# MANUFACTURERS MOTOR VEHICLE SPECIFICATIONS

**METRIC (U.S. Customary)**

# 1990

| Manufacturer | Vehicle Line | |
|---|---|---|
| FORD MOTOR COMPANY | FORD THUNDERBIRD | |
| Mailing Address | | |
| P.O. BOX 2053<br>DEARBORN, MICHIGAN 48121 | Issued<br>NOVEMBER 30, 1988 | Revised<br>MAY 15, 1990 |

Direct questions concerning these specifications to the manufacturer listed above.

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**Motor Vehicle Manufacturers Association of the United States, Inc.**

Forms Provided by Technical Affairs Division

FORM MVMA-90

# MVMA Specifications

**METRIC (U.S. Customary)**

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) 5/15/90

## Vehicle Origin

| | |
|---|---|
| Design & development (company) | Ford Motor Company |
| Where built (country) | U.S.A. |
| Authorized U.S. sales marketing representative | Ford Division, Ford Motor Company |

## Vehicle Models

| | Model Description & Drive (FWD/RWD/AWD/4WD)* | Introduction Date | Make, Vehicle Models, Series, Body Type (Mfgr's Model Code) | No. of Designated Seating Positions (Front/Rear) | Max. Trunk/Cargo Load—Kilograms (Pounds) |
|---|---|---|---|---|---|
| | **REAR WHEEL DRIVE (RWD)** | | | | |
| (•) | **STANDARD** | 10/5/89 | | | |
| | 2-Door | | BA/HVS | 2/3 | 68.0 (150) |
| (•) | **LX** | 10/5/89 | | | |
| | 2-Door | | BA/HVB | 2/3 | 68.0 (150) |
| (•) | **SUPER COUPE** | 10/5/89 | | | |
| | 2-Door | | BA/HVC | 2/3 | 68.0 (150) |
| (•) | **35TH ANNIVERSARY EDITION** | 10/5/89 | | | |
| | 2-Door | | BA/HVS | 2/3 | 68.0 (150) |

* FWD-Front Wheel Drive RWD-Rear Wheel Drive AWD-All Wheel Drive 4WD-Four Wheel Drive

# MVMA Specifications

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Model Year 1990 Issued 11/88 Revised (•) 5/15/89

## METRIC (U.S. Customary)

### Power Teams

SAE J1349 Net bhp (brake horsepower) and Net Torque corrected to 77°F/25°C and 29.61 in. Hg/100 kPa atmospheric pressure.

| | | | A | B | C | D |
|---|---|---|---|---|---|---|
| | ENGINE | Engine Code | 994 | 99R | 99R | |
| | | Displacement Liters (in³) | 3.8 (232) | 3.8 (232) | 3.8 (232) | |
| | | Induction system (FI, Carb, etc.) | Sequential Electronic Fuel Injection | Sequential Electronic Fuel Injection | Sequential Electronic Fuel Injection | |
| | | Compression Ratio | 9.0 | 8.2 | 8.2 | |
| (•) | | SAE Net at RPM Power kW (bhp) | 104(140) @ 3800 | 157(210) @ 4000 | 157(210) @ 4000 | |
| (•) | | SAE Net at RPM Torque N · m (lb. ft.) | 292(215) @ 2400 | 427(315) @ 2600 | 427(315) @ 2600 | |
| | | Exhaust single, dual | Single | Dual | Dual | |
| | TRANS | Transmission/ Transaxle | 4-Spd. Automatic Overdrive (AOD) | 5-Spd. Manual Overdrive (M5R2) | 4-Spd. Automatic Overdrive (AOD) | |
| | | Axle Ratio (std. first) | 3.27 $ | 2.73 % | 3.27 % | |

$ — Traction-Lok Available
% — 8.8 Inch Rear Locker Axle Standard

| Series Availability | | Power Teams (A-B-C-D) | |
|---|---|---|---|
| Model | Code | Standard | Optional |
| 2-Door (Excl. Super Coupe) | 63D | A | |
| 2-Door Super Coupe | 63D | B | C |

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) _____

## METRIC (U.S. Customary)

| Engine Description / Engine Code | 3.8L | 3.8L SC |
|---|---|---|

## ENGINE — GENERAL

| | | | |
|---|---|---|---|
| Type & description (inline, V, angle, flat, location, front, mid, rear, transverse, longitudinal, sohc, dohc, ohv, hemi, wedge, pre-chamber, etc.) | | 90°V, Front, Longitudinal Overhead Valve Engine with Modified Wedge Combustion Chamber | |
| Manufacturer | | Ford Motor Company | |
| No. of cylinders | | Six | |
| Bore | | 96.8 (3.8) | |
| Stroke | | 86.0 (3.4) | |
| Bore spacing (C/L to C/L) | | 106.5 | |
| Cylinder block material & mass kg (lbs.) (machined) | | Cast Iron 54.5 (120.0) | |
| Cylinder block deck height | | 234.5 (9.2) | |
| Cylinder block length | | 411.0 (16.2) | |
| Deck clearance (minimum) (above or below block) | | 0.255 (0.010) Above | |
| Cylinder head material & mass kg (lbs.) | | SAE 331, Alum. 7.2 (15.9) | SAE 331, Alum. 8.0 (17.5) |
| Cylinder head volume (cm³) | | 61.2 | |
| Cylinder liner material | | N/A | |
| Head gasket thickness (compressed) | | 1.04-1.19 (0.041-0.047) | 1.07 (0.042) |
| Minimum combustion chamber total volume (cm³) | | 73.2 | |
| Cyl. no. system (front to rear)* | L. Bank | 4, 5, 6 | |
| | R. Bank | 1, 2, 3 | |
| Firing order | | 1, 4, 2, 5, 3, 6 | |
| Intake manifold material & mass [kg (lbs.)]** | | Alum. 11.3 (24.8) | Alum. 11.06 (24.0) |
| Exhaust manifold material & mass [kg (lbs.)]** | | Cast Iron 7.1 (15.6) | |
| Fuel required unleaded, diesel, etc. | | Unleaded | |
| Fuel antiknock index (R + M) ÷ 2 | | 87 Minimum Octane | 92 Minimum Octane |
| Engine mounts | Quantity | Three | |
| | Material and type (elastomeric, hydroelastic, hydraulic damper, etc. | Hydroelastic | |
| | Added isolation (sub-frame, crossmember, etc.) | Crossmember at Transmission | |
| Total dressed engine mass (wt) dry*** | | 200.9 (443.0) | 229.9 (506.9) |

## Engine — Pistons

| | | |
|---|---|---|
| Material & mass, g (weight, oz.)-piston only | Zolloy 16, Alum. Alloy, 521 (18.4) | Zolloy 16, Alum. Alloy, 524 (18.5) |

## Engine — Camshaft

| | | |
|---|---|---|
| Location | | In Block |
| Material & mass kg (weight, lbs.) | | SAE 1050 Steel Bar Stock 3.82 (8.4) |
| Drive type | Chain/belt | Chain (Silent) |
| | Width/pitch | 14.91-13.64 (0.587-0.537)/9.525 (0.375) |

*Rear of engine — drive takeoff. View from drive takeoff end to determine left & right side of engine.

**Finished state.

***Dressed engine mass (weight) includes the following: Front End Dress, All Engine Mounted Components and Flex Plate; Excludes Starter and Alternator.

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) _____

## METRIC (U.S. Customary)

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|---|---|---|

### Engine — Valve System

| | | | |
|---|---|---|---|
| Hydraulic lifters (std., opt., NA) | | Hydraulic Roller | |
| Valves | Number intake/exhaust | 6/6 | |
| | Head O.D. intake/exhaust | 45/37 | 44/36 |

### Engine — Connecting Rods

| | | |
|---|---|---|
| Material & mass [kg., (weight, lbs.)]* | | Forged Steel (SAE-1151-M) .665-.667 (1.46-1.47) |
| Length (axes ¢ to ¢) mm | | 150.17-150.24 |

### Engine — Crankshaft

| | | | |
|---|---|---|---|
| Material & mass [kg., (weight, lbs.)]* | | Nodular Cast Iron Alloy 14.06 (31) | Austempered Ductile Iron |
| End thrust taken by bearing (no.) | | #3 | |
| Length & number of main bearings | | 4 | |
| Seal (material, one, two piece design, etc.) | Front | One Piece, Fluorocarbon | |
| | Rear | Fluorocarbon, Dual Lip | |

### Engine — Lubrication System

| | |
|---|---|
| Normal oil pressure [kPa (psi) at engine rpm] | 276-414 (40-60) @ 2000 RPM |
| Type oil intake (floating, stationary) | Stationary Shrouded Screen in Sump |
| Oil filter system (full flow, part, other) | Full Flow |
| Capacity of c/case, less filter-refill-L (qt.) | 3.8 (4.0) Plus 0.5 (0.5) for Filter |

### Engine — Diesel Information (NOT OFFERED)

| | | |
|---|---|---|
| Diesel engine manufacturer | | |
| Glow plug, current drain at 0°F | | |
| Injector nozzle | Type | |
| | Opening pressure [kPa (psi)] | |
| Pre-chamber design | | |
| Fuel injection pump | Manufacturer | |
| | Type | |
| Fuel injection pump drive (belt, chain, gear) | | |
| Supplementary vacuum source (type) | | |
| Fuel heater (yes/no) | | |
| Water separator, description (std., opt.) | | |
| Turbo manufacturer | | |
| Oil cooler-type (oil to engine coolant; oil to ambient air) | | |
| Oil filter | | |

### Engine — Intake System (NOT OFFERED)

| | | |
|---|---|---|
| Turbo charger - manufacturer | | |
| Super charger - manufacturer | | Eaton (a) |
| Intercooler | | Air to Air — Engine Mounted |

*Finished State

(a) 2 Rotors, 3 Lobes each w/60° Helical Twist:
Dimensions — 152.4 (6.0) x 284.5 (11.2)
Weight — 3.64 (8.0)
Maximum Boost Pressure — 12 PSI

# MVMA Specifications Form

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) 5/15/90

## METRIC (U.S. Customary)

| Engine Description / Engine Code | 3.8L | 3.8L SC |
|---|---|---|

## Engine — Cooling System

| | | | |
|---|---|---|---|
| Coolant recovery system (std., opt., n.a.) | | Standard | |
| Coolant fill location (rad., bottle) | | Radiator Coolant Fill; Bottle Coolant Add | |
| Radiator cap relief valve pressure [kPa (psi)] | | 110.3 (16.0) | |
| Circulation thermostat | Type (choke, bypass) | Reverse Poppet | |
| | Starts to open at °C(°F) | 91 (197) | |
| Water Pump | Type (centrifugal, other) | Centrifugal | |
| | GPM 1000 pump rpm | 10 | |
| | Number of pumps | One | |
| | Drive (V-belt, other) | Six Rib Poly-V | Eight Rib Poly-V |
| | Bearing type | Double Row, Sealed, Ball and Roller | |
| | Impeller material | Steel | |
| | Housing material | Aluminum | |
| By-pass recirculation [type (inter., ext.)] | | External | |
| (•) *Cooling* system capacity | With heater-L(qt.) | 10.2 (10.8) Plus 1.5 Quart in Overflow Bottle | |
| | With air conditioner-L(qt.) | Standard | |
| | Opt. equipment [specify-L(qt.)] | N/A | |
| Water jackets full length of cyl. (yes, no) | | No | |
| Water all around cylinder (yes, no) | | Yes | |
| Water jackets open at head face (yes, no) | | No | |
| Radiator core | Std., A/C, HD | A/C, Standard | |
| | Type (cross-flow, etc.) | Crossflow | Downflow |
| | Construction (fin & tube mechanical, braze, etc.) | Tube and Slit Fin, Vacuum Brazed Alum., 1 Row | Tube and Slit Fin, Copper & Brass, 2 Row |
| | Material, mass [kg (wgt. lbs.)] | Aluminum, 3.31 (7.29) | Copper/Brass |
| | Width | 571.9 (22.5) | 508.0 (20.0) |
| | Height | 469.8 (18.5) | 384.0 (15.1) |
| | Thickness | 25.9 (1.0) | 37.1 (1.5) |
| | Fins per inch | 10 | 15 |
| Radiator end tank material | | Plastic | Brass |
| Fan | Std., elec., opt. | Standard | Electric, Two |
| | Number of blades & type (flex, solid, material) | 7 Blade Solid, Steel | 8 Blade, Plastic |
| | Diameter & projected width | 406 (16.0); 68.5 (2.7) | |
| | Ratio (fan to crankshaft rev.) | 1.35:1 | |
| | Fan cutout type | Clutch | |
| | Drive type (direct, remote) | Direct | |
| | RPM at idle (elec.) | N/A | |
| | Motor rating (wattage) (elec.) | N/A | 400 |
| | Motor switch (type & location) (elec.) | N/A | EEC Control |
| | Switch point (temp., pressure) (elec.) | N/A | 221°F |
| | Fan shroud (material) | Plastic | |

