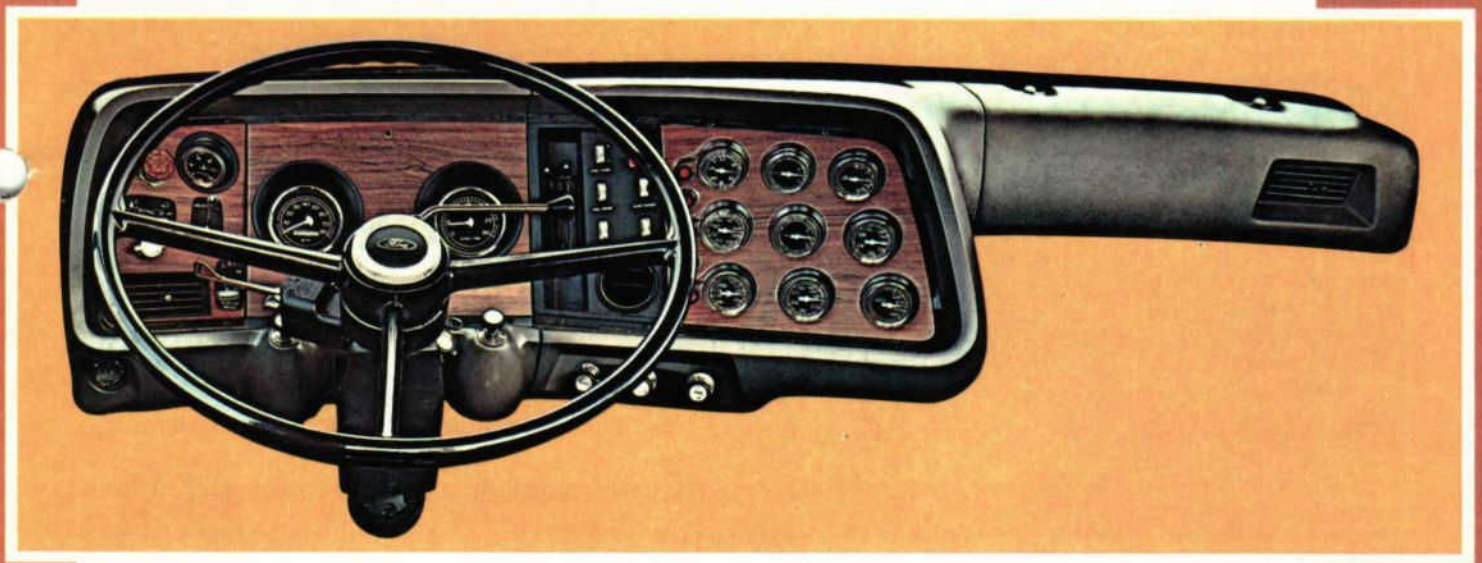
SHOP TIPS

Autolite Ford

VOL. 8, NO. 5 JANUARY, 1970

ANNOUNCING...

the 1970 FORD LOUISVILLE LINE Trucks!



also... BOSS 302 MUSTANG Specifications and Strip Tips

SEE CENTER INSERT FOR TIMELY PROMOTIONS!

1970 FORD Models,

Technical parts and service information published by the Autolite-Ford Parts Division and distributed by Ford and Lincoln-Mercury dealers to assist servicemen in Service Stations, Independent Garages and Fleets.

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Be sure and file this and future bulletins for ready reference. If you have any suggestions for additional information that you would like to see included in this publication, please write to: Autolite-Ford Parts Division of Ford Motor Company, Merchandising Services Dept., P.O. Box 3000, Livonia, Michigan 48151.

The descriptions and specifications contained in this book were in effect at the time the publication was approved for printing. The Ford Motor Company, whose policy is one of continuous improvement, reserves the right to discontinue models at any time, or to change specifications or design without notice and without incurring obligation.

Autolite Ford

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INTRODUCTION

Ford has just introduced a brand-new concept in trucks . . . the 1970 FORD LOUISVILLE LINE! These new trucks replace a number of trucks found in the 1969 line-up, and are denoted by an "L-" in the series designation.

The LOUISVILLE LINE includes:

Medium short conventionals—95.3" BBC **Replaces 1969 Series:**

Gas LN-500, 600, 700, 750 ..... N-500-750
Diesel LN-6000, 7000 ..... N-6000-7000

Heavy short conventionals—93.3" BBC

Gas LN-LNT-800 ..... (No equivalent 1969 models)
LN-LNT-900 ..... N-NT-850-1000
Diesel LN-LNT-8000 ..... N-NT-8000 Special Order vehicles
LN-LNT-9000 ..... N-1000-D, NT-850, -950-D

Heavy conventionals—105.3" BBC

Gas L-LT-800 ..... F-T-800
L-LT-900 ..... F-T-850-1000
Diesel L-LT-8000 ..... F-T-8000
L-LT-9000 ..... F-T-850-1000-D

For the first time Ford will offer a long conventional series with the front axle set back for maximum front axle loadings.

Heavy Conventionals w/Set-Back Front Axle—105.3" BBC

(1971 models. Availability to be announced.)

Gas LTS-800, LTS-900
Diesel LTS-8000, LTS-9000

IDENTIFYING THE LOUISVILLE LINE

IDENTIFICATION MODEL CODE	PREFIX	SERIES NUMBER	SERIES DESCRIPTION
F	L	800 thru 900	Heavy Conventional 105.3 BBC (Gas)
K	L	8000 thru 9000	Heavy Conventional 105.3 BBC (Diesel)
T	LT	800 thru 900	Heavy Conventional Tandem 105.3 BBC (Gas)
U	LT	8000 thru 9000	Heavy Conventional Tandem 105.3 BBC (Diesel)
V	LTS	800 thru 900	Heavy Conventional Set-Back Axle (Gas)
Y	LTS	8000 thru 9000	Heavy Conventional Set-Back Axle (Diesel)
N	LN	500 thru 750	Medium Short Conventional 95.3 BBC (Gas)
R	LN	6000 thru 7000	Medium Short Conventional 95.3 BBC (Diesel)
N	LN	800 thru 900	Heavy Short Conventional 93.3 BBC (Gas)
R	LN	8000 thru 9000	Heavy Short Conventional 93.3 BBC (Diesel)
S	LNT	800 thru 900	Heavy Short Conventional Tandem (Gas)
W	LNT	8000 thru 9000	Heavy Short Conventional Tandem (Diesel)

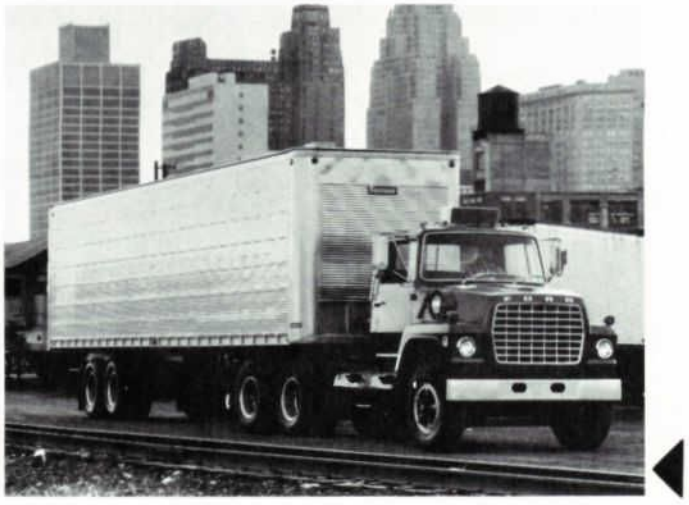
LOUISVILLE LINE

Features and Specifications

MANEUVERABILITY, VISIBILITY, ACCESSIBILITY

The Ford LN-500 thru 750 and 6000-7000 LOUISVILLE LINE Series trucks are the only medium-heavy short conventionals (95.3″ BBC) in the industry which provide, in a single package, exceptional maneuverability with full 40 degree wheel cuts—total visibility with the largest windshield, side window and total glass area of any medium-heavy short conventional truck in the industry – largest interior working room and comfortable, straight up seating with chair-high bench or optional bucket seats—complete accessibility with a full tilting steel reinforced fiberglass hood and fender assembly which tilts forward a full 60 degrees for stand-up servicing of all engine compartment accessories.

A wide selection of job tailored wheelbases and just right cab-to-axle dimensions permit the installation of bodies up to 22 feet long.



STRENGTH, ENDURANCE, FLEXIBILITY

The Ford L-LT-LN- and LNT-800-8000-900-9000 forward set front axle short conventionals (93.3″ BBC) and conventionals (105.3″ BBC) and the LTS -800-8000-900-9000 set back front axle conventionals (105.3″ BBC) provide truckers operating their vehicles in extreme service applications including dump, mixer, low-boy, semi-trailers, logging, oil field exploration, etc., the necessary combination of proven durability in all areas; wide-open engine compartment and in-cab serviceability and the most spacious cab interior with unmatched driver visibility in the industry.

Durability of these LOUISVILLE LINE series trucks has been proven by frame, cab, front end fiberglass assembly, radiator, etc., laboratory testing which simulated varying types of off-road applications of over 300,000 miles off-road duration.

The Ford LOUISVILLE LINE tractor models include the LN-500 thru 750 and 6000-7000 series (95.3″ BBC) which are designed and powered for stop-start, city-suburban delivery type operations. Also available are the L- and LT-800-8000 conventional series (105.3″ BBC) and the LN- and LNT-800-8000 short conventionals (93.3″ BBC) which will prove to be the industry pacesetters in the short haul-shuttle tractor market. Rounding out this complete line are the high mileage, high durability road tractors including the L- and LT-900-9000 series full conventionals (105.3″ BBC) and the LN- and LNT-900-9000 series short conventionals (93.3″ BBC).

This complete line of models provides operators with a selection of Ford's proven durable and economical gasoline engines ranging in power from 150 to 266 horsepower and a selection of the most popular diesels in the industry with horsepowers from 150 to 335 supplied by Caterpillar, Cummins and Detroit Diesel. Also available is a wide selection of BBC's including 93.3″, 95.3″ and 105.3″ with front axle settings of from 27.3″ on the L-LT-LN-and LNT-800 thru 9000 series, ideal for operation in bridge formula states, to 46.3″ on the set-back front axle LTS -Series, providing maximum front axle loadings in non-bridge formula states.

1970 FORD LOUISVILLE LINE

Here is a graphic blueprint of the better ideas that increase roadtime by giving Ford LOUISVILLE LINE trucks the strength and dependability that help keep trucks on the job. While these better ideas concentrate on durability, they also cover a wide spectrum of other factors that contribute to lower operating costs. And behind every LOUISVILLE LINE truck stands another better idea—the better idea of a completely new assembly plant that was built for the exclusive manufacture of medium, heavy and extra-heavy-duty trucks. The world's largest, most modern truck manufacturing facility, this new plant gives you the benefits of new production and quality control procedures that provide new standards of truck reliability.

