

1989

OWNERS MANUAL



HARLEY-DAVIDSON, INCORPORATED

## **IMPORTANT NOTICE!**

Statements in this manual preceded by the following words are of special significance:

### **WARNING**

**Means there is the possibility of personal injury to yourself or others.**

### **CAUTION**

**Means there is the possibility of damage to the vehicle.**

### *NOTE*

*Other information of particular importance has been placed in italic type.*

We recommend you take special notice of these items.



# YOUR OWNER'S MANUAL

Welcome to the Harley-Davidson Motorcycling Family! Your new Harley-Davidson motorcycle is designed and manufactured to be the finest in its field. Your Harley-Davidson motorcycle conforms to all applicable U.S. Federal Motor Vehicle Safety Standards and U.S. Environmental Protection Agency regulations effective on the date of manufacture.

This manual has been prepared to acquaint you with the operation, care and maintenance of your motorcycle, and to provide you with important safety information. Follow these instructions carefully for maximum motorcycle performance and for your personal motorcycling safety and pleasure.

Your Owner's Manual contains instructions for operation and maintenance. Major repairs are covered in the Harley-Davidson Service Manual. Such major repairs require the attention of a skilled technician and the use of special tools and equipment. Your Harley-Davidson dealer has the facilities, experience and genuine Harley-Davidson parts necessary to properly render this valuable service. We recommend that any emission system maintenance be performed by an authorized Harley-Davidson dealer.

Harley-Davidson, Inc.

**©COPYRIGHT 1988  
HARLEY-DAVIDSON, INC  
ALL RIGHTS RESERVED**

CMI-1M-01/11

Printed in U.S.A.

**PERSONAL INFORMATION**

Name \_\_\_\_\_

Address \_\_\_\_\_

Telephone No. \_\_\_\_\_

**VEHICLE INFORMATION**

Vehicle Identification No. \_\_\_\_\_

Key No. Ignition \_\_\_\_\_

This owner's manual illustrates and describes features that are standard or available as extra cost options. Therefore, some of the equipment shown in this publication may not be on your motorcycle.

# TABLE OF CONTENTS

	Page No.		Page No.
<b>TOURING</b> .....	1	<b>CUSTOM</b> .....	23
<b>IDENTIFICATION</b>		<b>IDENTIFICATION</b>	
<b>FLTC/ULTRA, FLHTC/ULTRA,</b>		<b>FLST/C, FXST/C, FXLR, FXSTS</b>	
<b>FLHS, FXRT</b> .....	3	<b>FXRS/SP, FXR</b> .....	25
<b>SPECIFICATIONS</b>		<b>SPECIFICATIONS</b>	
Stopping Distance .....	17	Stopping Distance .....	45
Dimensions .....	18	Dimensions .....	46
Weights .....	18	Weights .....	46
Capacities .....	18	Capacities .....	46
Ignition System .....	18	Ignition System .....	46
Engine .....	19	Engine .....	47
Transmission .....	19	Transmission .....	47
Number of Sprocket Teeth .....	19	Number of Sprocket Teeth .....	47
Overall Gear Ratios .....	19	Overall Gear Ratios .....	47
Tire Data .....	19	Tire Data .....	47
Fuel .....	20	Fuel .....	48
Bulb Chart - FLTC/ULTRA, FLHTC/ULTRA FLHS, *	21	Bulb Chart - FLST/C, FXST/C, FXSTS .....	49
Bulb Chart - FXRT .....	22	Bulb Chart - FXLR, FXRS/SP, FXR .....	50

	Page No.
<b>XLH</b> .....	51
<b>IDENTIFICATION</b>	
<b>XLH 1200, XLH 883</b> .....	51

## **SPECIFICATIONS**

Stopping Distance .....	57
Dimensions .....	58
Weights .....	58
Capacities .....	58
Ignition System .....	58
Engine .....	59
Transmission .....	59
Number of Sprocket Teeth .....	59
Overall Gear Ratios .....	59
Tire Data .....	59
Fuel .....	60
Bulb Chart - XLH .....	61

## **SAFETY FIRST**

Safe Operating Rules .....	63
Rules of the Road .....	66
Accessories and Cargo .....	67

	Page No.
<b>CONTROLS AND INDICATORS</b>	
Ignition/Light Key Switch .....	69
Electric Starter .....	71
Engine Stop Switch .....	71
Throttle Control Grip .....	71
Choke/Enrichener .....	73
Clutch Handlever .....	73
Gear Shifter .....	74
Brakes .....	75
Horn Switch .....	75
Passing Lamp Switch .....	75
Headlamp Dimmer Switch .....	75
Cruise Control .....	76
Turn Signal Switches .....	78
Hazard Warning Flasher .....	79
Sound System Controls .....	79
Indicator Lights .....	83
Tachometer .....	83
Speedometer/Odometer .....	84
Mirrors .....	85
Oil Pressure Gauge .....	85
Voltmeter .....	85
Clock .....	86
Fuel Gauge .....	86
Jiffy Stand .....	86
Fork Lock .....	86

	<b>Page No.</b>
Fuel Supply Valve .....	87
Fuel Filler Cap .....	89
Suspension Adjustments - FLT .....	90
Suspension Adjustments - FXRT, FXRS-SP .....	92
Suspension Adjustments - Softail Models .....	94
Suspension Adjustments - FXR, XLH .....	95
Luggage - FLT .....	96
Luggage - FXRT .....	98

## **OPERATION**

Operating Recommendations .....	101
Break-In - The First 500 Miles .....	102
Pre-riding Checklist .....	102
Starting the Engine .....	104
Stopping the Engine .....	106
Shifting Gears - 4-Speed .....	106
Shifting Gears - 5-Speed .....	108

## **MAINTENANCE AND LUBRICATION**

Safe Operating Maintenance .....	110
Break-in Maintenance .....	110
Check at First 500 Miles .....	111
Lubrication Summary .....	112

	<b>Page No.</b>
Regular Service Intervals .....	113
Regular Maintenance Intervals Chart .....	114
Engine Lubrication .....	116
Checking Oil Level .....	116
Oil Filter .....	119
Winter Lubrication .....	119
Transmission Lubrication - 1340cc .....	121
Transmission Lubrication - 1200cc, 883cc .....	122
Primary Chaincase Lubrication .....	122
Checking Chaincase Lubricant - 1340cc .....	122
Checking Chaincase Lubricant - 1200cc, 883cc .....	124
Primary Chain .....	125
Rear Drive Chain/Belt .....	126
Rear Drive Chain Lubrication - 1200cc, 883cc .....	126
Rear Chain Adjustment - 1200cc, 883cc .....	126
Rear Drive Belt .....	127
Chassis Lubrication .....	128
Greasing .....	128
Oil Applications .....	128
Front Fork Oil .....	129
Fuel Strainer .....	129
Carburetor .....	129
Air Cleaner .....	129
Hydraulic Tappets .....	130
Clutch .....	131
Brakes .....	131
Tires .....	135



	<b>Page No.</b>
Shock Absorbers .....	135
Vehicle Alignment .....	135
FLT, FXR Models .....	135
All Models .....	136
Wheel Bearings .....	136
Front Fork Bearings .....	136
Rear Fork Pivot Shaft .....	137
Spark Plugs .....	137
Ignition Timing .....	137
Headlamp .....	138
Alternator Charging Rate and Rectifier/Regulator ..	139
Battery .....	139
Jump Starting Procedure .....	142
Circuit Breakers .....	144
General Maintenance .....	144
Cleaning Your Motorcycle .....	144
Storage .....	146

