1968 Ford 6 Tune-Up

TUNE-UP

ENGINE IDENTIFICATION

Engine code letter is fourth digit of Official Serial Number or Warranty Number.

Application	Code
170" 6-Cyl.	F
240" 6-Cyl.	A
300" 6-Cyl.	B

MODEL IDENTIFICATION

RATING PLATE

F100/350, E100 – Rating Plate is located on rear (lock) face of left front door.

P350 – Rating Plate is located on upper cowl panel in engine compartment.

U100 – Rating Plate is located in inner panel of glove box door.

OFFICIAL SERIAL NUMBER

E100 & U100 – Serial number is stamped 12 inches to rear of right front shock tower on top surface of right frame side rail.

VEHICLE IDENTIFICATION NUMBER (VIN)

F100/350, P100 & 350 – VIN number is stamped on an aluminum plate riveted to instrument panel close to windshield on passenger side of vehicle.

P35TUA37000

First Digit – Truck Series Letter
Second & Third Digits – Truck Series Number
Fourth Digit – Engine Code.
Fifth Digit – Assembly Plant.
Remaining Digits – Consecutive Unit Number.

TUNE-UP NOTES

► *IDLE SPEED ADJUSTMENT CAUTION* – Procedures and specifications for idle speed adjustment must be followed exactly as outlined. *See "Hot (Slow) Idle RPM" under Tune-Up.*

NOTE – For other items affecting Tune-Up, see CARBURETION Section or EMISSION CONTROL Section.

COMPRESSION PRESSURE

Check compression with throttle wide open at cranking speed. Compression pressure should be at least 75% of highest reading.

Application	Pressure (Lbs.) @ Sea Level
All Engine	150-200

VALVE TAPPET CLEARANCE

Application	Mechanical	Hydraulic
170"	.018"	
240" & 300"		①.082-.152"

① – One turn down after contact. Clearance is with tappet collapsed.

VALVE ARRANGEMENT

170" – E-I-I-E-I-E-E-I-E-I-I-E (front to rear).
240" &300" – E-I-E-I-E-I-E-I-E-I-E-I (front to rear).

SPARK PLUGS

Gap ..... ①.032-.036"
Torque ..... 15-20 ft. lbs.

① – Medium duty is .028-.032" in 240" engine.

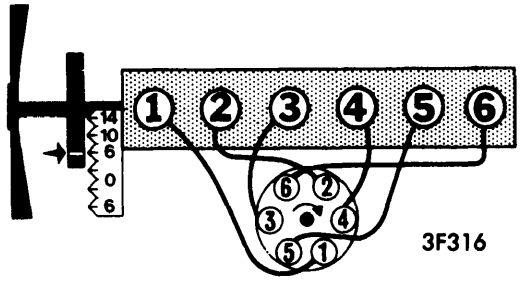
Spark Plug Type

Application	Autolite No.
170"	BF-82
240" & 300"	①BTF-42

① – Medium duty 240" is BTF-31.

DISTRIBUTOR

Point Gap	W/Emission Control	W/O Emission Control
170"	.027"	
240" & 300"	.027"	.025"
Cam Angle;		
170"	35°-40°	
240" & 300"	35°-40°	37°-42°
Breaker Arm Spring Tension		17-21 ozs.
Condenser Capacity		.21-.25 mfd.



FIRING ORDER & TIMING MARKS

IGNITION TIMING

With engine at normal operating temperature, disconnect distributor vacuum line(s) and plug line(s). Install timing light to number one spark plug. Check and adjust timing at idle.

Timing Degrees BTDC

Application	Man. Trans.	Auto. Trans.
170"	6°	
240" & 300";		
W/O Emission Control	6°	10°
W/Emission Control	6°	6°

HOT (SLOW) IDLE RPM

Set parking brake and bring engine to normal operating temperature. Check timing and dwell and install a tachometer. Place automatic transmission in "D" or manual transmission in neutral. Seat hot idle compensator (if equipped), turn headlights to high beam and air conditioning "ON". With air cleaner installed, adjust curb idle RPM to specifications. Adjust mixture screw for smoothest idle within range of idle limiter caps. Stop engine and adjust fuel bowl vent valve (Autolite carburetor only). Set throttle linkage to hot idle position. Index mark on vent valve rod should now be even with open end of vent. Bend arm on vent valve rod actuating lever (where it contacts accelerator pump lever) to align groove with edge of bore.

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TUNE-UP (Cont.)

IDLE MIXTURE ADJUSTMENT

EXHAUST GAS ANALYZER PROCEDURE

Install a stuiable calibrated exhaust gas analyzer. Disconnect Thermactor pump air supply hose at pump or check valve. Do not adjust for drop in engine RPM. Note amount of RPM drop. With air cleaner installed, take an analyzer reading. Adjust idle mixture screw within range of limiter cap to specified air/fuel ratio. Correct for any changes in engine idle RPM immediately as idle mixture screw is turned. Refer to drop in idle RPM obtained when Thermactor air pump hose was disconnected, then correct idle speed to RPM noted.

NOTE — Allow at least ten seconds following each mixture adjustment for analyzer to properly respond and stabilize.

Idle Limiter Cap or Screw — If proper air/fuel mixture cannot be achieved within limits of idle limiter cap (Autolite) or limiter screw (Carter), remove cap or adjust screw until proper air/fuel mixture achieved. Replace with a colored idle mixture limiter cap (Autolite) or new lead seal (Carter).

Air/Fuel Ratio

Application	Imco	A.I.R.
170"	14.0	12.8
240"	13.7	12.1
300"	14.0	13.3

COLD (FAST) IDLE RPM

Autolite Carburetors — With engine at normal operating temperature and hot (slow) idle properly adjusted, manually rotate fast idle cam until fast idle adjusting screw rests on center step on cam. Start engine and turn fast idle adjusting screw to obtain specified RPM.

