit	0.027

BEARING BORE OUT-OF-ROUND AND TAPER

144 and 170	0.0002
Other Engines	0.0004

CONNECTING ROD LENGTH—Center to Center

144	4.854-4.856
170	4.714-4.716
223	6.258-6.262
221 and 260	5.154-5.156
352	6.538-6.542
390 and 406	6.486-6.490

CONNECTING ROD

Twist Total Difference—Maximum*

All Engines	0.012
-------------	-------

CONNECTING ROD 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 8-inch long bar measured 4-inches on each side of rod.

CONNECTING ROD BEARINGS BEARING TO CRANKSHAFT

CLEARANCE

144 and 170	0.0008-0.0023
223	0.0006-0.0028
221 and 260	0.0009-0.0025
352 and 390	0.0007-0.0028
390 Police Interceptor and 406	0.0009-0.0029

PISTON

PISTON DIAMETER

Standard—Color Coded Red

144, 170, 221 and 260	3.4976-3.4982
223	3.6236-3.6242
352	3.9982-3.9988
390	4.0477-4.0483
406	4.1258-4.1264

Standard—Color Coded Blue

144, 170, 221 and 260	3.4988-3.4994
223	3.6248-3.6254
352	3.9994-4.0000
390	4.0489-4.0495
406	4.1270-4.1276

0.003 Oversize

144, 170, 221 and 260	3.5000-3.5006
223	3.6260-3.6266
352	4.0006-4.0012
390	4.0501-4.0507

PISTON TO BORE CLEARANCE

—Bottom of Skirt

144 and 170	0.0018-0.0036
223	0.0008-0.0026
221 and 260	0.0021-0.0039
	Wear Limit 0.006
352	0.0012-0.003
	Wear Limit 0.006
390	0.0017-0.0035
	Wear Limit 0.006
406	0.0043-0.0049
	Wear Limit 0.006

PISTON PIN DIAMETER

Standard—Color Coded Green

144, 170 and 223	0.9120-0.9123
221 and 260	0.9118-0.9124
352, 390 and 406	0.9750-0.9753

0.001 Oversize

Color Coded Blue

223	0.9130-0.9133
352, 390 and 406	0.9760-0.9763

0.002 Oversize— Color Coded Yellow

223	0.9140-0.9143
352, 390 and 406	0.9770-0.9773

PISTON PIN TO PISTON CLEARANCE

221 and 260	0.0003-0.0005
	Wear Limit 0.0008
Other Engines	0.0001-0.0003
	Wear Limit 0.0008

PISTON PIN LENGTH

144, 170, 221, 223 and 260	3.010-3.030
352 and 390	3.156-3.170
406	3.202-3.212

PISTON PIN TO CONNECTING ROD BUSHING CLEARANCE

223, 352, 390 and 406	0.0001-0.0005
	Wear Limit 0.001

PISTON RINGS

RING WIDTH

Compression Ring

UPPER

223	0.0929-0.0936
Other Engines	0.0774-0.0781

LOWER

144, 170, 221 and 260	0.0770-0.0780
223, 352, 390 and 406	0.0930-0.0940

SIDE CLEARANCE

Compression Ring

UPPER

144, 170, 223, 221 and 260	0.0019-0.0036
352, 390 and 406	0.0024-0.0041

LOWER

223	0.0015-0.0035
Other Engines	0.0020-0.0040
All Engines	Wear Limit 0.006

Oil Ring

All Engines	Snug
-------------	------

RING GAP WIDTH

Compression Ring

UPPER AND LOWER

352, 390 and 406	0.015-0.025
Other Engines	0.010-0.020

Oil Ring

All Engines (Steel Rail)	0.015-0.055
--------------------------	-------------

CYLINDER BLOCK

CYLINDER BORE DIAMETER—

Standard Spreads for 8 Grades

144 and 170	3.5000-3.5024
221	3.5003-3.5027
223	3.6250-3.6274
260	3.8003-3.8027
352	4.0000-4.0024
390	4.0500-4.0524
406	4.3000-4.3024

CYLINDER BORE TAPER

All Engines. 0.001—Wear Limit 0.005

CYLINDER BORE

OUT-OF-ROUND—Maximum

All Engines. 0.001—Wear Limit 0.003

HEAD GASKET SURFACE FLATNESS

144 and 170	0.003 in any 6 inches or 0.007 inch overall
Other Engines	0.003 in any 6 inches or 0.006 overall

ROTOR-TYPE OIL PUMP

RELIEF VALVE SPRING

TENSION—Pounds at

Specified Length

144 and 170	8.6-9.5 at 1.078
221 and 260	11.15-11.75 at 1.704
223, 352 and 390	9.0-9.6 at 1.530
406	8.0-13.0 at 1.56

RELIEF VALVE CLEARANCE

All Engines 0.0015-0.0029

DRIVE SHAFT TO HOUSING BEARING CLEARANCE

223	0.0025-0.0039
Other Engines	0.0015-0.0029

ROTOR ASSEMBLY END

CLEARANCE—Pump Assembled

All Engines 0.0011-0.0041

OUTER RACE TO HOUSING RADIAL CLEARANCE

All Engines 0.006-0.012

TORQUE LIMITS—Ft-Lbs

MAIN BEARING CAP BOLTS—

Oiled Threads

144, 170, 221 and 260	60-70
Other Engines	95-105

CYLINDER HEAD BOLTS—

Oiled Threads

144 and 170	65-75
223	105-115
221 and 260	65-70
352 and 390	80-90
406	100-110

OIL PAN TO CYLINDER BLOCK

144 and 170	7-9
223, 352, 390 and 406	9-13
221 and 260—1/4-20	7-9
5/16-18	9-11

OIL FILTER ADAPTER TO CYLINDER BLOCK

144, 170 and 223	50-60
221 and 260	60-100
352, 390 and 406	12-15

OIL FILTER

All engines, hand tighten until gasket contacts adapter face. Then tighten 1/2 turn more.

CYLINDER FRONT COVER

144 and 170	7-9
223	6-9
Other Engines	12-15

WATER OUTLET HOUSING

223	23-28
Other Engines	12-15

VALVE ROCKER ARM COVER

144, 170, 221 and 260	3-5
223, 352, 390 and 406	4-7

WATER PUMP TO CYLINDER BLOCK OR FRONT COVER

223, 352, 390 and 406	23-28
Other Engines	12-15

OIL PICK-UP TUBE TO OIL PUMP

All Engines 12-15

**TORQUE LIMITS—Ft-Lbs—
Continued****CRANKCASE VENTILATION
ADAPTER TO CYLINDER
BLOCK**

144, 170, 221 and 260	6-9
223	3-4

**FUEL PUMP TO CYLINDER
BLOCK OR CYLINDER
FRONT COVER**

144, 170, 221, 223 and 260	12-15
352, 390 and 406	23-28

**MANIFOLD TO CYLINDER
HEAD****Intake**

221 and 260	12-15
223	23-28
352 and 390	32-35
406	25-28

Exhaust

144, 170, 221 and 260	13-18
223	23-28
Other Engines	12-18

FLYWHEEL TO CRANKSHAFT

All Engines	75-85
-------------------	-------

**OIL PUMP TO CYLINDER
BLOCK**

144 and 170	12-15
223	30-35
Other Engines	23-28

OIL PUMP COVER PLATE

Rotor	6-9
-------------	-----

**VALVE ROCKER ARM SELF-
LOCKING ADJUSTING SCREW**

144, 170 and 406	3*
------------------------	----

*Minimum torque to rotate.

**VALVE ROCKER ARM
ADJUSTING LOCK NUT**

223	30-35
-----------	-------

**CAMSHAFT SPROCKET TO
CAMSHAFT**

221 and 260	30-35
Other Engines	35-45

**DAMPER OR PULLEY TO
CRANKSHAFT**

144 and 170	45-55
Other Engines	70-90

CONNECTING ROD NUTS

144, 170, 221 and 260	19-24
-----------------------------	-------

223, 352 and 390	40-45
406	53-58

**CAMSHAFT THRUST PLATE
TO BLOCK**

221 and 260	6-9
Other Engines	12-15

**VALVE ROCKER SHAFT
SUPPORT TO CYLINDER HEAD**

144 and 170	30-35
223	50-60
352, 390 and 406	40-45

**VALVE PUSH ROD CHAMBER
COVER**

223	2.0-2.5
-----------	---------

ENGINE FRONT SUPPORT**Insulator to Engine**

Falcon	18-24
Other Models	35-40

Bracket to Insulator

Fairlane	15-21
Falcon	11-15
Galaxie	40-45

Bracket to Engine

Fairlane Six	18-24
Fairlane V-8	29-39
Falcon and Galaxie	35-40

Insulator to Underbody

Fairlane V-8	41-53
Other Models	35-40

Bracket to Crossmember

Falcon	20-28
Fairlane	26-34
Other Models	45-55

ENGINE REAR SUPPORT**Insulator to Transmission****Extension**

Fairlane	32-42
----------------	-------

Insulator to Rear Support

Fairlane	10-15
----------------	-------

**Rear Support to Mounting
Bracket**

Fairlane	41-53
----------------	-------

**Support Retainer to Insulator
or Extension Housing**

Falcon	10-15*
Thunderbird	35-45
Other Models	40-45

Support to Body or Frame

Fairlane	41-53
Thunderbird	30-42
Other Models	12-15

*Wagon and Ranchero—23-29

2. IGNITION SYSTEM

IGNITION TIMING

ENGINE	RECOMMENDED SETTING	
	Automatic Transmission	Manual Shift
144	12°	8°
170	12°	6°
223	10°	4°
221	12°	4°
260	10°	4°*
352 and 390 V-8 (4-V)	6°	3°
390 Police Interceptor V-8	10°	10°
390 High Performance V-8 (6-V)	6°	—
406 V-8 (4-V and 6-V)	8°	8°

The initial ignition timing may be advanced 5° over the recommended setting. To do this, advance the timing progressively until engine detonation (spark knock) is evident under actual road test acceleration. Retard the timing until the detonation is eliminated. If the individual requirements of the car and/or if sub-standard fuels are used, the initial timing may be retarded from the recommended setting not to exceed 2° BTC.