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) _____

## METRIC (U.S. Customary)

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|---|---|---|

## Engine — Fuel System (See supplemental page for details of Fuel Injection, Supercharger, Turbocharger, etc. if used)

| | | | |
|---|---|---|---|
| Induction type: carburetor, fuel injection system, etc. | | Electronic Fuel Injection System | |
| Manufacturer | | | |
| Carburetor no. of barrels | | N/A | |
| Idle A/F mix. | | 14.6:1 Closed Loop | |
| Fuel injection | Point of injection (no.) | Port Injection (Six) | |
| | Constant, pulse, flow | Pulse | |
| | Control (electronic, mech.) | Electronic | |
| | System pressure [kPa (psi)] | 270 (39.5) | |
| Idle spd.-rpm (spec. neutral or drive and propane if used) | Manual | N/A | 700 |
| | | | |
| | Automatic | N/A | 600 |
| | | | |
| Intake manifold heat control (exhaust or water thermostatic or fixed) | | N/A | |
| Air cleaner type | | Dry, Remote Paper Element | |
| Fuel filter (type/location) | | | |
| Fuel pump | Type (elec. or mech.) | Electric | |
| | Location (eng., tank) | In-Tank | |
| | Pressure range [kPa (psi)] | 30-45 | 30-60 |
| | Flow rate at regulated pressure (L (gal)/hr @ kPa (psi)) | 60 L/hr | 110 L/hr |

## Fuel Tank

| | | |
|---|---|---|
| Capacity [refill L (gallons)] | | 72.0 (19.0) |
| Location (describe) | | Underside Rear Center — In Front of Rear Suspension |
| Attachment | | Steel Support Tray w/Two Straps Bolt at Front & Rear |
| Material & Mass [kg (weight lbs.)] | | HDPE |
| Filler pipe | Location & material | Right Hand Quarter Panel — Steel (Terne) |
| | Connection to tank | Rubber Hose |
| Fuel line (material) | | Nylon |
| Fuel hose (material) | | N/A |
| Return line (material) | | Nylon |
| Vapor line (material) | | Nylon |
| Extended range tank | Opt., n.a. | N/A |
| | Capacity [L (gallons)] | |
| | Location & material | |
| | Attachment | |
| Auxiliary tank | Opt., n.a. | N/A |
| | Capacity [L (gallons)] | |
| | Location & material | |
| | Attachment | |
| | Selector switch or valve | |
| | Separate fill | |

# MVMA Specifications

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## METRIC (U.S. Customary)

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|---|---|---|

## Vehicle Emission Control

| | | | | |
|---|---|---|---|---|
| Exhaust Emission Control | Type (air injection, engine modifications, other) | | Vehicle and Engine Modifications Plus Exhaust Gas Recirculation and Air Injection (a) | |
| | Air Injection | Pump or pulse | N/A | |
| | | Driven by | N/A | |
| | | Air distribution (head, manifold, etc.) | N/A | |
| | | Point of entry | N/A | |
| | Exhaust Gas Recirculation | Type (controlled flow, open orifice, other) | Electronic (PFE) | |
| | | Exhaust source | R.H. Exhaust Manifold | |
| | | Point of exhaust injection (spacer, carburetor, manifold, other) | Intake Manifold | S/C Air Inlet Adaptor |
| | Catalytic Converter | Type | TWC Toeboard (2) | |
| | | Number of | Two | |
| | | Location(s) | Toeboard (L.O.) | |
| | | Volume [L (in³)] | Toeboard 2 x 2 x 38 | |
| | | Substrate type | Coated Ceramic Monolith | |
| | | Noble metal type | TWC — Palladium/Rhodium | TWC — Platinum/Palladium/Rhodium |
| | | Noble metal Concentration (g/cm³) | TWC — 11.77/2.35 ÷ 10,000 & TWC — 5.89/11.77 ÷ 10,000 | TWC — 8.24/1.65 ÷ 10,000 & TWC — 5.89/11.77 ÷ 10,000 |
| Crankcase Emission Control | Type (ventilates to atmosphere, induction system, other) | | Closed Induction System | |
| | Energy source (manifold vacuum, carburetor, other) | | Manifold Vacuum | |
| | Discharges (to intake manifold, other) | | Intake Manifold | |
| | Air inlet (breather cap, other) | | Air Cleaner | |
| Evaporative Emission Control | Vapor vented to (crankcase, canister, other) | Fuel tank | Externally Vented to Carbon Canister | |
| | | Carburetor | N/A | |
| | Vapor storage provision | | Carbon Canister | |
| Electronic system | Closed loop (yes/no) | | Yes | |
| | Open loop (yes/no) | | Yes | No |

## Engine — Exhaust System

| | | | |
|---|---|---|---|
| Type (single, single with cross-over, dual, other) | | Single w/Dual Catalyst System | Dual w/Dual Catalyst System Mufflers |
| Muffler no. & type (reverse flow, straight thru, separate resonator) Material & Mass [kg (weight lbs.)] | | One, Reverse Flow (b) | Two, Reverse Flow (b) |
| Resonator no. & type | | — | |
| Exhaust pipe | Branch o.d., wall thickness | — | 57.0 x 1.37 (2.25 x .054) |
| | Main o.d., wall thickness | — | 63.0 x 1.37 (2.50 x .054) |
| | Material & Mass [kg (weight lbs.)] | — | Aluminized Stainless Steel (b) |
| Intermediate pipe | o.d. & wall thickness | 50.8 x 1.37 (2.00 x .054) | |
| | Material & Mass [kg (weight lbs.)] | Aluminized Stainless Steel (b) | |
| Tail pipe | o.d. & wall thickness | 50.8 x 1.37 (2.00 x .054) | |
| | Material & Mass [kg (weight lbs.)] | Aluminized Stainless Steel (b) | |

(a) Components May Vary According to Engine Calibration
(b) Purchased in Assembly (PIA) Muffler and Pipe Assembly 11.0 (24.5)

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) ____

## METRIC (U.S. Customary)

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|---|---|---|

### Transmissions/Transaxle (Std., Opt., N.A.)

| | | |
|---|---|---|
| Manual 3-speed (manufacturer/country) | N/A | |
| Manual 4-speed (manufacturer/country) | N/A | |
| Manual 5-speed (manufacturer/country) | N/A | Standard (Mazda/Japan) |
| Automatic (manufacturer/country) | N/A | |
| Automatic overdrive (manufacturer/country) | Standard (Ford/USA) | Optional (Ford/USA) |
| | | |

### Manual Transmission/Transaxle (NOT OFFERED)

2.73 AXLE RATIO ONLY

| | | |
|---|---|---|
| Number of forward speeds | | Five — M5R2 |
| Gear ratios | 1st | 3.75 |
| | 2nd | 2.32 |
| | 3rd | 1.43 |
| | 4th | 1.00 |
| | 5th | 0.75 |
| | Reverse | 3.26 |
| Synchronous meshing (specify gears) | | All Fwd. & Rev. Gears |
| Shift lever location | | Floor |
| Trans. case mat'l. & mass kg (lbs)* | | Aluminum 51.3 (113.0) |
| Lubricant | Capacity [L (pt.)] | 3.0 (6.3) |
| | Type recommended | Dexron II |
| | | |
| | | |
| | | |

### Clutch (Manual Transmission) (NOT OFFERED)

| | | |
|---|---|---|
| Clutch manufacturer | | LUK |
| Clutch type (dry, wet; single, multiple disc) | | Dry Plate, Single Disc |
| Linkage (hydraulic, cable, rod, lever, other) | | Hydraulic |
| Max. pedal effort (nom. spring load, new) N (lbs) | Depressed | 151 (34) |
| | Released | 9 (22) |
| Assist (spring, power/percent, nominal) | | No |
| Type pressure plate springs | | Belleville |
| Total spring load (nominal, new) N (lbs) | | 8500 (1910) |
| Clutch facing | Facing mfgr. & material coding | Valeo F-202 |
| | Facing material & construction | Woven Non-Asbestos |
| | Rivets per facing | 16 |
| | Outside x inside dia. (nominal) | 280 x 198 (11 x 7.8) |
| | Total eff. area [$cm^2$($in.^2$)] | 615 (95.3) |
| | Thickness (pressure plate side/ fly wheel side) | 3.30 (0.13)/3.30 (0.13) |
| | Rivet depth (pressure plate side/ fly wheel side) | 1.2 (0.047)/1.2 (0.047) |
| | Engagement cushion method | Segmented |
| Release bearing type & method lub. | | (a) |
| Torsional damping method, springs, hysteresis | | (b) |

*Includes shift linkage, lubricant, and clutch housing. If other specify.