Carter Carburetors — Open throttle valve and hold choke valve fully closed to allow fast idle cam to revolve to fast idle position. Bend choke connector rod until there is light contact between fast idle arm and stop on carburetor body.

Hot (Slow) Idle RPM

Application	Man. Trans.	Auto. Trans.
170"	700	
240" & 300";		
W/Emission Control	600	500
W/O Emission Control	525	500

Cold (Fast) Idle RPM

Application	Man. Trans.	Auto. Trans.
240" W/Emission Control		2700
300" W/Emission Control	2700	2700

GOVERNOR ADJUSTMENT

240" & 300" — On vehicles equipped with conventional velocity governor, connect a tachometer to engine. With engine at normal operating temperature and throttle at wide open position, compare RPM with operating range stamped on governor plate. If adjustment is required, remove governor seal. To increase RPM, turn cap counterclockwise and clockwise to decrease RPM. With adjustment complete, stop engine and seal cap.

Application	No-Load RPM	Full Load RPM
240" & 300"	4000	3800

FUEL PUMP PRESSURE & VOLUME

Pressure (at 500 RPM)	4-6 lbs.
Volume	1 pt. in 30 sec.

MANIFOLD HEAT CONTROL VALVE

240" & 300" — Check valve for freedom of movement and lubricate with a suitable solvent (Rotunda COAZ-19A501-A).

EMISSION CONTROL

See Appropriate Article in EMISSION CONTROL Section.

IGNITION

DISTRIBUTOR

Application	Man. Trans.	Auto. Trans.
	①Ford Part No.	
170"	②C8UF-A, C5DF-C	
240"	②C8AF-A, C6TF-AC,AD	C6AF-Y,②C8UF-D
300"	②C8TF-D,C6TF-AF	C6TF-AG,②C8TF-D

① — Basic part number is 12127.
② — With emission control.

Other Data & Specifications — *See Tune-Up & Ford Distributors in ELECTRICAL Section.*

IGNITION COIL

Application	①Ford Part No.
Conventional	B6A-B
Transistorized	C3TZ-A

① — Basic part number is 12029.

Resistance	Ohms @ 75°F
Conventional;	
Primary	1.40-1.54
Secondary	7600-8800
Transistorized;	
Primary	.226-.251
Secondary	4900-5680

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CARBURETION

CARBURETORS

①Autolite Model 1101

Application	Man. Trans.	Auto. Trans.
240"		C8TF-C
300"	C8TF-E, ②G	C8TF-F

①Carter Model YF

Application	Man. Trans.	Auto. Trans.
170"	C8TF-A	
240"	C8UF-G	

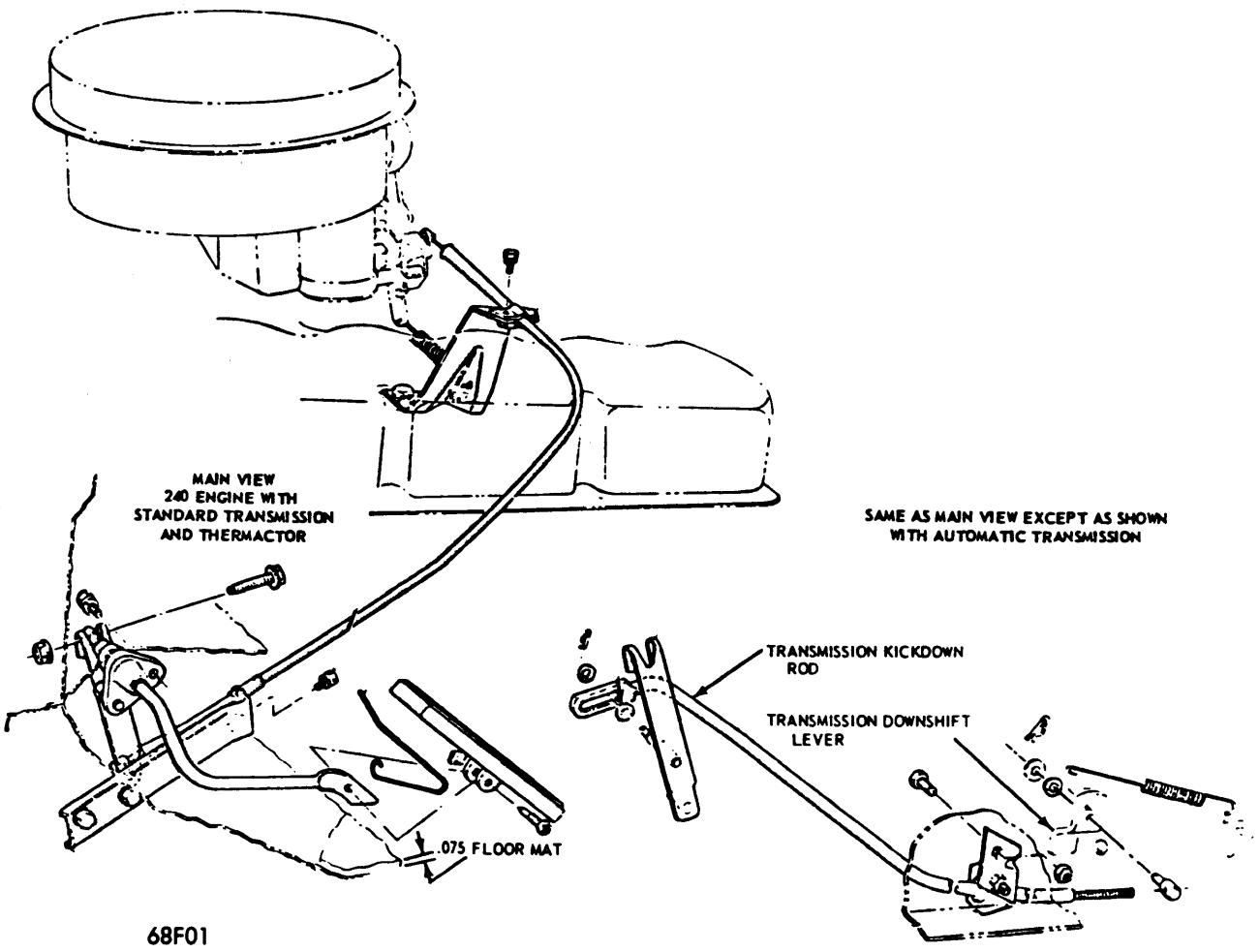
① — Basic part number is 9510.
② — Truck (4x4).