*For Galaxie with 260 and Manual-Shift set at 6°

DISTRIBUTOR—GENERAL**ALL SIX CYLINDER ENGINES**

Breaker Arm Spring Tension—

Ounces 17-20

Contact Spacing 0.024-0.026

Dwell Angle at Idle Speed... 35°-38°

ALL V-8 ENGINES

Breaker Arm Spring Tension—Ozs.

406 V-8 27-32

Other V-8 Engines 17-20

Contact Spacing

260 V-8 0.015-0.018

406 V-8 0.019-0.021

Other V-8 Engines 0.014-0.016

Dwell Angle at Idle

Speed 26°-28-1/2°

SHAFT END PLAY—**Distributor Removed**

144 and 170 0.022-0.033

221 and 260 0.024-0.035

223 0.005-0.008

Other V-8 Engines 0.022-0.030

GEAR LOCATION

223—Distance between base

and gear 0.005-0.008

Distance from bottom of mounting flange to bottom of gear:

144 and 170 2.510-2.515

221 and 260 4.031-4.038

352, 390 and 406 3.071-3.077

ADVANCE CHARACTERISTICS

NOTE: The advance characteristics given apply to the distributor with the indicated number only. The distributor number is stamped on the distributor housing or on a plate attached to the distributor housing.

144 Six (C3DF-12127-E used with manual-shift transmission)

Set test stand to: 0° at 1000 rpm, and 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance—Degrees
500	0.35	3/4-1-3/4
600	0.45	1-3/4-2-3/4
1000	1.30	5-3/4-6-3/4
1400	2.43	7-3/4-9
2000	4.10	9-3/4-11
Advance Limit 2500	10.00	13-1/4

ADVANCE CHARACTERISTICS—Continued**144 Six (C3DF-12127-F used with automatic transmission)**

Set test stand to : 0° at 1000 rpm, and 0.48 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0.35	1-1/2-2-1/2
800	0.80	4-5
1200	1.80	6-7
1600	3.11	7-1/2-8-1/2
2000	4.10	8-1/2-9-3/4
Advance Limit	10	12-1/4

170 Six (C3DF-12127-G used with manual-shift transmission)

Set test stand to : 0° at 1000 rpm, and 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0.30	1/2-1-1/2
800	0.80	4-3/4-5-3/4
1200	1.80	8-1/4-9-1/4
1600	3.00	10-11-1/4
2000	3.90	11-1/2-12-3/4
Advance Limit	10	16-1/2

170 Six (C3DF-12127-J used with automatic transmission)

Set test stand to : 0° at 1000 rpm, and 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0.35	1-2
800	0.80	3-1/2-4-1/2
1200	1.80	6-7
2000	3.90	9-1/2-10-3/4
Advance Limit	10	14

223 Six (C3AF-12127-G used with manual-shift transmission)

Set test stand to : 0° at 250 rpm, and 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0.30	1-1/4-2-1/4
800	0.45	6-7-1/4
1400	2.30	8-3/4-10
2000	4.30	10-3/4-12
Advance Limit	10	13-1/4

223 Six (C3AF-12127-H used with automatic transmission)

Set test stand to : 0° at 250 rpm, 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0.45	1-2
800	1.07	4-1/4-5-1/4
1400	3.30	7-8
2000	6.00	7-8
Advance Limit	8.50	10-1/4

ADVANCE CHARACTERISTICS—Continued

221 V-8 (C20F-12127-J used with manual-shift transmission)

CENTRIFUGAL ADVANCE. Disconnect the vacuum line. Set test stand to: 0° at 250 rpm.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
400	0	0
525	0	3/4 - 1-3/4
675	0	4 - 5
900	0	6-1/2- 7-1/2
2000	0	12 -13-1/2

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

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	5	0- 1
1000	7-1/2	1- 4
1000	13	6- 9
1000	18	7-1/2-10-1/2

Advance Limit 10-1/2

221 V-8 (C30F-12127-A used with automatic transmission)

CENTRIFUGAL ADVANCE. Disconnect the vacuum line. Set test stand to: 0° at 250 rpm.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0	1/2-1-1/2
600	0	1-3/4-2-3/4
800	0	3-4
1400	0	4-3/4-6
2000	0	6-3/4-8-1/4

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

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	8	0-3-1/2
1000	10	3-1/2-6-1/2
1000	12	5-1/2-8-1/2
1000	14	6-1/2-9-1/2
1000	20	6-1/2-9-1/2

Advance Limit 9-1/2

260 V-8 GALAXIE (C30F-12127-B used with manual-shift transmission)

CENTRIFUGAL ADVANCE. Disconnect the vacuum line. Set test stand to: 0° at 250 rpm.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0	1-1/2-2-1/2
800	0	4-1/2-5-1/2
1200	0	6-1/2-7-3/4
1600	0	8-1/2-10
2000	0	10-3/4-12-1/4

ADVANCE CHARACTERISTICS—Continued

260 V-8 GALAXIE (C3OF-12127-B used with manual-shift transmission)

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

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	8	1-4
1000	12	5-1/2-8-1/2
1000	16	7-1/2-10-1/2
1000	20	8-11
Advance Limit		11

260 V-8 FAIRLANE (C2OF-12127-F used with manual-shift transmission)

CENTRIFUGAL ADVANCE. Set test stand to: 350 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
425	0	0
550	0	1-2
800	0	4-5
1100	0	6-1/4-7-1/4
1500	0	8-9-1/4
1950	0	10-11-1/2

VACUUM ADVANCE. Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	9-1/2	1-4
1000	12-1/2	4-7-1/4
1000	17-1/2	7-10
Advance Limit		7-1/2-10-1/2

260 V-8 (C3AF-12127-U used with automatic transmission)

CENTRIFUGAL ADVANCE. Disconnect the vacuum line. Set test stand to: 0° at 250 rpm.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0	1/4-1-1/4
600	0	1-1/4-2-1/4
900	0	3-4
1500	0	5-3/4-7
2000	0	8-1/4-9-3/4

VACUUM ADVANCE. Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	10	2-5
1000	14	5-8
1000	18	7-10
1000	20	7-1/2-10-1/2
Advance Limit		10-1/2

352 V-8 (C0AF-12127-E used with manual-shift transmission)

CENTRIFUGAL ADVANCE. Disconnect the vacuum line. Set test stand to: 0° at 300 rpm.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
500	0	0
775	0	1-2
1250	0	5-6-1/4
2000	0	11-1/2-13
Advance Limit		18

ADVANCE CHARACTERISTICS—Continued

VACUUM ADVANCE. Set test stand to: 1000 rpm, 0° 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	5	0-1
1000	10	5-8
1000	13-1/2	8-11
1000	17	9-1/2-12-1/2
Advance Limit		12-1/2

352 V-8 (C0AF-12127-D used with automatic transmission)

CENTRIFUGAL ADVANCE. Disconnect the vacuum line. Set test stand to: 0° at 200 rpm.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
300	0	0
500	0	3/4-1-3/4
1100	0	5-6-1/4
2000	0	11-1/2-13
Advance Limit		18

VACUUM ADVANCE. Set test stand to: 1000 rpm, 0° 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	5	0-1
1000	10	5-8
1000	13-1/2	8-11
1000	17	9-1/2-12-1/2
Advance Limit		12-1/2

390 V-8 (4-V) GALAXIE (C2AF-12127-A)

CENTRIFUGAL ADVANCE. Disconnect the vacuum line. Set test stand to: 250 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
375	0	0
400	0	1/2-1-1/4
500	0	3-1/2-4-1/2
600	0	5-6
2000	0	10-3/4-12-1/4

VACUUM ADVANCE. Set test stand to: 1000 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	6	0-2-1/2
1000	10	4-7
1000	15	5-1/2-8-1/2
Advance Limit	20	8-1/2

390 Police Interceptor V-8 and 390 V-8 (4-V) T'Bird. (C2SF-12127-A)

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

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
325	0	0
400	0	1/2-1-1/2
525	0	4-1/2-5-1/2
700	0	7-8
2000	0	15-1/4-16-3/4

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

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
1000	5	0-1

ADVANCE CHARACTERISTICS—Continued**390 Police Interceptor V-8 and 390 V-8 (4-V) T'Bird. (C3SF-12127-A)**
Continued

	1000	7	1-4
	1000	10	4-7
	1000	15	5-1/2-8-1/2
Advance Limit		20	8-1/2

406 V-8 (COAF-12127-K Dual Points)

CENTRIFUGAL ADVANCE. Set test stand to: 250 rpm, 0°, 0 inches of Mercury.

Distributor rpm	Vacuum—Inches of Mercury	Advance— Degrees
650	0	2-1/4-3-3/4
800	0	5-6-1/2
1125	0	7-3/4-9
2000	0	11-1/2-13
Advance Limit	2500	14

COIL
ALL ENGINES**Primary Resistance**

Ohms.....1.40-1.54 (75°F.)

Secondary Resistance

Ohms.....8000-8800 (75°F.)

Amperage Draw

Engine Stopped.....4.5

Engine Idling.....2.5

CONDENSER**ALL ENGINES**

Capacity—Microfarads.....0.21-0.25

Minimum Leakage—Megohms.....5

Autolite BTF-6.....0.030

Autolite BF-32, BF-42, and

BF-82.....0.035

TORQUE—Ft.-Lbs.

