

# FOREWORD

## GENERAL

This Service Manual Supplement has been prepared with two purposes in mind. First, it will acquaint the user with the construction of the 1997 Buell S1 Lightning and assist in the performance of basic maintenance and repair. Secondly, it will introduce to the professional Buell Technician the latest field-tested and factory-approved major repair methods. We sincerely believe that this Service Manual Supplement will make your association with Buell products more pleasant and profitable.

## HOW TO USE YOUR SERVICE MANUAL SUPPLEMENT

1. Check the TABLE OF CONTENTS following this FOREWORD to find the desired subject.
2. If the information you seek is not in this supplement, refer to the corresponding section in the Buell 1996 S1 Lightning Service Manual (Part No. 99490-96Y). Check the TABLE OF CONTENTS or INDEX to find the desired subject.
3. Information is presented in a definite order as follows:

Specifications  
General/Model Year Change  
Adjustment/Testing  
Removal/Disassembly  
Cleaning, Inspection, and Repair  
Assembly/Installation

In figure legends, the number which follows the name of a part indicates the quantity necessary for one complete assembly.

### NOTE

*To avoid needless disassembly, carefully read all relative service information before repair work is started.*

## PREPARATION FOR SERVICE

### ⚠WARNING

**Gasoline is extremely flammable and highly explosive. Always stop the engine when refueling or servicing the fuel system. Do not smoke or allow open flame or sparks near the work site. Inadequate safety precautions may result in personal injury.**

Good preparation is very important for efficient service work. A clean work area at the start of each job will allow you to perform the repair as easily and quickly as possible, and will reduce the incidence of misplaced tools and parts. A motorcycle that is excessively dirty should be cleaned before work starts. Cleaning will occasionally uncover sources of trouble. Tools, instruments and any parts needed for the job should be gathered before work is started. Interrupting a job to locate tools or parts is an unnecessary distraction and causes needless delay.

## SERVICE BULLETINS

In addition to the information presented in this Service Supplement, Buell Distribution Corporation will periodically issue Service Bulletins to Buell dealers. Service Bulletins cover interim engineering changes and supplementary information.

## USE GENUINE REPLACEMENT PARTS

### ⚠WARNING

**When replacement parts are required, use only genuine Buell parts or parts with equivalent characteristics (which include type, strength and material). Failure to do so may result in product malfunction and possible injury to the operator and/or passenger.**

To ensure satisfactory and lasting repairs, carefully follow the instructions and use only genuine Buell replacement parts. This is your assurance that the parts you are using will fit right, operate properly and last longer.

## PRODUCT REFERENCES

### **⚠WARNING**

Follow the directions listed on all products. Carefully read all labels, warnings and cautions before use. Inadequate safety precautions may result in personal injury.

When reference is made in this Service Manual Supplement to a specific brand name product, tool or instrument, an equivalent product, tool or instrument may be substituted.

### **Kent-Moore Products**

All tools mentioned in this supplement with an "HD", "J" or "B" preface must be ordered through:

**Kent-Moore  
SPX Corporation  
29784 Little Mack  
Roseville, Michigan 48066-2298  
Telephone: 1-800-345-2233**

### **Sealing and Threadlocking Products**

#### **LOCTITE PRODUCTS**

Some procedures call for the use of Loctite® products. If you have any questions regarding Loctite product usage or retailer/wholesaler locations, please call Loctite Corp. at 1-800-323-5106.

## CONTENTS

All photographs and illustrations may not necessarily depict the most current model or component, but are based on the latest production information available at the time of publication.

Since product improvement is our continual goal, Buell reserves the right to change specifications, equipment or designs at any time without notice and without incurring obligation.

## WARNINGS AND CAUTIONS

Statements in this supplement preceded by the word "⚠WARNING" or "⚠CAUTION" are very important. Since these items alert you to situations where the possibility of personal injury or vehicle damage exists, please take special notice of them.

### **⚠WARNING**

A "WARNING" indicates the potential for personal injury, whether to yourself or others.

### **⚠CAUTION**

A "CAUTION" indicates that vehicle damage can occur.

### **⚠WARNING**

- Proper service and repair is important for the safe, reliable operation of all mechanical products. The service procedures recommended and described in this Service Manual are effective methods for performing service operations. Some of these service operations require the use of tools specially designed for the purpose. These special tools should be used when and as recommended. It is important to note that some warnings against the use of specific service methods, which could damage the motorcycle or render it unsafe, are stated in this Service Manual. However, please remember that these warnings are not all-inclusive.
- Since Buell could not possibly know, evaluate or advise the service trade of all possible ways in which service might be performed, or of the possible hazardous consequences of each method, we have not undertaken any such broad evaluation. Accordingly, anyone who uses a service procedure or tool which is not recommended by Buell must first thoroughly satisfy himself that neither his nor the operator's safety will be jeopardized as a result.
- Wear eye protection when using hammers, arbor or hydraulic presses, gear pullers, spring compressors, slide hammers and similar tools. Be especially cautious when using pulling, pressing or compressing equipment. The forces involved can cause parts to fly outward with considerable force, possibly resulting in personal injury.

Buell products are manufactured under one or more of the following patents: U.S. Patents – 2986161, 2987934, 2998809, 3116089, 3144531, 3144860, 3226994, 3229792, 3434887, 3559773, 3673359, 3709317, Des. 225 626.