Other Data & Specifications — *See Tune-Up, Ford and Carter Carburetors in CARBURETION Section.*

ACCELERATOR AND DOWNSHIFT LINKAGE ADJUSTMENT

E100 170" & 300" — Remove engine cover and air cleaner. Place accelerator pedal in wide open position and check throttle valve position. Loosen throttle cable clamp and move cable in or out until throttle valve is wide open. Tighten throttle cable clamp. On 240" engines with automatic transmission, hold accelerator pedal in wide open position. Disconnect downshift rod at transmission downshift lever. Move downshift rod to maximum rearward position. Move transmission downshift lever to maximum forward position. Adjust downshift rod trunnion so that it slips freely into downshift lever, then lengthen rod one or two turns of the trunnion. Tighten and reinstall trunnion and downshift rod.

F100/350, F100 & 250 (4x4) 240" & 300" (Man. Trans.) — Disconnect clip at end of stabilizer rod. Insert .185-.188" diameter pin thru three holes in bellcrank and bracket assembly. Adjust length of stabilizer assembly so rod enters bracket freely. Install clip at end of stabilizer rod and remove .185-.188" pin. Depress accelerator pedal to floor. Bring carburetor throttle lever to wide open position (against stop), by pushing rearward on bellcrank assembly. Adjust rod assembly to install on ball studs, shorten one turn and install rod.



ACCELERATOR & DOWNSHIFT LINKAGE E100 240"

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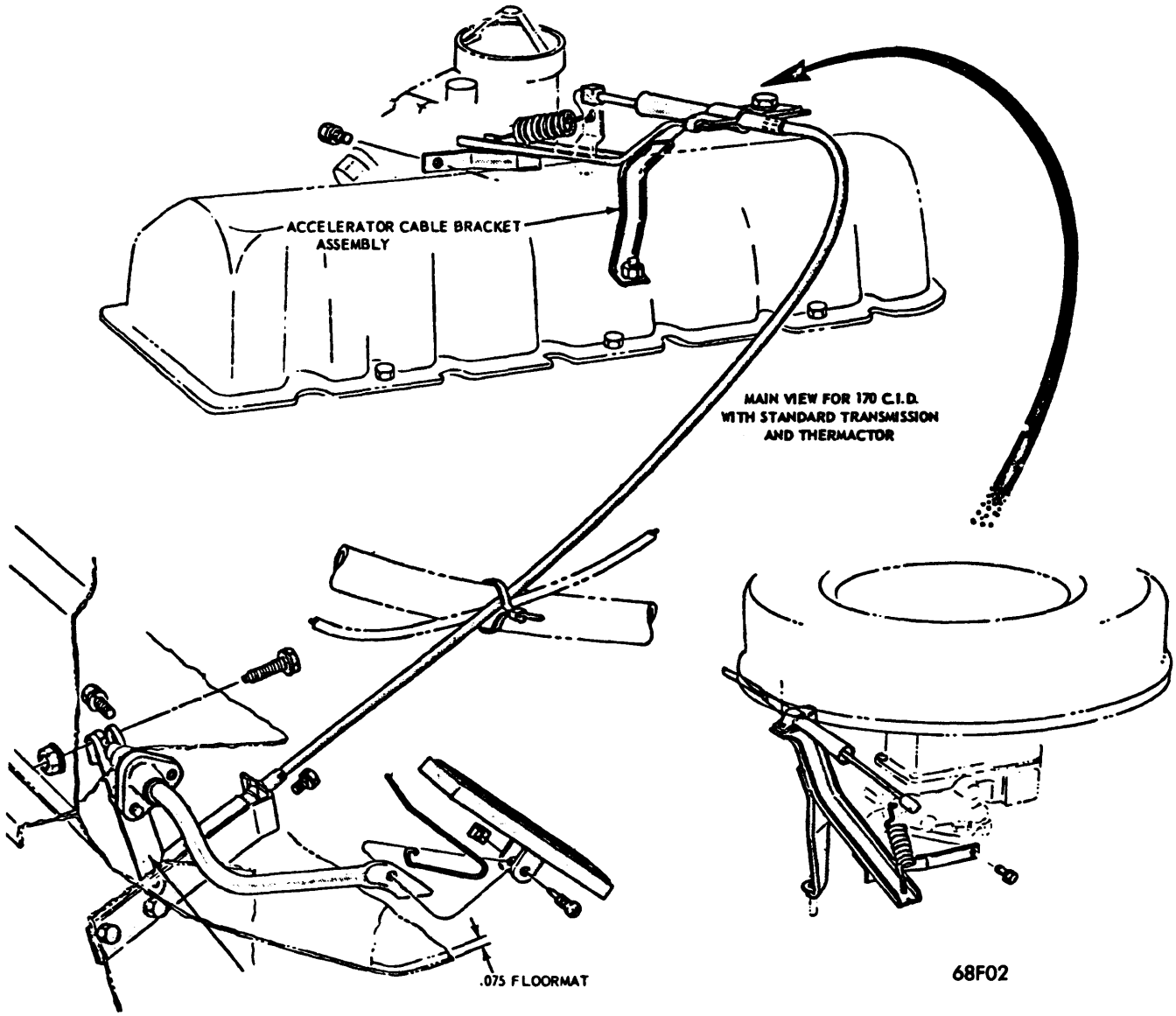
CARBURETION (Cont.)