All Spark Plugs.....15-20

SPARK PLUGS**APPLICATION**

144, 170, 221 and

260.....Autolite BF-82

223 with Economy

Carburetor.....Autolite BF-82

223 without Economy

Carburetor.....Autolite BTF-6

352 and 390 V-8

(4-V).....Autolite BF-42

390 High Performance V-8 (6-V)

and 406 V-8.....Autolite BF-32

Racing.....Autolite BTF-1

SIZE

All Engines.....18 mm

GAP

Autolite BTF-1.....0.025

3. FUEL SYSTEM**FUEL PUMP****FUEL PUMP PRESSURE—**

psi at 500 rpm

144, 170 and 223.....3.5-5.5

221 and 260.....4.0-6.0

352, 390 and 406.....4.5-6.5

FUEL PUMP MINIMUM**VOLUME—**

Flow at 500 rpm

All 6-Cyl. Engines

.....1 Pint within 30 seconds

All V-8 Engines

.....1 Pint within 20 seconds

MINIMUM INTAKE VACUUM—

Inches of Mercury at 500 rpm

All Engines.....6.0

CHOKE PLATE**CLEARANCE****Engine-Transmission—Drill Size**

352 and 390 (4-V) Manual-Shift 3/16

352 and 390 (4-V) Automatic... 5/32

221 Manual-Shift.....7/64

221 and 260 Automatic.....7/64

260 Manual-Shift.....1/8

406 (4-V) Manual-Shift.....1/16

390 (6-V) and 406 (6-V).....7/64

CARBURETORS**SINGLE-BARREL****Identification**

Part No. Prefix and Suffix, appear on upper edge of main body above

CARBURETORS—**Continued**

mounting stud hole (accelerator pump side).

C3DF-9510-A—144 and Manual-Shift Transmission.

C3DF-9510-B—144 and Automatic Transmission.

C3OF-9510-A—170 and Manual-Shift Transmission.

C3OF-9510-B—170 and Automatic Transmission.

C3AF-9510-A—223 and Manual-Shift Transmission.

C3AF-9510-B—223 and Automatic Transmission.

C3AF-9510-C (Economy)—223 and Manual-Shift Transmission.

C3AF-9510-D (Economy)—223 and Automatic Transmission.

Main Metering Jet**Identification No.**

0-5,000 feet

C3DF-9510-A and B 53F

C3OF-9510-A 59F

C3OF-9510-B 57F

C3AF-9510-A and B 63F

C3AF-9510-C and D 62F

5,000-10,000 feet

C3DF-9510-A and B 51F

C3OF-9510-A 57F

C3OF-9510-B 55F

C3AF-9510-A, -B, -C and D 61F

10,000-15,000 feet

C3DF-9510-A and B 49F

C3OF-9510-A 55F

C3OF-9510-B 53F

C3AF-9510-A, -B, -C and D 59F

Float Setting—**Initial Setting Only**

From bottom of float to air horn, with air horn inverted. All single-barrel carburetor—

Allowable Tolerance $\pm 1/64''$

C3AF-9510-A and B 15/16''

All Others 1''

Venturi Size

C3DF-9510-A and B 1-1/64''

C3OF-9510-A and B 1-7/64''

C3AF-9510-A and B 1-13/64''

C3AF-9510-C and D 1-7/64''

Spark Control Valve Color**Identification**

All single-barrel carburetors ... plain

Anti-Stall Dashpot Clearance

3-1/4 to 3-3/4 turns in against dashpot diaphragm assy. (After contact).

Initial Idle Mixture**Adjustment**

144 and 170 3-4 turns open

223 5-7 turns open

Power Valve Opens at

C3DF-9510-A and B, C3OF-9510-A and B... 4.5-6.5 inches of Mercury

C3AF-9510-A and B

..... 5.5-7.5 inches of Mercury

FORD DUAL**Identification**

Part No. appears on side of fuel bowl.

C3OF-9510-C—221 and Manual-Shift Transmission.

C3OF-9510-D—221 and Automatic Transmission.

C3OF-9510-E—260 and Manual-Shift Transmission.

C3OF-9510-F—260 and Automatic Transmission.

C3AF-9510-E—352 and Manual-Shift Transmission.

C3AF-9510-F—352 and Automatic Transmission.

C3MF-9510-A—390 and Manual-Shift Transmission.

C3MF-9510-B—390 and Automatic Transmission.

Main Metering Jet**Identification No.**

0-5,000 feet

C3OF-9510-C and F 45

C3OF-9510-D 44

C3OF-9510-E 46

C3AF-9510-F 56

C3AF-9510-E 57

C3MF-9510-A 58

C3MF-9510-B 60

5,000-10,000 feet

C3OF-9510-C and F 43

C3OF-9510-D 42

C3OF-9510-E 44

C3AF-9510-E 57

C3AF-9510-F 56

C3MF-9510-A 58

C3MF-9510-B 60

10,000-15,000 feet

C3OF-9510-C and F 41

C3OF-9510-D 40

C3OF-9510-E 42

C3AF-9510-F 52

C3AF-9510-E 53

CARBURETORS—**Continued**

C3MF-9510-B 54

C3MF-9510-A 56

Power Valve Identification No.

0-5,000 feet

C3OF-9510-C, -D, -E, and -F... Black

C3AF-9510-E and -F and C3MF-

9510-A and -B Red

5,000-10,000 feet

All Dual Carburetors. 65

10,000-15,000 feet

All Dual Carburetors. 55

Dry Float Setting—**Initial Setting Only**

C3OF-9510-C and -D— $5/8 \pm 1/64$ inch from machined surface of main body to top of free end of float, with float in uppermost position.

All Others— $21/32 \pm 1/64$ inch from machined surface of main body to top of free end of float, with float in uppermost position.

Fuel Level SettingC3OF-9510-C and -D— $7/8 \pm 1/32$

inch below top surface of main body.

All Others— $29/32 \pm 1/32$ inch below

top surface of main body.

Venturi Size

C3OF-9510-C and -D 63/64

C3OF-9510-E and -F 1-1/64

C3AF-9510-E and -F 1-1/8

C3MF-9510-A and -B 1-15/64

Anti-Stall Dashpot Clearance

C3OF-9510-D and -F, C3AF-9510-F

and C3MF-9510-B 0.060-0.090

Initial Idle Mixture Adjustment

..... 1-1-1/2 turns open

Fast (Cold) Idle Adjustment

With fast idle screw on the kickdown step of the cam (hot engine).

C3AF-9510-E and C3MF-9510-A

..... 1200 rpm

C3OF-9510-C and -E 1300 rpm

C3AF-9510-F and C3MF-9510-B

..... 1500 rpm

C3OF-9510-D and -F 1600 rpm

Power Valve Opens at

..... 7-10 inches of Mercury

Choke Thermostatic Spring**Housing Initial Setting**

C3OF-9510-E At Index

C3AF-9510-F and C3MF-9510-A

and -B 2 Digits Lean

C3OF-9510-C, -D, -E, and -F

..... 4 Digits Lean

Final choke setting may be varied $\pm$

two (2) digits from the initial setting

to suit specific operating conditions.

FORD 4-BARREL**Identification**

Part No. appears on left side of primary fuel bowl.

C3AF-9510-N—390 with Manual-Shift Transmission.

C3AF-9510-S—390 Police Interceptor with Manual-Shift Transmission.

C3AF-9510-T—390 Police Interceptor with Automatic Transmission.

C3AF-9510-R—390 with Automatic Transmission.

C1AE-9510-AM—406 with Manual-Shift Transmission.

C3SF-9510-A—390 Thunderbird with Automatic Transmission.

Main Metering Jet**Identification No.****PRIMARY**

0-5,000 feet

C1AE-9510-AM 66

C3AF-9510-N and -S 56

C3AF-9510-R and -T and

C3SF-9510-A 54

5,000-10,000 feet

C1AE-9510-AM 64

C3AF-9510-N and -S 54

C3AF-9510-R and -T and

C3SF-9510-A 52

10,000-15,000 feet

C1AE-9510-AM 62

C3AF-9510-N and -S 52

C3AF-9510-R and -T and

C3SF-9510-A 50

SECONDARY

0-5,000 feet

C3AF-9510-R and C3SF-9510-A... 62

C3AF-9510-N, -S, and -T 63

C1AE-9510-AM 078"

5,000-10,000 feet

C3AF-9510-R and C3SF-9510-A... 60

C3AF-9510-N, -S, and -T 61

C1AE-9510-AM 078"

10,000-15,000 feet

C3AF-9510-R and C3FS-9510-A... 58

C3AF-9510-N, -S, and -T 59

C1AE-9510-AM 078"

CARBURETORS—**Continued****Power Valve Identification No.***

0-5,000 feet Plain

5,000-10,000 feet 65

10,000-15,000 feet 55

*C1AE-9510-AM—0-15,000 feet... 65

Power Valve Opens at*

..... 7-10 inches of Mercury

*C1AE-9510-AM

..... 5.5-8.5 inches of Mercury

Dry Float Setting—**Initial Setting Only****PRIMARY AND SECONDARY**47/64 $\pm$ 1/64 inch from machined surface of main body to top of free end of float, with float in uppermost position.

Top of float to be parallel with top of fuel bowl—fuel bowl inverted.

Fuel Level Setting***PRIMARY AND SECONDARY**63/64 $\pm$ 1/32 inch below the top surface of main body.*C1AE-9510-AM—Lower edge of sight plug opening $\pm$ 1/16.**Venturi Size***

Primary 1-1/8

Secondary 1-3/16

*C1AE-9510-AM

Primary 1-1/4

Secondary 1-3/16

Anti-Stall Dashpot Clearance

Automatic 0.060-0.090

Initial Idle Mixture Adjustment

..... 1—1-1/2 turns open

Fast (Cold) Idle Adjustment

With fast idle screw on the kickdown step of the cam (hot engine).