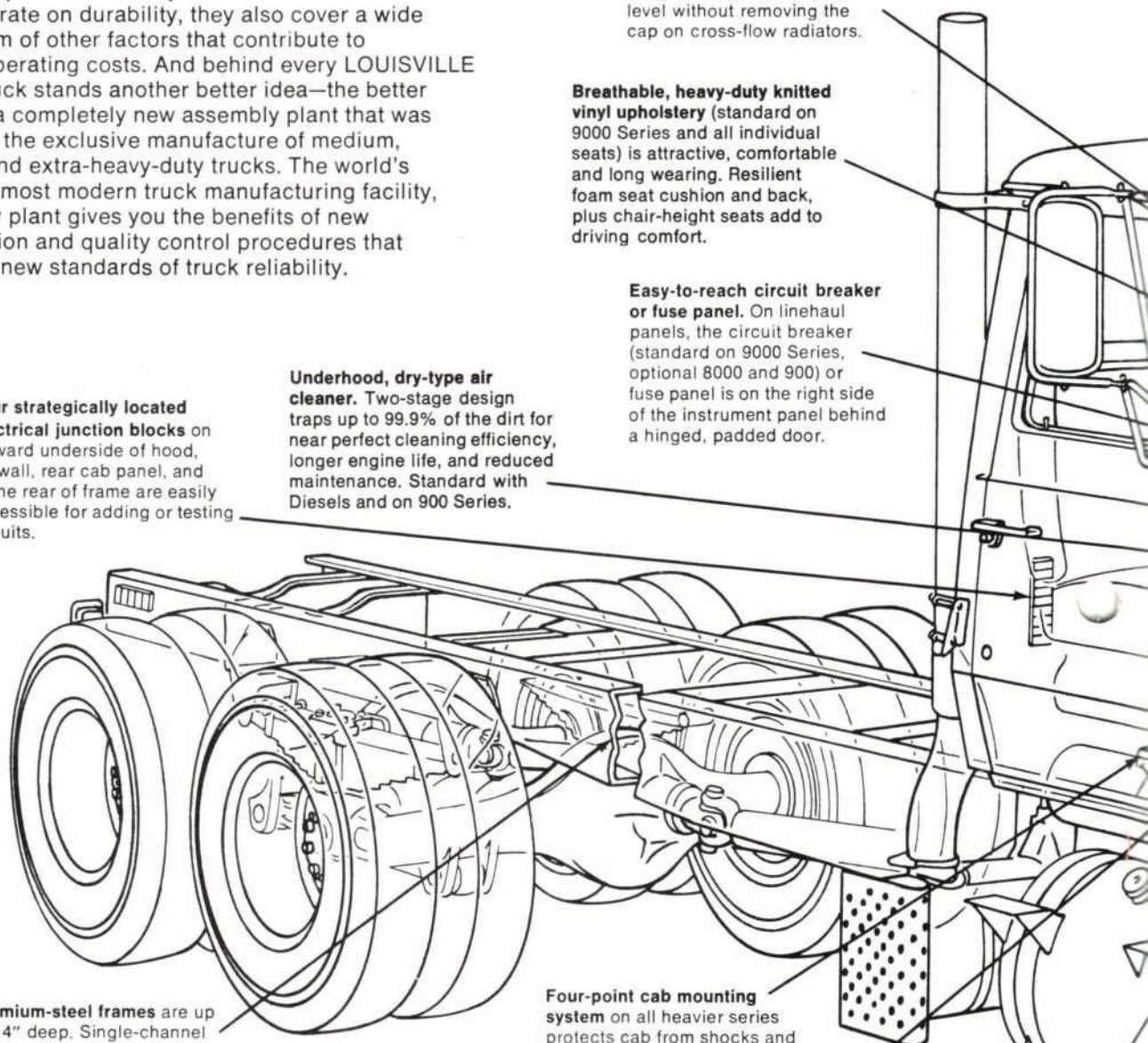
Check-at-a-glance sight gauge. New "go, no-go" sight gauge allows checking coolant level without removing the cap on cross-flow radiators.

Breathable, heavy-duty knitted vinyl upholstery (standard on 9000 Series and all individual seats) is attractive, comfortable and long wearing. Resilient foam seat cushion and back, plus chair-height seats add to driving comfort.

Easy-to-reach circuit breaker or fuse panel. On linehaul panels, the circuit breaker (standard on 9000 Series, optional 8000 and 900) or fuse panel is on the right side of the instrument panel behind a hinged, padded door.

Underhood, dry-type air cleaner. Two-stage design traps up to 99.9% of the dirt for near perfect cleaning efficiency, longer engine life, and reduced maintenance. Standard with Diesels and on 900 Series.

Four strategically located electrical junction blocks on forward underside of hood, firewall, rear cab panel, and at the rear of frame are easily accessible for adding or testing circuits.



Premium-steel frames are up to 14" deep. Single-channel design offers strength equal to or greater than multiple-channel frames, reduces weight up to 316 lb. Steel is up to 110,000 psi. Bolted frames available.

Four-point cab mounting system on all heavier series protects cab from shocks and frame twists. Rear mounts are positioned at 45° angles with rubber in shear.

Two large air tanks replace the usual three or four. Vehicle weight and service complexity are reduced. Automatic moisture ejectors eliminate hand draining.

Neoprene® adds extra protection to Hypalon® electrical insulation. Cab and engine wiring harnesses are wrapped with Neoprene tape that is fused together forming a tough moisture and abrasion-resistant covering.

Space to spare to service the biggest engines in both long and short conventionals. With the hood tilted, mechanics can walk right up to the frame for "feet-on-the-ground" engine compartment service.

Models, Features and Specifications *Continued*

Heavy-duty precision instruments. Direct reading, mechanical-type oil pressure and water temperature gauges are standard with linehaul instrument panel for long life and accurate readings.

Adjustable steering column maintains constant, 20° optimum wheel angle and adjusts 4½ inches fore and aft. Standard LN- and LNT-9000, optional 800, 8000 and up.

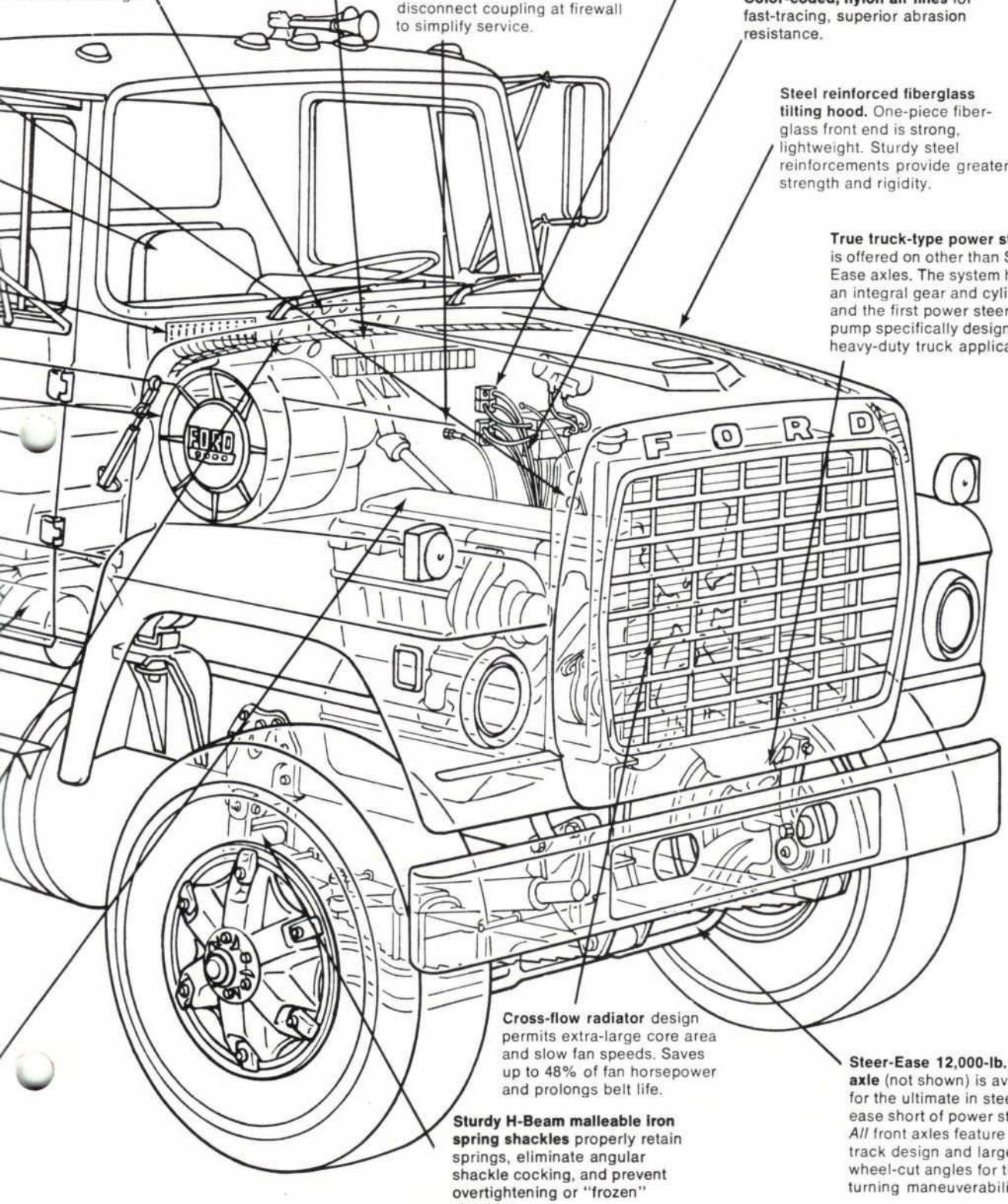
Two-piece speedometer and tachometer cables on most models have a quick-disconnect coupling at firewall to simplify service.

Dual brakes. All models—air or hydraulic—have essentially two brake systems. Air brakes have been designed to provide faster air transmission times for quicker response and shorter stopping distances.

Color-coded, nylon air lines for fast-tracing, superior abrasion resistance.

Steel reinforced fiberglass tilting hood. One-piece fiberglass front end is strong, lightweight. Sturdy steel reinforcements provide greater strength and rigidity.

True truck-type power steering is offered on other than Steer-Ease axles. The system has an integral gear and cylinder, and the first power steering pump specifically designed for heavy-duty truck applications.



Cross-flow radiator design permits extra-large core area and slow fan speeds. Saves up to 48% of fan horsepower and prolongs belt life.

