

Sixth Generation Ford Mustang Workshop Manual

Platform: S550 (Global CD4 Architecture)

1. Engine Systems

Key Powerplants

- **2.3L EcoBoost I4 (Maverick):**
 - Power: 310–330 HP | Torque: 350–350 lb-ft
 - Critical Component: BorgWarner K03 twin-scroll turbo
- **5.0L Coyote V8 Gen 3:**
 - Power: 460–480 HP (2018+)
 - Tech: Plasma Transfer Wire Arc (PTWA) cylinder liners
- **5.2L Voodoo V8 (GT350):**
 - Power: 526 HP | 8,250 RPM redline
 - Flat-plane crank requiring specific oiling (6.5L capacity)
- **5.2L Predator V8 (GT500):**
 - Power: 760 HP | 625 lb-ft
 - TVS R2650 supercharger (2.65L displacement)

Torque Specs

- Coyote head bolts: **22 ft-lbs + 90° + 90°**
 - EcoBoost timing chain tensioner: **15 ft-lbs**
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2. Transmission & Drivetrain

Manual Options

- **MT-82-D4 (GT):**
 - Fluid: Motorcraft XT-11-QDC (2.6 qt)

- Common Fix: MGW short-throw shifter
- **Tremec TR-3160 (GT350):**
 - Fluid: Mercon LV (3.2 qt)
 - Feature: Rev-matching (2019+)

Automatic Options

- **10R80 (GT/GT500):**
 - Fluid Capacity: 12.9 qt (Mercon ULV)
 - Adaptation Reset: Forscan required after repairs

Differential Service

- **GT Performance Pack:** Torsen 3.73 (1.8 pt 75W-140)
 - **GT500:** eLSD with 3.73 gears (2.1 pt)
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3. Suspension & Steering

Front Suspension

- **GT Base:** MacPherson strut (spring rate: 180 lb/in)
- **GT350:** MagneRide dampers (20ms response)

Rear Suspension

- Integral-link independent suspension
- **GT500:** Dual-rate springs (220/320 lb/in)

Alignment Specs

Model	Camber (Front)	Toe (Front)
GT	-1.2°	0.10° IN
GT350R	-2.0°	0.15° IN

4. Electrical & Tech

SYNC 3 Diagnostics

- APIM Reset: Hold VOL + SEEK RIGHT for 10s
- Navigation SD Card: Ford HC3Z-19H449-L

Digital Cluster Reprogramming

- **Forscan Required:** IPC 720-09-01 x*xx xxxx xxxx
 - **Track Apps Calibration:** Requires 150+ MPH run
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5. Brake Systems

GT Performance Pack

- **Front:** 380mm rotors / 6-piston Brembos
- **Pad Bedding:** 5 stops from 60 MPH

GT500 Carbon Fiber Package

- **Rotors:** 420mm CCB (16.5")
 - **Torque:** Caliper bolts (125 ft-lbs)
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6. Special Models

Mach 1 (2021–2023)

- **Engine:** 480HP Coyote + GT350 intake
- **Cooling:** Shelby-derived aux radiators
- **Transmission:** Tremec TR-3160 or 10R80

Shelby GT350R

- **Weight Reduction:** 130 lbs vs standard GT350
 - **Wheels:** Carbon fiber (19x11" front/19x11.5" rear)
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7. Common Repairs

EcoBoost Carbon Buildup

- **Solution:** Walnut blast every 50k miles
- **Tool:** Proventus 2000 media blaster

Coyote Coolant Loss

- **TSB 19-2367:** Replace oil cooler (FR3Z-6A642-C)

MagneRide Fault C9001

- **Fix:** Recalibrate ride height sensors
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8. Performance Upgrades

Stage 2 GT

- Ford Performance Power Pack 2 (+35HP)
- Includes 87mm throttle body + calibration

GT500 Track Pack

- Gurney flap + splitter wickers
 - Transmission/differential coolers
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9. Fluid Capacities

System	2.3L EcoBoost	5.0L Coyote	GT500 5.2L
Engine Oil	6.0 qt	8.8 qt	10.5 qt
Coolant	9.8 qt	13.2 qt	15.4 qt
Diff Fluid	1.5 pt	1.8 pt	2.1 pt