C3AF-9510-N, -R, -S, and

-T 1200 rpm

C3SF-9510-A 1500 rpm

C1AE-9510-AM 1800 rpm

Choke Thermostatic Spring**Housing Initial Setting**

C3AF-9510-S, -T, and -R and

C3SF-9510-A 2 Digits Lean

C3AF-9510-N and

C1AE-9510-AM Index

4. COOLING SYSTEM**WATER PUMP,
DRIVE BELTS,
AND THERMOSTATS****DRIVE BELT TENSION**

Measured with snap-on type gauge (tool T63L-8620-A).

Crankshaft and Power Steering**Pump Pulley**

All Engines New 120-150 lbs.

Used *90-120 lbs.

Generator and Water Pump**Pulley****SINGLE BELT**

144, 170 and 223 New 90-120

Used *60-90

221, 260, 352, 390 and

406 New 110-140

Used *80-110

DUAL BELT

144, 170 and 223

..... Front—New 90-120

Front—Used *60-90

Rear—New 85-135

Rear—Used *55-100

221, 260, 352, 390 and 406

..... Front—New 110-140

Front—Used *80-110

Rear—New 105-155

Rear—Used *75-120

Fan Pulley and Air Conditioner**Compressor Pulley**

All Engines New 120-150

Used *90-120

*Belt operated for a minimum of 10 minutes is considered a used belt.

**WATER PUMP TO ENGINE
RATIO**

144 and 170 1.04:1

223 0.95:1

221 and 260 1.05:1

352, 390 and 406 0.90:1

**FRONT FACE OF PULLEY HUB
TO WATER PUMP HOUSING****FACE DIMENSION**

144 and 170 3.94 inches

223 4.320 inches

221 and 260 5.150 inches

352, 390 and 406 7.569 inches

WATER PUMP, BELTS, AND THERMOSTATS— Continued

IMPELLER TO HOUSING CLEARANCE

144 and 170	0.005-0.025
223	0.015-0.025
221 and 260	0.030-0.050
352, 390 and 406	0.070-0.080

THERMOSTAT

Low Temperature Thermostat

OPENS °F.

All Engines. 155-162—Fully Open 182

High Temperature Thermostat

OPENS °F.

All Engines. 185-192—Fully Open 212

5. CLUTCHES

ADJUSTMENTS

Clutch Pedal Free Travel

Falcon and Fairlane 7/8-1-1/8

Galaxie (Engine Idling)..... 1

Clutch Pedal Total Travel

Falcon and Fairlane..... 6-1/2

Galaxie..... 6-5/8-6-7/8

Maximum Indicator Reading of Flywheel Housing Bore Concentricity to Centerline.

144, 170, 221 and 260 0.0035

223, 352 and 390 0.010

Maximum Indicator Reading of Flywheel Housing Transmission Mounting Face to Crankshaft Centerline.

144, 170, 221 and 260 0.006

223, 352, and 390..... 0.007

TORQUE LIMITS—Ft-lbs

Clutch Release Equalizer

Frame or Underbody

Bracket Bolts..... 25-32

Lower Cover to

Flywheel Housing..... 12-15

Flywheel Housing Bolts..... 40-50

Falcon..... 23-28

Pressure Plate to Flywheel

Retaining Bolts..... 12-20

Rear Mount Attaching Retainer

to Transmission..... 40-45

6. MANUAL-SHIFT TRANSMISSIONS

ADJUSTMENTS

Cluster Gear End Play ... 0.004-0.018

GEAR RATIOS

FIRST GEAR

Conventional Drive

144 and 170 3.41

223 3.26

221 3.02

260 2.79

352 and 390 2.42

Overdrive

221, 223 and 260 2.80

352 and 390 2.49

2ND GEAR

Conventional Drive

144 and 170 1.86

223 1.84

221 1.84

260 1.70

352 and 390 1.61

Overdrive

221, 223 and 260 1.69

352 and 390 1.59

3RD GEAR

Conventional Drive

All Engines..... 1.00

Overdrive

221, 223, and 260..... 0.70

352, and 390..... 0.72

REVERSE GEAR

Conventional Drive

144 and 170 3.51

223 3.35

221 3.10

260 2.87

GEAR RATIOS—Continued**REVERSE GEAR****Conventional Drive**

352 and 390 2.33

Overdrive

221, 223 and 260 3.80

352 and 390 3.15

TORQUE LIMITS—Ft-Lbs

Extension Housing Bolts 42-50

Main Drive Gear Bearing Retainer
to Transmission Case Bolts... 19-25

Transmission to Flywheel

Housing Bolts..... 32-36

Transmission Cover to

Transmission Case Bolts.... 14-19

Gear Shift Levers to Cam and

Shaft Assy. Lock Nuts..... 14-19

Gear Shift Housing Assembly to

Transmission Case Bolts.... 12-15

7. AUTOMATIC TRANSMISSIONS**FORDOMATIC****CHECKS AND ADJUSTMENTS**

Transmission End Play..... 0.020-0.039

Selective Thrust Washers Available..... 0.069-0.067

0.076-0.074

0.085-0.083

0.094-0.092

Turbine and Stator End Play—Maximum..... 0.060

Front Band Adjustment..... Adjust screw to 10 ft-lbs torque,
and back off two full turns.Rear Band Adjustment..... Position 0.250 inch spacer and
torque nut to 45-50 in-lbs. Back
off nut 2 turns and torque lock
nut to 15-18 ft-lbs. Remove spacer.**Accelerator Pedal Height Adjustment**

Falcon..... 4-1/4 inches above floor mat

Others..... 3-11/16 inches above floor mat

CONTROL PRESSURE AT ZERO OUTPUT SHAFT SPEED

Engine Speed or Manifold Vacuum	Throttle Position	Shift Selector Lever Position	Control (Line) Pressure psi
Idle Above 15 Inches of Mercury	Closed	All	144 Six 40-48 Others, 46-63
15 to 12.5 inches of Mercury	As Required	Drive Low Reverse	Pressure Starts Rising
Stall Below 1.5 Inches of Mercury	Through Detent (Wide Open)	Drive Low Reverse	144 Six 145-170 Others 175-200

FORDOMATIC—Continued**STALL SPEED LIMITS**

Engine Model	Engine rpm
144, 221, and 260	1600-1800
170	1750-1950
223	1300-1750

TORQUE LIMITS—Ft-Lbs

Governor Body Cover	20-30*
Planet Gear Shaft Retainer to Output Shaft	20-30*
Rear Pump to Body Cover	4-5
Control Valve Body Screws (10-24 x 3/4)	20-30*
Control Valve Body Bolts, Upper to Lower Body (1/4-20 x 7/8)	70-85*
Control Valve Body Bolts, Body to Transmission Case (1/4-20 x 1-1/2)	8-10
Control Valve Body Bolt, Upper Control to Lower (10-24 x 1-1/8)	20-30*
Control Valve Body Screw Upper Control to Lower (1/4-20 x 1-3/8)	70-85*
Oil Pan to Case	10-13
Front Servo Cover to Case ...	12-15
Rear Servo Cover to Case ...	12-15
Converter Stator Support to Front Pump	12-17

Front Pump to Case	18-22
Rear Pump to Case	12-15
Extension Housing to Case ...	28-38
Manual Control Shift Lever Shaft Nut	17-20
Downshift Lever Shaft Outer Nut	17-20
Reverse Band Servo Piston Rod Lock Nut	15-18
Low Band Lock Stop Nut ...	35-40
Oil Filler Tube Fitting Nut to Case	45-55
Breather Tube Nut to Case Falcon and Fairlane	7-12
Galaxie	60-70*
Oil Pan Drain Plug	10-15
Case to Cooler Outlet Plug ...	10-15
Case to Cooler Inlet Plug	10-15
Converter Cover Drain Plug ...	15-28
Front Servo Manufacturing Hole Plugs	10-15
Diaphragm Unit to Case ...	15-18†

*In-Lbs

†Using tool FCO-24 Modified Tool

CRUISE-O-MATIC**CHECKS AND ADJUSTMENTS**

Transmission End Play	0.010-0.029
Selective Thrust Washers Available	0.063-0.061
	0.069-0.067
	0.076-0.074
	0.083-0.081
Turbine and Stator End Play—Maximum	0.060
Front Band Adjustment	Position 1/4 inch spacer between adjustment screw and servo piston stem. Torque screw to 10 in-lbs and back off 1 full turn. Torque lock nut to 20-25 ft-lbs.

CRUISE-O-MATIC—Continued

CHECKS AND ADJUSTMENTS

Rear Band Adjustment	Torque screw to 10 ft-lbs, and back off 1-1/2 turns, torque lock nut to 35-40 ft-lbs.
Primary Sun Gear Shaft Ring End Gap	0.002-0.009
Rear Clutch Steel Plate Coning Clearance—Maximum	0.010
Accelerator Pedal Height Adjustment	3-11/16

FLUID PRESSURE RANGES

Manifold Vacuum	Engine Speed	Selector Lever Position	Gauge Reading—psi	
			Police Interceptor	Other
16 Minimum	Idle	N-D1-D2	70-95	57-72
		P-R-L	70-228	57-213
As required	As required	L-D1-D2	Start of Build-Up	Start of Build-Up
1.5 or less	Stall	D1 - D2	170-200	145-170
		L and R	212-228	201-213

TRANSMISSION GEAR RATIOS

Gear	Selector Lever Position	Clutch Applied	Band Applied	Gear Ratio
Neutral	N	None	None	—
First	D1 or L	Front	Rear*	2.40:1
Second	D1 or D2	Front	Front	1.47:1
Third	D1 or D2	Front & Rear	None	1.00:1
Reverse	R	Rear	Rear	2.00:1

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

STALL SPEED LIMITS

Engine Model	Engine rpm
352	1600-1800
390	1800-2000
390 Police Interceptor	1850-2050