(a) Self-Centering, Angular Contact, Constant Running, Pre-Packed
(b) Multi-Stage, Springs & Friction Material

# MVMA Specifications Form

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## ∅ Automatic Transmission/Transaxle

| | | | |
|---|---|---|---|
| Trade name | | Automatic Overdrive (AOD) | |
| Type and special features (describe) | | Torque Converter, Planetary Gear Set | |
| Gear Selector | Location (column, floor, other) | Floor | |
| | Ltr./No. designation (e.g. PRND21) | P R N (D) D 1 | |
| | Shift interlock (yes, no, describe) | No | |
| Gear ratios | 1st | 2.40:1 | |
| | 2nd | 1.47:1 | |
| | 3rd | 1.00:1 | |
| | 4th | 0.67:1 | |
| | Reverse | 2.00:1 | |
| (●) Max. upshift speed - drive range [km/h (mph)] | | 108 (66.8) | 109 (67.5) |
| (●) Max. kickdown speed - drive range [km/h (mph)] | | 91 (56.6) | 92 (57.1) |
| (●) Min. overdrive speed [km/h (mph)] | | 57 (35.2) | 61 (37.8) |
| Torque converter | Number of elements | Three | |
| | Max. ratio at stall | 2.53 | 2.30 |
| | Type of cooling (air, liquid) | Liquid | |
| | Nominal diameter | 305 (12) | |
| | Capacity factor "K"* | 165 | 140 |
| Lubricant | Capacity [refill L (pt.)] | 11.6 (24.6) | |
| | Type Recommended | ESP-M2C138-CJ (Mercon® for Service) | |
| *Oil cooler (std., opt., NA, internal, external, air, liquid)* | | *Standard, External, Oil to Engine Coolant* | |
| Transmission mass kg (lbs) & case material** | | Aluminum 87.1 (192.0) | 87.4 (192.7) |

## ∅ All Wheel/4 Wheel Drive (NOT OFFERED)

| | | |
|---|---|---|
| Description & type (part-time, full-time, 2/4 shift while moving, mechanical, elect., chain/gear, etc.) | | |
| Transfer case | Manufacturer and model | |
| | Type and Location | |
| Low-range gear ratio | | |
| System disconnect (describe) | | |
| Center differential | Type (bevel, planetary, w or w/o viscous bias, torsen, etc.) | |
| | Torque split (% front/rear) | |

*Input speed ÷ $\sqrt{\text{torque}}$

**Dry weight including torque converter. If other, specify.

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|---|---|---|---|

## (•)∅ Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage)

| | | | | |
|---|---|---|---|---|
| Axle ratio (or overall top gear ratio) | | 3.27 | 2.73 (M/T) | 3.27 |
| Ring gear o.d. | | 11 | 15 | 11 |
| No. of teeth | Pinion | 36 | 41 | 36 |
| | Ring gear | 198.1 (7.8) | 223.5 (8.8) | |

## ∅ Rear Axle Unit

| | | (7.8) | (8.8) |
|---|---|---|---|
| Description | | Semi-Floating Type with Cast Center and Overhung Pinion | |
| Limited slip differential (type) | | Friction Plate | |
| Drive pinion | Type | Hypoid | |
| | Offset | 25.4 (1.0) | 38.1 (1.5) |
| No. of different pinions | | Two | |
| Pinion/differential | Adjustment (shim, etc.) | Shim | |
| | Bearing adjustment | Collapsible Spacer | |
| Driving wheel bearing (type) | | Straight Roller | |
| Lubricant | Capacity [L (pt.)] | 1.47 (3.1) (a) | 1.58 (3.35) (a) |
| | Type recommended | ESP-M2C154-A | |
| | | | |
| | | | |
| | | | |

## ∅ Propeller Shaft — Rear Wheel Drive

| | | | | |
|---|---|---|---|---|
| Manufacturer / Type (straight tube, tube-in-tube, internal-external damper, etc.) | | | Ford, Collapsible Tube with Internal Tuned Damper | Ford Collapsible Tube with Cardboard Liner |
| Outer diam. x length* x wall thickness | Manual 3-speed transmission | | N/A | |
| | Manual 4-speed transmission | | N/A | |
| | Manual 5-speed transmission (M5R2) | | N/A | 88.90 x 1361 x 1.65 (3.5 x 53.6 x .065) |
| | Overdrive (AOD) | | 88.90 x 1468 x 1.65 (3.5 x 57.8 x .065) | 88.90 x 1468 x 1.65 (3.5 x 57.8 x .065) |
| | Automatic transmission | | N/A | |
| Intermediate bearing | Type (plain, anti-friction) | | N/A | |
| | Lubrication (fitting, prepack) | | N/A | |
| Slip yoke | Type | | Plain | |
| | Number of teeth | | 28 | |
| | Spline o.d. | | 30.99 (1.22) | |
| Universal joints | Make and mfg. no. | Front | Ford 1310 | Ford 1330 |
| | | Rear | Ford 1310 | Ford 1330 |
| | Number used | | Two | |
| | Type (ball and trunnion, cross) | | Cross | |
| | Rear attach (u-bolt, clamp, etc.) | | Circular Flange | |
| | Bearing | Type (plain, anti-friction) | Needle Roller | |
| | | Lubrication (fitting, prepack) | Prepack | |
| Drive taken through (torque tube, arms or springs) | | | Rear Subframe | |
| Torque taken through (torque tube, arms or springs) | | | Rear Subframe | |

*Centerline to centerline of universal joints, or to centerline of rear attachment. (a) Limited Slip; Substitute 4 Oz. M2C118-A Friction Modifier

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) ____

## METRIC (U.S. Customary)

| Engine Description / Engine Code | 3.8L | 3.8L SC |
|---|---|---|

## ∅ Axle Ratio and Tooth Combinations (See 'Power Teams' for axle ratio usage) REFER TO PAGE 10

| | | | |
|---|---|---|---|
| Effective final drive ratio (or overall top gear ratio) | | | |
| Transfer ratio and method (chain, gear, etc.) | | | |
| Front drive unit | Ring gear o.d. | | |
| | No. of teeth | Pinion | |
| | | Ring gear | |

## ∅ Front Drive Unit (NOT OFFERED)

| | | |
|---|---|---|
| Description (integral to trans., etc.) | | |
| Limited slip differential (type) | | |
| Drive pinion | Type | |
| | Offset | |
| No. of different pinions | | |
| Pinion/differential | Adjustment (shim, etc.) | |
| | Bearing adjustment | |
| Driving wheel bearing (type) | | |
| Lubricant | Capacity [L (pt.)] | |
| | Type recommended | |

## ∅ Axle Shafts — Rear Wheel Drive

| | | | | |
|---|---|---|---|---|
| Manufacturer and number used | | | GKN, Two-One Each RH & LH | |
| Type (straight, solid bar, tubular, etc.) | | Left | Solid Bar | |
| | | Right | Solid Bar | |
| *Outer* diam. x length* x wall thickness | Manual transmission 5-Speed | Left | N/A | 30.43 x 470.2 (1.20 x 18.51) |
| | | Right | N/A | 30.43 x 470.2 (1.20 x 18.51) |
| | Automatic transmission (AOD) | Left | 25.55 x 481.3 (1.01 x 18.95) | 30.43 x 470.2 (1.20 x 18.51) |
| | | Right | 25.55 x 481.3 (1.01 x 18.95) | 30.43 x 470.2 (1.20 x 18.51) |
| | Optional transmission | Left | N/A | |
| | | Right | N/A | |
| Slip yoke | Type | | N/A | |
| | Number of teeth | | N/A | |
| | Spline o.d. | | N/A | |
| Universal joints | Make and mfg. no. | Inner | GKN | |
| | | Outer | GKN | |
| | Number used | | Four-Two Inboard Plunging & Two Outboard Fixed | |
| | Type, size, plunge | Inner | Tripod, C2650 36 (1.42) | C4000 44 (1.73) |
| | | Outer | Rzeppa, C2650 36 (1.42) | C4000 44 (1.73) |
| | Attach (u-bolt, clamp, etc.) | | I/B to Axle Spline & Snap Ring; O/B to Hub-Spline & Nut | |
| | Bearing | Type (plain, anti-friction) | N/A | |
| | | Lubrication (fitting, prepack) | N/A | |
| Drive taken through (torque tube, arms or springs) | | | N/A | |
| Torque taken through (torque tube, arms or springs) | | | N/A | |

*Centerline to centerline of universal joints, or to centerline of attachment.

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●)

## METRIC (U.S. Customary)

**Body Type And/Or Engine Displacement**

ALL MODELS EXCEPT SUPER COUPE

### Suspension — General Including Electronic Controls

| | | | |
|---|---|---|---|
| Car leveling | Standard/optional/not avail. | | N/A |
| | Manual/automatic control | | |
| | Type (air/hydraulic) | | |
| | Primary/assist spring | | |
| | Rear only/4 wheel leveling | | |
| | Single/dual rate spring | | |
| | Single/dual ride heights | | |
| | Provision for jacking | | Notched Rocker Panel Positions, Front and Rear |
| Shock absorber damping controls | Standard/option/not avail. | | N/A |
| | Manual/automatic control | | |
| | Number of damping rates | | |
| | Type of actuation (manual/electric motor/air, etc.) | | |
| | sensors | Lateral acceleration | |
| | | Deceleration | |
| | | Acceleration | |
| | | Road surface | |
| Shock absorber (front & rear) | Type | | (a) See Page 11B |
| | Make | | Motorcraft |
| | Piston diameter | | 30.2 (1.2) Front and Rear |
| | Rod diameter | | 16.0 (0.63) Front; 12.5 (0.49) Rear |

### Suspension — Front

| | | | |
|---|---|---|---|
| Type and description | | | Short/Long Arm Design with Double Isolated Tension Strut |
| Travel* | Full jounce | | 100.3 (3.95) |
| | Full rebound | | 104.7 (4.12) |
| Spring | Type (coil, leaf, other) & material | | Coil SAE-5160-H Steel (Variable Rate) |
| | Insulators (type & material) | | Top-Steel Bonded in Rubber; Bottom Steel Bonded to Rubber |
| | Size (coil design height & i.d.) | | Check Hgt.: 294.3 (11.6) ID: 94 (3.7) Bar Dia.: 15.38 (0.606) — 14.62 (0.576) Bar Length: 4120 (162.2) |
| | Spring rate [N/mm (lb./in.)] | | 39.1 (223) — 49.4 (282) |
| | Rate at wheel [N/mm (lb./in.)] | | 18.1 (103.4) |
| Stabilizer | Type (link, linkless, frameless) | | Link, Teflon Lined Rubber Sub Frame Insulator |
| | Material & bar diameter | | SAE-1090 27.0 (1.1) |

### Suspension — Rear

| | | | |
|---|---|---|---|
| Type and description | | | H-Arm, IRS |
| Travel* | Full jounce | | 113.6 (4.47) |
| | Full rebound | | 119.4 (4.70) |
| Spring | Type (coil, leaf, other) & material | | Coil, SAE-5160-H (Variable Rate) |
| | Size (length x width, coil design height & i.d.) | | Check Height: 233.3 (9.2) ID 108 (4.3), Bar Dia.: 16.81 (0.662) — 15.28 (0.602); Length: 2935 (115.6) |
| | Spring rate [N/mm (lb./in.)] | | 63.2 (361) — 87.7 (501) |
| | Rate at wheel [N/mm (lb./in.)] | | 19.2 (109.6) |
| | Insulators (type & material) | | Rubber Top and Bottom |
| | If leaf | No. of leaves | None |
| | | Shackle (comp. or tens.) | None |
| Stabilizer | Type (link, linkless, frameless) | | Link |
| | Material & bar diameter | | SAE-4130 25.0 (0.98) |
| Track bar (type) | | | None |

*Define load condition:

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●)

## METRIC (U.S. Customary)

| Body Type And/Or Engine Displacement | SUPER COUPE |
|---|---|

## Suspension — General Including Electronic Controls

| | | | |
|---|---|---|---|
| Car leveling | Standard/optional/not avail. | | N/A |
| | Manual/automatic control | | |
| | Type (air/hydraulic) | | |
| | Primary/assist spring | | |
| | Rear only/4 wheel leveling | | |
| | Single/dual rate spring | | |
| | Single/dual ride heights | | |
| | Provision for jacking | | Notched Rocker Panel Positions, Front and Rear |
| Shock absorber damping controls | Standard/option/not avail. | | Standard |
| | Manual/automatic control | | Both |
| | Number of damping rates | | Two |
| | Type of actuation (manual/electric motor/air, etc.) | | Electric Actuator |
| | sensors | Lateral acceleration | Turn Angle |
| | | Deceleration | Brake Fluid Pressure |
| | | Acceleration | Degree of Pedal Depression |
| | | [redacted] Speed | Transmission |
| Shock absorber (front & rear) | Type | | (b) See Page 11B |
| | Make | | Motorcraft |
| | Piston diameter | | 32.0 (1.26) Front; 30.0 (1.2) Rear |
| | Rod diameter | | 16.0 (0.63) Front; 12.5 (0.49) Rear |