## **RIDER TROUBLESHOOTING**

General .....	149
Engine .....	149
Lubrication System .....	151
Electrical System .....	151

	<b>Page No.</b>
Carburetor .....	152
Transmission .....	152
Brakes .....	152

## **WARRANTY AND RESPONSIBILITIES**

Owner's Identification Card .....	153
Warranty and Maintenance .....	153
California Evaporative Emission Control .....	154
EPA Noise Regulation .....	155
Warranty/Service Information .....	155
Harley-Davidson Limited Warranty .....	156
Limited Warranty Transfer Form .....	157
Emission Control System Warranty .....	158
Noise Control System Warranty .....	159

## **MAINTENANCE**

<b>CHECK-OFF COUPONS</b> .....	161
--------------------------------	-----

<b>SERVICE LITERATURE</b> .....	171
---------------------------------	-----

<b>INDEX</b> .....	173
--------------------	-----

# LIST OF ILLUSTRATIONS

	Page No.		Page No.
FLTC Ultra - Left Side View	4	FXR - Left Side View	42
FLTC Ultra - Right Side View	5	FXR - Right Side View	43
FLHTC Ultra - Left Side View	6	XLH 1200 - Left Side View	54
FLHTC Ultra - Right Side View	7	XLH 1200 - Right Side View	55
FLTC - Left Side View	8	XLH 883 - Left Side View	56
FLTC - Right Side View	9	XLH 883 - Right Side View	57
FLHTC - Left Side View	10	Figure 1. Ignition/Light Key Switch	69
FLHTC - Right Side View	11	Figure 2. Handlebar Controls	72
FLHS - Left Side View	12	Figure 3. Setting the Choke/Enrichener	73
FLHS - Right Side View	13	Figure 4. Gear Shifter	74
FXRT - Left Side View	14	Figure 5. Cruise, Headset, Spotlamp Controls	77
FXRT - Right Side View	15	Figure 6. Sound System/Cruise Handlebar Controls	81
FLSTC - Left Side View	26	Figure 7. Passenger Controls (Bottom of Right Rear Speaker)	82
FLSTC - Right Side View	27	Figure 8. Console Control Panel	82
FLST - Left Side View	28	Figure 9. Speedometer, Odometer, Tachometer	84
FLST - Right Side View	29	Figure 10. Mirror	85
FXSTC - Left Side View	30	Figure 11. Jiffy Stand (Typical)	86
FXSTC - Right Side View	31	Figure 12. Fork Lock - All Models Except FLT's	87
FXSTS - Left Side View	32	Figure 13. Fuel Supply Valve	88
FXSTS - Right Side View	33	Figure 14. Fuel Filler Cap	89
FXST - Left Side View	34	Figure 15. Air Suspension Components - FLT Models	91
FXST - Right Side View	35	Figure 16. Right Rear Shock Absorber - FXRT	93
FXLR - Left Side View	36	Figure 17. Front Air Suspension-FXRT, FXRS-SP	93
FXLR - Right Side View	37	Figure 18. Shock Adjustment - Softail Models	94
FXRS-SP - Left Side View	38	Figure 19. Shock Adjustment - FXR, XLH	95
FXRS-SP - Right Side View	39		
FXRS - Left Side View	40		
FXRS - Right Side View	41		

	<b>Page No.</b>		<b>Page No.</b>
Figure 20. Tour-Pak & Saddlebag Installation-FLT .....	97	Figure 33. Primary Chain Adjustment .....	125
Figure 21. Lock & Drawcatch .....	97	Figure 34. Rear Chain Adjustment .....	127
Figure 22. Saddlebag Installation - FXRT .....	98	Figure 35. Belt Adjustment .....	127
Figure 23. Lock and Drawcatch .....	99	Figure 36. Air Cleaner .....	130
Figure 24. Shifting sequence - 4-Speed .....	103	Figure 37. Clutch Control Cable (Typical) .....	131
Figure 25. Shifting Sequence - 5-Speed .....	104	Figure 38. Brake Pad - Side View .....	132
Figure 26. Fill Plug Dipstick & Oil Tank Drains .....	117	Figure 39. Measuring Rear Brake Outer Pad (Typical) .....	132
Figure 27. Engine Oil Level - FXST/C, FLST/C .....	117	Figure 40. Measuring Rear Brake Outer Pad - XLH Models .....	132
Figure 28. Oil Level Dipstick - All Other Models .....	117	Figure 41. Headlamp .....	138
Figure 29. Oil Filter .....	119	Figure 42. Rectifier/Regulator .....	139
Figure 30. Tappet Filter Screen .....	120	Figure 43. Battery .....	135
Figure 31. Transmission Lubricant Dipstick-1340cc .....	121	Figure 44. Jump Start Cable Connections .....	141
Figure 32. Primary Chaincase .....	123	Figure 45. Owner's Warranty Identification Card ..	153

## LIST OF TABLES/CHARTS

	<b>Page No.</b>		<b>Page No.</b>
Table 1. Ignition/Light Switch .....	70	Table 7. Gear Change - Vehicles W/out Tachometer	102
Table 2. Sound System Handlebar Controls Summary .....	80	Table 8. Gear Change - 4-Speed .....	107
Table 3. Suspension Adjustments .....	90	Table 9. Gear Change - 5-Speed .....	109
Table 4. FLT Air Suspension .....	91	LUBRICATION SUMMARY .....	112
Table 5. FXRT and FXRS-SP (Front only) Air Suspension .....	92	REGULAR MAINTENANCE INTERVALS .....	114
Table 6. Maximum Recommended RPM .....	101	Table 10. Recommended Engine Oils .....	116
		Table 11. Checking Oil Level .....	118
		Table 12. Battery Location .....	139
		Table 13. Battery Self Discharge Rate at 77° F ..	141

The Touring section contains the vehicle specifications for the following Harley-Davidson models:

FLTC - Ultra	Ultra Tour Glide Classic
FLHTC - Ultra	Ultra Electra Glide Classic
FLTC	Tour Glide Classic
FLHTC	Electra Glide Classic
FLHS	Electra Glide Sport
FXRT	Sport Glide