TORQUE LIMITS—Ft-Lbs

Converter to Flywheel Nuts	15-28	Front Pump Cover Screws	25-35*
Converter Housing to Transmission Case Bolts	35-45	Rear Pump Cover Screws (1/4-20)	80-90*
Front Pump to Transmission Case Bolts	17-22	Rear Pump Cover Screws (10-24)	25-35*
Front Servo to Transmission Case Bolts	30-35	Governor Inspection Cover Screws	50-60*
Rear Servo to Transmission Case Bolts	40-50	Converter Cover Drain Plug	15-28
Planetary Support to Transmission Case Screws	20-25	Converter Housing to Engine Bolts	45-50
Upper Valve Body to Lower Valve Body Bolts	4-6	Vent Tube Nut	7-12
Control Valve Body to Transmission Case Bolts	8-10	Governor Valve Body to Counterweight Screws	50-60*
Pressure Regulator Assembly to Transmission Case Screws	17-22	Governor Valve Body Cover Screws	20-30*
Extension Assembly to Transmission Case Bolts	28-38	Pressure Regulator Cover Screws	20-30*
Oil Pan to Transmission Case Bolts	10-13	Control Valve Body Screws (10-24)	20-30*
Case Assembly—Gauge Hole Plugs	7-15	Case Assembly—Oil Cooler Inlet & Outlet Pipe Plugs	10-15
Rear Band Adjusting Screw Locknut	35-40	Front Servo Release Piston to Servo Piston Screw	20-30*
Front Band Adjusting Screw Locknut	20-25	Vacuum Diaphragm Unit	20-30
Manual Control Lever Nut	35-40		
Inner Throttle Lever Nut	17-20		

*In-Lbs

8. REAR AXLES

ADJUSTMENTS

Backlash Between Drive Gear and Pinion (Galaxie)	0.004-0.009
Maximum Backlash Variation Between Teeth	0.003
Maximum Runout of Backface of Ring Gear as Assembled	0.003
Differential Side Gear Thrust Washers Thickness	0.030-0.032
Differential Pinion Gear Thrust Washers Thickness	0.030-0.032
Nominal Pinion Locating Shim	0.020
Available Shims (in steps <u>0.001 inch</u>)	0.008-0.029

TORQUE LIMITS—Ft-Lbs

Part Name	Falcon	Others
Rear Cover Bolts	10-17	
Differential Bearing Cap Screws	40-50	55-65
Differential Bearing Adjusting Nut Lock Bolts	12-20	12-20
Rear Shock Absorber to rear spring Clip Plate Assembly Nuts	15-25	15-25
Universal Joint Flange Axle End to Universal Joint Bearing Assembly Nuts	7-10	12-15
Drive Gear Attaching Cap Screws	40-50	65-75
Rear Axle Shaft Bearing Retaining Nuts ..	30-35	30-40
Spring Clip Nuts (Rear Spring to Axle Housing)	13-20	30-45
Minimum Torque Required to Tighten Pinion Flange Locknut to Obtain Correct Pinion Bearing Preload	140	175*
Pinion Bearing Preload (In-lbs)		
New Bearings	17-27	17-27
Used Bearings	6-12	8-12
Carrier to Housing Stud Nuts		30-40
Pinion Retainer to Carrier Cap Screws ..		30-40
Differential Bearing Preload	1/1-2†	2-1/2-3†

*Used spacer. If this torque is not possible, use new spacer.

†Notches tight.

PINION AND DRIVE GEAR IDENTIFICATION

Ratio	Number of Teeth	
	Drive Gear	Pinion
3.00:1	39	13
3.25:1	39	12
3.50:1	35	10
3.56:1	32	9
3.89:1	35	9
4.00:1	36	9
4.11:1	37	9

DRIVE PINION ADJUSTING SHIM THICKNESS CHANGES

New Pinion Marking*	Old Pinion Marking†									
	-4	-3	-2	-1	0	+1	+2	+3	+4	
+4	+0.008	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	
+3	+0.007	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	
+2	+0.006	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	
+1	+0.005	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	
0	+0.004	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	
-1	+0.003	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	
-2	+0.002	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	
-3	+0.001	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.007	
-4	0	-0.001	-0.002	-0.003	-0.004	-0.005	-0.006	-0.007	-0.008	

*Old Pinion Marking for Falcon

†New Pinion Marking for Falcon

9. CHASSIS SUSPENSION

FRONT WHEEL ALIGNMENT

	Falcon	Fairlane	Galaxie	Thunderbird
Caster Angle*	$+1/2^{\circ} \pm 1/2^{\circ}$	$0^{\circ} \pm 1/2^{\circ}$	$0^{\circ} \pm 1/2^{\circ}$	$+3/4^{\circ} \pm 3/4^{\circ}$
Camber Angle†	$+1/2^{\circ} \pm 1/2^{\circ}$	$+1/2^{\circ} \pm 1/2^{\circ}$	$+5/8^{\circ} \pm 1/4^{\circ}$	$+3/8^{\circ} \pm 3/8^{\circ}$
Toe-In	1/4 to 5/16	1/16 to 3/16	1/8 to 1/4	1/16 to 3/16
Toe-Out on Turns Angle of Inside Wheel When Outside Wheel is Turned 20°	20-1/2°	23-1/2°	24-1/4°	20-1/2°

*Maximum Allowable Difference Between Shim Stock Thicknesses at Both Bolts.

Falcon	1/16
Galaxie	1/8

†Maximum Allowable Shim Stock Thickness at Each Bolt.

Falcon	9/16
Galaxie	5/8
Thunderbird	11/16

Amount of Angle Change With 1/16 inch Change of Shim Thickness at Either Bolt.

	Caster	Camber
Falcon	1/2°	1/3°
Galaxie	1/2°	1/4°
Thunderbird	—	1/3°

TREAD WIDTH AND WHEELBASE

Model	Front Tread	Rear Tread	Wheelbase
Falcon	55	54-1/2	109-1/2
Galaxie	61	60	119
Thunderbird	61	60	113
Fairlane	57	56	115-1/2

REAR SUSPENSION TORQUE LIMITS—Ft-Lbs

Part Name	Falcon	Galaxie	T'Bird	Fairlane
Spring Front Hanger				
Stud Nut		30-45	30-45	55-65
Bumper Assembly Retaining				
Stud Nut		15-22		—
Shock Absorber Upper				
Stud Nut	15-25	15-25	15-25	15-22
Shock Absorber to Rear Spring				
Clip Plate Nut	15-25	15-22	15-25	15-22
Spring Clip (U-Bolt) Nut	13-20	30-45	30-45*	30-45
Spring Front Hanger to				
Underbody Bolts			30-50	55-65
Spring Shackle Bar to				
Underbody or Rear				
Hanger Nut	13-20	15-22	15-22	15-22
Spring Shackle to Rear				
Spring Nut	13-20	15-22	20-25	15-22

*10 ft-lbs less for a used nut.

FRONT SUSPENSION TORQUE LIMITS—Ft-Lbs

Part Name	Falcon	Galaxie	T'Bird	Fairlane
Connecting Rod Sleeve				
Clamp Bolts	11-14	11-14	10-14	10-14
Lower Arm Ball Joint Assembly				
to Spindle Nut	35-65	70-90	60-80	60-80
Upper Arm Ball Joint Assembly				
to Spindle Nut	35-65	60-80	60-80	60-80
Ball Joint Assembly to Upper				
Arm Nuts	20-35	28-35	28-35	20-35
Ball Joint Assembly to				
Lower Arm Nuts	20-35	28-35	28-35	20-35
Upper Arm Inner Shaft				
Retaining Bolts or Nuts....	65-90	65-85	65-85	125-150
Upper Arm Bumper				
Assembly Nut	—	15-25	—	—
Bumper Assembly to Lower				
Arm Nut	—	15-25	—	—
Lower Arm Front Bushing Bolt	—	40-60	—	—
Lower Arm Rear Bushing Bolt	—	36-46	—	—
Shock Absorber Upper				
Retaining Nut	15-25	15-25	25-29	34-42
Spindle to Brake				
Carrier Plate	25-35	20-35	25-29	25-35
Stabilizer Bar to Lower Arm	12-17	8-13	10-15	10-13
Stabilizer Brackets to Frame	11-18	20-35	11-18	20-35
Front Shock Absorber Pin &				
Bushing Assembly to Lower				
Arm Nut	—	12-20	—	—
Bushing—Upper Arm to Upper				
Arm Inner Shaft	160-190	160-190	15-25	140
Upper Arm Ball Joint				
Pre-load	—	—	20-35*	—

FRONT SUSPENSION TORQUE LIMITS—Ft-Lbs— Continued

Part Name	Falcon	Galaxie	T'Bird	Fairlane
Lower Arm & Pivot Bracket Assembly to Underbody Bracket Retaining Nut.....	—	—	36-46	—
Pivot Bracket Shim Retaining Nuts.....	—	—	36-46	—
Bumper Assembly—Suspension Compression To Body Bracket Stud Nut.....	12-17	—	—	—
Bumper and Bracket Assembly Retaining Nuts.....	—	—	11-18	10-15
Front Shock Absorber to Spring Seat.....	12-17	—	15-25	20-35
Lower Arm Assembly to Underbody Pivot Bolt Nut..	60-75	—	85-115	50-65
Lower Arm Strut to Underbody Lock Nut.....	40-55	—	70-90	32-42
Brake Assembly to Front Spindle Lock Nut.....	25-35	—	—	—
Strut to Lower Arm Bolt.....	40-55	—	85-115	60-75
Shock Absorber Upper Bracket to Body Nut.....	8-13	—	—	32-42
Stabilizer to Body Lock Nut..	11-16	—	—	20-35
Shaft—Upper Arm Spring Seat to Upper Arm Lock Nut ...	13-18	—	—	—
Anti-Harsh Threaded Retainer Bushing.....	—	160-240	—	—
Crank Retaining Nut.....	—	40-60	—	—

*In-Lbs

WHEEL NUT TORQUE

Model	Bolt Circle Diameter	Ft-Lbs*
Falcon	4.5"	55-85
Fairlane, Galaxie and Thunderbird	4.5"	85-95

*Torque specifications are for clean dry bolt threads.