Sturdy H-Beam malleable iron spring shackles properly retain springs, eliminate angular shackle cocking, and prevent overtightening or "frozen" shackles.

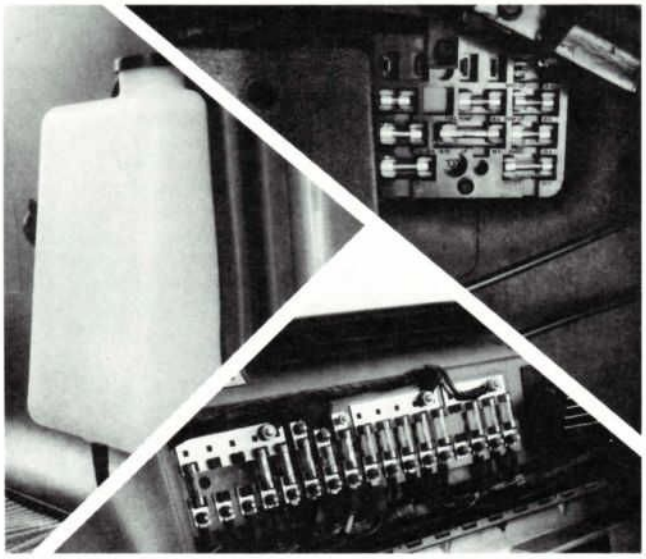
Steer-Ease 12,000-lb. front axle (not shown) is available for the ultimate in steering ease short of power steering. *All* front axles feature wide-track design and large wheel-cut angles for tight-turning maneuverability.

1970 FORD Models,

SERVICE AND MAINTENANCE

• INTERIOR OF CAB

Cab service checks are easily performed in the LOUISVILLE LINE. Full accessibility without the need to remove body panels is a highlight of these trucks. The following items are noted:



• Windshield washer reservoir is a translucent plastic container located on the cab back panel near the driver's door opening that can be visually checked without removing a cap.

• Air tanks are equipped with automatic "spitter" valves and do not normally require draining.

• Batteries are located to provide a maximum degree of serviceability.

• Servicing of electrical system fuses is particularly easy. The linehaul panel fuse block (or circuit breaker block) is located behind a hinged door on the right side of, and is part of, the instrument panel. The city delivery panel fuse block is located centrally in the cab on the toeboard below the instrument panel. Fuses in both the city and linehaul blocks are labeled for immediate function identification.

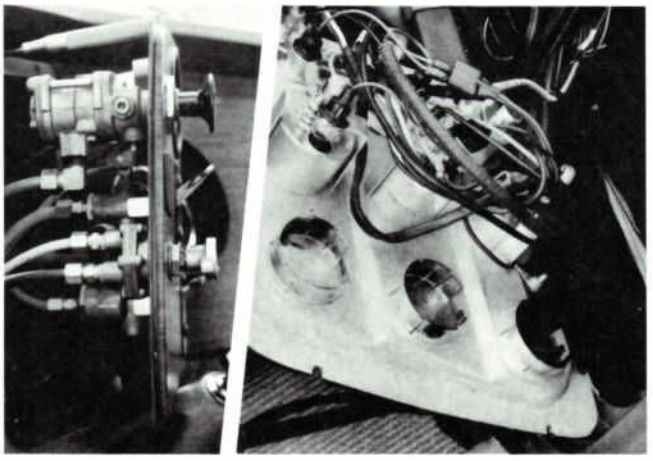
• The removable instrument panel and the hinged engine and operating gauge section in the linehaul panel provides unsurpassed serviceability of gauges, wiring and the gauge lighting.

• An Air Pac, locating all air controls in one area of the instrument panel, is standard on air brake equipped vehicles. The Air Pac and distribution manifold which is located on the engine firewall can be removed as an assembly for easy servicing. All air hoses are color coded as follows, to provide easier trouble-shooting and servicing: GREEN—Primary System; RED—Secondary System; ORANGE—Parking Brake System; and ALL OTHER COLORS—Accessories (Horns, Wipers, etc.). All lines ⅜" or larger also have a two-layer color construction that incorporates an orange undercoating that shows through the code color if the hose suffers abrasion.

• Electrical junction blocks on the cab back panel and cowl feature eyelet connectors and color coded terminals for quicker system troubleshooting.

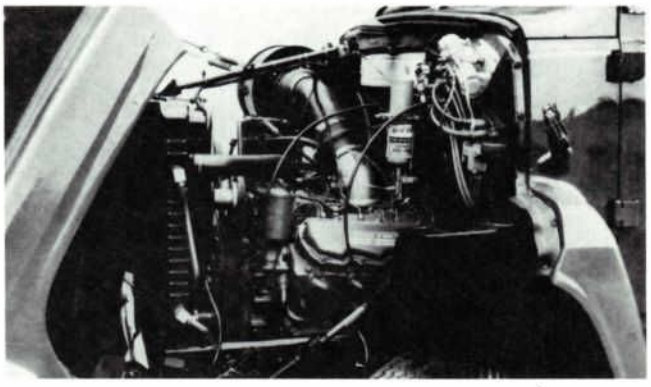
• By-pass oil filters including the Ford-Cummins and the Luber-Finer are mounted for quick, easy maintenance. The standard location is under the battery carrier or optionally, on the back of cab. Simplified disconnect is provided in the battery carrier installation to remove the bypass filter for servicing.

• The door and window opening mechanism and the door locking system is easily serviced by simply removing the snap-in access cover plate in the bottom of the door.



• EXTERIOR OF CAB

Ford is the only truck manufacturer in the industry to provide full walk-in, stand-up front end serviceability for medium, heavy and extra-heavy trucks with a tilting front end hood and fender assembly. And, when front mounted equipment is installed and the optional butterfly hood is specified, operators are still provided with a tilting front end should the front end mounted equipment be removed.

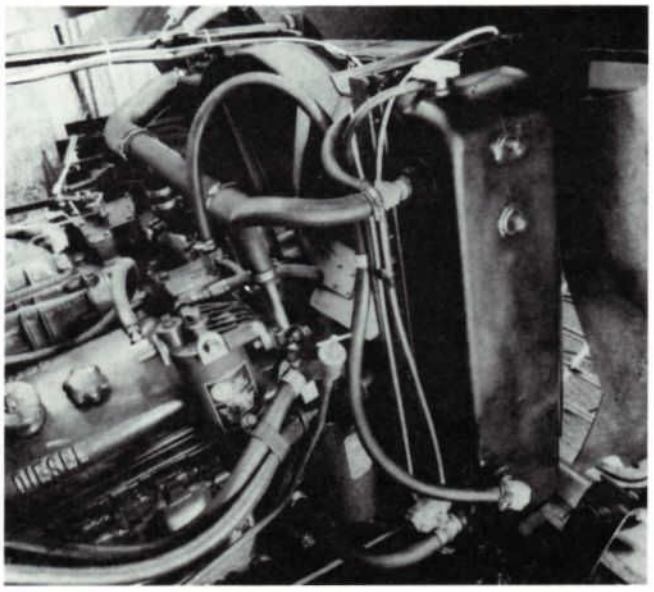


Features and Specifications *Continued*

This full, 60° tilting front end assembly permits ready accessibility to the following components and systems:

- Radiator water level can be checked on all heavy (800 Series and up) models by referring to the sight gauges which are located on the right hand side of the filler tank. The 800 sq. in. crossflow radiator features one sight gauge while the larger, bolted, 1040 sq. in. crossflow radiator has two. Should it be required, coolant can be added from a ground level location. The convenient 640 sq. in. downflow radiator water level is easily checked and coolant added through the filler neck located at the upper right of the radiator on 500 thru 750-Series trucks.
- Accessible drain cocks located outside the frame rails, one on each side of the crossflow radiators, makes radiator draining very easy with the front end tilted.
- Oil dipstick and filler cap are also located in the right front corner of the engine compartment, in most cases.
- The frame-mounted, underhood battery is quickly and easily checked and serviced from right side of the vehicle.
- Cowl mounted two-stage dry type air cleaner is protected and easily serviced in its underhood, right side location, with the front end tilted or the butterfly front end opened. A restriction indicator visually signals when servicing is required.
- Engine mounted air cleaners are also fully accessible and easily serviced as a result of the "walk in-stand up" service room provided by the full, 60° tilting front end.
- The water filter and conditioner where used is mounted on the engine for easy accessibility.
- Mechanical clutch linkage is easily serviced from the engine area.
- Accelerator linkage is readily accessible and easily adjusted without disconnecting the ball joint ends.
- Complete in-vehicle overhaul of the engine is possible with the new LOUISVILLE LINE. On the L-LT- and LTS*-Series conventionals and on the LN- and LNT-Series short conventionals with gasoline and V-Series diesels, the major portion of the overhaul can be accomplished from within the engine compartment. On the short conventional LN- and LNT-Series with the longer, in-line diesels, overhaul is performed from both in the cab and in the engine compartment.
- The entire front end assembly is easily removed by simply removing the two hinge pins and disconnecting the check cables and the front end wiring harness at the junction block. This permits complete engine removal from the chassis should it ever be required.
- The full, 60° tilting front end provides free access to the manual and power steering gears for checking and adding lubricant and quickly checking and adjusting belts if required.
- Two piece speedometer and tachometer drive cables are easily lubricated from the engine area.
- Air stoplight switch is mounted to the air manifold in the engine compartment. It is easily reached from the ground with the front end tilted.
- Electrical junction blocks on the cowl panel and in the fiberglass front end provide quick and easy servicing of electrical wiring and components.

**1971 model with set back front axle to be available approximately April, 1970.*



FRAME MODIFICATION RECOMMENDATIONS

The Louisville Line trucks have "application designed" frames, built to do a job without requiring hundreds of pounds of additional "deadweight" reinforcements. This was accomplished by the strategic use of high tensile strength (110,000 PSI) heat-treated steel on most models. If there is any modification required with these type frames, the following recommendations should be noted:

- Drilling (Side Members)

No holes permitted in side member flanges. Holes may be added to the side member web providing a 2.00 inch minimum edge of hole to inside of frame side member flange edge distance is maintained. Maximum drilled hole to be added must not exceed 1.00 inch diameter. Caution should be taken when adding any holes to frame side members to avoid close grouping of holes. At least 1.00 inch of metal should separate any two adjacent holes.

- Drilling (Cross Member)

Addition of holes in cross members is not recommended.

- Welding (Side Member)

No welding permitted on frame side members.

- Welding (Cross Member)

Welding of cross members is not recommended.