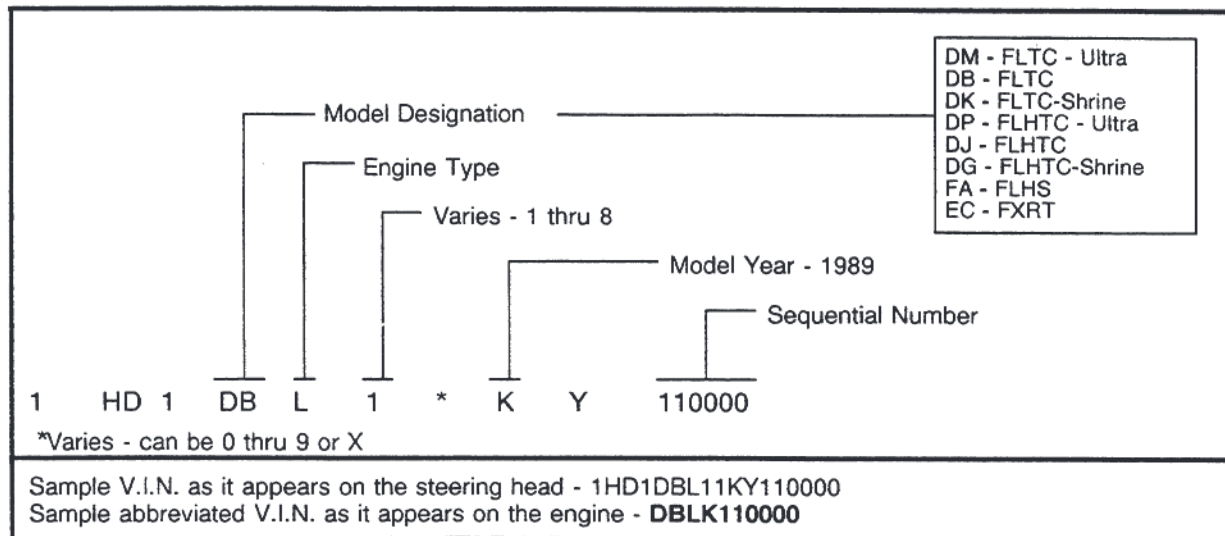
# NOTES

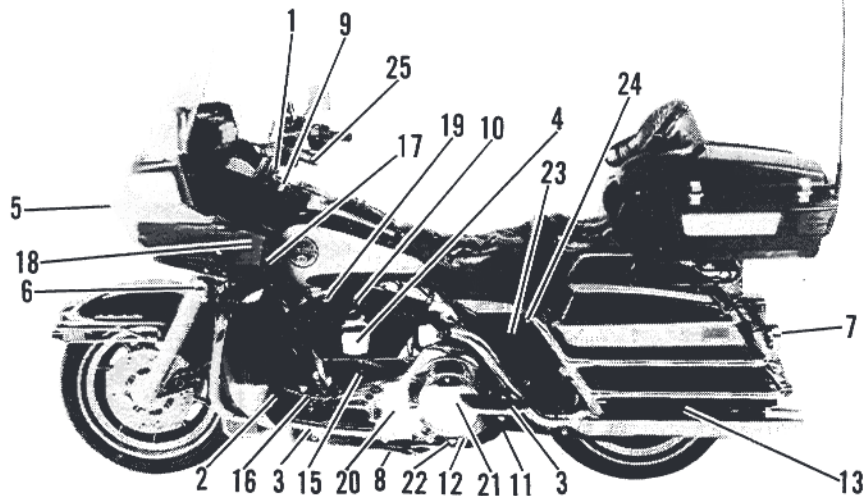
## VEHICLE IDENTIFICATION NUMBER (V.I.N.)

The full 17 digit serial, or Vehicle Identification Number (V.I.N.) is stamped on the steering head and on a label located on the right front frame downtube. An abbreviated V.I.N. is stamped on the left side crankcase at the base of the rear cylinder.

### NOTE

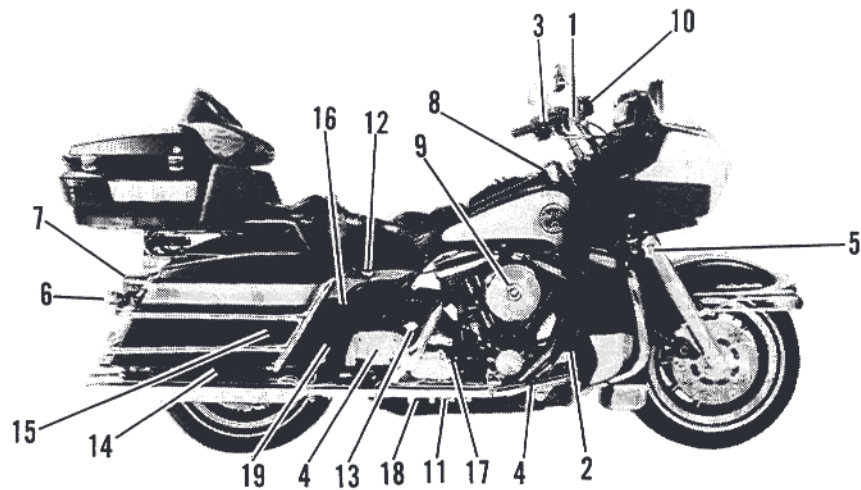
*Always give the full 17 digit Vehicle Identification Number when ordering parts or making any inquiry about your motorcycle.*





- |                                     |                                    |   |
|-------------------------------------|------------------------------------|---|
| 1. Clutch handlever                 | 9. Ignition/light switch/fork lock | 18. Ignition module                               |
| 2. Gear shifter                     | 10. Carburetor choke knob          | 19. Fuel supply valve                             |
| 3. Footrest(s)                      | 11. Engine oil filter              | 20. Primary chain inspection cover                |
| 4. Horn                             | 12. Primary chain cover            | 21. Clutch inspection cover                       |
| 5. Headlamp                         | 13. Rear axle adjuster             | 22. Primary drain plug                            |
| 6. Front turn signal & running lamp | 14. Rear sprocket and drive        | 23. Rear brake fluid reservoir (under side cover) |
| 7. Rear turn signal lamp            | 15. Timing inspection hole plug    | 24. Rear suspension air valve                     |
| 8. Jiffy stand                      | 16. Voltage regulator              | 25. Front suspension air valve                    |
|                                     | 17. Ignition coil                  |   |

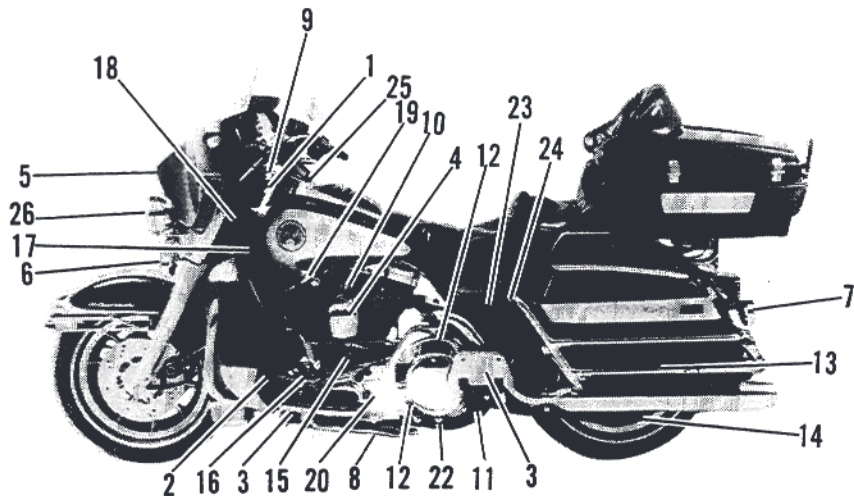
FLTC Ultra - Left Side View



- |                                     |   |  |
|-------------------------------------|---|--|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster                       |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)                        |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under side cover)               |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 17. Transmission fill plug                   |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug                  |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Engine Oil tank drain (under side cover) |
| 7. Tail/stop lamp                   |   |  |