10. STEERING

STEERING GEAR CHECKS

Sector Shaft End Play Check

(Steering Linkage Disconnected) No Perceptible End Play

Permissible Backlash at 30° on Either Side of Straight—

Ahead Steering Wheel Position..... No Perceptible Backlash

STEERING GEAR ADJUSTMENTS (In-lbs torque at steering wheel) MANUAL STEERING

	Falcon	Galaxie	Fairlane
Worm Bearing Preload	3- 6	2-7	4- 7
Total Mesh.....	8-13	9-15	9-14

STEERING—Continued**POWER STEERING**

	Galaxie	Fairlane	Thunderbird
Worm Bearing Preload.....	3-5.5	2-4	2-4*
Total Mesh	8-13	5-9	6 (max.)*
Pressure Range (psi).....	(223) 750-900 (352 & 390) 950-1100	750-900	950-1100
Steering Effort (Engine Idling)	12 lbs	4-1/2	5-6 lbs

*Steering gear drained

TORQUE LIMITS—Ft-Lbs

Part Name	Falcon	Galaxie	T'Bird	Fairlane
Steering Pitman Arm to Idler Arm Rod Lock Nut	25-35	35-47	40-55	35-40
Steering Spindle Connecting Rod to Steering Arm to Idler Rod Lock Nut	25-35	35-47	40-55	35-40
Steering Spindle Connecting Rod End to Spindle Arm Nut		35-47	40-55	35-40
Steering Spindle Connecting Rod Sleeve Clamp Nut	10-15	11-14†	16-27	10-14
Steering Idler Arm Mounting Bracket to Frame or Underbody Nut	13-20	25-35 60-70	20-30 60-80	20-25 60-70
Steering Idler Arm Bushing Nut Steering Idler Arm Bushing to Idler Arm Bracket Nut	45-60	60-70	60-80	60-70
Transmission Gear Shift Tube Bracket to Cap (Gear Shift Tube to Steering Column) Bolt		8-11		
Steering Wheel Nut	25-35	25-35	25-35	20-30
Steering Gear Housing—Cover Assembly to Housing Assembly Bolt	12-20	12-20	12-20	12-20
Steering Pitman Arm Nut	85-110	110-150	110-150	110-150
Steering Gear Assembly to Frame or Underbody Assembly Bolt	25-35	28-43	35-50	40-55
Steering Column Bracket to Instrument Panel Nut	9-13	12-16	—	12-16
Transmission Manual Shift Rod to Tube and Socket Assembly (Fordomatic and Cruise-O- Matic)		8-13		

†Used nut, 7-10 ft.-lbs.

11. BRAKES

GENERAL

BRAKE DRUM

Inside Diameter

Falcon	9
Fairlane	10.00
Galaxie and Thunderbird	11.030

Boring Limit—Maximum

Falcon	9.060
Fairlane	10.060
Galaxie and Thunderbird	11.060

BRAKE LINING LENGTH

Primary

Falcon	7.34
Fairlane	9.30
Galaxie	9.34
Thunderbird	9.39

Secondary

Falcon	9.375
Fairlane	10.45
Galaxie	12.12
Thunderbird	12.21

BRAKE LINING WIDTH

Front Primary and Secondary

Falcon and Fairlane	2-1/4
Galaxie	2-1/2
Thunderbird	3

Rear Primary and Secondary

Falcon	1-1/2
Fairlane	1-3/4
Falcon Station Wagon and Ranchero	2-1/4
Galaxie	2-1/2
Thunderbird	3

WHEEL CYLINDER BORE DIAMETER

Front

Falcon	1-1/16
Fairlane	1-1/8
Galaxie and Thunderbird	1-3/32

Rear

Falcon	0.8125
Fairlane	29/32
Galaxie and Thunderbird	15/16

MASTER CYLINDER BORE DIAMETER

Thunderbird	7/8
Other Models	1.000

CHECKS AND ADJUSTMENTS

Brake Lining Clearance Midway
between rivets)—Maximum .0005

Brake Lining Wear Limit

(From top of rivets)

—Maximum 1/32 |

Hydraulic Master Cylinder Bore

(Honed oversize)—Maximum .003

Power Unit Push Rod

Adjustment (except Falcon)

..... 0.995-1.005 |

Drum Out of Round—Maximum .0007

TORQUE LIMITS—Ft-Lbs

Master Cylinder Mounting

Bolts 20-25 |

Parking Brake Control Assembly

to Cowl 18-25 |

Drum to Shaft Assembly

Speed Nut Hand Push Fit |

Pedal Pad to Brake Pedal Nut .. 12-16 |

Front Anchor Pin Bolt 80-100 |

Spindle to Brake Carrier Plate

Upper Bolts 25-35 |

Spindle to Brake Carrier Plate

Lower Bolts 75-80 |

Master Cylinder Mounting Bolts

..... 12-18 |

Mounting Bracket to Mounting Hub

Nuts 85-115* |

Booster to Dash Panel Mounting

Nuts 12-18 |

Wheel Brake Cylinder to

Backing Plate 5-7 |

Backing Plate and Cylinder

Assembly Brake Shoe

Anchor Pin Nut 20-30 |

Brake Cylinder to Brake

Backing Plate Bolt 10-20 |

Master Cylinder to Booster 10-13 |

Booster Bracket to Dash 12-18 |

Booster to Bracket 12-18 |

Vacuum Manifold Mounting Bolt .. 8-10 |

*In-Lbs.

12. ELECTRICAL

ACCESSORIES**STOP LIGHT SWITCH**

Operating Pressure 60-110

TURN INDICATOR

Current Draw at

12 Volts 0-4 Amperes

HEATER MOTOR CURRENT**DRAW—Amperes at 12 Volts**

At Slow Speed

Falcon 4 to 5

Others 2 to 4

At Medium Speed

Galaxie and Thunderbird ... 4 to 6

At High Speed

Falcon 5 to 6

Others 6 to 8

AIR CONDITIONER CURRENT**DRAW—Maximum Amperes**

at 12 Volts

SelectAir Blower (High) 12-14

PolarAir Blower (High) 6-8

Magnetic Clutch 2.65

HORN CURRENT DRAW—**Amperes at 12 Volts**

Falcon 10-11

Others 9-10

INSTRUMENT VOLTAGE

Average Voltage at Fuel and

Temperature Gauge

Terminals 5 Volts

BATTERY

Model	Plates	Amp Hours	Ground
Falcon			
Standard			
144 and 170	54	40	Negative
Optional			
144 and 170	54, 66	55	Negative
Fairlane			
Standard			
170	54	40	Negative
221 and 260	54	55	Negative
Optional			
170	54	55	Negative
221 and 260	66	65	Negative
Galaxie			
Standard			
223	66	55	Negative
260	54	55	Negative
352 and 390			
Conventional or Overdrive			
Transmission	66	55	Negative
Automatic Transmission	78	65	Negative
406	66	70	Negative
Optional			
223	66	70	Negative
352 and 390			
Conventional or Overdrive			
Transmission	78	65	Negative
Thunderbird			
Standard			
390	78	65	Negative
Optional			
390	66	70	Negative

ALLOWABLE FAST CHARGE TIME—Domestic Only

Specific Gravity	Maximum Fast Charge
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

SPECIFIC GRAVITY—Fully Charged

Battery	Negative Post Color
Domestic 1.280 $\pm$ 10	Plain
Low S. G. 1.260 $\pm$ 10	Yellow
Dry Charge	Red

STARTER MOTOR

Current Draw Under Load (Amperes)	Normal Engine Cranking Speed (rpm)	Minimum Stall Torque at 5 Volts (Ft-Lbs)	Maximum Load (Amperes)	No Load Amperage	Maximum Commutator Runout (Inches)
Galaxie & T'Bird 155-210	150-180	14.8	580	80-110	0.002
144 Falcon 100-150	250-290	8	450	70	0.002
170 Falcon & Fairlane 140-170	250-290	9.6	500	70	0.002
221 and 260 Fairlane	—	15.5	670	70	0.002

STARTER BRUSHES

Model	Minimum Mfg. Length (Inches)	Wear Limit (Inches)	Brush Spring Tension (Ounces)	Number Used
Galaxie & T'Bird	7/16	Half Size	48-56	4
Fairlane & Falcon	15/32	Half Size	45	4

GENERATOR—General Data

Generator Commutator Maximum Runout	0.002 inch
Generator Brushes Maximum Wear Limits	5/8 inch
Maximum External Circuit Resistance (Generator Armature Terminal to Battery Positive Terminal)	0.7 volts at 30 amperes

GENERATORS AND ALTERNATORS

Vendor and Engine Cubic Inch Displacement	Amperes at 15 Volts	Watts at 15 Volts	Field Current (Amps. at 12 Volts) 75°F	Cut-In Speed (Generator rpm) *	Rated Output Speed (Generator rpm) *	Belt Width (Inches)	Number Brushes Used	Brushes Original Length (Inches)	Spring Tension (Ounces)
FORD 144 & 170	25	375	1.2-1.8	1420	2610	3/8	2	0.9	20-26
FORD All Engines	30	450	1.2-1.8	1300	2525	3/8	2	0.9	20-26
FORD 352 & 390†	30	450	1.2-1.8	1300	2525	3/8	2	0.9	20-26
FORD Alternator (Thunderbird) 390	30	450	2.3-2.5	950	6500 (Hot)	3/8	2	0.63	7-12
FORD Alternator 406††	40	600	2.9-3.1	950	6500 (hot)	3/8	2	0.63	7-12

*To find the equivalent engine rpm, divide the generator pulley diameter by the crankshaft pulley diameter, and multiply by the generator rpm.

†Factory Installed Air Conditioner—Dual Belt Drive.

††Transistorized Ignition System.