1970 FORD LOUISVILLE LINE

Models, Features and Specifications *Continued*

FORD LN-500 THROUGH LN-7000 SPECIFICATIONS

Single-Axle		Gasoline Powered				Diesel Powered	
SERIES		LN-500	LN-600	LN-700	LN-750	LN-6000	LN-7000
GVW RATING (lb.)	Max.	20,000	24,000	25,500	25,500	25,500	25,500
GCW RATING (lb.)	Max.	25,500	32,000	42,000	50,000	42,000	24,000
AXLE, FRONT—	Std.	5,000	5,000	5,000	5,500	5,000	5,000
Cap'y (lb.)	Opt.	—	5,500 6,000, 7,000	5,500 6,000, 7,000	6,000, 7,000 9,000	5,500, 6,000 7,000	5,500, 6,000 7,000, 9,000
AXLE, REAR—	Std.	11,000	15,000	17,500	17,500	15,000	17,500
Cap'y (lb.)	Opt.	13,000, 15,000	17,500	18,500	18,500	17,500	18,500
BRAKES, SERVICE	Std.	Vac.-Hyd.	Vac.-Hyd.	Vac.-Hyd.	Vac.-Hyd.	Vac.-Hyd.	Vac.-Hyd.
SPLIT-SYSTEM†	Opt.	—	HD Vac.-Hyd. Full Air* HD Full Air, Rear	HD Vac.-Hyd. Full Air* HD Full Air, Rear	HD Vac.-Hyd. Full Air* HD Full Air	HD Vac.-Hyd. Full Air* HD Full Air, Rear	HD Vac.-Hyd. Full Air* HD Full Air
BRAKES, PARKING	Std.	Internal Shoe with Vac.-Hyd. Brakes Spring-Set w/Air Brakes					
ENGINES	Std.	240 Six	300 HD Six	330 HD V-8	361 HD V-8	V150 V-8	V175 V-8
	Opt.	300 Six 330 V-8	330 & 330 HD V-8 361 HD V-8	361 HD V-8	391 HD V-8	V175 V-8	V200 V-8
CLUTCH (Dia. In.)	Std.	11	12	13	13	13	13
TRANSMISSIONS	Std.	4-Spd.	4-Spd.	4-Spd.	5-Spd.	4-Spd.	5-Spd.
	Opt.	5-Spd.	5-Spd.	5-Spd.	5-Spd.	5-Spd., 10-Spd.	5-Spd., 10-Spd.
SPRINGS, FRONT—Cap'y (lb.)	Std.	2,600	3,000	3,000	3,000	3,000	3,000
SPRINGS, REAR—	Std.	4,500	6,700	8,100	8,100	6,700	8,100
Cap'y (lb.)	Opt.	6,700	8,100, 9,300 10,400	9,300, 10,400	9,300, 10,400	8,100 9,300, 10,400	9,300 10,400
Optional auxiliaries		2,250	2,250	2,250	2,250	2,250	2,250
POWER STEERING		Optional	Optional	Optional	Optional	Optional	Optional
WHEELS	Std.	6-Hole Disc	6-Hole Disc	Cast Spoke	Cast Spoke	6-Hole Disc	Cast Spoke
	Opt.	—	Cast Spoke	6- or 10-Hole Disc	6- or 10-Hole Disc	Cast Spoke	6- or 10-Hole Disc
TIRES (Tube-type nylon)	Std.	7.00 x 20 8PR	7.50 x 20 8PR	8.25 x 20 10PR	9.00 x 20 10PR	7.50 x 20 8PR	8.25 x 20 10PR
Maximum	Opt.	8.25 x 20 12PR	9.00 x 20 12PR	10.00 x 20 12PR	10.00 x 20 12PR	9.00 x 20 12PR	10.00 x 20 12PR

Note: Use adequate tires for loads and types of service. *Full air brakes: wedge type or cam type. †Single vac.-hyd. system optional.

FORD 800- THROUGH 9000-SERIES SPECIFICATIONS

		SINGLE–AXLE SERIES				TANDEM-AXLE SERIES			
		GASOLINE POWERED		DIESEL POWERED		GASOLINE POWERED		DIESEL POWERED	
SERIES		L- & LN-800	L- & LN-9000	L- & LN-8000	L- & LN-9000	LT- & LNT-800	LT- & LTN-900	LT- & LNT-8000	LT- & LNT-9000
GVW RATING (lb.)	Max.	34,000	35,000	35,000	35,000	50,000	54,000, 60,000 (LT)	54,000, 60,000 (LT)	54,000, 60,000 (LT)
GCW RATING (lb.)	Max.	50,000	80,000	50,000	80,000	50,000	80,000	50,000	80,000
AXLE, FRONT—	Std.	6,000	7,000	7,000	9,000	7,000	9,000	9,000	9,000
Cap'y (lb.)	Opt.	7,000, 9,000 12,000‡	9,000 12,000‡	9,000 12,000‡	12,000‡	9,000 12,000‡, 16,000	12,000‡ 16,000	12,000‡ 16,000	12,000‡ 16,000
AXLE, REAR—	Std.	17,500	18,500	18,500	23,000	32,000	32,000	32,000	34,000
Cap'y (lb.)	Opt.	18,500 22,000	22,000 23,000	22,000 23,000		34,000	34,000 38,000, 44,000 (LT)	34,000 38,000, 44,000 (LT)	38,000, 44,000 (LT)
BRAKES, SERVICE SPLIT-SYSTEM*	Std.	Vac.-Hyd.	Vac.-Hyd. (L) Full Air (LN)	Full Air▲	Full Air▲	Vac.-Hyd.	Vac.-Hyd. Full Air (LNT)	Full Air▲	Full Air▲
	Opt.	HD Vac.-Hyd. Full Air▲ HD Full Air	Full Air▲ HD Full Air	HD Full Air	HD Full Air	HD Vac.- Hyd. Rear Full Air▲ HD Full Air	HD Vac.-Hyd. Rear (LT) Full Air▲ HD Full Air	HD Full Air	HD Full Air
BRAKES, PARKING	Std.	Internal Shoe with Vac.-Hyd. Brakes Spring-Set Type with Full Air Brakes				Internal Shoe with Vac.-Hyd. Brakes Spring-Set Type with Full Air Brakes			
ENGINE	Std.	361 HD V-8	401 SD V-8	V175 V-8	NH-230	330 HD V-8	401 SD V-8	V175 V-8	NH-230
	Opt.	391 HD V-8	477 SD V-8 534 SD V-8	V200 V-8 V225 V-8 6V-53N	NHC-250 Series NTC-335 Series 6-71N Series 8V-71N Series (L) NHCT-CT (LN)	361 HD V-8 391 HD V-8	477 SD V-8 534 SD V-8	V200 V-8 V225 V-8 6V-53N	NHC-250 Series NTC-335 Series 6-71N Series 8V-71N Series (LT) NHCT-CT (LNT)
CLUTCH (Dia. in.)	Std.	13—1 Plate	13—2 Plate	13—1 Plate	14—2 Plate	13—1 Plate	13—2 Plate	13—1 Plate	14—2 Plate
TRANSMISSIONS (Direct)	Std.	5-Speed	5-Speed	5-Speed	5-Speed	5-Speed	5-Speed	5-Speed	5-Speed
5-speed transmissions available with wide or close ratio and O.D.	Opt.	5-Speed Transmatic	5-Speed Transmatic (L) 10-Speed 4-Spd. (L)	5-Speed Transmatic 10-Speed	5-Spd., 6-Spd. (LN) 10-Spd., 13-Spd. 16-Spd. 3-Spd. (L)	5-Speed Transmatic	5-Speed Transmatic 10-Speed	5-Speed Transmatic 10-Speed	5-Spd., 6-Spd. (LN) 10-Spd., 13-Spd. 16-Spd.
Auxiliary						3- & 4-Spd. (LT)	3- & 4-Spd. (LT)	3- & 4-Spd. (LT)	3- & 4-Spd. (LT)
SPRINGS FRONT	Std.	3,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Cap'y (lb.)	Opt.	4,000†, 5,000† 5,400, 6,000	4,000†, 5,000† 5,400, 6,000	4,000† 5,000†, 5,400 6,000	4,000†, 5,000† 5,400, 6,000	4,000†, 5,000† 5,400, 6,000 7,200	4,000†, 5,000† 5,400, 6,000 7,200	4,000†, 5,000 5,400, 6,000 7,200	4,000†, 5,000† 5,400, 6,000 7,200
SPRINGS REAR—	Std.	8,100	8,100	8,100	9,300	15,500	15,500	15,500	14,000, 15,500 (LT)
Cap'y (lb.)	Opt.	9,300 10,400	9,300, 10,400 13,000	9,300 10,400	10,400 13,000				
Optional auxiliaries		2,250	2,250	2,250	2,250				
POWER STEERING		Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
WHEELS	Std.	Cast Spoke	Cast Spoke	Cast Spoke	Cast Spoke	Cast Spoke	Cast Spoke	Cast Spoke	Cast Spoke
	Opt.	6- or 10-Hole Disc	10-Hole Disc	10-Hole Disc	10-Hole Disc	10-Hole Disc	10-Hole Disc	10-Hole Disc	10-Hole Disc
TIRES (turbo-type)	Std.	9.00 x 20 10PR	9.00 x 20 10PR	9.00 x 20 10PR	10.00 x 20 12PR	9.00 x 20 10PR	9.00 x 20 10PR	9.00 x 20 10PR	10.00 x 20 12PR
Maximum**	Opt.	12.00 x 20 14PR	12.00 x 20 10PR	12.00 x 20 14PR	12.00 x 20 14PR	12.00 x 20 14PR	12.00 x 20 14PR	12.00 x 20 14PR	12.00 x 20 14PR

NOTE: Use adequate tires for loads and type of service. ‡Conventional or Steer-Ease steering. †Soft deflection rate type. *Single vac.-hyd. system optional on single-axle models.
**Flotation and wire cord tires available. Consult your Ford Dealer. ▲Air brakes available—wedge or cam type.

Further detailed product information, installation instructions for accessories, and body repair information is available through your Ford Truck Dealer. As applicable service information becomes available, it will be included in future issues of Shop Tips magazine.

ANNOUNCING THE SHOCK WAVE OF THE YEAR...

BUY 9

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REMEMBER!... WHEN YOU PROMOTE THE "BUY 3–GET THE 4TH FREE" OFFER, YOU MAINTAIN YOUR FULL PROFIT MARGIN!

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AUTOLITE SHOCK ABSORBER END FLAPS!

Two Autolite shock absorber end flaps (imprinted with a part number) have the same value as one Pacemaker Prize Point and may be redeemed for your choice of any of the exciting merchandise or travel awards listed in the big new 1970 Pacemaker Awards Catalog. You may also combine shock absorber end flaps with the Pacemaker Prize Points you receive on other Autolite programs throughout the year.