F100/350 (Auto. Trans.) – Disconnect clip from bracket assembly. Insert 3/16" diameter pin through holes in bellcrank assembly. Adjust bellcrank stabilizer so that rod fits freely into bracket. Install clip and remove pin. Disconnect accelerator-to-bellcrank rod from bellcrank. Depress accelerator pedal to floor. Move throttle lever to wide open position. Adjust so that rod fits freely on ball stud, then shorten rod one complete turn and install. Hold throttle in wide open position. Hold a .060" feeler gauge between throttle lever and adjustment screw (see illustration). Loosen adjusting screw lock nut. Turn adjusting screw to place downshift lever on transmission against internal stop. Tighten adjusting screw lock nut.

P100 170" (Man. Trans.) – With idle speed and fuel mixture properly adjusted, check for ½" clearance between center of clevis on accelerator assembly and accelerator bracket rod with throttle fully closed (see illustration). Adjust clearance by clevis at accelerator bellcrank assembly.

P350 240" & 300" – With idle speed and fuel mixture properly adjusted, loosen jam nut and adjust pedal stop bolt (see illustration). Tighten jam nut. Disconnect accelerator return spring and loosen accelerator cable clamp. Depress accelerator pedal to stop and slide cable rearward until throttle is wide open. Tighten cable clamp and reinstall return spring. On automatic transmission, hold throttle in wide open position. Place a .060" feeler gauge between throttle lever and adjusting screw. Loosen lock nut and adjust screw until downshift lever on transmission is against internal stop. Tighten lock nut and remove feeler gauge.



ACCELERATOR LINKAGE E100 170" (MAN. TRANS.)

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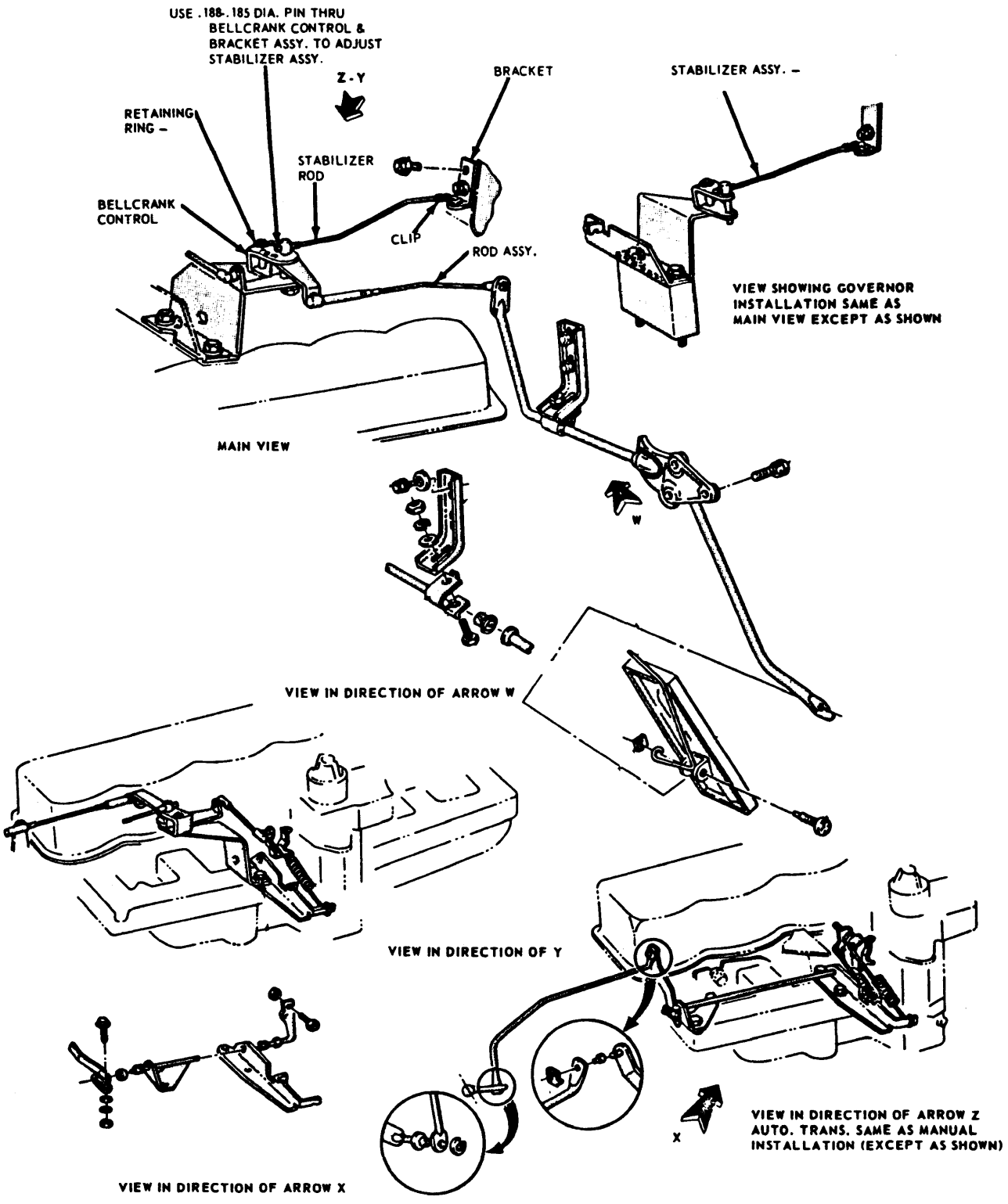
CARBURETION (Cont.)