VOLTAGE REGULATORS

Manufacturer	Current Rating	Cut-Out Voltage	Reverse Amperage To Open	Voltage Regulation 75° F.	Current Limiter (Amperes)
Galaxie and Fairlane					
STANDARD					
Ford	30	12.0-12.8	6-9	14.6-15.4	28-32
Autolite	40	12.5-13.8	8	14.3-15.1	33-37
OPTIONAL					
Leece-Neville...	60	5.8-6.2	—	14.2 Max.	43-47
Falcon					
STANDARD					
Ford	25	12.4-13.2	8	14.6-15.4	23-27
OPTIONAL					
Ford	30	12.0-12.8	6-9	14.6-15.4	28-32
Thunderbird					
STANDARD					
Ford	30	4-5*		14.1-14.7	—
OPTIONAL					
Ford	40	4-5*		14.1-14.7	—

*Field Relay Closing Voltage.

VOLTAGE REGULATION SETTING—Volts

Ambient Temperature °F.	Standard Ford Generator Regulator	Ambient Temperature °F.	Standard Ford Alternator Regulator
25	15.1-15.9	25	14.4-15.0
35	15.0-15.8	50	14.3-14.9
45	14.9-15.7	75	14.1-14.7
55	14.8-15.6	100	13.9-14.5
65	14.7-15.5	125	13.8-14.4
75	14.6-15.4	150	13.6-14.2
85	14.5-15.3	175	13.5-14.1
95	14.3-15.1		
105	14.2-15.0		
115	14.1-14.9		
125	13.9-14.7		
135	13.8-14.6		
145	13.6-14.4		

LIGHTING SYSTEM, HORNS, AND INSTRUMENTS BULB CHART

Description	Candle Power or Wattage	Trade Number
GALAXIE, FALCON, FAIRLANE AND THUNDERBIRD		
Front Turn Signal Parking Light	32/4 c.p.	1157
Rear Turn Signal and Stop Taillight	32/4 c.p.	1157
License Plate Light	4 c.p.	1155
Dome Light	15 c.p.	1003
Cluster Illumination	2 c.p.	1895
Generator Indicator	2 c.p.	1895
Oil Pressure Indicator	2 c.p.	1895
High Beam Indicator	2 c.p.	1895
Spotlight	30w	4405
GALAXIE AND THUNDERBIRD		
Headlight High Beam No. 1 (Inner)	37.5w	4001
Headlight Low Beam No. 2 (Outer)	50/37.5w	4002
Heater Control	2 c.p.	1895
GALAXIE ONLY		
Back-up Lights	32 c.p.	1156
Courtesy Light—Convertible	4 c.p.	1155
Courtesy Light—Other Models	15 c.p.	1003
Air Conditioner Control		
SelectAire	2 c.p.	1895
PolarAire	1.5 c.p.	1895
Clock	2 c.p.	1895
Radio Dial	2 c.p.	1891
Hand Brake Signal	2 c.p.	257
Turn Signal	2 c.p.	1895
Glove Compartment	2 c.p.	1895
THUNDERBIRD ONLY		
Back-up Lights	21 c.p.	1141
Luggage Compartment	6 c.p.	631
Headlight Switch Jewel	2 c.p.	1895
Windshield Wiper	2 c.p.	1895
Heater & Air Conditioner Control	2 c.p.	1895
Clock and Speedometer	3 c.p.	1816
Radio Dial	1.9 c.p.	1893
Courtesy and/or Map	6 c.p.	1004
Automatic Transmission Control	1.5 c.p.	1445
Ash Receptacle and Glove Compartment	1.5 c.p.	1445
Turn Signals	2 c.p.	1895
FALCON ONLY		
Headlights	50/40w	6012
Turn Signal Indicator	2 c.p.	1895
Radio Dial	1.3 c.p.	1892
Back-up Lights	32 c.p.	1156
FAIRLANE ONLY		
Back-up Lights	32 c.p.	1156
Radio Dial	2 c.p.	1891
Headlight High Beam No. 1 (Inner)	37.5w	4001
Headlight Low Beam No. 2 (Outer)	50/37.5w	4002
Turn Indicator	2 c.p.	1895

Circuit	Protective Device	Location
FALCON		
Headlights	Circuit Breaker	Integral with Headlight Switch
Instrument Panel, Dome, and All Exterior Lamps, except Headlights	3AG-15 Fuse	Fuse Panel on Light Switch
Turn Signals	SFE-14 Fuse	Fuse Panel on Light Switch
Radio	SFE-7.5 Fuse	Fuse Panel on Light Switch
Heater Blower	SFE-14 Fuse	Fuse Panel on Light Switch
Electric Windshield Wiper	Circuit Breaker	Edge of instrument panel—left of steering column
Cigar Lighter	Circuit Breaker	On Back of Cigar Lighter Socket
Tailgate Control Circuit	Circuit Breaker	On Starter Relay
Tailgate Motor Ground	Circuit Breaker	Right Tailight Vicinity
GALAXIE		
Spotlight	SFE-7.5 Fuse	Cartridge in Feed Wire
Clock	1AG-2 Fuse	Fuse Panel on Lighting Switch
Cigar Lighter	Circuit Breaker	Back of Lighter Socket
Overdrive	3AG-15 Fuse	Clips on O.D. Relay
Back Up Light & Turn Signals	SFE-14 Fuse	Fuse Panel on Lighting Switch
Headlight	Circuit Breaker	Integral with Headlight Switch
Auxiliary Lights (Park, Tail, Dash, Dome)	3AG-15 Fuse	Fuse Panel on Lighting Switch
Radio—Push Button & Manual	SFE-7.5 Fuse	Fuse Panel on Lighting Switch
Heater Blower	SFE-14 Fuse	Fuse Panel on Lighting Switch
Air Conditioner	3AG-15 Fuse	Cartridge in Feed Wire
Electric Window Regulator		
Power Circuit	30 Amp. Circuit Breaker	On Starting Motor Relay
Ground Circuit		
Front Doors	Circuit Breaker	Integral with Motors (Not Serviced)
Rear Doors	Circuit Breaker	Integral with Motors (Not Serviced)
Rear Quarters	Circuit Breaker	Integral with Motors (Not Serviced)

Circuit	Protective Device	Location
GALAXIE—Continued Electric Windshield Wipers..... Electric Seat..... Convertible Top Motor..... Windshield Washer Pump.....	12 Amp. Circuit Breaker 30 Amp. Circuit Breaker 30 Amp. Circuit Breaker SFE-14 Fuse	Instrument Panel Left of Steering Column On Starting Motor Relay On Starting Motor Relay Cartridge in Feed Wire
THUNDERBIRD Headlights..... Auxiliary Lights (Park, Tail, Dash, Dome)..... Back Up Lights and Turn Signals..... Radio..... Heater Blower or Select-Aire Conditioner..... Clock..... Cigar Lighter..... Cigar Lighter Feed Circuit..... Electric Window Regulator	18 Amp. Circuit Breaker 12 Amp. Circuit Breaker SFE-7.5 Fuse SFE-7.5 Fuse 20 Amp. Circuit Breaker 1AG-2 Fuse Reset C.B. 3AG-15	Integral with Headlight Switch Fuse Panel on Right Cowl Fuse Panel on Right Cowl Fuse Panel on Right Cowl Fuse Panel on Left Cowl Fuse Panel on Right Hand Cowl Fuse Panel on Right Cowl Back of Lighter Socket Fuse Panel on Right Cowl
Power Circuit..... Ground Circuit..... Front Door..... Rear Quarter..... Windshield Wiper Motor..... Electric Seat..... Windshield Washer Pump..... Convertible Top System	20 Amp. Circuit Breaker Circuit Breaker Circuit Breaker 12 Amp. Circuit Breaker 30 Amp. Circuit Breaker SFE-14 Fuse 50 Amp. Circuit Breaker 10 Amp. Circuit Breaker	Fuse Panel on Right Hand Cowl Integral with Motors (Not Serviced) Integral with Motors (Not Serviced) Lower Left of Instrument Panel On Starting Motor Relay Fuse Panel on Left Cowl
Power Circuit..... Control Circuit..... Ground Circuit..... Luggage Compartment Lock Motor..... Upper Back Panel Motor.....	 15 Amp. Circuit Breaker 15 Amp. Circuit Breaker	On R. H. Fender Apron and Rad. Support Fuse Panel on Right Hand Cowl Luggage Compartment Door Panel Luggage Compartment Door Panel

LIGHTING SYSTEM, HORNS, AND INSTRUMENTS—Continued
FUSE AND CIRCUIT BREAKER CHART

Circuit	Protective Device	Location
FAIRLANE		
Headlights	18 Amp. Circuit Breaker	Integral with Headlight Switch
Interior, Park, Tail, and Stop	3AG-15	Fuse Block on Headlight Switch
Back-up and Turn Indicator	SFE-14	Fuse Block on Headlight Switch
Radio	SFE-7.5	Fuse Block on Headlight Switch
Heater Blower	SFE-14	Fuse Block on Headlight Switch
Air Conditioner	3AG-15	Cartridge in Feed Wire
Spotlight	SFE-7.5	Cartridge in Feed Wire
Cigar Lighter	Reset C.B.	Back of Cigar Lighter Socket
Overdrive	3AG-15	On Overdrive Relay
Windshield Wiper Motor	5 Amp. Circuit Breaker	Lower Left Instrument Panel
Electric Window Regulator		
Power Circuit	30 Amp. Circuit Breaker	On Starter Motor Relay
Window Regulator Motor		
Ground Circuit	N.A. Circuit Breaker	Integral with Motor