## Suspension — Front

| | | |
|---|---|---|
| Type and description | | Short/Long Arm Design with Double Isolated Tension Strut |
| Travel* | Full jounce | 104.4 (4.11) |
| | Full rebound | 100.6 (3.96) |
| Spring | Type (coil, leaf, other) & material | Coil, SAE-5160-H Steel (Variable Rate) |
| | Insulators (type & material) | Top-Steel Bonded in Rubber; Bottom Steel Bonded to Rubber |
| | Size (coil design height & i.d.) | Check Height: 291.3 (11.5) ID: 94 (3.7) Bar Diameter: 16.75 (0.659) — 15.10 (0.595) Bar Length: 3650 (143.7) |
| | Spring rate [N/mm (lb./in.)] | 61.1 (349) — 70.6 (403) |
| | Rate at wheel [N/mm (lb./in.)] | 26.1 (149) |
| Stabilizer | Type (link, linkless, frameless) | Link, Teflon Lined Rubber Sub Frame Insulator |
| | Material & bar diameter | SAE-1090 29.0 (1.2) |

## Suspension — Rear

| | | | |
|---|---|---|---|
| Type and description | | | H-Arm, IRS |
| Travel* | Full jounce | | 120.9 (4.76) |
| | Full rebound | | 112.1 (4.41) |
| Spring | Type (coil, leaf, other) & material | | Coil, SAE-5160-H (Variable Rate) |
| | Size (length x width, coil design height & i.d.) | | Bar Length: 2765 (108.9) Check Height: 231.3 (9.1) ID: 108 (4.3) Bar Diameter: 17.98 (0.708) — 16.40 (0.646) |
| | Spring rate [N/mm (lb./in.)] | | 89.1 (509) — 111.6 (637) |
| | Rate at wheel [N/mm (lb./in.)] | | 25.1 (143) |
| | Insulators (type & material) | | Rubber Top and Bottom |
| | If leaf | No. of leaves | None |
| | | Shackle (comp. or tens.) | None |
| Stabilizer | Type (link, linkless, frameless) | | Link |
| | Material & bar diameter | | SAE-4130 26.5 (1.04) |
| Track bar (type) | | | None |

*Define load condition:

Suspension (Cont'd):

(a) Direct, double acting nitrogen gas pressurized hydraulic front and rear shocks.

(b) Direct, double acting nitrogen gas pressurized hydraulic front and rear shocks.

Automatic Ride Control (Computer Controlled Adjustable Damping Shock Absorbers) —

A mode select switch on the instrument panel will allow the driver to select between "automatic" and "firm" (firm damping rate). During automatic operation, the system control module monitors signals from speed, brake pressure and steering sensors and an acceleration signal from the EEC IV engine control module. The shock absorber damping will normally be soft, automatically switching to firm when the control module anticipates excessive vehicle roll, pitch, dive or speed. During firm operation, the shock absorber damping will always be firm.

The module changes damping rate by energizing 2 relays which control 4 feedback actuators, one on top of each shock absorber. The actuators rotate a valve inside the shock absorbers to change the damping rate, and provide a signal to the module indicating whether the shocks are in the firm or soft mode. This allows the module to detect malfunctions and notify the customer by flashing a warning light. The feedback signals also allow the module to flash an error code during diagnostics to isolate the location of the malfunction for the service technician.

# MVMA Specifications

## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) _____

**Body Type And/Or Engine Displacement**

ALL MODELS EXCEPT SUPER COUPE

### Brakes — Service

| | | | |
|---|---|---|---|
| Description | | | Four Wheel Hydraulic Actuated System |
| Manufacturer and brake type (std., opt., n.a.) | Front (disc or drum) | | Disc, Vented, Standard; Kelsey Hayes |
| | Rear (disc or drum) | | Drum, Standard, Allied Bendix, Kelsey Hayes |
| Valving type (proportion, delay, metering, other) | | | Proportioning (Rear) |
| Power brake (std., opt., n.a.) | | | Standard |
| Booster type (remote, integral, vac., hyd., etc.) | | | Single Diaphragm, Integral, Vacuum |
| Vacuum | Source (inline, pump, etc.) | | Engine |
| | *Reservoir (volume in.³)* | | N/A |
| | Pump-type (elec., gear driven, belt driven) | | N/A |
| Traction control | Operational speed range | | N/A |
| | Type engine intervention (electronic, mech.) | | N/A |
| Anti-lock device | Front/rear (std., opt., n.a.) | | Four Wheel Anti-Lock Brake System, Optional |
| | Manufacturer | | Alfred Teve |
| | Type (electronic, mech.) | | Electronic |
| | Number sensors or circuits | | 4 Sensors |
| | Number anti-lock hydraulic circuits | | 3 Circuits |
| | Integral or add-on system | | Integral |
| | Yaw control (yes, no) | | Yes |
| | Hydraulic power source (elect., vac. mtr., pwr. strg.) | | Electric Motor Pump |
| Effective area [cm²(in.²)]* | | | Front 204.0 (31.6) Rear 446.1 (69.1) |
| Gross lining area [cm²(in.²)]**(F/R) | | | Front 240.4 (37.2) Rear 468.8 (72.7) |
| Swept area [cm²(in.²)]***(F/R) | | | Front 1258.0 (195.0) Rear 706.8 (109.6) |
| Rotor | Outerworking diameter | F/R | 275.5 (10.8) |
| | Inner working diameter | F/R | 178.3 (7.0) |
| | Thickness | F/R | 26.0 (1.0) |
| | Material & type (vented/solid) | F/R | Cast Iron/Steel Vented |
| Drum | *Diameter & width* | F/R | 250.0 (9.8), 46.8 (1.8) |
| | Type and material | F/R | Cast Iron/Steel Finned |
| Wheel cylinder bore | | | Front 66.0 (2.6) Rear 25.4 (1.0) |
| Master cylinder | Bore/stroke | F/R | 23.8 (0.94)/39.0 (1.54) |
| Pedal arc ratio | | | 2.8:1 |
| Line pressure at 445 N(100 lb.) pedal load [kPa (psi)] | | | 10480 (1520) @ 20" Hg Vacuum |
| Lining clearance | | F/R | Front 0.20 (0.008) Rear 0.29 (0.011) |
| Brake *lining* — Front wheel | Bonded or riveted (rivets/seg.) | | Riveted (6/Lining) |
| | Rivet size | | 4.7 x 7.5 (0.18 x 0.295) |
| | Manufacturer | | Allied Bendix FMD |
| | Lining code***** | | BX-HC-EE |
| | Material | | Semi-Metallic |
| | **** Primary or out-board | | 144.0 x 44.6 x 9.7 (5.7 x 1.8 x 0.38) |
| | Size Secondary or in-board | | 144.0 x 44.6 x 9.7 (5.7 x 1.8 x 0.38) |
| | Shoe thickness (no lining) | | 6.0 (0.24) |
| Rear wheel | Bonded or riveted (rivets/seg.) | | Riveted (10 PRI, 10 SEC) |
| | Manufacturer | | Allied Bendix FMD |
| | Lining Code***** | | BX-UA-FF |
| | Material | | Organic |
| | **** *Primary or out-board* | | 247 x 45 x 6.35 (9.72 x 1.77 x 0.25) |
| | Size Secondary or in-board | | 247 x 45 x 6.35 (9.72 x 1.77 x 0.25) |
| | Shoe thickness (no lining) | | 1.89 (0.074) |

*Excludes rivet holes, grooves, chamfers, etc. **Includes rivet holes, grooves, chamfers, etc.
***Total swept area for four brakes. (Drum brake: Widest lining contact width for each brake x its contact circumference.)
(Disc brake: Square of Outer Working Dia. minus Square of inner Working Dia. multiplied by Pi/2 for each brake.)
****Size for drum brakes includes length x width x thickness. *****Manufacturer I.D., catalog or formulation designation and coefficient of friction classification.

# MVMA Specifications

## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) 5/15/90

| Body Type And/Or Engine Displacement | SUPER COUPE |
|---|---|

## Brakes — Service

| | | | | |
|---|---|---|---|---|
| Description | | | | Four Wheel Hydraulic Anti-Lock Brake System |
| Manufacturer and brake type (std., opt., n.a.) | Front (disc or drum) | | | Disc, Standard; Kelsey Hayes, Allied Bendix |
| | Rear (disc or drum) | | | Disc, Standard, Kelsey Hayes, Varga |
| Valving type (proportion, delay, metering, other) | | | | Proportioning (Rear) |
| Power brake (std., opt., n.a.) | | | | Standard |
| Booster type (remote, integral, vac., hyd., etc.) | | | | Hydraulic |
| Vacuum | Source (inline, pump, etc.) | | | N/A |
| | Reservoir (volume in.³) | | | N/A |
| | Pump-type (elec., gear driven, belt driven) | | | N/A |
| Traction control | Operational speed range | | | N/A |
| | Type engine intervention (electronic, mech.) | | | N/A |
| Anti-lock device | Front/rear (std., opt., n.a.) | | | Four Wheel Anti-Lock Brake System, Standard |
| | Manufacturer | | | Alfred Teve |
| | Type (electronic, mech.) | | | Electronic |
| | Number sensors or circuits | | | Four Sensors |
| | Number anti-lock hydraulic circuits | | | Three Circuits |
| | Integral or add-on system | | | Integral |
| | Yaw control (yes, no) | | | Yes |
| | Hydraulic power source (elect., vac. mtr., pwr. strg.) | | | Electric Motor Pump |
| Effective area [cm²(in.²)]* | | | | Front 204.0 (31.6) Rear 114.4 (17.7) |
| Gross lining area [cm²(in.²)]**(F/R) | | | | Front 240.0 (37.2) Rear 130.0 (20.2) |
| Swept area [cm³(in.³)]***(F/R) | | | | Front 1258.0 (195.0) Rear 1047.6 (162.4) |
| (•) (•) Rotor | Outerworking diameter | | F/R | Front 275.5 (10.8) Rear 254.0 (10.0) |
| | Inner working diameter | | F/R | Front and Rear 178.3 (7.0) |
| | Thickness | | F/R | Front 26.0 (1.02) Rear 24.0 (0.94) |
| | Material & type (vented/solid) | | F/R | Front/Rear: Cast Iron, Steel Vented |
| Drum | Diameter & width | | F/R | N/A |
| | Type and material | | F/R | N/A |
| Wheel cylinder bore | | | | Front 66.0 (2.60) Rear 45.4 (1.79) |
| Master cylinder | Bore/stroke | | F/R | 23.8 (0.94)/31.0 (1.22) |
| Pedal arc ratio | | | | 3.5:1 |
| Line pressure at 445 N(100 lb.) pedal load [kPa (psi)] | | | | 17900 (2600) |
| Lining clearance | | | F/R | Front and Rear 0.20 (0.008) |
| Brake lining | Front wheel | Bonded or riveted (rivets/seg.) | | Riveted (6/Lining) |
| | | Rivet size | | 4.7 x 7.5 (0.18 x 0.295) |
| | | Manufacturer | | Abex |
| | | Lining code***** | | Abex 6022EE |
| | | Material | | Semi-Metallic |
| | | **** Size | Primary or out-board | Outer 144.0 x 44.6 x 9.7 (5.7 x 1.8 x 0.38) |
| | | | Secondary or in-board | Inner 144.0 x 44.6 x 9.7 (5.7 x 1.8 x 0.38) |
| | | Shoe thickness (no lining) | | 6.0 (0.24) |
| | Rear wheel | Bonded or riveted (rivets/seg.) | | Riveted (5 Rivets/Lining) |
| | | Manufacturer | | Nuturn |
| | | Lining Code***** | | NT-4-GG |
| | | Material | | Organic |
| | | **** Size | Primary or out-board | 99.4 x 38.5 x 12.0 (3.91 x 1.5 x 0.47) |
| | | | Secondary or in-board | 99.4 x 38.5 x 12.0 (3.91 x 1.5 x 0.47) |
| | | Shoe thickness (no lining) | | 5.0 (0.197) |

*Excludes rivet holes, grooves, chamfers, etc. **Includes rivet holes, grooves, chamfers, etc.
***Total swept area for four brakes. (Drum brake: Widest lining contact width for each brake x its contact circumference.)
(Disc brake: Square of Outer Working Dia. minus Square of inner Working Dia. multiplied by Pi/2 for each brake.)
****Size for drum brakes includes length x width x thickness. *****Manufacturer I.D., catalog or formulation designation and coefficient of friction classification.