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ACCELERATOR LINKAGE F100/350, F100 & 250 (4x4) 240" & 300" (MAN. TRANS.)

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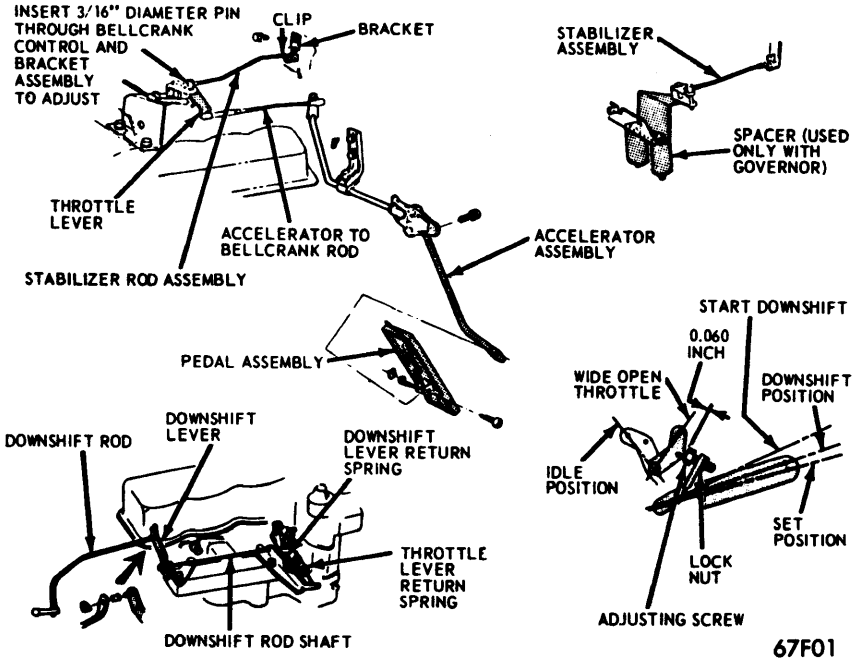
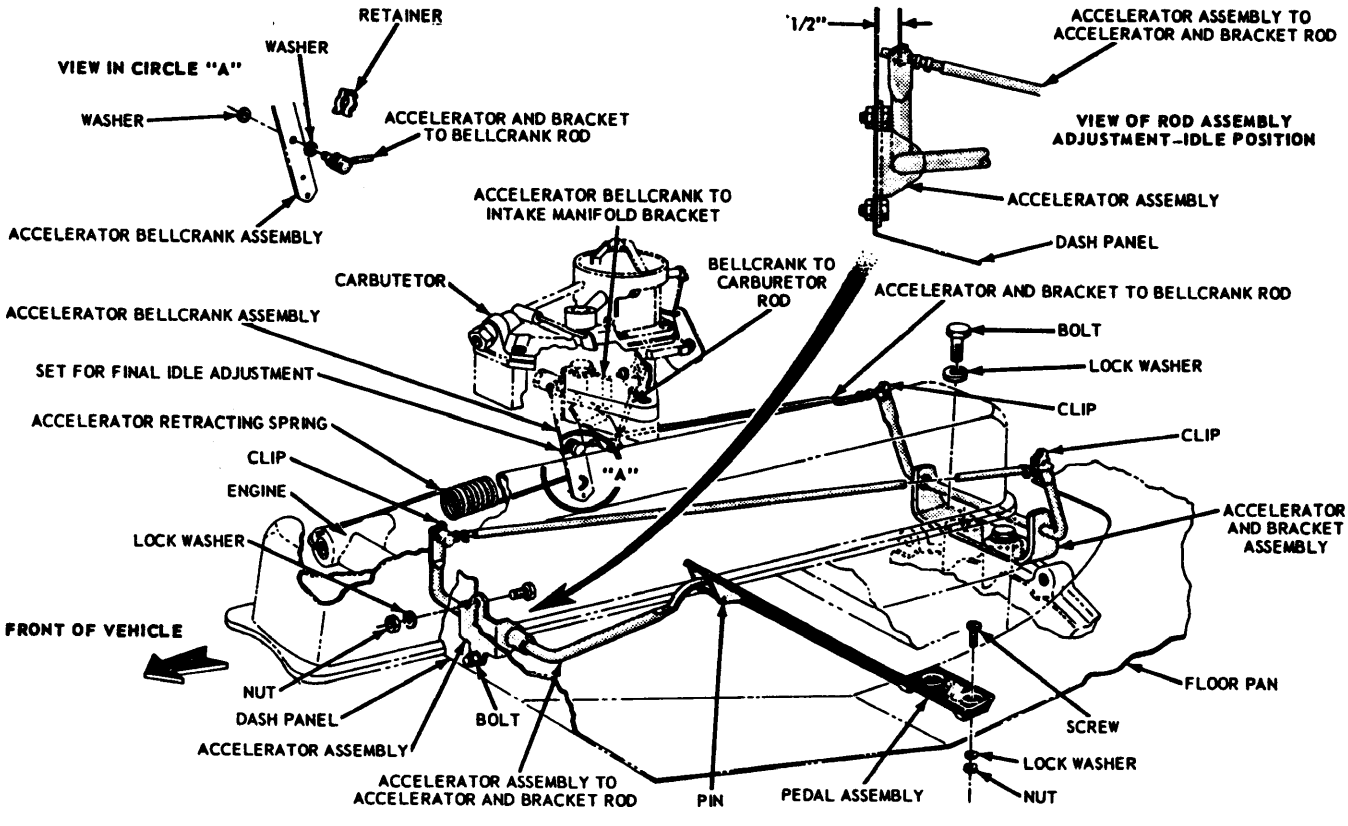
CARBURETION (Cont.)