10. Torque Specs

Component	Torque (ft-lbs)
Wheel lug nuts	150
Coyote spark plugs	11
Strut tower nuts	66

11. Recall & TSB Solutions

- **TSB 22-2395:** 10R80 harsh shift (reprogram PCM)

- **Recall 20S27:** GT500 rearview camera
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12. Diagnostic Tools

- **Required:** Forscan + OBDLink EX
 - **Factory Tool:** Ford FDRS
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13. Advanced Diagnostics

MagneRide Calibration

1. **Post-Strut Replacement:**
 - Drive at 25 mph for 1 mile on straight road.
 - Perform full lock turns in both directions.
2. **Fault C9001 Fix:**
 - Replace height sensor (Ford LB5Z-3C204-A).

SYNC 3 Firmware Update

1. **USB Method:**
 - Format USB to FAT32.
 - Download update (Ford Owner account required).
 - Install with ignition in ACC mode (45 mins).
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14. Body & Interior

GT350R Carbon Wheels

- **Torque Spec:** 150 ft-lbs (staggered pattern).
- **Cleaning:** Use Gtechniq C5 Wheel Armor.

Convertible Top Service

- **Hydraulic Fluid:** Pentosin CHF-11S (1.5 qt).
- **Tension Adjustment:** 6mm hex key (3 full turns max).

Seat Airbag Reset

1. **After Disconnect:**
 - Cycle ignition 5x (OFF→RUN, 5s each).
2. **Fault B00A0:**

- Replace OCSM module (JR3Z-6360046-B).
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15. Performance Tuning

EcoBoost Stage 3

- **Upgrades:**
 - Garrett GTX2867R Gen II turbo.
 - HPFP upgrade (XDI-35).
- **Safe Limit:** 28 psi boost (93 octane).

Coyote Supercharger Kits

- **Whipple 3.0L:** Requires return-style fuel system.
- **Fuel Requirements:**
 - Dual 525 LPH pumps (Fore Innovations).
 - ID1300X injectors.

GT500 Pulley Upgrades

- **2.50" Pulley:** +4 psi boost (requires 93+ octane).
 - **Belt Spec:** Gates K061215HD (8-rib).
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16. Track Preparation

Cooling Upgrades

1. **Aux Radiator Kit (GT350):**
 - Install Ford FR3Z-8006-D (driver side).
 - Bleed procedure: 30-minute idle with heater max.
2. **Diff Cooler:**
 - Setrab 625 core (plumb to passenger side).

Aero Tuning

- **Front Splitter Angle:** 3° attack (measured at 100 mph).
 - **Gurney Flap Height:** 1.5" (GT4 track spec).
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17. Special Tools

Ford Factory Tools

- **Voodoo Timing Kit:** 303-1743 (cam lock plates).
- **GT500 Supercharger Tool:** 307-649 (belt tension gauge).

Aftermarket Essentials

- **Bore Scope:** Teslong NT530 (cylinder wall inspection).
- **Gap Tool:** Powerbuilt 648531 (spark plug).

18. Wiring Diagrams

EcoBoost Key Circuits

- **Low-Pressure Fuel Sensor:**
 - Pin 26 (ECU) → 0.5–4.5V signal.
 - Resistance: 250–1500Ω.

Coyote COP Circuit

- **Coil Resistance:** 0.7–1.1Ω (cold).
- **Harness Test:** <0.3V drop at WOT.

19. Racing Fluids

Application	Product	Spec
Track Oil	Motul 300V	10.5
	15W-50	qt
Trans	Red Line D6 ATF	3.2 qt
Coolant		
Brake Fluid	Castrol SRF Racing	1 L

20. Torque Spec Master

Component	Torque (ft-lbs)	Notes
Flywheel Bolts	85	Loctite 263

Control Arm Nuts	148	Replace after removal
Turbo Manifold	18	Even crisscross pattern

21. Appendix

OEM Part Cross-Reference

Discontinued Part	Replacement
FR3Z-9E936-A (GT350)	KR3Z-9E936-B (2023+)

Safety Recall Check

- **VIN Lookup:** NHTSA.gov or Ford ETIS.