# MVMA Specifications

Vehicle Line THUNDERBIRD

*Model Year* 1990 *Issued* 11/88 *Revised* (•) 5/15/90

## METRIC (U.S. Customary)

| **Body Type And/Or** ***Engine Displacement*** | ALL MODELS (EXCL. SUPER COUPE) | SUPER COUPE |
|---|---|---|

### Tires And Wheels (Standard)

| | | | | | |
|---|---|---|---|---|---|
| (•) | Tires | Size (load range, ply) | | P205/70R15 | P225/60R1697V |
| | | Type (bias, radial, steel, nylon, etc.) | | Steel Belted Radial | |
| | | Inflation pressure (cold) for recommended max. vehicle load | Front [kPa (psi)] | 207 (30) | |
| | | | Rear [kPa (psi)] | 207 (30) | |
| | | Rev./mile — at 70 km/h (45 mph) | | 792 | 784 |
| | Wheels | Type & material | | Stamped Steel Disc | Cast Aluminum — Pinwheel |
| | | Rim (size & flange type) | | 15 x 6.0 | 16 x 7.0 |
| | | Wheel offset | | 39.0 (1.54) | |
| | | Attachment | Type (bolt or stud) | Stud | |
| | | | Circle diameter | 107.9 (4.25) | |
| | | | Number & size | Five — M12 x 1.5 | |
| | Spare | Tire and wheel | | T125/90R15 BSW 413.7 kPa 60 PSI with 15 x 4 (Steel) High Pressure Mini-Spare and Forged Alum. Mini-Spare | |
| | | Storage position & location *(describe)* | | Left Hand Quarter Panel | |

### Tires And Wheels (Optional)

| | | |
|---|---|---|
| (•) | Tire size (load range, ply) | GT+4 P225/60R1697V (Available on Super Coupe Only) |
| | Type (bias, radial, steel, nylon, etc.) | Steel Belted Radial |
| | Wheel (type & material) | |
| | Rim (size, flange type and offset) | |
| | Tire size (load range, ply) | P215/70R15 (Not Available on Super Coupe) |
| | Type (bias, radial, steel, nylon, etc.) | Steel Belted Radial |
| | Wheel (type & material) | Cast Aluminum |
| | Rim (size, flange type and offset) | 15 x 6.5, 39.0 (1.54) Offset |
| | Tire size (load range, ply) | |
| | Type (bias, radial, steel, nylon, etc.) | |
| | Wheel (type & material) | |
| | Rim (size, flange type and offset) | |
| | Tire size (load range, ply) | |
| | Type (bias, radial, steel, nylon, etc.) | |
| | Wheel (type & material) | |
| | Rim (size, flange type and offset) | |
| | Spare tire and wheel size (if configuration is different than road tire or wheel, describe optional spare tire and/or wheel location & storage position) | Conventional Spare Tire and Wheel 15x6.0 Steel Stamped Mini-Spare w/Aluminum Wheel on Super Coupe Only |

### Brakes — Parking

| | | | |
|---|---|---|---|
| Type of control | | Foot Operated | Hand Operated |
| Location of control | | LH Side Under Inst. Panel | Tunnel |
| *Operates on* | | *Rear Service Brakes* | |
| If separate from service brakes | Type (internal or external) | — | |
| | Drum diameter | — | |
| | Lining size (length x *width x thickness*) | — | |

# MVMA Specifications

Vehicle Line THUNDERBIRD

Model Year 1990 Issued 11/88 Revised (•) 5/15/90

## METRIC (U.S. Customary)

| Body Type And/Or Engine Displacement | ALL MODELS |
|---|---|

## Steering

| | | | | | |
|---|---|---|---|---|---|
| Manual (std., opt., n.a.) | | | | | N/A |
| Power (std., opt., n.a.) | | | | | Standard |
| Adjustable steering wheel/column (tilt, telescope, other) | | Type | | | Steering Wheel Tilt — Five Positions |
| | | Manufacturer | | | Ford |
| | | (Std., opt., n.a.) | | | Optional |
| Wheel diameter** (W9) SAE J1100 | | Manual | | | N/A |
| | | Power | | | 368 (14.5) |
| Turning diameter m (ft.) | Outside front | Wall to wall (l. & r.) | | | |
| | | Curb to curb (l. & r.) | | | 10.85 (35.6) |
| | Inside rear | Wall to wall (l. & r.) | | | |
| | | Curb to curb (l. & r.) | | | |
| Scrub Radius* | | | | | 2.85 (0.11) |
| Manual | Gear | Type | | | N/A |
| | | Manufacturer | | | — |
| | | Ratios | Gear | | — |
| | | | Overall | | — |
| | No. wheel turns (stop to stop) | | | | — |
| Power | Type (coaxial, elec., hyd., etc.) | | | | Integral Rack and Pinion |
| | Manufacturer | | | | # (See Below) |
| | Gear | Type | | | Rack and Pinion, Constant Ratio |
| | | Ratios | Gear | | 56.1°/mm/rev. |
| | | | Overall | | 14.1:1 On Center, 11.0:1 At Stops |
| | Pump (drive) | | | | Multi-Rib Belt Off Crankshaft Pulley |
| | No. wheel turns (stop to stop) | | | | 2.76 |
| Linkage | Type | | | | Rack and Pinion (Rod and Ball Joint Directly Attached to Gear) |
| | Location (front or rear of wheels, other) | | | | Front of Wheels |
| | Tie rods (one or two) | | | | Two (Integral with Gear) |
| Steering axis | Inclination at camber (deg.) | | | | 15.7° |
| | Bearings (type) | Upper | | | Prelubricated Ball Joint Spring Loaded |
| | | Lower | | | Prelubricated Ball Joint |
| | | Thrust | | | Teflon Coated Fabric Wash in Lower Ball Joint |
| Steering spindle/knuckle & joint type | | | | | Internal with Wheel Spindle Ball Socket Joints |
| Wheel spindle/hub | Diameter | Inner bearing | | | 37.98 (1.50) |
| | | Outer bearing | | | 22.10 (0.87) |
| | Thread (size) | | | | 13/16-20 UNEF 2A R.H. Thread |
| | Bearing (type) | | | | Tapered Roller |

*The horizontal distance in the front elevation between wheel centerline and kingpin (ball joint) axis at ground.

**See Page 22.

(•) # Gear & Pump (Speed Sensitive Variable Assist w/LX & Super Coupe) Ford; Fluid ESP-M2C138-CJ

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) 10/31/89

## METRIC (U.S. Customary)

| Body Type And/Or Engine Displacement | ALL MODELS EXCEPT SUPER COUPE |
|---|---|

### Wheel Alignment

| | | | | |
|---|---|---|---|---|
| (●) | Front wheel at curb mass (wt.) | Service checking | Caster (deg.) | 5.5° ± 0.75° (a) |
| | | | Camber (deg.) | − 0.5° ± 0.75° (a) |
| | | | *Toe-in [outside track-mm (in.)]* | 3.0 ± .30 (0.12 ± 0.01) (b)(c) |
| (●) | | Service reset* | Caster | 5.5° ± 0.75° (a) |
| | | | Camber | − 0.5° ± 0.75° (a) |
| | | | Toe-in | 3.0 ± .30 (0.12 ± 0.01) (b)(c) |
| (●) | | Periodic M.V. inspection | Caster | 5.5° ± 0.75° (a) |
| | | | Camber | − 0.5° ± 0.75° (a) |
| | | | Toe-in | 3.0 ± .30 (0.12 ± 0.01) (b)(c) |
| (●) | Rear wheel at curb mass (wt.) | Service checking | Camber (deg.) | − 0.5° ± 0.5° (a) |
| | | | Toe-in [outside track-mm (in.)] | 3.0 ± .30 (0.12 ± 0.01) |
| (●) | | Service reset* | Camber | − 0.5° ± 0.5° (a) |
| | | | Toe-in | 3.0 ± .30 (0.12 ± 0.01) |
| (●) | | Periodic M.V. inspection | Camber | − 0.5° ± 0.5° (a) |
| | | | Toe-in | 3.0 ± .30 (0.12 ± 0.01) |

*Indicates pre-set, adjustable, trend set or other.

### Electrical — Instruments and Equipment

| | | |
|---|---|---|
| Speedometer | Type (analog, digital, std., opt.) | Electronic Analog on Base; Electronic Digital on LX |
| | Trip odometer (std., opt., n.a.) | Analog Speedo on Base; Electronic Digital on LX |
| EGR maintenance indicator | | N/A |
| Charge indicator | Type | Electronic Analog on LX |
| | Warning device (light, audible) | Warning Lamp on Base |
| Temperature indicator | Type | 90° Pointer Type Gauge on Base; Elect. Analog on LX |
| | Warning device (light, audible) | N/A |
| Oil pressure indicator | Type | Electronic Analog on LX |
| | Warning device (light, audible) | Warning Lamp on Base |
| Fuel indicator | Type | 90° Pointer Type Gauge on Base; Elect. Analog on LX |
| | Warning device (light, audible) | N/A |
| Windshield wiper | Type (standard) | Interval Wipe (Column-Mounted Control), Standard |
| | Type (optional) | N/A |
| | Blade length | L.H. 609.6 (24.0); R.H. 509.0 (20.0) |
| | Swept area [cm²(in.²)] | 8135.3 (1260.9) |
| Windshield washer | *Type (standard)* | *Electric Pump (Impeller Type) Dual Fluidic Spray* |
| | Type (optional) | None |
| | Fluid level indicator (light, audible) | Warning Light, Optional |
| Rear window wiper, wiper/washer (std., opt., n.a.) | | N/A |
| Horn | Type | Air Electric |
| | Number used | Two — 1 Lo-Pitch, 1 Hi-Pitch |
| Other SEE PAGE 15B | | |

(a) Max. side-to-side difference between wheels (left minus right) to be within ± 0.75° with caster and camber set to specification
(b) Steering wheel must be within ± 5° of straight-ahead position after toe setting
(c) Individual rear toe 0.8 ± 1.5 (0.03 ± 0.06)

# MVMA Specifications

## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) 10/31/89

| Body Type And/Or Engine Displacement | SUPER COUPE |
|---|---|

### Wheel Alignment

| | | | | |
|---|---|---|---|---|
| (•) | Front wheel at curb mass (wt.) | Service checking | Caster (deg.) | 5.5° ± 0.75° (a) |
| | | | Camber (deg.) | − 0.5° ± 0.75° (a) |
| | | | Toe-in [outside track-mm (in.)] | 3.0 ± .30 (0.12 ± 0.01) (b)(c) |
| (•) | | Service reset* | Caster | 5.5° ± 0.75° (a) |
| | | | Camber | − 0.5° ± 0.75° (a) |
| | | | Toe-in | 3.0 ± .30 (0.12 ± 0.01) (b)(c) |
| | | Periodic M.V. inspection | Caster | 5.5° ± 0.75° (a) |
| | | | Camber | − 0.5° ± 0.75° (a) |
| (•) | | | Toe-in | 3.0 ± .30 (0.12 ± 0.01) (b)(c) |
| (•) | Rear wheel at curb mass (wt.) | Service checking | Camber (deg.) | − 0.5° ± 0.5° (a) |
| | | | Toe-in [outside track-mm (in.)] | 3.0 ± .30 (0.12 ± 0.01) |
| (•) | | Service reset* | Camber | − 0.5° ± 0.5° (a) |
| | | | Toe-in | 3.0 ± .30 (0.12 ± 0.01) |
| (•) | | Periodic M.V. inspection | Camber | − 0.5° ± 0.5° (a) |
| | | | Toe-in | 3.0 ± .30 (0.12 ± 0.01) |

*Indicates pre-set, adjustable, trend set or other.