ACCELERATOR LINKAGE F100/350 (AUTO. TRANS.)



ACCELERATOR LINKAGE P100 170" (MAN. TRANS.)

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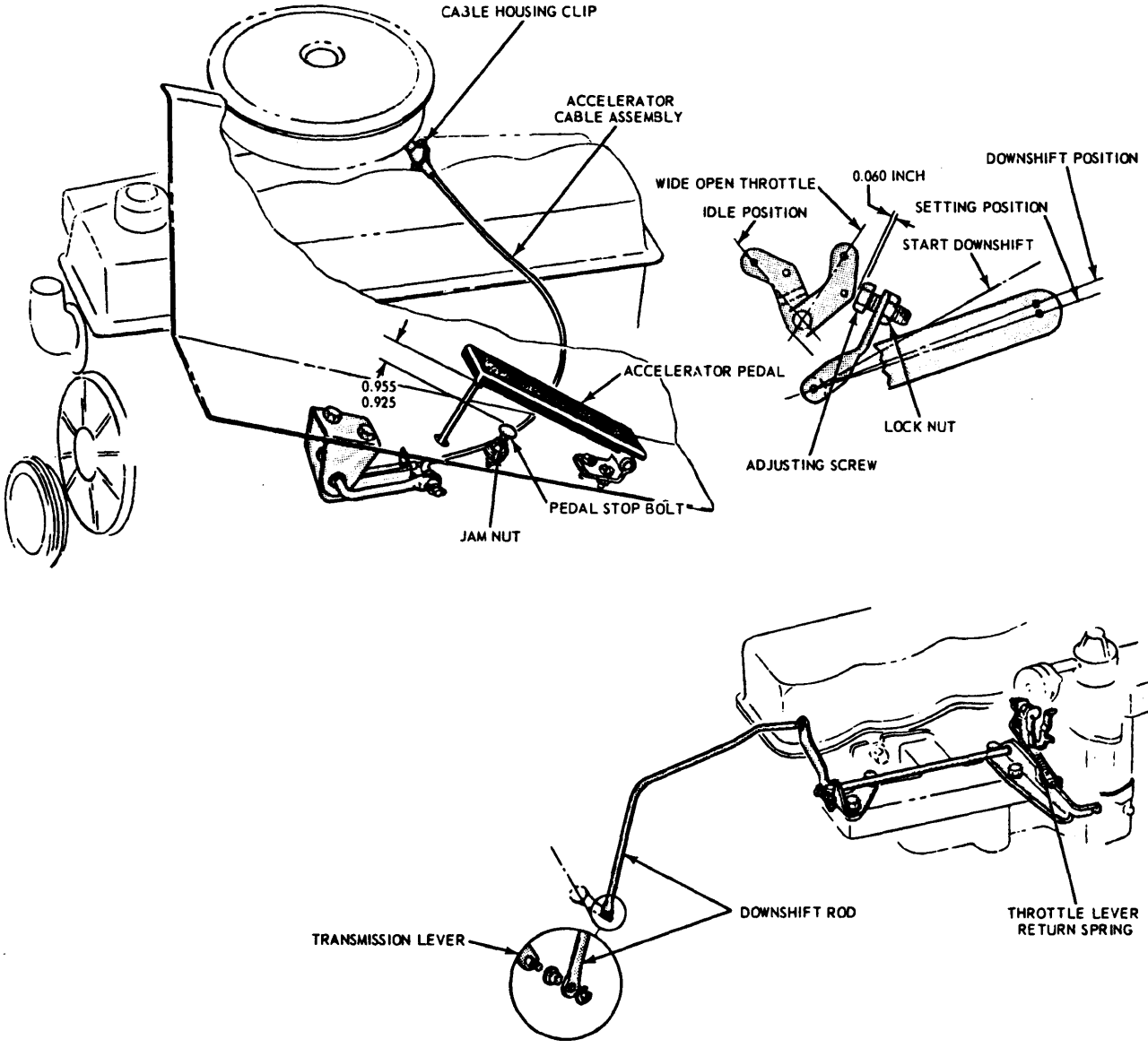
CARBURETION (Cont.)

U100 – Loosen accelerator cable clamp. With choke valve fully open and throttle valve completely closed, slide cable housing rearward until accelerator cable bottoms against cable sleeve. Tighten cable clamp.

U100 Hand Throttle – With throttle valve completely closed and throttle knob pressed against instrument panel, loosen hand throttle cable clamp at accelerator lever. Loosen hand throttle lever clevis to cable screw. Hold hand throttle lever stop against accelerator lever and bracket. Pull hand throttle cable tight in clevis. Tighten clevis screw and cable clamp screw.



68F04

ACCELERATOR LINKAGE P350 240" & 300" (AUTO. TRANS.)