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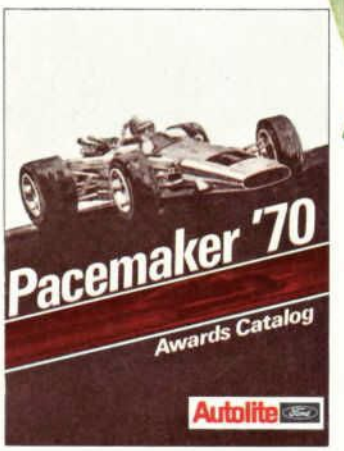
Pacemaker '70

AUTOLITE'S PERFORMANCE PROVEN INCENTIVE PROGRAM

Sell Autolite Performance Proven Parts and earn Pacemaker Points redeemable for valuable awards including your choice of nationally known merchandise and travel awards. Take advantage of Autolite's Continuous Bonus Programs and receive additional Pacemaker Prize Points.



THE 1970 PACEMAKER AWARDS CATALOG

has pictured in its over 100 colorful pages a complete array of gifts for the whole family. Wagons, games, and toys for the kids... clothing, hunting and fishing equipment for Dad... electric irons, refrigerators and even furs for Mom... plus... everything in the way of furniture and furnishings for the whole house.

PLUS, CASH IN ON THE SPECIAL BONUS PACEMAKER PROGRAMS FOR 1970

Throughout the year, Autolite will frequently introduce special product line promotions that will give you additional opportunities to add to your Pacemaker Prize Point collection. So check at our parts counter... go with Autolite and Pacemaker... watch your awards come in!

EXCITING PACEMAKER TRAVEL UNLIMITED AWARDS...

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Save Autolite Shock Absorber End Flaps. Two numbered End Flaps equal one Pacemaker Prize Point. And, contained in every Autolite Electrical Tune-Up Kit is a ½ Pacemaker Prize Point Certificate—two ½ Pacemaker Prize Point Certificates equal 1 Pacemaker Prize Point. End Flaps and ½ Pacemaker Prize Point Certificates may be redeemed for exciting Pacemaker awards.

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2 TUNE-UP KIT ½ PRIZE POINT CERTIFICATES EQUAL 1 PACEMAKER PRIZE POINT

2 AUTOLITE SHOCK ABSORBER END FLAPS EQUAL 1 PACEMAKER PRIZE POINT

1 TUNE-UP KIT ½ PRIZE POINT CERTIFICATE PLUS 1 AUTOLITE SHOCK ABSORBER END FLAP EQUAL 1 PACEMAKER PRIZE POINT

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In these days of mechanic shortages and increased workloads, instead of repairing, the answer is to replace with Authorized Remanufactured Ford Parts. You'll save time. You'll save money . . . and the new-part quality, guaranteed by a nationally honored warranty, protects customer goodwill.

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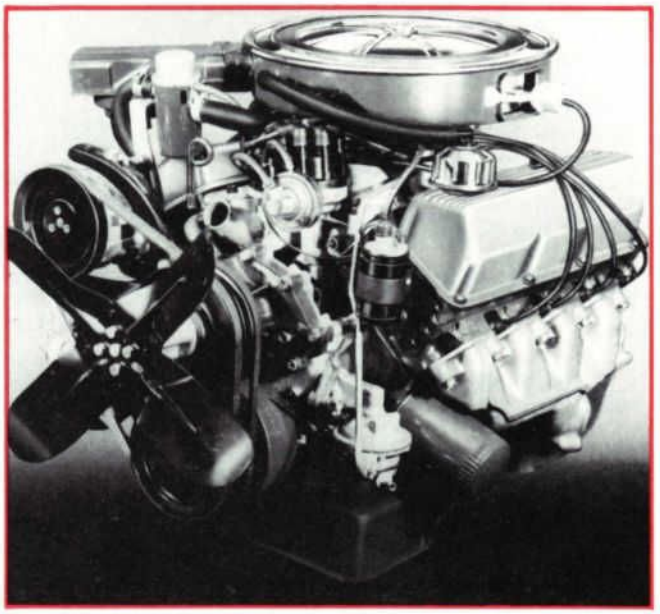
Engines · Parts

302 BOSS ENGINE SERVICE and Blueprinting Specifications

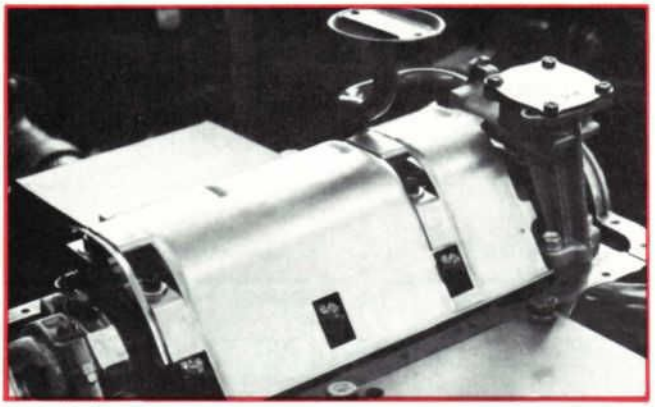
302 BOSS ENGINE

The 302 BOSS engine is available on BOSS 302 Mustang and Cougar Eliminator models. 302 BOSS engine features, as well as features of these two car models that use it, were covered in the August, 1969 issue of Shop Tips. Specifications, however, were not included. This article is a supplement to the August Shop Tips.

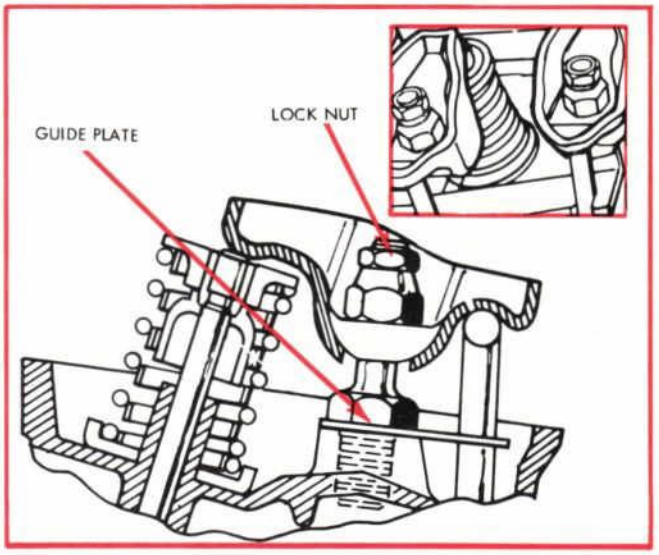
Essentially, the 302 BOSS engine is a high output version of the standard 302 CID engine used in many Ford-built vehicles. However, very few parts are interchangeable; and in fact most are completely different such as the "canted" valve design—making for special service procedures. For instance, the 302 BOSS has an oil baffle tray connected to the main bearing caps to resist oil frothing and aeration in the crankcase, during high output operation. The baffle must be removed to service the main bearings or connecting rods. 302 BOSS engines also use a guide plate for each pair of push rods, to keep them properly aligned at high rpm. Other significant service differences include high compression "pop-up" pistons with arrows that must point towards the front of the engine, an aluminum intake manifold that must be retained in the torque sequence shown, and Autolite AF-32 14mm diameter spark plugs instead of the more conventional BF-32 18mm spark plugs.



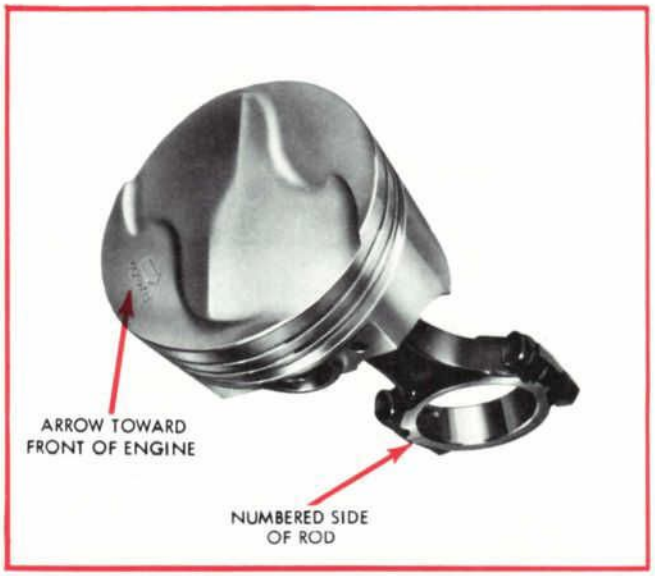
302 Boss Engine



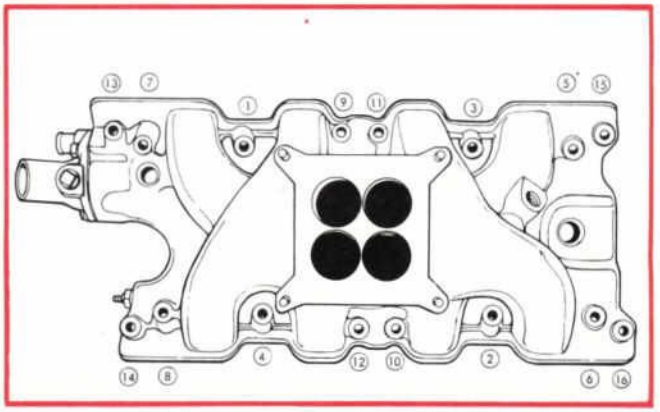
Oil Baffle Tray



Push Rod Guide Plate



Pop-up Piston and Rod Assembly



Intake, Manifold Torque Sequence

302 BOSS ENGINE SERVICE

SERVICE SPECIFICATIONS

GENERAL

Compression Ratio 10.5:1
Bore and Stroke (Inches) ..... 4.00 x 3.00
Taxable Horsepower 51.2
Brake Horsepower ..... 290 @ 5800 rpm
Gross Torque ..... 290 ft.-lbs. @ 4300
Engine Idle Manifold Vacuum ..... 12 Inches of Mercury @ Sea Level
Oil Pressure–Hot @ 2000 rpm ..... 35-60 psi
Drive Belt Tension (All) 140–New 110–Used

Curb Idle RPM 800
Fast Idle RPM 2150
Ignition Timing (BTDC) ..... 6° 16°
Dwell Angle at Idle ..... 30°-33°
Point Gap ..... 0.020"
Spark Plug Gap ..... 0.032"-0.036"
Spark Plug No. ..... Autolite AF-32 14mm
Firing Order 1-5-4-2-6-3-7-8

Compression Pressure PSI (Sea Level) @ Cranking Speed ..... See Chart Below

COMPRESSION PRESSURE LIMIT CHART

Maximum PSI	Minimum PSI	Maximum PSI	Minimum PSI	Maximum PSI	Minimum PSI	Maximum PSI	Minimum PSI	Maximum PSI	Minimum PSI
134	101	158	118	182	136	206	154	230	172
136	102	160	120	184	138	208	156	232	174
138	104	162	121	186	140	210	157	234	175
140	105	164	123	188	141	212	158	236	177
142	107	166	124	190	142	214	160	238	178
144	108	168	126	192	144	216	162	240	180
146	110	170	127	194	145	218	163	242	181
148	111	172	129	196	147	220	165	244	183
150	113	174	131	198	148	222	166	246	184
152	114	176	132	200	150	224	168	248	186
154	115	178	133	202	151	226	169	250	187
156	117	180	135	204	153	228	171		

DISTRIBUTOR

C9ZF-12127-B

Centrifugal Advance RPM (Distributor)		Vacuum Advance In.Hg.		Vacuum Retard In.Hg.	
350	0–½°	5	0–2°	5	0–5½°
500	0–¾°	10	5¾–8¾°	10	
750	0–1¾°	15		15	5–6°
1000	¾–2¾°	20	8½–11°	20	
1500	2½–5°	25			
2000	4½–7°				
Maximum Centrifugal		Maximum Vacuum		Maximum Retard	
Advance 11° @ 2950 RPM		Advance 11° @ 20 In. Hg.		6° @ 20 In. Hg.	