### Electrical — Instruments and Equipment

| | | |
|---|---|---|
| Speedometer | Type (analog, digital, std., opt.) | Electric Speedometer, Standard |
| | Trip odometer (std., opt., n.a.) | Standard |
| EGR maintenance indicator | | N/A |
| Charge indicator | Type | N/A |
| | Warning device (light, audible) | Light |
| Temperature indicator | Type | 90° Pointer Type, Standard (MAG Gauge) |
| | Warning device (light, audible) | N/A |
| Oil pressure indicator | Type | 90° Pointer Type, Standard (MAG Gauge) |
| | Warning device (light, audible) | N/A |
| Fuel indicator | Type | 90° Pointer Type, Standard (MAG Gauge) |
| | Warning device (light, audible) | N/A |
| Windshield wiper | Type (standard) | Interval Wipe (Column-Mounted Control), Standard |
| | Type (optional) | N/A |
| | Blade length | L.H. 609.6 (24.0); R.H. 509.0 (20.0) |
| | Swept area [cm²(in.²)] | 8135.3 (1260.9) |
| Windshield washer | Type (standard) | Electric Pump (Impeller Type) Dual Fluidic Spray |
| | Type (optional) | None |
| | Fluid level indicator (light, audible) | Warning Light, Optional |
| Rear window wiper, wiper/washer (std., opt., n.a.) | | N/A |
| Horn | Type | Air Electric |
| | Number used | Two — 1 Lo-Pitch, 1 Hi-Pitch |

Other SEE PAGE 15B

(a) Max. side-to-side difference between wheels (left minus right) to be within ± 0.75° with caster and camber set to specification
(b) Steering wheel must be within ± 5° of straight ahead position after toe setting
(c) Individual rear toe 0.8 ± 1.5 (0.03 ± 0.06)

Electrical — Instruments and Equipment: (Cont'd)

- Brake System Warning Light
- Emergency Flashers
- Directional Turn Signal Lights
- Hi-Beam Indicator Light
- Fasten Seat Belts Warning Light
- Automatic Lamp System
- Illuminated Entry System
- Vehicle Maintenance Monitor (Low Fluids: Fuel, Oil, Windshield Washer and Coolant) and Oil Change Indicator Base and LX Models
- Check Gauge Light (Low Fluids: Fuel, Oil and Coolant) and Oil Change Indicator — Super Coupe Model
- Firm Ride Light w/3.8L SC Engine
- Anti-Lock Brake Warning Light w/3.8L SC Engine
- EEC Malfunction Warning Light
- Door Ajar Warning Lamp
- Up-Shift Indicator Light w/3.8L, SC Engine
- Anti-Theft Alarm Warning Light

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) 6/5/89

## METRIC (U.S. Customary)

| Engine Description / Engine Code | 3.8L | 3.8L SC |
|---|---|---|

## Electrical — Supply System

| | | | | |
|---|---|---|---|---|
| Battery | Manufacturer | | Motorcraft | |
| | Model, std., (opt.) | | Standard | |
| | Voltage | | 12 Volt | |
| | Amps at 0°F cold crank | | 480 | 540 (Manual) 650 (Auto) |
| | Minutes-reserve capacity | | 82 | 100 (Manual) 130 (Auto) |
| (●) | Amp/hrs. - 20 hr. rate | | 48 (a) | 58 (Manual) 72 (Auto) |
| | Location | | Left Front Engine Compartment | |
| Alternator | Manufacturer | | Ford (EED Rawsonville) | Mitsubishi |
| | Rating (idle/max. rpm) | 10300 | E8SF-BA (65 Amp.) | E9SF-DA (110 Amp.) |
| | Ratio (alt. crank/rev.) | | 3.36:1 | |
| | Output at idle (rpm, park) | | N/A | |
| | Optional (type & rating) | | N/A | |
| Regulator | Type | 10316 | Electronic-Integral w/Alternator | |

## Electrical — Starting System

| | | | | |
|---|---|---|---|---|
| Motor | Manufacturer | | Ford | |
| | Current drain 0 °F | | 245-270 Amps. | |
| | Power rating [kw (hp)] | | | |
| Motor drive | Engagement type | 11001 | Positive (E4DF-BA) | Positive (E9SF-AA) |
| | Pinion engages from (front, rear) | | Front | |

## Electrical — Ignition System

| | | | | |
|---|---|---|---|---|
| Type | Electronic (std., opt., n.a.) | | Standard | |
| | Other (specify) | | N/A | |
| Coil | Manufacturer | | Motorcraft | |
| | Model | 12029 | E73F-AB | E9SF-AA |
| | Current — Engine stopped — A | | | |
| | Current — Engine idling — A | | 6.5 | 5.5 to 6.0 |
| Spark plug | Manufacturer | | Motorcraft | |
| | Model | | AWSF-44C | AWSF-34P |
| | Thread (mm) | | 14 | |
| | Tightening torque [N-m (lb, ft)] | | 7-15 (5-11) | |
| | Gap | | 1.32-1.42 (.052-.056) | |
| | Number per cylinder | | One | |
| Distributor | Manufacturer | | Motorcraft | N/A |
| | Model | | Universal | N/A |

## Electrical — Suppression

| | |
|---|---|
| Locations & type | Capacitor in Alternator, Resistor Spark Plugs, Resistance Ignition Wire, Ground Cable — Engine to Dash. Hood Bond, Cowl to Engine Strap, Ignition Coil Capacitor, Cowl Bracket to Body Strap. |

(a) 58 Amp Standard On LX Model

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) _____

## METRIC (U.S. Customary)

| Body Type | ALL MODELS |
|---|---|

## Body

| | | |
|---|---|---|
| Structure | | Unitized Body Construction with Bolt-On Front and Rear Subframes and Energy-Absorbing Front and Rear Structures with Anchors for Engine, Suspension, Steering and Driveline Components |
| Bumper system front-rear | (Five (5) Mile Per Hour Bumper Frt/RR — Ford Requirements) | Full RMP Urethane Rim Front and Rear Bumper Covers (Wheel Opening to Wheel Opening) with Stamped Steel Front and Rolled Martinsitic Steel Rear Reinforcing Beams. Egg Crate EVA Energy Absorbers. |
| Anti-corrosion treatment | | Selected Critical Body Parts are Protected by the Use of Galvanized Steel or Through Application of Zinc-Rich Primer. During Body Assembly, Vinyl Sealers and Aluminized Wax are Used, Each for Selected Body Parts. |

## Body — Miscellaneous Information

| | | | |
|---|---|---|---|
| Type of finish (lacquer, enamel, other) | | | Acrylic Enamel for Non-Metallic Colors (a) |
| Hood | Material & mass | | Steel |
| | Hinge location (front, rear) | | Rear |
| | Type (counterbalance, prop) | | Counterbalance — Gas Spring |
| | Release control (internal, external) | | Primary-Internal Remote Cable; Secondary-External |
| Trunk lid | Material & mass | | Steel |
| | Type (counterbalance, other) | | Counterbalance |
| | Internal release control (elec., mech., n.a.) | | Electric, Optional |
| Hatch-back lid | Material & mass | | N/A |
| | Type (counterbalance, other) | | N/A |
| | Internal release control (elec., mech., n.a.) | | N/A |
| Tailgate | Material & mass | | N/A |
| | Type (drop, lift, door) | | N/A |
| | Internal release control (elec., mech., n.a.) | | N/A |
| Vent window control (crank, friction, pivot, power | | Front | N/A |
| | | Rear | N/A |
| ~~Window regulator type~~ (cable, tape, flex, drive, etc.) | | Front | Cross Arm |
| | | Rear | N/A |
| Seat cushion type (e.g., 60/40, bucket, bench, wire, foam etc.) | | Front (b) | Deep Polyurethane Foam on Flat Wire Grid Susp. by Coil Sprgs. |
| | | Rear | Integral Frame & Polyurethane Foam Pad |
| | | 3rd seat | N/A |
| Seat back type (e.g., 60/40, bucket, bench, wire, foam etc.) | | Front (b) | Full Polyurethane Foam Pad & Steel Stamped Frame |
| | | Rear | Integral Steel Frame & Polyurethane Foam Pad |
| | | 3rd seat | N/A |
| | | | |

(a) Acrylic Base Coat/Acrylic Clear Coat for Metallic Colors
(b) Standard Bucket; Articulated Sport Seat on Super Coupe

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) _____

## METRIC (U.S. Customary)

**Body Type** | ALL MODELS

### Restraint System

| Seating Position | | | Left | Center | Right |
|---|---|---|---|---|---|
| Active | Type & description (lap & shoulder belt, lap belt, etc.) Standard/optional | First seat | N/A | N/A | N/A |
| | | Second seat | 3-Point Continuous Loop Lap & Shoulder Belt, Standard | Lap Belt | 3-Point Continuous Loop Lap & Shoulder Belt, Standard |
| | | Third seat | N/A | N/A | N/A |
| Passive | Type & description (air bag, motorized-2-point belt, fixed belt, knee bolster, manual-lap belt) Standard/optional | First seat | Motorized — 2-Point Belt, Knee Bolster, Manual Lap Belt, Standard | N/A | Motorized — 2-Point Belt, Knee Bolster, Manual Lap Belt, Standard |
| | | Second seat | N/A | N/A | N/A |
| | | Third seat | N/A | N/A | N/A |

### Glass

| | SAE Ref. No. | |
|---|---|---|
| Windshield glass exposed surface area [cm²(in.²)] | S1 | 11878 (1841) |
| Side glass exposed surface area [cm²(in.²)]-total 2-sides | S2 | 7600 (1178) Side Door — 3936 (610) Qtr. — 3664 (568) |
| Backlight glass exposed surface area [cm²(in.²)] | S3 | 10521 (1631) |
| Total glass exposed surface area [cm²(in.²)] | S4 | 29999 (4650) |
| Windshield glass (type) | | Laminated — Safety |
| Side glass (type) | | Tempered |
| Backlight glass (type) | | Tempered |

### Headlamps

| | |
|---|---|
| Description-sealed beam, halogen, replaceable bulb, etc. | Replaceable Bulb, Halogen |
| Shape | Low Profile Aerodynamic |
| Lo-beam type (2A1, 2B1, 2C1, etc.) | 9006 |
| Quantity | Two |
| Hi-beam type (1A1, 2A1, 1C1, 2C1,etc.) | 9005 |
| Quantity | Two (Combined with Low Beam Assy.) |

### Frame

| | |
|---|---|
| Type and description (separate frame, unitized frame, partially-unitized frame) | Unitized Construction with Bolt-On Front and Rear Subframes |