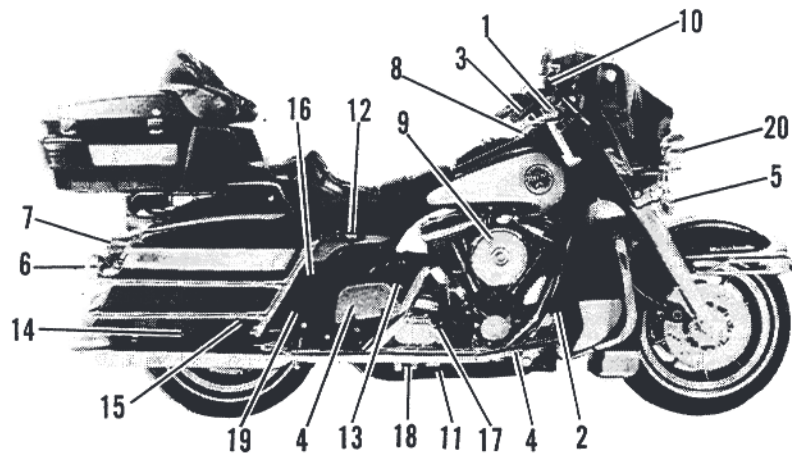
FLTC Ultra - Right Side View





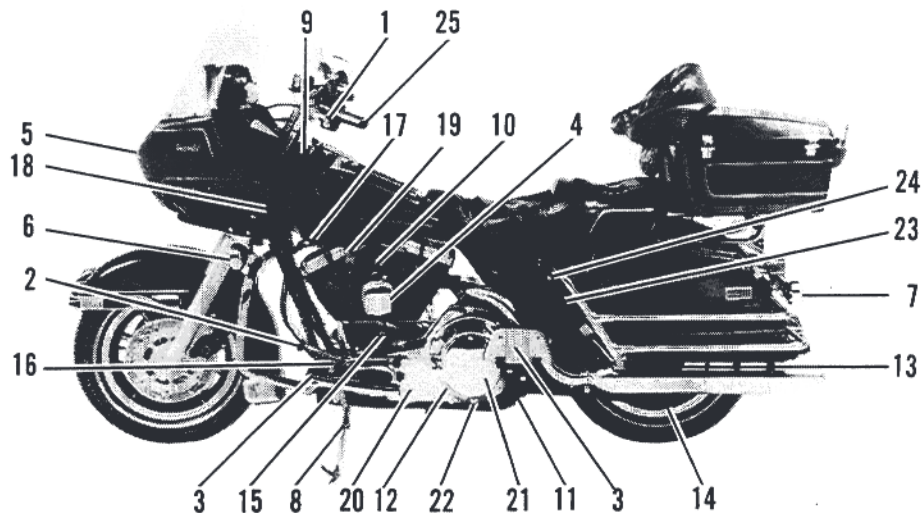
- |                                     |                                 |   |
|-------------------------------------|---------------------------------|---|
| 1. Clutch handlever                 | 10. Carburetor choke knob       | 19. Fuel supply valve                             |
| 2. Gear shifter                     | 11. Engine oil filter           | 20. Primary chain inspection cover                |
| 3. Footrest(s)                      | 12. Primary chain cover         | 21. Clutch inspection cover                       |
| 4. Horn                             | 13. Rear axle adjuster          | 22. Primary drain plug                            |
| 5. Headlamp                         | 14. Rear sprocket and drive     | 23. Rear brake fluid reservoir (under side cover) |
| 6. Front turn signal & running lamp | 15. Timing inspection hole plug | 24. Rear suspension air valve                     |
| 7. Rear turn signal lamp            | 16. Voltage regulator           | 25. Front suspension air valve                    |
| 8. Jiffy stand                      | 17. Ignition coil               | 26. Passing lamp                                  |
| 9. Ignition/light switch/fork lock  | 18. Ignition module             |   |

FLHTC Ultra - Left Side View



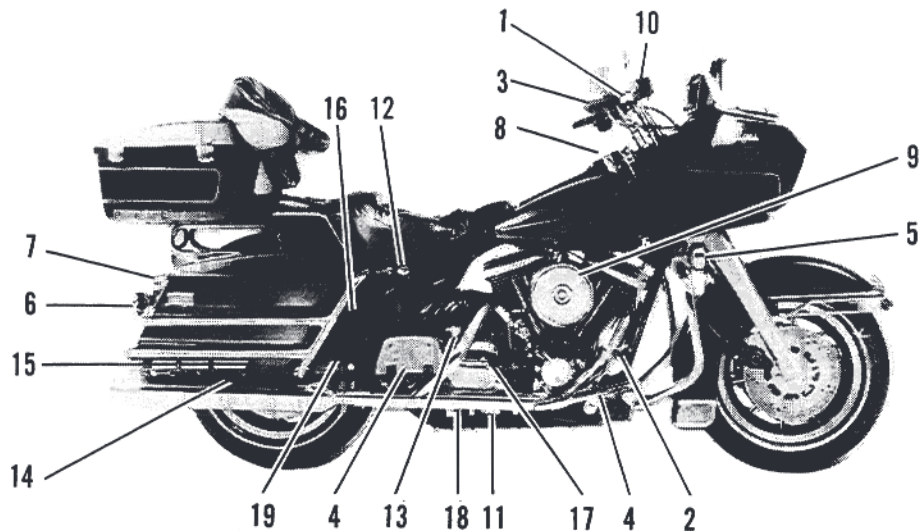
- |                                     |   |  |
|-------------------------------------|---|--|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 15. Shock absorber(s)                        |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 16. Battery (under side cover)               |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 17. Transmission fill plug                   |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 18. Transmission drain plug                  |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 19. Engine Oil tank drain (under side cover) |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 20. Passing lamp                             |
| 7. Tail/stop lamp                   | 14. Rear axle Adjuster                      |  |

FLHTC Ultra - Right Side View



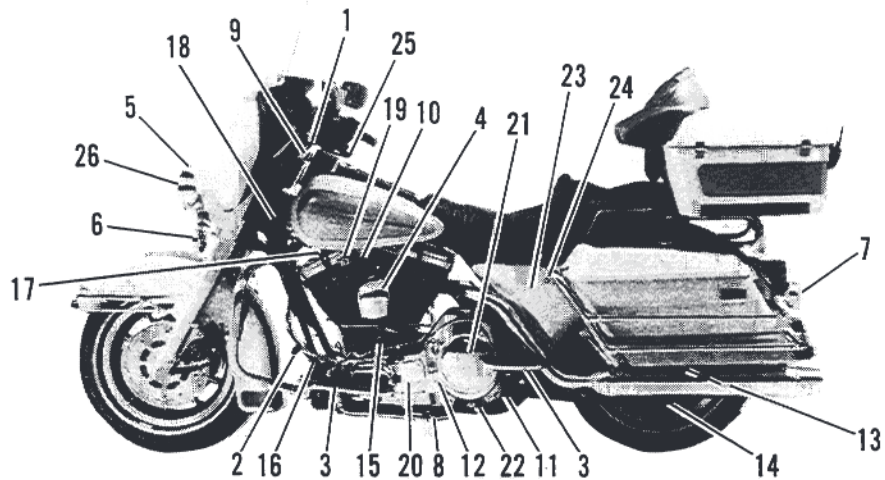
- |                                     |                                    |   |
|-------------------------------------|------------------------------------|---|
| 1. Clutch handlever                 | 9. Ignition/light switch/fork lock | 18. Ignition module                               |
| 2. Gear shifter                     | 10. Carburetor choke knob          | 19. Fuel supply valve                             |
| 3. Footrest(s)                      | 11. Engine oil filter              | 20. Primary chain inspection cover                |
| 4. Horn                             | 12. Primary chain cover            | 21. Clutch inspection cover                       |
| 5. Headlamp                         | 13. Rear axle adjuster             | 22. Primary drain plug                            |
| 6. Front turn signal & running lamp | 14. Rear sprocket and drive        | 23. Rear brake fluid reservoir (under side cover) |
| 7. Rear turn signal lamp            | 15. Timing inspection hole plug    | 24. Rear suspension air valve                     |
| 8. Jiffy stand                      | 16. Voltage regulator              | 25. Front suspension air valve                    |
|                                     | 17. Ignition coil                  |   |