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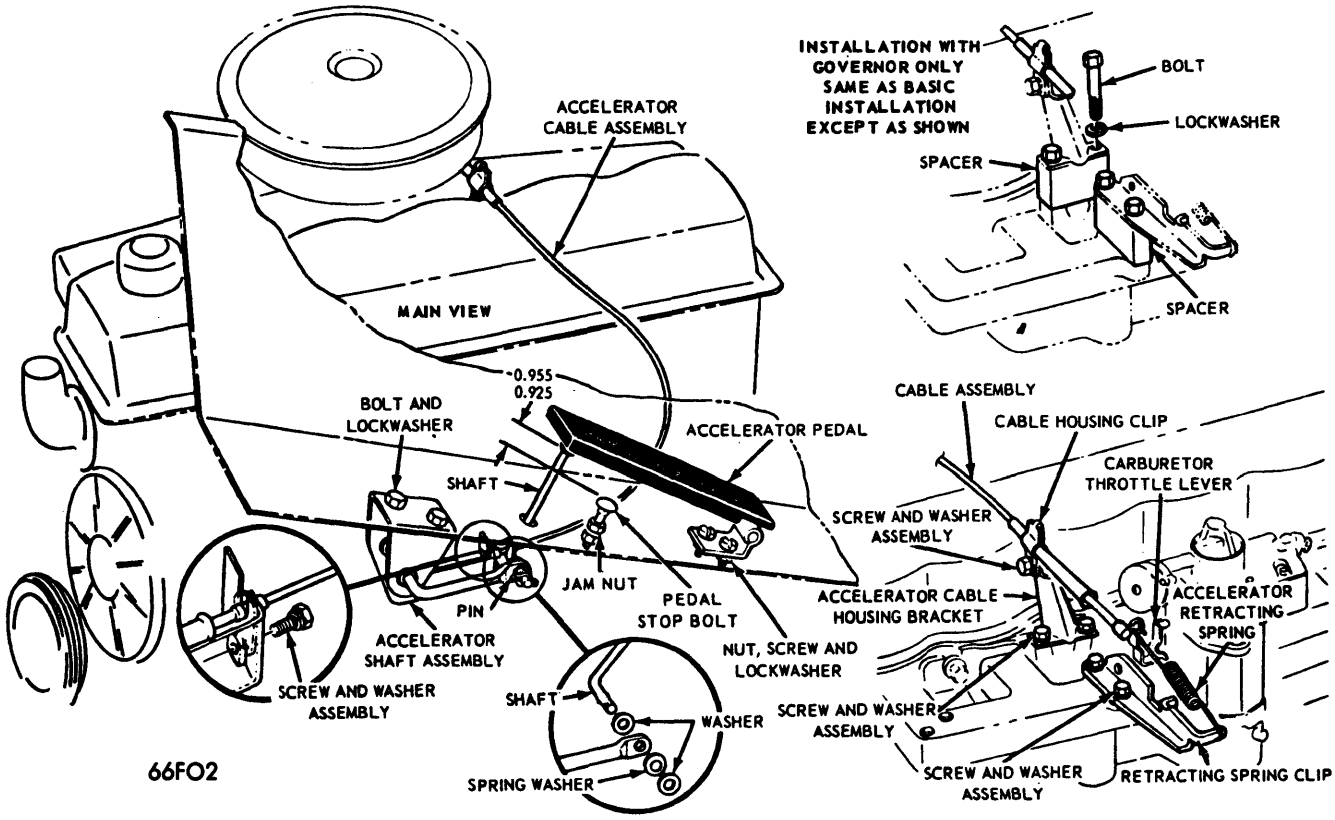
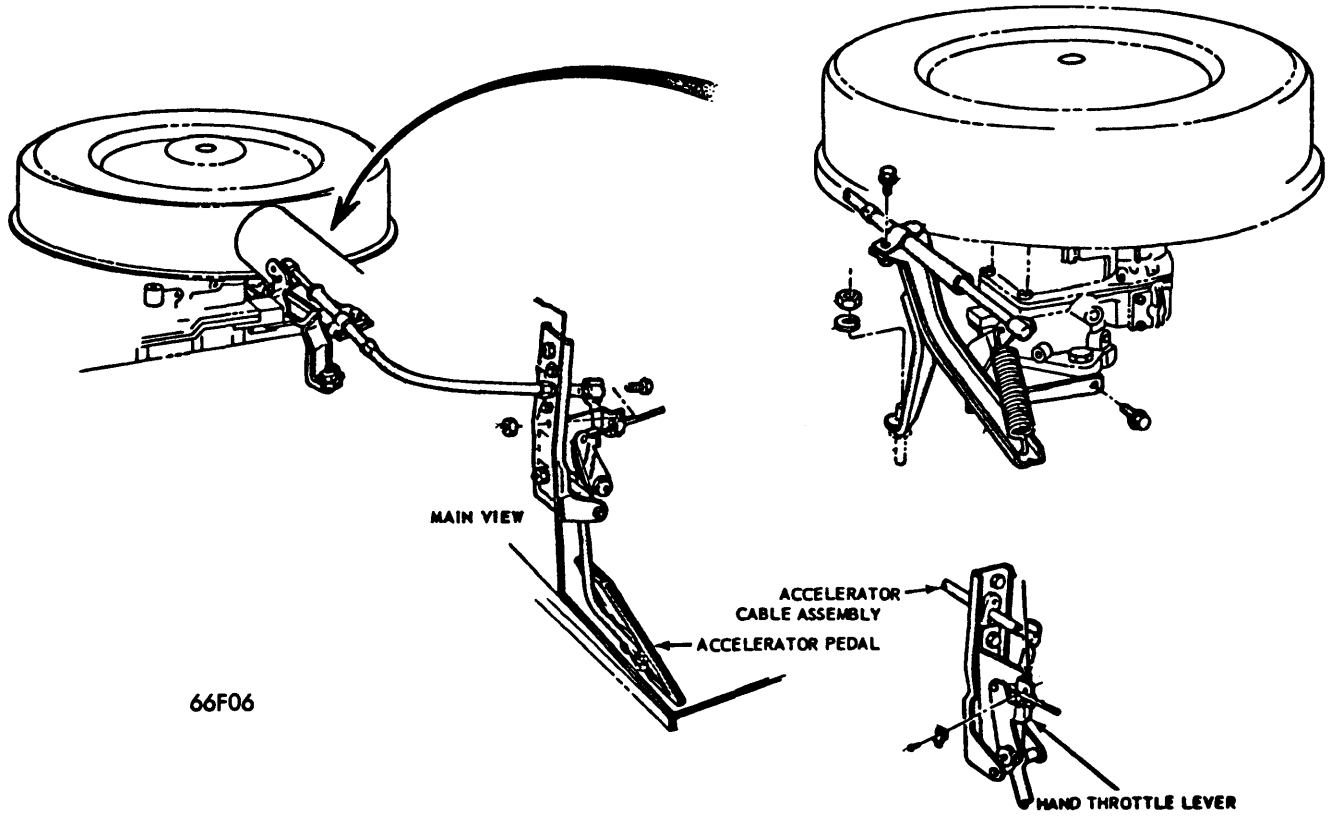
CARBURETION (Cont.)