# MVMA Specifications

## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) _____

| Body Type | ALL MODELS |
|---|---|

### Convenience Equipment (standard, optional, n.a.)

| | | |
|---|---|---|
| Air conditioning (manual, auto. temp control) | | Standard, Manual; Optional, Automatic Temperature Control |
| Clock (digital, analog) | | Digital (Part of Radio Assy.) |
| Compass/thermometer | | N/A |
| Console (floor, overhead) | | Standard, Floor |
| Defroster, elec. backlight | | Optional, (Mandatory in New York State) |
| Electronic | Diagnostic monitor (integrated, individual) | Optional, Integrated |
| | Instrument cluster (list instruments) | Std.: LCD Speedo., Trip Odometer, Fuel, Temp., Oil and Volts Gauges |
| | Keyless entry | Optional |
| | Tripminder (avg. spd., fuel) | Standard w/Electronic Cluster |
| | Voice alert (list items) | N/A |
| | Other | Standard, Interval Windshield Wipers |
| | | |
| Fuel door lock (remote, key, electric) | | Optional, Electric |
| Lamps | Auto head on/off delay, dimming | Optional |
| | Cornering | Optional |
| | Courtesy (map, reading) | Optional |
| | Door lock, ignition | Optional, Illuminated Door Locks |
| | Engine compartment | Optional |
| | Fog | Standard, Available on Super Coupe Only |
| | Glove compartment | Standard |
| | Trunk | Standard |
| | Illuminated entry system (list lamps, activation) | (a) |
| | Other | |
| | | |
| Mirrors | Day/night (auto. man.) | Std., Day/Night Manual; Opt. Automatic Day/Night (b) |
| | L.H. (remote, power, heated) | Standard, Manual Remote; Optional, Power Remote Control |
| | R.H. (convex, remote, power, heated) | Optional, Power Remote Control, Convex |
| | Visor vanity (RH/LH, illuminated) | Optional, L.H. and R.H. Illuminated |
| Navigation system (describe) | | N/A |
| Parking brake-auto release (warning light) | | Manual Release Standard (c) |

(a) Included and Only Available with Keyless Entry. Raising Either Front Door Outside Handle Turns on All Interior Courtesy Lamps (not Map/Reading) and Front Door Lock Cylinder L.E.D.'s, Optional.
(b) Includes Interior Lamp on Moonroof Equipped Cars only.
(c) Super Coupe Model Equipped with Tunnel Mounted Hand Brake.

# MVMA Specifications

## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) 5/15/90

**Body Type** | ALL MODELS

### Convenience Equipment (standard, optional, n.a.)

| | | | |
|---|---|---|---|
| | Deck lid (release, pull down) | | Electric Release Included w/Optional Power Door Locks |
| | Door locks (manual, automatic, describe system) | | Optional, Electric |
| (•) Power equipment | Seats | 2 - 4 - 6 way, etc. | Optional, 6-Way Power Tracks |
| | | Reclining (R.H., L.H.) | N/A |
| | | Memory (R.H., L.H., preset, recline) | N/A |
| | | Lumbar, hip, thigh, support | Front Lumbar, Std. w/Super Coupe |
| | | Heated (R.H., L.H., other) | N/A |
| | | | |
| | Side windows | | Standard |
| | Vent windows | | N/A |
| | Rear windows | | N/A |
| | | | |
| | Antenna (location, whip, w/shield, power) | | RF Fender Whip Standard; Power Optional |
| Radio systems | Standard | | Electronic AM/FM Stereo Search |
| | Optional | AM, FM, stereo, tape compact disc, graphic equalizer, theft deterrent, radio prep package, headphone jacks, etc. | Electronic AM/FM Stereo Search w/Cassette, Electronic Premium Cassette Radio (EPC) and Premium Sound, Electronic Premium Sound (EPC) with JBL Sound System and Compact Disc Player |
| | Speaker (number, location) | | Two Door Speakers & Two Quarter Panel Speakers with Upgrade for Premium Sound and JBL Option |
| Roof: open air or fixed (flip-up, sliding, "T") | | | Optional, Power Sliding |
| Speed control device | | | Optional |
| Speed warning device (light, buzzer, etc.) | | | Digital Speedo Audible Tone for Speed Set Warning |
| Tachometer (rpm) | | | Standard, 7000 RPM |
| Telephone system (describe) | | | N/A |
| Theft deterrent system | | | Optional, See Below (a) |

(a) Anti-Theft System is Triggered when Vehicle Is Entered Without the Key or Keyless Entry Code if the System was Previously Armed or Activated. The Car Won't Start, Lights Flash and Horn Sounds.

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●)

## METRIC (U.S. Customary)

## Vehicle Dimensions See Key Sheets for definitions

All dimensions to ground are for comparative purposes only. Dimensions are to be shown for all base body models of each vehicle line.
SAE Ref. no. refers to the definition published in SAE Recommended Practice J1100 "Motor Vehicle Dimensions," unless otherwise specified.

| Body Type | SAE Ref. No. | 2-DOOR SEDAN |
|---|---|---|
| **∅ Width** | | |
| Tread (front) | W101 | 1565 (61.6) |
| Tread (rear) | W102 | 1530 (60.2) |
| Vehicle width | W103 | 1847 (72.7) |
| Body width at SgRP (front) | W117 | 1824 (71.8) |
| Vehicle width (front doors open) | W120 | |
| Vehicle width (rear doors open) | W121 | — |
| Tumble-home (deg.) | W122 | 25.7° |
| Outside mirror width | W410 | |
| **∅ Length** | | |
| Wheelbase | L101 | 2870 (113.0) |
| Vehicle length | L103 | 5047 (198.7) |
| Overhang (front) | L104 | 1068 (42.0) |
| Overhang (rear) | L105 | 1109 (43.7) |
| Upper structure length | L123 | 2893 (113.9) |
| Rear wheel C/L "X" coordinate | L127 | 4462 (96.9) |
| **∅ Height*** | | |
| Passenger distribution (front/rear) | PD1,2,3 | 2/2 |
| Trunk/cargo load | | 0 |
| Vehicle height | H101 | 1338 (52.7) |
| Cowl point to ground | H114 | 909 (35.8) |
| Deck point to ground | H136 | 971 (38.2) |
| Rocker panel-front to ground | H112 | |
| Rocker panel-rear to ground | H111 | |
| Windshield slope angle | H122 | 63.9° |
| Backlight slope angle | H121 | 66.6° |

| Ground Clearance* | | ALL MODELS EXCEPT SUPER COUPE | SUPER COUPE |
|---|---|---|---|
| Front bumper to ground | H102 | 360.7 (14.2) | 368.3 (14.5) |
| Rear bumper to ground | H104 | 335.3 (13.2) | 340.1 (13.4) |
| Bumper to ground [front at curb mass (wt.)] | H103 | 386.1 (15.2) | |
| Bumper to ground [rear at curb mass (wt.)] | H105 | 396.2 (15.6) | |
| Angle of approach (degrees) | H106 | 20.2° | 20.9° |
| Angle of departure (degrees) | H107 | 18.9° | 19.8° |
| *Ramp breakover angle (degrees)* | *H147* | *11.9°* | *12.7°* |
| Axle differential to ground (front/rear) | H153 | 173.3 (6.8) | 185.6 (7.3) |
| Min. running ground clearance | H156 | 136.4 (5.4) | 145.4 (5.7) |
| Location of min. run. grd. clear. | | Converter Grass Shield | |

*All vehicle **height** and **ground** clearances are measured at the Manufacturer's Design Load Weight.
Manufacturers Design Load Weight is defined with indicated passenger distribution and trunk/cargo load, unless otherwise specified.
All linear dimensions are in millimeters (inches) unless otherwise noted.

# MVMA Specifications

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●)

## METRIC (U.S. Customary)

## Vehicle Dimensions See Key Sheets for definitions

| Body Type | | 2-DOOR SEDAN |
|---|---|---|
| **∅ Front Compartment** | **SAE Ref. No.** | |
| SgRP front, "X" coordinate | L31 | 3050 (41.4) |
| Effective head room | H61 | 967 (38.1) |
| Max. eff. leg room (accelerator) | L34 | 1081 (42.5) |
| SgRP to heel point | H30 | 224 (8.8) |
| SgRP to heel point | L53 | 886 (34.9) |
| Back angle | L40 | 25.0° |
| Hip angle | L42 | 97.0° |
| Knee angle | L44 | 129.3° |
| Foot angle | L46 | 87.0° |
| Design H-point front travel | L17 | 218.2 (8.6) |
| Normal driving & riding seat track trvl. | L23 | 195 (7.7) |
| Shoulder room | W3 | 1502 (59.1) |
| Hip room | W5 | 1464 (57.6) |
| Upper body opening to ground | H50 | 1200 (47.2) |
| Steering wheel maximum diameter* | W9 | 379 (14.9) |
| Steering wheel angle | H18 | 20.0° |
| Accel. heel pt. to steer. whl. cntr | L11 | 527 (20.8) |
| Accel. heel pt. to steer. whl. cntr | H17 | 609 (24.0) |
| Undepressed floor covering thickness | H67 | 38 (1.5) |
| **∅ Rear Compartment** | | |
| SgRP point couple distance | L50 | 795 (31.3) |
| Effective head room | H63 | 953 (37.5) |
| Min. effective leg room | L51 | 909 (35.8) |
| SgRP (second to heel) | H31 | 274 (10.8) |
| Knee clearance | L48 | 35 (1.4) |
| Shoulder room | W4 | 1500 (59.1) |
| Hip room | W6 | 1438 (56.6) |
| Upper body opening to ground | H51 | N/A |
| Back angle | L41 | 26.0° |
| Hip angle | L43 | 85.5° |
| Knee angle | L45 | 91.4° |
| Foot angle | L47 | 122.8° |
| Depressed floor covering thickness | H73 | 20 (0.8) |
| **Luggage Compartment** | | |
| Usable luggage capacity [L (cu. ft.)] | V1 | 416.3 (14.7) |
| Liftover height | H195 | 622 (24.5) |
| **Interior Volumes (EPA Classification)** | | |
| Vehicle class | | Mid-Size |
| Interior volume index (cu. ft.)** | | 116.1 |
| Trunk/cargo index (cu. ft.) | | 14.7 |

*See page 14.