FLTC - Left Side View



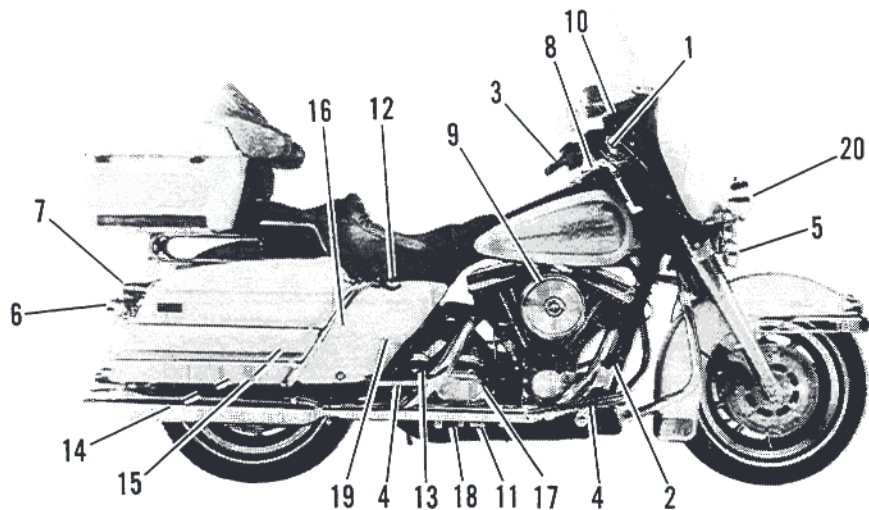
- |                                     |   |  |
|-------------------------------------|---|--|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster                       |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)                        |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under side cover)               |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 17. Transmission fill plug                   |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug                  |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Engine Oil tank drain (under side cover) |
| 7. Tail/stop lamp                   |   |  |

FLTC - Right Side View



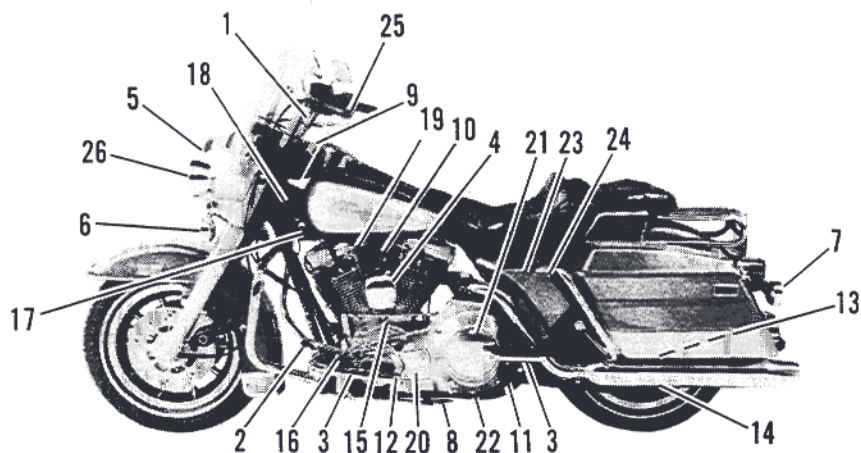
- |                                     |                                 |   |
|-------------------------------------|---------------------------------|---|
| 1. Clutch handlebar                 | 10. Carburetor choke knob       | 19. Fuel supply valve                             |
| 2. Gear shifter                     | 11. Engine oil filter           | 20. Primary chain inspection cover                |
| 3. Footrest(s)                      | 12. Primary chain cover         | 21. Clutch inspection cover                       |
| 4. Horn                             | 13. Rear axle adjuster          | 22. Primary drain plug                            |
| 5. Headlamp                         | 14. Rear sprocket and drive     | 23. Rear brake fluid reservoir (under side cover) |
| 6. Front turn signal & running lamp | 15. Timing inspection hole plug | 24. Rear suspension air valve                     |
| 7. Rear turn signal lamp            | 16. Voltage regulator           | 25. Front suspension air valve                    |
| 8. Jiffy stand                      | 17. Ignition coil               | 26. Passing lamp                                  |
| 9. Ignition/light switch/fork lock  | 18. Ignition module             |   |

FLHTC - Left Side View



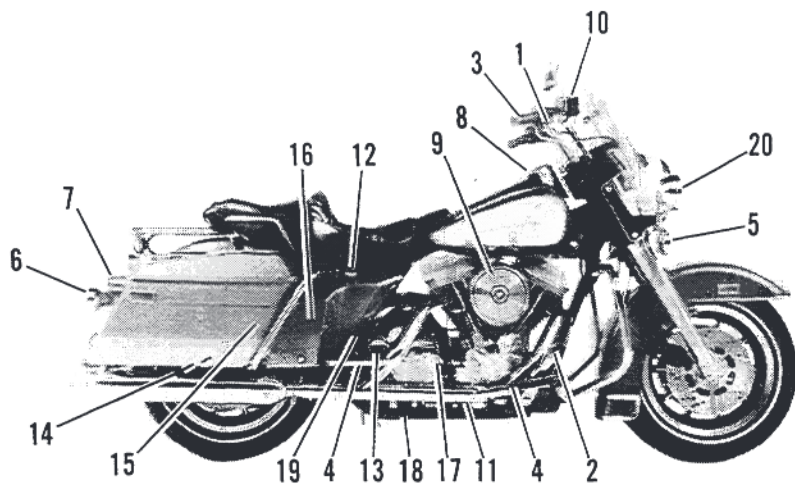
- |                                     |   |  |
|-------------------------------------|---|--|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 15. Shock absorber(s)                        |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 16. Battery (under side cover)               |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 17. Transmission fill plug                   |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 18. Transmission drain plug                  |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 19. Engine Oil tank drain (under side cover) |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 20. Passing lamp                             |
| 7. Tail/stop lamp                   | 14. Rear axle Adjuster                      |  |

FLHTC - Right Side View



- |                                     |                                 |   |
|-------------------------------------|---------------------------------|---|
| 1. Clutch handlelever               | 10. Carburetor choke knob       | 19. Fuel supply valve                             |
| 2. Gear shifter                     | 11. Engine oil filter           | 20. Primary chain inspection cover                |
| 3. Footrest(s)                      | 12. Primary chain cover         | 21. Clutch inspection cover                       |
| 4. Horn                             | 13. Rear axle adjuster          | 22. Primary drain plug                            |
| 5. Headlamp                         | 14. Rear sprocket and drive     | 23. Rear brake fluid reservoir (under side cover) |
| 6. Front turn signal & running lamp | 15. Timing inspection hole plug | 24. Rear suspension air valve                     |
| 7. Rear turn signal lamp            | 16. Voltage regulator           | 25. Front suspension air valve                    |
| 8. Jiffy stand                      | 17. Ignition coil               | 26. Passing lamp                                  |
| 9. Ignition/light switch/fork lock  | 18. Ignition module             |   |