C9ZF-12127-E

Centrifugal Advance RPM (Distributor)		Vacuum Advance In.Hg.		Vacuum Retard In.Hg.	
350	0–½°	5	0–1°	5	0–2°
500	0–½°	10	2½–5½°	10	3–6°
750	0–1½°	15		15	5–6°
1000	2½–4¾°	20	4½–7°	20	
1500	7¾–10°	25			
2000	8½–11°				
Maximum Centrifugal		Maximum Vacuum		Maximum Retard	
Advance 11° @ 2000 RPM		Advance 7° @ 25 In. Hg.		6° @ 20 In. Hg.	

4-BBL CARBURETOR C9ZF-9510-J

Fuel System		Choke System	Manual
Fuel Level	Lower Edge of Sight Plug	Pump System	
Dry Float Setting	Parallel With Floor of Float Bowl with Bowl Inverted	Capacity/10 Strokes (cc)	19-26
Fuel Pressure (psi)	5.0	Pump Cam Position	No. 2
Vent Valve Setting	0.070	Cam Color Identification	White
Main Metering Jet		Override Spring Adjustment (Min.)	0.015
Primary	68	Dashpot	Solenoid Equipped
Secondary	82	Idle RPM	800
Power Valve Timing (In. Hg.)	5½–7½	Fast Idle RPM ①	2150
Secondary Throttle Opening	½ Turn of Secondary Throttle Stop Screw	Air Fuel Ratio (Idle)	13.8:1

① On the Kickdown or Second Step of Cam.

CYLINDER HEAD

Combustion Chamber Volume ..... 61.3-64.3 cc.
Valve Guide Bore Dia. (Std. Int/Exh) .... 0.3433"0.3443"
Valve Seat Width ..... 0.060"-0.080"
Valve Seat Angle ..... 45°
Valve Seat Runout (Max.) ..... 0.0015"
Valve Arrangement (Front to Rear)
—Right Side ..... I-E-I-E-I-E-I-E
—Left Side ..... E-I-E-I-E-I-E-I
Rocker Arm Stud ..... 7/16 – 14 Threaded
Gasket Surface Flatness ..... 0.003" in any 6 Inches
0.007" Overall
Head Gasket Surface Finish ..... 90-150 RMS

CYLINDER BLOCK

Cylinder Bore Diameter ..... 4.0004" - 4.0028"
Out of Round (Max.) ..... 0.001"
Wear Limit (Max.) ..... 0.005"
Surface Finish ..... 15-35 RMS
Cylinder Bore Diameter (0.003 O.S.) .... 4.0028" - 4.0040"
Tappet Bore Diameter ..... 0.8752" - 0.8767"
Main Bearing Bore Diameter ..... 2.4412" - 2.4420"
Distributor Shaft Bore Diameter ..... 0.4525" - 0.4541"
Head Gasket Surface Flatness ..... 0.003" in any 6 Inches
0.007" Overall
Head Gasket Surface Finish ..... 90-150 RMS

CRANKSHAFT AND FLYWHEEL

Main Bearing Journal Diameter ..... 2.2482" - 2.2490"
Out of Round (Max.) ..... 0.0004"
Runout (Max.) ..... 0.002"
Wear Limit (Max.) ..... 0.003"
Main Bearing Journal Thrust Face Runout ..... 0.001"
Main Bearing Journal Taper (Max.) ..... 0.0003" per inch
Thrust Bearing Journal Length ..... 1.137" - 1.139"
Main Bearing Surface Finish (Max.)
—Journal ..... 12 RMS
—Thrust Face ..... 35 RMS Front
25 RMS Rear
Connecting Rod Journal Diameter ..... 2.1222" - 2.1230"
Out of Round (Max.) ..... 0.0004"
Taper (Max.) ..... 0.0004" per inch
Crankshaft Free End Play ..... 0.004" - 0.008"
Wear Limit (Max.) ..... 0.012"
Crankshaft To Rear Face of
Block Runout T.I.R. (Max.) ..... 0.010"
Flywheel Clutch Face Runout ..... 0.010"
Flywheel O.D. Runout ..... 0.018"

CRANKSHAFT BEARINGS

Connecting Rod Bearings
To Crankshaft Clearance
—Desired ..... 0.0015" - 0.0025"
—Allowable ..... 0.0010" - 0.0028"
Wall Thickness Standard ..... 0.0759" - 0.0764"
(0.002" U.S. Thickness, Add 0.0010" to Std. Thickness)

CRANKSHAFT BEARINGS continued

Main Bearings
To Crankshaft Clearance
—Desired ..... 0.0005" - 0.0015"
—Allowable ..... 0.0001" - 0.0018" #1
0.0005" - 0.0024" All
Others
Wall Thickness Standard ..... 0.0961" - 0.0966" #1
... 0.0957" - 0.0962" All
Others
(0.002" U.S. Thickness, Add 0.0010" to Std. Thickness)

CONNECTING ROD

Piston Pin Bore or Bushing I.D. ..... 0.9104" - 0.9112"
Connecting Rod Bearing Bore Diameter .. 2.2390" - 2.2398"
Out of Round and Taper (Max.) ..... 0.0004"
Length—Center to Center ..... 5.1485" - 5.1515"
Alignment (Note: Pin bushing and crankshaft bearing bore must be parallel and in same vertical plane within specified total difference at ends of 8-inch long bar measured 4-inches on each side of rod.)
Maximum Total Difference
—Twist ..... 0.012"
—Bend ..... 0.004"
Assembled To Crankshaft
—Side Clearance ..... 0.013" - 0.025"
—Wear Limits ..... 0.028"

PISTON

Diameter (At pin bore centerline 90° to pin bore)
Coded Red ..... 3.9984" - 3.9990"
Coded Blue ..... 3.9996" - 4.0002"
0.003" Oversize ..... 4.0008" - 4.0014"
Piston to Cylinder Bore Clearance ..... 0.0018" - 0.0026"
Piston Bore Diameter ..... 0.9124" - 0.9127"
Ring Groove Width
Upper Compression Ring ..... 0.080" - 0.081"
Lower Compression Ring ..... 0.080" - 0.081"
Oil Ring ..... 0.1880" - 0.1890"

PISTON PIN

Length ..... 3.020" - 3.030"
Diameter
—Standard ..... 0.9119" - 0.9124"
—0.001" Oversize ..... 0.9130" - 0.9133"
To Piston Clearance ..... 0.0002" - 0.0004"
Wear Limit ..... 0.0008"
To Connecting Rod Bushing Clearance .... Interference Fit

PISTON RINGS

Ring Width
Compression Ring
—Top & Bottom ..... 0.077" - 0.078"
Side Clearance
Compression Ring
—Top & Bottom ..... 0.002" - 0.004"
Compression Ring Wear Limit ..... 0.006"
Oil Ring ..... Snug
Ring Gap Width
Compression Ring
—Top & Bottom ..... 0.010" - 0.020"
Oil Ring (Steel Rail) ..... 0.015" - 0.069"

302 BOSS ENGINE SERVICE

OIL PUMP

Relief Valve Spring Tension ..... 14.3 - 15.3 Lbs. @ 1.70"
Drive Shaft to Housing Bearing Clearance ..... 0.0015" - 0.0029"
Relief Valve Clearance ..... 0.0015" - 0.0029"
Rotor Assembly End Clearance ..... 0.0011" - 0.0041"
Outer Race to Housing Radial Clearance ... 0.006" - 0.013"

OIL PAN CAPACITY

Including 1 quart with filter ..... 5 quarts

CAMSHAFT

Lobe Lift
—Intake & Exhaust ..... 0.290"
—Maximum allowable loss ..... 0.005"
Theoretical Valve Lift
—Intake & Exhaust ..... 0.477"
Overlap ..... 58°
Duration (Intake and Exhaust) ..... 290°

Lobe Timing Events	Open	Close
—Intake Valves	34° BTC	76° ABC
—Exhaust Valves	86° BBC	24° ATC

Camshaft End Play ..... 0.0005" - 0.0055"
Camshaft Wear Limit ..... 0.007"
Journal to Bearing
—Clearance ..... 0.001" - 0.002"
—Wear Limit ..... 0.006"
Journal Diameter
—Bearing No. 1 ..... 2.0805" - 2.0815"
2 ..... 2.0655" - 2.0665"
3 ..... 2.0505" - 2.0515"
4 ..... 2.0355" - 2.0365"
5 ..... 2.0205" - 2.0215"
Bearing Inside Diameter
—Bearing No. 1 ..... 2.0825" - 2.0835"
2 ..... 2.0675" - 2.0685"
3 ..... 2.0525" - 2.0535"
4 ..... 2.0375" - 2.0385"
5 ..... 2.0225" - 2.0235"
Camshaft Journal Maximum Runout ..... 0.005"
Camshaft Journal Maximum Out-of-Round ..... 0.0005"
Camshaft Bearing Location—
Distance in inches that front edge of No. 1 bearing is installed towards rear from front face of the cylinder block ..... 0.0050" - 0.0200"

CAMSHAFT DRIVE MECHANISM

Camshaft Gear or Sprocket
Face Runout T.I.R. (Max.) ..... 0.001"
Assembled Face Runout T.I.R. (Max.) ..... 0.006"
Crankshaft Gear or Sprocket
Face Runout T.I.R. (Max.) ..... 0.001"
Assembled Face Runout T.I.R. (Max.) ..... 0.006"
Timing Chain Deflection (Max) ..... 0.500"