**Includes passenger and trunk/cargo index — see General section for definition.

# MVMA Specifications

Vehicle Line THUNDERBIRD

Model Year 1990 Issued 11/88 Revised (●)

## METRIC (U.S. Customary)

## Vehicle Dimensions See Key Sheets for definitions

**Body Type**

### Station Wagon—Third Seat (NOT APPLICABLE)

| | SAE Ref. No. | |
|---|---|---|
| Seat facing direction | SD1 | |
| SgRP couple distance | L85 | |
| Shoulder room | W85 | |
| Hip room | W86 | |
| Effective leg room | L86 | |
| Effective head room | H86 | |
| SgRP to heel point | H87 | |
| Knee clearance | L87 | |
| Back angle | L88 | |
| Hip angle | L89 | |
| Knee angle | L90 | |
| Foot angle | L91 | |

### Station Wagon—Cargo Space (NOT APPLICABLE)

| | | |
|---|---|---|
| Cargo length (open front) | L200 | |
| Cargo length (open second) | L201 | |
| Cargo length (closed front) | L202 | |
| Cargo length (closed second) | L203 | |
| Cargo length at belt (front) | L204 | |
| Cargo length at belt (second) | L205 | |
| Cargo width (wheelhouse) | W201 | |
| Rear opening width at floor | W203 | |
| Opening width at belt | W204 | |
| Min. rear opening width above belt | W205 | |
| Cargo height | H201 | |
| Rear opening height | H202 | |
| Tailgate to ground height | H250 | |
| Front seatback to load floor height | H197 | |
| Cargo volume index [$m^3(ft.^3)$] | V2 | |
| Hidden cargo volume index [$m^3(ft.^3)$] | V4 | |
| Cargo volume index-rear of 2-seat | V10 | |

### Hatchback—Cargo Space (NOT APPLICABLE)

| | | |
|---|---|---|
| Cargo length at front seatback height | L208 | |
| Cargo length at floor (front) | L209 | |
| Cargo length at second seatback height | L210 | |
| Cargo length at floor (second) | L211 | |
| Front seatback to load floor height | H197 | |
| Second seatback to load floor height | H198 | |
| Cargo volume index [$m^3(ft.^3)$] | V3 | |
| Hidden cargo volume index [$m^3(ft.^3)$] | V4 | |
| Cargo volume index-rear of 2-seat | V11 | |

# MVMA Specifications
## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) _____

**Body Type** ALL MODELS

### Vehicle Fiducial Marks

| Fiducial Mark Number* | Define Coordinate Location |
|---|---|
| 1 & 2<br>*Front* | The rear vertical edge of the master control notch on the underside of the front door rocker panels located the "X" coordinate relative to body grid.<br><br>X = 2434<br>Y = 818.5<br>Z = 428.7 |
| 3 & 4<br>Rear<br>5 & 6 | The intersection of the horizontal-vertical surfaces on the rocker panel door rabbet locates the "Y" and "Z" coordinates relative to body grid at particular fore-aft inch lines. The fore-aft location can be determined by the reference dimension from Fiducial Mark 1 and 2.<br><br>X = 3300<br>Y = 833.3<br>Z = 423.5 |

| Fiducial Mark Number | | |
|---|---|---|
| Front | W21* | — |
| | L54* | — |
| | H81* | — |
| | H161* | — |
| | H163* | — |
| Rear | W22* | — |
| | L55* | — |
| | H82* | — |
| | H162* | — |
| | H164* | — |

*Reference—SAE Recommended Practice, J182, Motor Vehicle Fiducial Marks.

# MVMA Specifications

## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (•) 5/15/90

| | Code | Model | Vehicle Mass (weight) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | CURB MASS, kg. (lb.)* | | | % PASS. MASS DISTRIBUTION | | | | |
| | | | | | | Pass. In Front | | Pass. In Rear | | ETWC** Code |
| | | | Front | Rear | Total | Front | Rear | Front | Rear | |
| | 994/44T | | | | | | | | | |
| | 3.8L EFI V-6 Engine w/Automatic | | | | | | | | | |
| | Overdrive Transmission | | | | | | | | | |
| | (AOD) | | | | | | | | | |
| (•) | 2-Door | BA-HVS | 915 | 709 | 1624 | 47 | 53 | 18 | 82 | X |
| | | | (2017) | (1564) | (3581) | | | | | |
| (•) | 2-Door LX | BA-HVB | 927 | 714 | 1641 | 47 | 53 | 18 | 82 | N/A |
| | | | (2044) | (1574) | (3618) | | | | | |
| (•) | 2-Door 35th Anniversary Edition | | 927 | 714 | 1641 | 47 | 53 | 18 | 82 | N/A |
| | | BA-HVB | (2044) | (1574) | (3618) | | | | | |
| | 99R/445 | | | | | | | | | |
| | 3.8L EFI SC w/5-Speed | | | | | | | | | |
| | Manual Transmission | | | | | | | | | |
| | (M5R2) | | | | | | | | | |
| (•) | 2-Door Super Coupe | BA-HVC | 986 | 742 | 1728 | 47 | 53 | 18 | 82 | Y |
| | | | (2173) | (1636) | (3809) | | | | | |
| | 99R/44T | | | | | | | | | |
| | 3.8L EFI SC w/Automatic | | | | | | | | | |
| | Overdrive Transmission | | | | | | | | | |
| | (AOD) | | | | | | | | | |
| (•) | 2-Door Super Coupe | BA-HVC | 990 | 750 | 1740 | 47 | 53 | 18 | 82 | Z |
| | | | (2183) | (1654) | (3838) | | | | | |

*Reference — SAE J1100 Motor vehicle dimensions, curb weight definition.

**ETWC — Equivalent Test Weight Class — basis for U.S. Environmental Protection Agency emission certifications. Refer to ETWC code legend below for test weight class.

(•) ***Shipping Mass (Weight) Definition — Less Fuel and Engine Coolant

ETWC LEGEND

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | = 1000 | I | = 2000 | Q | = 3000 | Y | = 4000 |
| B | = 1125 | J | = 2125 | R | = 3125 | Z | = 4250 |
| C | = 1250 | K | = 2250 | S | = 3250 | AA | = 4500 |
| D | = 1375 | L | = 2375 | T | = 3375 | BB | = 4750 |
| E | = 1500 | M | = 2500 | U | = 3500 | CC | = 5000 |
| F | = 1625 | N | = 2625 | V | = 3625 | DD | = 5250 |
| G | = 1750 | O | = 2750 | W | = 3750 | EE | = 5500 |
| H | = 1875 | P | = 2875 | X | = 3875 | FF | = 5750 |

***SHIPPING MASS (weight) Calculation (Kg. (lbs.))

Shipping Mass (weight) = Curb Weight Less:

66 (146)

## Optional Equipment Differential Mass (weight)*

| Code | Equipment | MASS, kg. (lb.) Front | Rear | Total | Remarks Restrictions, Requirements |
|---|---|---|---|---|---|
| Audio Equipment: | | | | | |
| 58Y | Radio Credit Option | −2.3 | −0.9 | −3.2 | N/A w/other audio options |
| | | (−5) | (−2) | (−7) | |
| 588 | Radio, Electronic Prem. | 0.5 | 0 | 0.5 | |
| | *Cassette w/Prem. Sound* | (1) | (0) | (1) | |
| 589 | Radio, Electronic AM/FM Stereo | 0.5 | 0 | 0.5 | |
| | w/Cassette Player & Clock | (1) | (0) | (1) | |
| 916 | Ford JBL Audio System | 3.6 | 8.2 | 11.8 | Requires 588 Premium Cassette |
| | | (8) | (18) | (26) | Radio |
| 917 | Compact Disc Player | 0.9 | 0.5 | 1.4 | Requires 916 JBL & 588 Radio |
| | | (2) | (1) | (3) | |
| 91H | Power Antenna | 0.9 | 0 | 0.9 | |
| | | (2) | (0) | (2) | |
| Miscellaneous Options: | | | | | |
| 12H | Floor Mats, Front | 0.9 | 0.5 | 1.4 | |
| | | (2) | (1) | (3) | |
| 18A | Anti-Theft System | 0.5 | 0 | 0.5 | Requires 963 Pwr. Locks |
| | | (1) | (0) | (1) | |
| 21B | Moonroof, Power | 7.7 | 9.1 | 16.8 | Includes Illum. Visor Vanity Mirrors |
| | | (17) | (20) | (37) | |
| 47J | Illuminated Entry | 0.5 | 0.4 | 0.9 | |
| | | (1) | (1) | (2) | |
| 52N | Speed Control & Tilt Steering | 2.7 | 0 | 2.7 | |
| | Wheel | (6) | (0) | (6) | |
| 57Q | Defroster, Rr. Window | 0 | 0.2 | 0.2 | |
| | | (0) | (0.5) | (0.5) | |
| 59C | Luxury Light/Convenience Group | 3.2 | 0.5 | 3.7 | Includes 47J Illum. Entry |
| | | (7) | (1) | (8) | |
| 144 | Keyless Entry System | 0.5 | 0.4 | 0.9 | Includes 47J Illum. Entry |
| | | (1) | (1) | (2) | |
| 153 | Bracket, Frt. License Plate | 0.2 | 0 | 0.2 | |
| | | (0.5) | (0) | (0.5) | |

*Also see Engine - General Section for dressed engine mass (weight).

# MVMA Specifications

## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) _____

| Code | Equipment | Optional Equipment Differential Mass (weight)* MASS, kg. (lb.) Front | Rear | Total | Remarks Restrictions, Requirements |
|---|---|---|---|---|---|
| Miscellaneous Options: | | | | | |
| (cont'd) | | | | | |
| 552 | Anti-Lock Braking System | 8.1 | 15.0 | 23.1 | Includes Traction-Lok Axle & 4W Disc |
| | | (18) | (33) | (51) | Brakes. Std. on Super Coupe |
| 628 | Mirrors, Dual Electric Remote | 0.9 | 0 | 0.9 | |
| | | (2) | (0) | (2) | |
| 632 | Cold Weather Group | 7.7 | −0.5 | 7.2 | Includes 57Q Defroster, Engine Block |
| | ● Standard & LX | (17) | (−1) | (16) | Heater, & Hvy. Duty Battery & |
| | | | | | Alternator |
| | ● Super Coupe | 0.5 | 0.2 | 0.7 | |
| | | (1) | (0.5) | (1.5) | |
| 963 | Lock Group, Power | 1.4 | 1.8 | 3.2 | |
| | | (3) | (4) | (7) | |
| Seats: | | | | | |
| 53A | Seat, 6-Way Power Driver's | 2.7 | 1.8 | 4.5 | |
| | | (6) | (4) | (10) | |
| 53J | Seats, 6-Way/6-Way Driver & | 2.3 | 1.4 | 3.7 | |
| | Passenger Power | (5) | (3) | (8) | |
| ... | Split Fold Down Rear Seat | 1.8 | 6.4 | 8.2 | Super Coupe Only |
| | | (4) | (14) | (18) | |
| Tires, Wheels & Wheel Covers: | | | | | |
| T22 | Tires, P225/60R16 97V BSW | 0 | 0 | 0 | Base on Super Coupe (N/A on |
| | Performance; Includes Goodyear | (0) | (0) | (0) | Standard or LX) |
| | Eagle & Cast Aluminum Wheels | | | | |
| T23 | Tires, GT+4 P225/60R16 97V | 0 | 0 | 0 | Optional Super Coupe (N/A on |
| | Eagle BSW All Season | (0) | (0) | (0) | Standard or LX) |
| | Performance | | | | |
| T36 | Tires, P215/70R15 BSW | 0.9 | 0.9 | 1.8 | Optional on Standard & LX (N/A on |
| | | (2) | (2) | (4) | Super Coupe) |
| 65H | Wheels, Alum. w/Upsized Tires | 1.8 | 1.8 | 3.6 | Optional Standard & LX; N/A on |
| | (BSW P215/70R15) | (4) | (4) | (8) | Super Coupe |

*Also see Engine - General Section for dressed engine mass (weight).

# MVMA Specifications

## METRIC (U.S. Customary)

Vehicle Line THUNDERBIRD
Model Year 1990 Issued 11/88 Revised (●) _____

| Optional Equipment Differential Mass (weight)* | | | | | |
|---|---|---|---|---|---|
| Code | Equipment | MASS, kg. (lb.) Front | Rear | Total | *Remarks* Restrictions, Requirements |
| Tires, Wheels & Wheel Covers: | | | | | |
| (cont'd) | | | | | |
| | | | | | |
| 65N | Wheel Covers, Locking Wire | 1.8 | 1.8 | 3.6 | Optional Standard & LX; N/A on |
| | Style | (4) | (4) | (8) | Super Coupe |
| | | | | | |
| 655 | Wheel Covers, Styled Road | 0 | 0 | 0 | Optional on Standard & LX; N/A on |
| | | (0) | (0) | (0) | Super Coupe |
| | | | | | |
| 508 | Spare Tire, Conventional | −0.9 | 5.4 | 4.5 | Requires T3F or T36 Tires. N/A on |
| | | (−2) | (12) | (10) | Super Coupe |

*Also see Engine - General Section for dressed engine mass (weight).*