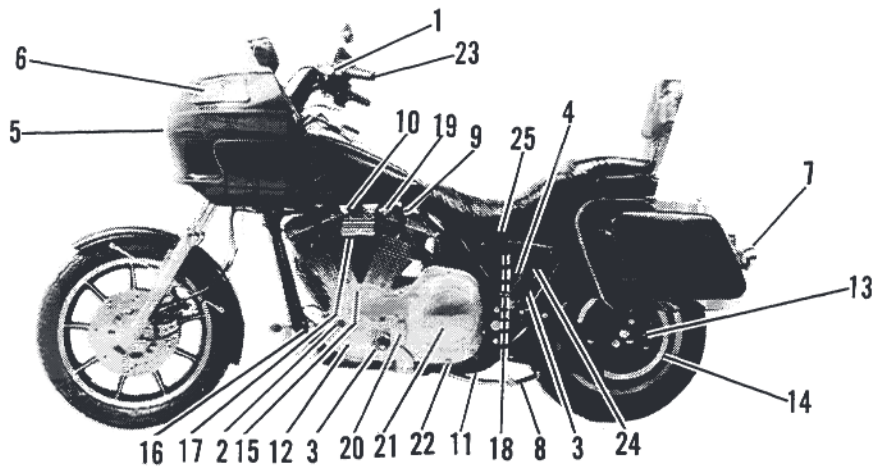
FLHS - Left Side View



- |                                     |   |  |
|-------------------------------------|---|--|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 15. Shock absorber(s)                        |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 16. Battery (under side cover)               |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 17. Transmission fill plug                   |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 18. Transmission drain plug                  |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 19. Engine Oil tank drain (under side cover) |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 20. Passing lamp                             |
| 7. Tail/stop lamp                   | 14. Rear axle Adjuster                      |  |

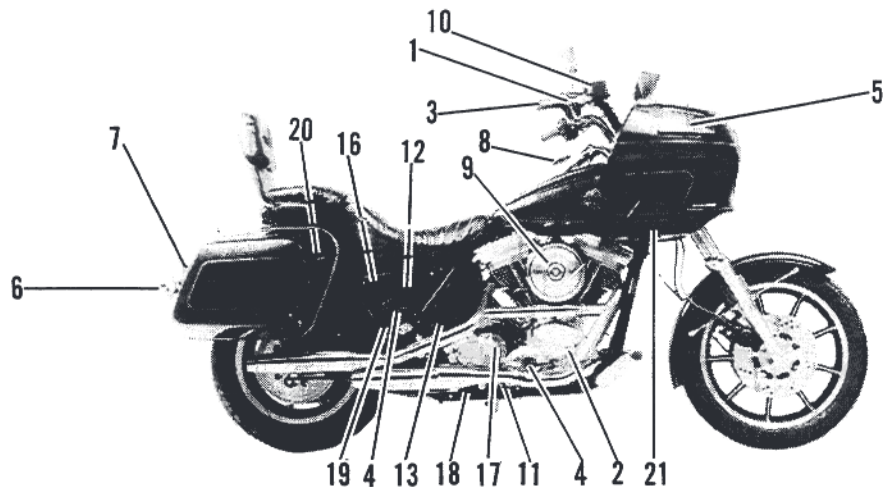
FLHS - Right Side View





- |                                     |                                 |  |
|-------------------------------------|---------------------------------|--|
| 1. Clutch handlebar                 | 10. Carburetor choke knob       | 19. Fuel supply valve                        |
| 2. Gear shifter                     | 11. Engine oil filter           | 20. Primary chain inspection cover           |
| 3. Footrest(s)                      | 12. Primary chain cover         | 21. Clutch inspection cover                  |
| 4. Horn                             | 13. Rear axle adjuster          | 22. Primary drain plug                       |
| 5. Headlamp                         | 14. Rear sprocket and drive     | 23. Front suspension air valve               |
| 6. Front turn signal & running lamp | 15. Timing inspection hole plug | 24. Engine Oil tank drain (under side cover) |
| 7. Rear turn signal lamp            | 16. Voltage regulator           | 25. Seat release                             |
| 8. Jiffy stand                      | 17. Ignition coil               |  |
| 9. Ignition/light switch/fork lock  | 18. Ignition module             |  |

FXRT - Left Side View



- |                                     |   |  |
|-------------------------------------|---|--|
| 1. Front brake handlever            | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)                  |
| 2. Rear brake pedal                 | 10. Front brake master cylinder & reservoir | 16. Battery (under side cover)         |
| 3. Throttle control grip            | 11. Rear brake master cylinder              | 17. Transmission fill plug             |
| 4. Footrest(s)                      | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug            |
| 5. Front turn signal & running lamp | 13. Electric starter motor                  | 19. Rear brake fluid reservoir         |
| 6. Rear turn signal lamp            | 14. Rear axle Adjuster                      | 20. Rear suspension air valve          |
| 7. Tail/stop lamp                   |   | 21. Fork lock brackets (under fairing) |
| 8. Fuel Filler cap                  |   |  |

FXRT - Right Side View

# NOTES

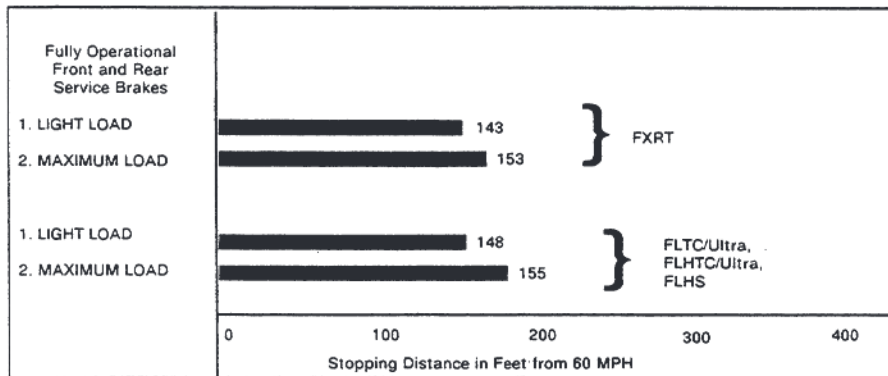
# STOPPING DISTANCE

Description of vehicle: Harley-Davidson 1989  
FLTC/ULTRA, FLHTC/ULTRA, FLHS and FXRT models.

Required by Federal Consumer Information Regulations.

Notice: The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions. The information may not be correct under other conditions.

These figures indicate braking performance that can be met or exceeded by the vehicle to which it applies, without locking the wheels, under different conditions of loading.



1. Light Load Vehicle Weight . . . . . includes 200 lb. driver - no accessories
2. Maximum loaded Vehicle Weight . . . . . includes 300 lb. driver and passenger plus full accessory load.