Circuit	Protective Device	Location
FALCON		
Headlights	Circuit Breaker	Integral with Headlight Switch
Instrument Panel, Dome, and All Exterior Lamps, except Headlights	3AG-15 Fuse	Fuse Panel on Light Switch
Turn Signals	SFE-14 Fuse	Fuse Panel on Light Switch
Radio	SFE-7.5 Fuse	Fuse Panel on Light Switch
Heater Blower	SFE-14 Fuse	Fuse Panel on Light Switch
Electric Windshield Wiper	Circuit Breaker	Edge of instrument panel—left of steering column
Cigar Lighter	Circuit Breaker	On Back of Cigar Lighter Socket
Tailgate Control Circuit	Circuit Breaker	On Starter Relay
Tailgate Motor Ground	Circuit Breaker	Right Tailight Vicinity
GALAXIE		
Spotlight	SFE-7.5 Fuse	Cartridge in Feed Wire
Clock	1AG-2 Fuse	Fuse Panel on Lighting Switch
Cigar Lighter	Circuit Breaker	Back of Lighter Socket
Overdrive	3AG-15 Fuse	Clips on O.D. Relay
Back Up Light & Turn Signals	SFE-14 Fuse	Fuse Panel on Lighting Switch
Headlight	Circuit Breaker	Integral with Headlight Switch
Auxiliary Lights (Park, Tail, Dash, Dome)	3AG-15 Fuse	Fuse Panel on Lighting Switch
Radio—Push Button & Manual	SFE-7.5 Fuse	Fuse Panel on Lighting Switch
Heater Blower	SFE-14 Fuse	Fuse Panel on Lighting Switch
Air Conditioner	3AG-15 Fuse	Cartridge in Feed Wire
Electric Window Regulator		
Power Circuit	30 Amp. Circuit Breaker	On Starting Motor Relay
Ground Circuit		
Front Doors	Circuit Breaker	Integral with Motors (Not Serviced)
Rear Doors	Circuit Breaker	Integral with Motors (Not Serviced)
Rear Quarters	Circuit Breaker	Integral with Motors (Not Serviced)

Circuit	Protective Device	Location
GALAXIE—Continued Electric Windshield Wipers..... Electric Seat..... Convertible Top Motor..... Windshield Washer Pump.....	12 Amp. Circuit Breaker 30 Amp. Circuit Breaker 30 Amp. Circuit Breaker SFE-14 Fuse	Instrument Panel Left of Steering Column On Starting Motor Relay On Starting Motor Relay Cartridge in Feed Wire
THUNDERBIRD Headlights..... Auxiliary Lights (Park, Tail, Dash, Dome)..... Back Up Lights and Turn Signals..... Radio..... Heater Blower or Select-Aire Conditioner..... Clock..... Cigar Lighter..... Cigar Lighter Feed Circuit..... Electric Window Regulator	18 Amp. Circuit Breaker 12 Amp. Circuit Breaker SFE-7.5 Fuse SFE-7.5 Fuse 20 Amp. Circuit Breaker 1AG-2 Fuse Reset C.B. 3AG-15	Integral with Headlight Switch Fuse Panel on Right Cowl Fuse Panel on Right Cowl Fuse Panel on Right Cowl Fuse Panel on Left Cowl Fuse Panel on Right Hand Cowl Fuse Panel on Right Cowl Back of Lighter Socket Fuse Panel on Right Cowl
Power Circuit..... Ground Circuit..... Front Door..... Rear Quarter..... Windshield Wiper Motor..... Electric Seat..... Windshield Washer Pump..... Convertible Top System	20 Amp. Circuit Breaker Circuit Breaker Circuit Breaker 12 Amp. Circuit Breaker 30 Amp. Circuit Breaker SFE-14 Fuse 50 Amp. Circuit Breaker 10 Amp. Circuit Breaker	Fuse Panel on Right Hand Cowl Integral with Motors (Not Serviced) Integral with Motors (Not Serviced) Lower Left of Instrument Panel On Starting Motor Relay Fuse Panel on Left Cowl
Power Circuit..... Control Circuit..... Ground Circuit..... Luggage Compartment Lock Motor..... Upper Back Panel Motor.....	 15 Amp. Circuit Breaker 15 Amp. Circuit Breaker	On R. H. Fender Apron and Rad. Support Fuse Panel on Right Hand Cowl Luggage Compartment Door Panel Luggage Compartment Door Panel

LIGHTING SYSTEM, HORNS, AND INSTRUMENTS—Continued
FUSE AND CIRCUIT BREAKER CHART

Circuit	Protective Device	Location
FAIRLANE		
Headlights.....	18 Amp. Circuit Breaker	Integral with Headlight Switch
Interior, Park, Tail, and Stop.....	3AG-15	Fuse Block on Headlight Switch
Back-up and Turn Indicator.....	SFE-14	Fuse Block on Headlight Switch
Radio.....	SFE-7.5	Fuse Block on Headlight Switch
Heater Blower.....	SFE-14	Fuse Block on Headlight Switch
Air Conditioner.....	3AG-15	Cartridge in Feed Wire
Spotlight.....	SFE-7.5	Cartridge in Feed Wire
Cigar Lighter.....	Reset C.B.	Back of Cigar Lighter Socket
Overdrive.....	3AG-15	On Overdrive Relay
Windshield Wiper Motor.....	5 Amp. Circuit Breaker	Lower Left Instrument Panel
Electric Window Regulator		
Power Circuit.....	30 Amp. Circuit Breaker	On Starter Motor Relay
Window Regulator Motor		
Ground Circuit.....	N.A. Circuit Breaker	Integral with Motor

SPEEDOMETER GEAR, REAR AXLE, AND TIRE SIZE COMBINATION FALCON

Tire Size		6:00 x 13		6:50 x 13	
Rear Axle Ratio	Transmission	Teeth in Driven Gear	Color	Teeth in Driven Gear	Color
3.10:1	Conventional and Fordomatic	16	Wine	16	Wine
3.20:1	Conventional	16	Wine	16	Wine
3.50:1	Conventional and Fordomatic	18	Gold	17	Green
4.00:1	Conventional and Fordomatic	—	—	20	Black

GALAXIE, AND THUNDERBIRD

Tire Size		7:50 x 14		8:00 x 14	
Rear Axle Ratio	Transmission	Teeth in Driven Gear	Color	Teeth in Driven Gear	Color
3.00:1	Fordomatic	18	Purple	18	Purple
	Cruise-O-Matic	18	Natural	18	Natural
3.50:1*	Conventional and Overdrive	19	Red	18	Natural
	Fordomatic	21	Yellow	21	Yellow
3.89:1*	Cruise-O-Matic	21	Green	21	Green
	Conventional and Overdrive	20	Orange	20	Orange

*Galaxie Only.

**SPEEDOMETER GEAR, REAR AXLE, AND TIRE SIZE COMBINATION
FAIRLANE**

Tire Size		6:50 x 13		7:00 x 13	
Rear Axle Ratio	Transmission	Teeth in Driven Gear	Color	Teeth in Driven Gear	Color
3.00:1	Fordomatic	17	Green	16	Wine
3.25:1	Fordomatic Manual-Shift	19	Pink	18	Gold
3.50:1	Fordomatic Manual-Shift	20	Black	19	Pink
	Overdrive	17	Green	16	Wine

13. REFILL CAPACITIES**ENGINE COOLING SYSTEM CAPACITIES—Approximate**

Standard	Quarts*
144 and 170.....	8-1/2
223.....	15
221 and 260.....	13-1/2
Other Engines.....	19

*Add 1 quart for heater.

FUEL TANK CAPACITIES—Approximate

Falcon	14 gallons
Fairlane	16 gallons
Galaxie and Thunderbird	20 gallons
Galaxie Station Wagon	21 gallons

CRANKCASE CAPACITIES—Approximate*

144 and 170.....	3-1/2 quarts
223, 221, and 260.....	4 quarts
352, 390, and 406.....	5 quarts

*Add 1 quart extra when changing oil filter.

REAR AXLE LUBRICANT CAPACITIES—Approximate

Falcon	2-1/2 pints
Galaxie, Fairlane, and Thunderbird	4-1/2 pints

TRANSMISSION REFILL CAPACITIES—Approximate

Conventional	
144 and 170	2-1/2 pints
221, 223, 260, 352, 390, and 406.....	3 pints
Overdrive	
221, 223 and 260	3 pints
352 and 390	4 pints
Fordomatic	
144, 170, 221 and 260	7 quarts, 1 pint
223	10 quarts
Cruise-O-Matic	
352	11 quarts
390	11 quarts, 1 pint

POWER STEERING RESERVOIR CAPACITY—Approximate

221, 223 and 260	2 pints
352 and 390.....	2-1/2 pints

STEERING GEAR HOUSING CAPACITY—Approximate

144, 170, 221 and 260	0.33 pints
223, 352, 390 and 406	11 oz. (wt.)

DECIMAL EQUIVALENTS OF FRACTIONS

1/16	1/32	1/64	.015625	9/16	33/64	.515625
			.03125		17/32	.53125
		3/64	.046875		35/64	.546875
			.0625			.5625
1/8	3/32	5/64	.078125	5/8	37/64	.578125
			.09375		19/32	.59375
		7/64	.109375		39/64	.609375
			.125			.625
3/16	5/32	9/64	.140625	11/16	41/64	.640625
			.15625		21/32	.65625
		11/64	.171875		43/64	.671875
			.1875			.6875
1/4	7/32	13/64	.203125	3/4	45/64	.703125
			.21875		23/32	.71875
		15/64	.234375		47/64	.734375
			.25			.75
5/16	9/32	17/64	.265625	13/16	49/64	.765625
			.28125		25/32	.78125
		19/64	.296875		51/64	.796875
			.3125			.8125
3/8	11/32	21/64	.328125	7/8	53/64	.828125
			.34375		27/32	.84375
		23/64	.359375		55/64	.859375
			.375			.875
7/16	13/32	25/64	.390625	15/16	57/64	.890625
			.40625		29/32	.90625
		27/64	.421875		59/64	.921875
			.4375			.9375
1/2	15/32	29/64	.453125	1	61/64	.953125
			.46875		31/32	.96875
		31/64	.484375		63/64	.984375
			.5			1.000000



FORD DIVISION - FORD MOTOR COMPANY