ACCELERATOR LINKAGE P350 240" & 300" (MAN. TRANS.)



ACCELERATOR LINKAGE U100 170"

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ELECTRICAL

BATTERY

Filler Caps	Plates	Capacity Amps.
Yellow	54	45
Red	66	55
Red	66	70
Yellow	78	70

STARTER

Application	①Ford Part No.
E100 170"	C3OZ-C
U100	C6OZ-A
E,P,F100/350 (Man. Trans.) 240" & 300"	C5TZ-D
E,P,F100/350 (Auto. Trans.) 240" & 300"	C2OZ-B

① — Basic part number is 11002.

Other Data & Specifications — *See Ford Starters in ELECTRICAL Section.*

ALTERNATOR

Application	Amps. & I.D. Color	①Ford Part No.
F100/350	38 Purple	D0AZ-E
U100	38 Purple	D2AZ-C
U100	42 Orange	D2AZ-C
P,F100/350	42 Orange	D0AZ-E
E,P,F100/350, U100	55 Red	D0AZ-F
P350 & F100/350	70	D1AZ-A

① — Basic part number is 10346.

Other Data & Specifications — *See Motorcraft Alternators in ELECTRICAL Section.*

ALTERNATOR REGULATOR

Application	①Ford Part No.
All Models	C3SZ-B
All Models (Exc. Alt. No. D0AZ-F & D2AZ-C)	②C6AZ-A

① — Basic part number is 10316.
② — Transistorized.

Other Data & Specifications — *See Motorcraft Alternator Regulators in ELECTRICAL Section.*

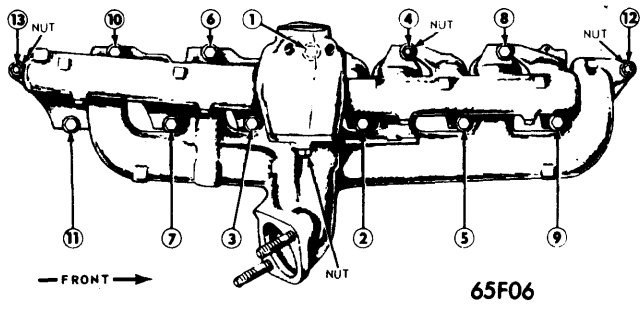
ENGINE

INTAKE MANIFOLD TIGHTENING

Working from the center outward, tighten nuts and bolts to specifications.

Intake Manifold Tightening (Ft. Lbs.)

Application	Intake	Exhaust
170"	13-18	
240"	28-33	23-28
300"		20-25



INTAKE & EXHAUST MANIFOLD TIGHTENING SEQUENCE 240" & 300"

FILTERS & CLEANERS

Filter or Cleaner	Service Interval (Miles)
Oil Filter	①6000
Air Cleaner (Oil Bath)	①6000
Air Cleaner (Dry Type)	12,000
A.I.R. Filter	12,000
Crankcase Breather	①6000
Fuel Filter	12,000

① — More often under dusty conditions. P350 4000 miles.

BELT ADJUSTMENT

Tension (Lbs.) Using Strand Tension Gauge

New	110-140 lbs.
Used①	80-110 lbs.

① — Belt run for a minimum of 10 minutes is considered used.

COOLING CAPACITIES

Application	Quantity
E100 240" & 300"	12 qts.
E100 & U100 170"	10 qts.
F100/250	13 qts.
F100 & F250 (4x4)	14 qts.
P350 & F350	18 qts.

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ENGINE (Cont.)

CAPACITIES (EXCEPT COOLING)

Application	Quantity
Crankcase①	
170"	③3.5 qts.
240"	④5 qts.
300"	5 qts.
Fuel Tank	
U100	14.5 gal.
E100	15 gal.
F100/350 (Cab Models)	19.5 gal.
P350	17 gal.
F250 & 350 (Cowl or Windshield Models)	17 gal.
Drive Axles	②
Transfer Case	
F100	1.75 pts.
F250	4.5 pts.
U100	2.75 pts.
Automatic Transmission	
Ford C-4	10.25 qts.
Ford C-6	13 qts.
MX-HD	11 qts.
Manual Transmission	
Ford 3.03	3.5 pts.
T-19	6.5 pts.
T-85	4 pts.
T-87G	5.5 pts.
T-89F	3.3 pts.
New Process 435	6.75 pts.

① — Add 1 qt. with filter change.
② — Fill to bottom of filler hole.
③ — Bronco is 6 qts.
④ — F100/250 (4x2) are 4 qts.

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