#### **Table Of Contents**

### Acknowledgments

#### Introduction

### **Chapter 1: Planning the Engine Build**

**Budgeting Process** 

**Performance Goals** 

Formulas for Engine Design

Ford FE Specific Design Choices

**Build Process** 

Choosing and Qualification of Your Core

Teardown and Inspection

### **Chapter 2: The Engine Block**

**Engine Block Inspection** 

Sonic Checking Charts

Pre-Machining Block Preparation

Oiling System Modifications

**Casting Preparation** 

Machine Work: The Big Stuff

**Block Detailing** 

**Camshaft Bearing Installation** 

Block Final Work: Paint and Plugs

### **Chapter 3: Crankshafts**

Identification

Measurement and Inspection

Grinding and Polishing

Balancing

Bearings and Assembly

### **Chapter 4: Connecting Rods, Pistons, and Rings**

Aftermarket Connecting Rods

Pistons and Piston Rings

Installation and Fitting of Piston Rings

Installation of Piston Assemblies onto the Connecting Rods

Piston, Connecting Rod, and Ring Assembly Installation

#### **Chapter 5: Camshafts, Lifters, and Timing**

FE Camshaft Design Specifics

Camshaft Bearings

Lifter Selection Criteria

Cam Specs: Lift, Duration, and Lobe Separation Angle

So How Do I Pick a Cam?

Cam Thrust Plate and End Play

Timing Sets

**Timing Covers** 

**Dampers** 

### **Chapter 6: Oiling System**

Oil Pans and Oil Pump Pickups

# **Chapter 7: Cylinder Heads and Valves**

Basic 360 and 390 Heads

Aftermarket Head Designs

Cylinder Head Reconditioning

Castings: Cleaning, Inspection, and Qualification

Component Selection

**Valves** 

Valve Springs, Locators, Retainers, and Keepers

Setting and Inspecting Stem Tip Height

Valve Stem Seals

Cylinder Head Assembly

Mounting the Cylinder Heads

#### **Head Fasteners**

### **Chapter 8: Valvetrain Assembly**

Pushrod Length Measurement

Assembling the Valvetrain

# **Chapter 9: Intake Manifold Selection**

Fitting the Intake Manifold

Installing the Intake Manifold

### **Chapter 10: Carburetors**

**Carburetor Tuning** 

# **Chapter 11: Ignition and Distributor**

Installing the Distributor

# **Chapter 12: Pre-Oiling and Final Assembly**

Oil Selection

Pre-Oiling the Engine

Valve Covers

Finishing Up: Sensors, Thermostat, PCV, Pulleys, and Belts

**Chapter 13: Exhaust** 

**Chapter 14: Initial Start Up and Break-In** 

**Source Guide** 

**Appendix**