VALVES

To Valve Guide Clearance
—Exhaust ..... 0.0015" - 0.0032"
—Intake ..... 0.0010" - 0.0027"
Intake Valve Guide Wear Limit ..... 0.0045"
Valve Head Diameter
—Exhaust ..... 1.70" - 1.71"
—Intake ..... 2.185" - 2.195"
Valve Face Angle
—Intake & Exhaust ..... 44°
Valve Face Runout (Max.) ..... 0.002"
Valve Lash (Hot) ..... 0.025"
Valve Stem Diameter
Standard
—Exhaust ..... 0.3411" - 0.3418"
—Intake ..... 0.3416" - 0.3423"
0.003 Oversize
—Exhaust ..... 0.3441" - 0.3448"
—Intake ..... 0.3446" - 0.3453"
0.015 Oversize
—Exhaust ..... 0.3561" - 0.3568"
—Intake ..... 0.3566" - 0.3573"
0.030 Oversize
—Exhaust ..... 0.3711" - 0.3718"
—Intake ..... 0.3716" - 0.3723"

VALVE SPRINGS

Valve Spring Pressure
—Closed ..... 88-96 Lbs. @ 1.82"
—Open ..... 299-331 Lbs. @ 1.32"
Spring Pressure Wear Limit
—Closed ..... 79 Lbs. @ 1.82"
—Open ..... 269 Lbs. @ 1.32"
Valve Spring Free Length (Approximate) ..... 2.03"
Assembled Height Pad to Retainer ..... $1\frac{13}{16}$" - $1\frac{27}{32}$"
Out-of-square (Max.) ..... $\frac{5}{64}$" (0.078")

VALVE ROCKER ARMS, ROCKER ARM SHAFT, PUSH RODS AND TAPPETS

Rocker Arm Lift Ratio 1.73:1
Valve Push Rod Maximum Runout ..... 0.015"
Valve Tappet or Lifter
—Std. Diameter ..... 0.8740" - 0.8745"
Clearance to Bore ..... 0.0005" - 0.0020"
Wear Limit ..... 0.005"

TORQUE LIMITS (Foot-Pounds)

Cylinder Head Bolts
—Step 1 40-50
—Step 2 50-60
—Step 3 65-72
Oil Pan to Cylinder Block
—($\frac{5}{16}$" - 18) 9-11
—($\frac{1}{4}$" - 20) 7-9
Manifolds to Cylinder Head
—Intake ($\frac{5}{16}$") 23-25
($\frac{3}{8}$") 28-32
—Exhaust 12-16
Water Outlet Housing 12-15
Distributor Vacuum Control Valve 15-18
Flywheel to Crankshaft 75-85
Main Bearing Cap Bolts 60-70
(Outer bolts on No. 2, 3 & 4) 35-40
Oil Pan Drain Plug 15-20
Oil Pump to Cylinder Block 23-28
Oil Pump Cover Plate 9-12
Oil Filter Adapter to Cylinder Block 60-100
Oil Filter to Cylinder Block—With grease on gasket surface, hand tighten until gasket contacts adapter face, then tighten ½ turn more!

TORQUE LIMITS (Foot-Pounds) continued

Cylinder Front Cover 12-15
Water Pump to Cylinder Block or Front Cover 12-15
Camshaft Sprocket to Camshaft 40-45
Camshaft Thrust Plate in Block 9-12
Damper or Pulley to Crankshaft 70-90
Connecting Rod Nuts 40-45
Valve Rocker Arm Cover 3-5
Oil Inlet Tube to Oil Pump 12-15
Fuel Pump to Cylinder Front Cover 20-24
Pulley to Damper Bolts 35-45
Damper to Crankshaft Bolts 70-90
Check Valve to Air Manifold 16-19
Adjusting Arm to Air Pump Thermactor 16-20
Air Pump Drive Pulley to Pump Hub Thermactor 7-9
Valve Rocker Arm Stud to Cylinder Head 85
Valve Rocker Arm Adjuster Lock Nut 25-35
Front Engine Supports
- Front Insulator to Engine 35-50
- Front Insulator to Support Bracket 35-50
- Support Bracket to Mounting Bracket 20-30
- Mounting Bracket to Frame 20-30

Rear Engine Supports
- Insulator Assembly to Transmission 20-30
- Insulator to Crossmember 25-35
- Crossmember to Frame 10-20

TORQUE LIMITS FOR VARIOUS SIZE BOLTS

CAUTION: If any of the torque limits listed in this chart disagree with any of those listed in the preceding pages, the limits listed on the preceding pages prevail

Size (Inches)	¼—20	¼—28	5/16—18	5/16—24	⅜—16	⅜—24
Torque (Ft.-Lbs.)	6— 9	6— 9	12—15	15—18	20—25	30—35
Size (Inches)	7/16—14	7/16—20	½—13	½—20	9/16—18	⅝—18
Torque (Ft.-Lbs.)	45—50	50—60	60—70	70—80	85—95	130—145
Size (Inches)	¼ Pipe	⅜ Pipe				
Torque (Ft.-Lbs.)	12—17	23—28				

302 BOSS "STREET 'N STRIP" BLUEPRINTING SPECIFICATIONS

These specifications reflect field experiences as well as Ford engineering tests, and are a recommended guideline for setting up a "stock" competition machine.

CRITICAL DIMENSIONS

Piston to Cylinder Bore Clearance ..... 0.0045" - 0.0055"
Main Bearing Clearance ..... 0.0025"
Connecting Rod Bearing Clearance ..... 0.0025"
Connecting Rod Side Clearance (Min.) ..... 0.025"
Piston Pin Clearance ..... 0.0005" - 0.0008"
Piston to Deck Height (Obtain by slabbing block) .. 0.001"
*Valve Seat Width and Angle
- Intake (At outer edge of valve) ..... 30°—0.070"
- Exhaust (At outer edge of valve) ..... 45°—0.090"

Compression Ring Gasket Thickness ..... 0.046" - 0.048"
Valve Spring Installed Height
- —Intake & Exhaust ..... 1.80" - 1.82"

*For all-out drag racing only, use 0.035" for intakes and 0.050" for exhausts. The valves require larger seating area for "street" operation to better dissipate heat and resist burning.

BALANCE

Balance weights for individual components are not given because this information is only of value if you have balance equipment. In which case, of course, you can balance the engine. The only specification shown here is the NOMINAL TOTAL BOBWEIGHT FOR THE CRANKSHAFT, FLYWHEEL AND HARMONIC BALANCER OF 3244.5 GRAMS. The 302 BOSS engine crankshaft must be *unit* balanced with the flywheel and harmonic balancer attached as opposed to certain other cranks that may be balanced individually.

STRIP TIPS FOR QUICK TRIPPERS*

**NOTE: Some of these modifications may affect the car warranty and/or emission control systems.*

If you plan to modify, be sure and discuss it with your Ford or Lincoln-Mercury Dealer. The warranty does not apply to any vehicle used in a "competitive" event. Competitive Events are defined in the warranty as ". . . formal or informal time trials, competition with any other vehicle, or any abnormal application of stress to the vehicle or components thereof in a competitive situation."

Furthermore, Federal law prohibits the removal or adverse modification of any part of federally required, factory-installed emission control system on a car or truck prior to its retail sale.

In addition, certain states prohibit highway operation of a car or truck unless it has properly installed and operating emission control systems. Check the law of your home state.

Here are some touch-up tricks that will give you ultimate output from your BOSS 302 machine.

ENGINE

- *Distributor* – Remove speed limiter. Install 289 high performance dual point distributor C5OZ-12127-E. Set initial advance at 16°. Check distributor to desired rpm on distributor machine. Maximum safe advance is 38°. Retard spark as necessary to prevent pre-ignition damage to the aluminum pistons. When necessary to replace points, use C3AZ-12171-A (2 sets) which are identical to the points used in the 289 high performance dual point distributor. Check for 32-ounce tension. These are low-mass points to resist point bounce, but they also have a high wear rate.
- *Spark Plugs* – Use Autolite AF-22 spark plugs for the strip, and AF-32's for the street. Gap at 0.032" - 0.036".
- *Ignition Wire* – Use solid-core ignition wire in place of the production radio suppression type. Autolite "Steelductor Silicone" cable and connectors work well, and are also heat resistant.
- *Heat Riser* – Block the heat riser passage. To do this, remove the intake manifold and install two steel or brass plates about 2" x 2" x 0.005" thick over the by-pass crossover passages in the middle of both banks. The plates should fit between the intake manifold gasket and cylinder

302 BOSS ENGINE SERVICE AND BLUEPRINTING SPECIFICATIONS

Continued

head face. They may have to be stuck in place until the heads are tightened down. This will prevent hot gases from warming the intake manifold and create a cooler air/fuel mixture that produces extra power.

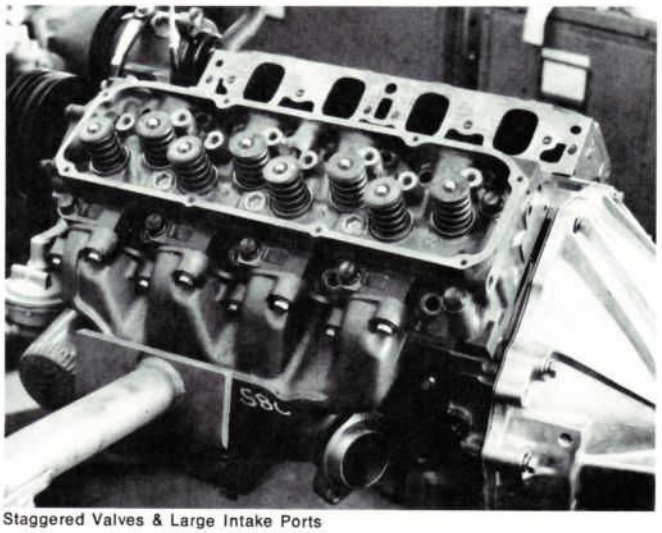
- *Fuel* – Install a 5-6 psi electric fuel pump at the tank, and use the highest octane fuel available. Replace factory carburetor jets with #70 primary's and #84 secondary's.
- *Exhaust* – Install lightweight, fabricated exhaust headers. Try 34" x 2" I.D. primary tubes into the collectors.

DRIVE LINE

- *Transmission* – If faster power shifting is desired, remove teeth and second and third gear blocker rings.
- *Rear Axle* – For strip use, install 4.57 ratio, or higher, ring and pinion gear along with a C3AZ-4880-B Detroit Automotive Locker axle, that fits the 31-spline axle shaft. For street use, a 3.50:1 or 3.90:1 ratio is recommended.
- *Tires* – Install 7-inch wide slicks on the rear.

SUSPENSION

- Install a good set of traction bars on rear axle.



Staggered Valves & Large Intake Ports

302 BOSS PARTS LIST*

*Does not include parts also used on regular 302 engine.