## DIMENSIONS (IN.)

	FLTC	FLHTC	FLHS	FXRT
Wheel Base . . . . .	62.94	62.94	62.94	64.70
Overall Length . . .	94.25	94.25	94.25	94.20
Overall Width. . . .	37.00	39.0	37.00	34.50
Road Clearance . . .	5.12	5.12	5.12	6.00
Overall Height . . .	58.75	61.00	59.50	59.50
Saddle Height . . .	29.60	28.00	28.00	27.75

## WEIGHT (LBS.)

	FLTC	FLHTC	FLHS	FXRT
<b>DRY WEIGHT</b>				
(as shipped from the factory) . . . .	741	722	692	640
GVWR . . . . .	1216	1197	1167	1085
GAWR - Front . . .	446	427	397	390
GAWR - Rear . . .	770	770	770	695

### NOTE

*Gross Vehicle Weight Rating (GVWR) (maximum allowable loaded vehicle weight) and corresponding Gross Axle Weight Ratings (GAWR) are given on a label located on the frame down tube.*

## CAPACITIES (U.S.)

	FLTC	FLHTC	FLHS	FXRT
<b>Fuel Tank (Gallons)</b>				
Total . . . . .	5	5	5	3.8
Reserve . . . . .	0.9	0.9	0.7	0.4
<b>Oil Tank (Quarts)</b>				
w/filter . . . . .	4	4	4	3.0
<b>Transmission (Pints)</b>	1	1	1	1
<b>Front Fork - Each</b>				
(Ounces, wet) . . .	7.75	7.75	7.75	10.5
<b>Primary Chaincase</b>				
(Quarts) . . . . .	1.5	1.5	1.5	1.5

## IGNITION SYSTEM

<b>Spark Timing</b> . . .	start . . . . .	TDC
	Fast Idle . . . . .	35° BTDC
	1800-2800 RPM . . .	35° BTDC
<b>Battery</b> . . . . .	12 Volt, 22 amp. hr.	
	FXRT - 19 amp. hr.	

## Spark Plugs

<b>Type</b> . . . . .	HD-5R6A
<b>Size</b> . . . . .	14mm
<b>Gap</b> . . . . .	0.038-0.43 in.

## ENGINE

Number of Cylinders	2
Type	4-Cycle, 45 Degree V-Type
Compression Ratio	8.5 to 1

Horse power @rpm	Bore in. (mm)	Stroke in. (mm)	Displacement cu. (cc)	Torque lb-ft @rpm
FLTC, FLHTC, FLHS 72@5000 57@4500*	3.498 (88.8)	4.25 (108.0)	81.6 (1338.6)	82.5@4000 82.5@2500*
FXRT 69.5@5000 54@4500*	3.498 (88.8)	4.25 (108.0)	81.6 (1338.6)	80@4000 80@2500*

\*California models  
1340 cc motorcycles manufactured for California produce peak horsepower & torque at lower rpm.

## TRANSMISSION

Type	Constant Mesh, Foot Shift
Speeds	5 Forward

## NUMBER OF SPROCKET TEETH

Engine	24
Clutch	37
Transmission	32
Rear Wheel	70

## OVERALL GEAR RATIOS

First (Low) Gear	10.93	Third Gear	5.40
Second Gear	7.45	Fourth Gear	4.16
		Fifth Gear	3.37

## TIRE DATA

### WARNING

For your own personal safety, tires, rims and air valves must be correctly matched to wheel rims. See your Harley-Davidson dealer. Mismatching tires, tubes, rims and air valves may result in damage to the tire bead during mounting or may allow the tire to slip on the rim, possibly causing tire failure. In addition, using tires other than those specified may adversely affect motorcycle stability. Use only tube tires on all Harley-Davidson laced (wire spoke) wheels and tubeless type tires on all Harley-Davidson cast and disc wheels. Protective rubber rim strips must be used with tube type tires when mounted on laced (wire spoked) wheels. Tire sizes are molded on the tire sidewall. Tube sizes are printed on the tube.

## WARNING

DUNLOP K291T front and rear tires are not the same. They are not interchangeable. Use the front tire **ONLY** for a front tire. **DO NOT** put a rear tire on the front of a vehicle.

1989 DUNLOP TIRES ONLY		TIRE PRESSURE PSI (COLD)	
		FRONT	REAR
Solo Rider	FLTC	36	36
	FLHTC	36	36
	FLHS	36	36
Rider & one passenger	FLTC	36	40
	FLHTC	36	40
	FLHS	36	40
Solo Rider	FXRT	30	36
Rider & one passenger	FXRT	30	40

## WARNING

Maximum inflation pressure must not exceed specification on tire sidewall.

## FUEL

Use a good quality leaded or unleaded gasoline (87 pump octane or higher). Octane rating is usually found on the pump.

## WARNING

Remove fuel filler cap slowly. Fill fuel tank slowly to prevent spillage. Do not overfill. Do not fill above the bottom of the filler neck insert. Leave air space to allow for fuel expansion. Expansion can cause an overfilled tank to overflow gasoline through the filler cap onto surrounding areas. After refueling, be sure fuel filler cap is securely tightened.

## CAUTION

Gasohol spills can stain the paint on your Harley-Davidson.

Today's service station pumps are increasingly of the higher capacity variety. With the high flow of gasoline into a motorcycle tank, air entrapment and pressurization is a possibility. The pressurized air may force gasoline to escape through whatever opening is available within the filler tube. This may not only soil clothing, but may create a potential fire hazard.

## BULB CHART - FLTC, FLHTC, FLHS

LAMP DESCRIPTION (ALL LAMPS 12 V)	NUMBER OF BULBS REQUIRED	CURRENT DRAW (AMPERAGE)	HARLEY- DAVIDSON PART NUMBER
Headlamp			
FLTC	2	3.90	67717-65A
FLHTC, FLHS	1	2.73	67697-81
Tail and Stop Lamp	1		68165-64
Tail Lamp		0.59	
Stop lamp		2.10	
Passing Lamps - FLHTC, FLHS	2	2.34	68674-69
Turn signal Lamps			
Front	2	2.10	68165-64
Rear	2	2.10	68572-64A
Tour-Pak Side Lamps - FLTC, FLHTC		0.10	53439-79
Fender Tip Lamps	2	0.10	53439-79
Instrument Panel Lamps	9	0.04	71099-74
Gauges - FLTC, FLHTC	2	0.27	75045-84



## BULB CHART - FXRT

LAMP DESCRIPTION (ALL LAMPS 12 V)	NUMBER OF BULBS REQUIRED	CURRENT DRAW (AMPERAGE)	HARLEY- DAVIDSON PART NUMBER
Headlamp High Beam Low Beam	1	3.90 2.73	67697-81
Tail and Stop Lamp Tail Lamp Stop lamp	1	0.59 2.10	68165-64
Turn signal Lamps Front Rear	2 2	2.10 2.10	68165-64 68572-64A
Instrument Panel Lamps Fuel Gauge Speedometer Tachometer High Beam Indicator Neutral Indicator Oil Pressure Indicator Turn Signal Indicator	1 2 1 1 1 1 2	0.04 0.08 0.08 0.08 0.27 0.08 0.27	71099-74 53439-71 53439-71 68588-86 68574-83 68489-83 68465-86

The Custom section contains the vehicle specifications for the following Harley-Davidson models:

FLSTC .....	Heritage Softail Custom
FLST .....	Heritage Softail
FXSTC .....	Softail Custom
FXSTS .....	Softail Springer
FXLR .....	Low Rider Custom
FXST .....	Softail
FXRS-SP .....	Low Rider Sport
FXRS .....	Low Rider
FXR .....	Super Glide

Following the Custom section are:

- XLH 883 Sportster
- XLH 883 Hugger
- XLH 883 Sportster Deluxe
- XLH 1200 Sportster