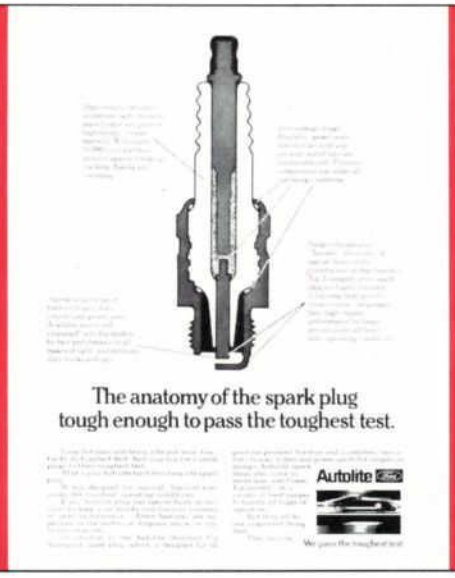
PART NUMBER	NO. PER ENGINE	PART NAME	APPLICATION '69	APPLICATION '70
C9ZZ-6007-Y	1	Engine Assembly (without oil cooler)	X	X
D0ZZ-6007-G	1	Engine Assembly (with oil cooler)		X
C9ZZ-6009-C	1	Engine Short Block Assy.	X	
D0ZZ-6009-A	1	Engine Short Block Assy.		X
C9ZZ-6010-B	1	Engine Block Assy.	X	
D0ZZ-6010-A	1	Engine Block Assy.		X
D0ZZ-6023-A	1	Pointer—Engine Timing		X
C9ZZ-6C038-A	1	Shield—Engine Heat	X	X
D0ZZ-6049-B	2	Cyl. Head, less gasket	X	
D0ZZ-6049-A	2	Cyl. Head with gasket		X
C9ZZ-6051-C	2	Cyl. Head Gasket	X	X
C9ZZ-6065-A	20	Cyl. Head Bolts (7/16"-14x4 1/2)	X	X
D0ZZ-6108-A	8	Piston Assembly (Std. Red size)	X	X
D0ZZ-6108-B	8	Piston Assembly (Std. Blue size)	X	X
D0ZZ-6108-C	8	Piston Assembly (.003" O/S)	X	X
C9ZZ-6135-E	8	Piston Pin	X	X
C9ZZ-6200-B	8	Connecting Rod	X	X
C30Z-6211-M	16	Bearing Connecting Rod (Std. size)	X	X
C30Z-6211-N	16	Bearing Connecting Rod (.001" U/S)	X	X
C30Z-6211-P	16	Bearing Connecting Rod (.002" U/S)	X	X
C30Z-6211-R	16	Bearing Connecting Rod (.010" U/S)	X	X
C30Z-6211-S	16	Bearing Connecting Rod (.020" U/S)	X	X
C30Z-6211-T	16	Bearing Connecting Rod (.030" U/S)	X	X
C9AZ-6212-B	16	Con. Rod Nut (3/8"-24)	X	X
C9ZZ-6214-B	16	Con. Rod Bolt (2 7/64" Long)	X	X
C9ZZ-6250-A	1	Camshaft (Ident. #VE-B)	X	
D0ZZ-6250-A	1	Camshaft (Ident. #VE-D)		X
D0ZZ-6303-A	1	Crankshaft Steel (Includes 8 Cup Plugs 377436-S and 8 Retainers 380249-S)	X	X
C9ZZ-6310-A	1	Crankshaft Oil Slinger	X	X
D0ZZ-6A312-A	1	Pulley—Crankshaft (3 grooves)		X
C9ZZ-6316-B	1	Harmonic Damper—Crankshaft Assy.	X	
D0ZZ-6316-A	1	Harmonic Damper—Crankshaft Assy.		X
D0ZZ-6345-A	4	Bolt Main Bearing Cap (7/16"-14 x 3 3/64") for #2 & 3 to attach baffle		X
C9ZZ-6345-A	4	Main Bearing Cap Bolts (7/16"-14 x 3 3/64 for #2, 4 & attach baffle) (Before 10-1-69)	X	X
43007-S2 (B258A)	6	Main Bearing Cap Bolts (3/8"-16x2 1/2 for #2, 3, 4)	X	X
C9ZZ-6375-B	1	Flywheel & Ring Gear Assy. 164 teeth—11 1/2" bolt circle	X	X
D0AZ-6500-C	16	Mechanical Tappets	X	X
C9ZZ-6505-A	8	Exh. Valve (Std. size) (5.02"x1.71" Dia.)	X	
C9ZZ-6505-B	8	Exh. Valve (.003" O/S)	X	
C9ZZ-6505-C	8	Exh. Valve (.015" O/S)	X	
C9ZZ-6505-D	8	Exh. Valve (.030" O/S)	X	
D0ZZ-6505-A	8	Exh. Valve (Std. size) (5.05"x1.71" Dia.)		X
D0ZZ-6505-C	8	Valve—Exhaust (.015" O/S)		X
C9ZZ-6507-A	8	Int. Valve (Std. size) (5.22"x2.23" Dia.)	X	
C9ZZ-6507-B	8	Int. Valve (.003" O/S)	X	
C9ZZ-6507-C	8	Int. Valve (.015" O/S)	X	
C9ZZ-6507-D	8	Int. Valve (.030" O/S)	X	
D0ZZ-6507-A	8	Int. Valve (Std. size) (5.23"x2.19")		X
D0ZZ-6513-A	16	Valve Spring (w/4 dark blue stripes)	X	X
C9ZZ-6514-A	16	Valve Retainer	X	X
C9ZZ-6518-A	32	Key—Valve Spring Retainer	X	X
C9ZZ-6A527-A	16	Rocker Arm Stud (7/16"-20 & 7/16"-14)	X	X
C9ZZ-6A528-A	16	Rocker Arm Fulcrum Seat	X	X
C8SZ-6A529-A	16	Rocker Arm Stud Nut (7/16"-20)	X	
C9ZZ-6A536-A	16	Valve Spring Seat	X	
C9ZZ-6564-A	16	Rocker Arm	X	X
C9ZZ-6A564-A	8	Push Rod Guide	X	
C9ZZ-6565-A	16	Push Rod (7.595" Long)	X	X
C9ZZ-6571-A	16	Valve Spring Seal	X	X
C9ZZ-6582-C	2	Chrome Rocker Arm Covers	X	X
C9ZZ-6584-A	2	Rocker Arm Cover Gasket	X	X
C9ZZ-6600-B	1	Oil Pump (Includes 1 C2OZ-6626-C and 1 C2OZ-6659-C gaskets)	X	X
C9ZZ-6622-A	1	Tube, Cover & Screen Assy.	X	X
C9ZZ-6B633-A	1	Oil Cooler Bracket-Upper		X
C9ZZ-6B634-A	1	Oil Cooler Bracket-Lower		X
C9ZZ-6A636-A	1	Oil Filter Adapter to Block Gasket		X
C9OZ-6A642-A	1	Oil Cooler Assy.		X
C7TZ-6666-B	1	Plug—Oil Filter By-Pass Valve		X
C7OZ-6A666-A	1	PCV Valve	X	
DOAZ-6A666-A	1	PCV Valve		X
C9ZZ-6670-C	1	Oil Pump Relief Valve Spring	X	X
C9ZZ-6675-C	1	Oil Pan Assy.	X	
D0ZZ-6675-A	1	Oil Pan Assy.		X
C9ZZ-6687-B	1	Baffle—Oil Crankshaft—Windage	X	X
C7OZ-6A706-A	1	PCV Valve Elbow (1/2-inch)	X	
C9ZZ-6A715-C	1	Oil Cooler Hose-Inlet		X
C9ZZ-6A715-D	1	Oil Cooler Hose-Outlet		X
C9ZZ-6750-A	1	Oil Level Indicator—Chrome	X	
D0ZZ-6750-B	1	Oil Indicator Assy.—Chrome		X
C9ZZ-6754-A	1	Oil Level Tube Indicator	X	
C9ZZ-6837-A	1	Oil Filter By-pass Spring		X
C9ZZ-6881-A	1	Oil Filter Adapter (w/oil cooler)		X
B8A-6890-A	1	Oil Filter Adapter Mtg. Bolt Insert		X
C9AZ-6890-A	1	Insert—Oil Filter Adaptor—Mtg.		X
C7AZ-6A892-A	1	Vent Valve to Cover Retainer	X	X
C8AZ-6A892-A	1	Elbow to Oil Filler Cap Retainer	X	
C4GY-6894-A	1	Oil Filter Adapter Mtg. Bolt Assy.		X
C9ZZ-9424-C	1	Intake Manifold	X	X
C9ZZ-9430-B	1	Exhaust Manifold (Right)	X	X
C9ZZ-9431-A	1	Exhaust Manifold (Left)	X	X

Miscellaneous Cylinder Head Installation Materials—1. Chlorothane (Degreaser) 2. Silicone Rubber Primer 3. Silicone Rubber Sealant

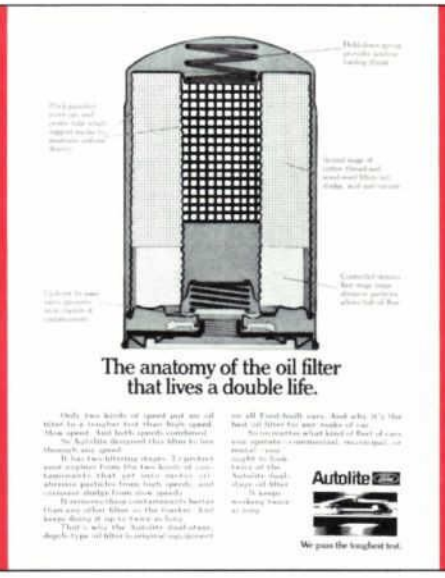
NOTE: Essentially, 1969 and 1970 302 BOSS engines are pretty much the same, as evidenced by the application column. The most important difference is in the size of the intake valve. 1969 engines have a 2.23" diameter head, compared to a slightly smaller 2.19" diameter in 1970 for better response during acceleration. This, of course, requires different cylinder heads. If necessary to replace a '69 cylinder head for repairs, a '70 cylinder head can be used if the corresponding intake valves are also installed.

Autolite National Advertising... "openers" for 1970

In January, these 2-page spreads will get the Autolite message to avid readers of CAR CRAFT, CAR & DRIVER, MOTOR TREND, POPULAR MECHANICS, POPULAR SCIENCE



FARM JOURNAL and PROGRESSIVE FARMER will feature "the anatomy of the spark plug" in January issues



Automotive fleet books will feature "the anatomy of the oil filter" in January issues

In CONSTRUCTION METHODS AND EQUIPMENT advertising during January, Autolite will discuss "the anatomy of the contractor's battery"

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