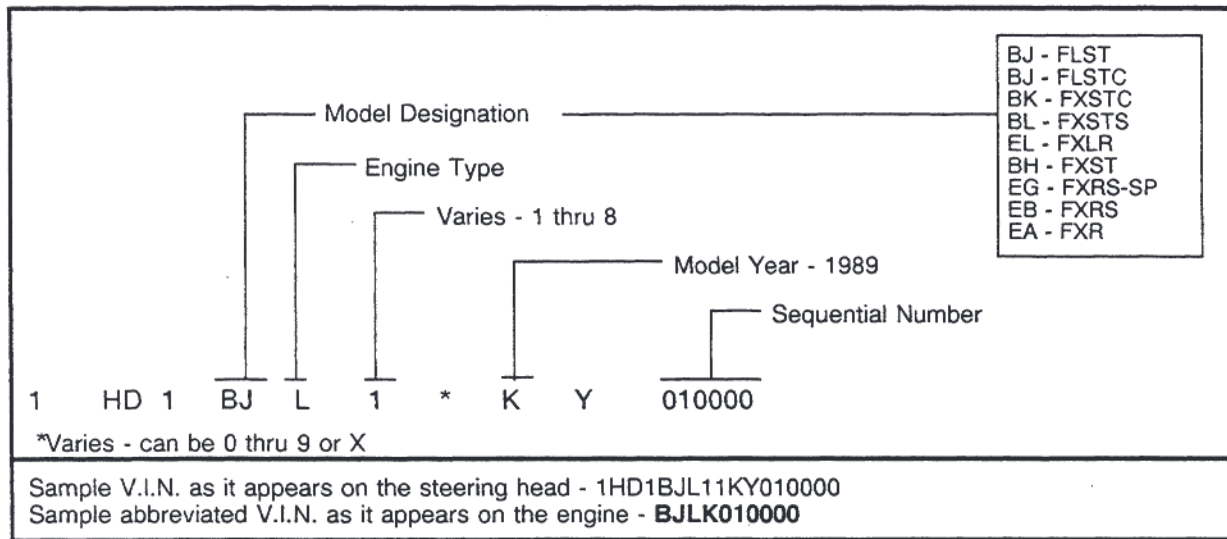
# NOTES

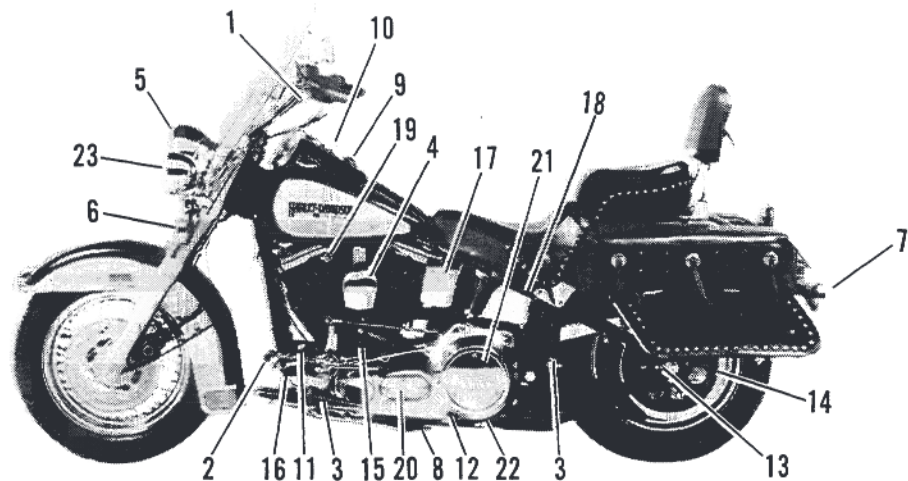
# VEHICLE IDENTIFICATION NUMBER (V.I.N.)

The full 17 digit serial, or Vehicle Identification Number (V.I.N.) is stamped on the steering head and on a label located on the right front frame downtube. An abbreviated V.I.N. is stamped on the left side crankcase at the base of the rear cylinder.

## NOTE

*Always give the full 17 digit Vehicle Identification Number when ordering parts or making any inquiry about your motorcycle.*



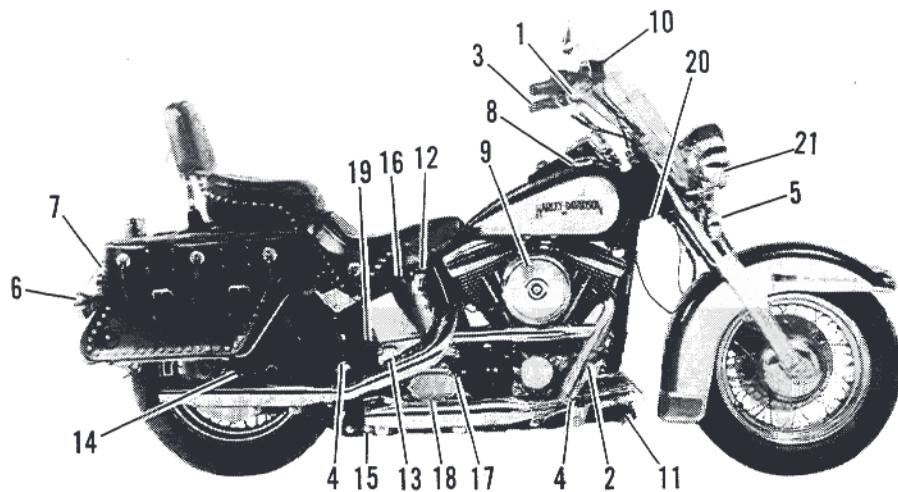


1. Clutch handlebar
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand

9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing inspection hole plug
16. Voltage regulator

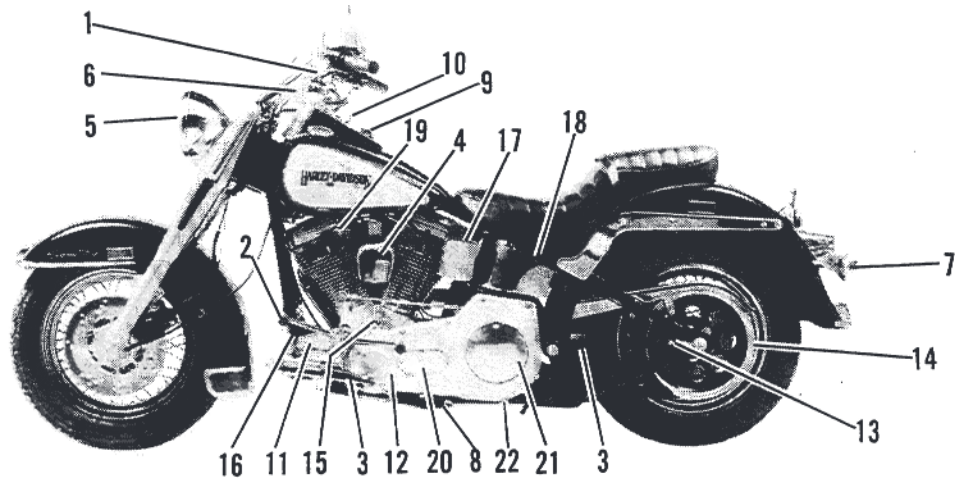
17. Ignition coil
18. Ignition module
19. Fuel supply valve
20. Primary chain inspection cover
21. Clutch inspection cover
22. Primary drain plug
23. Passing lamp

FLSTC - Left Side View



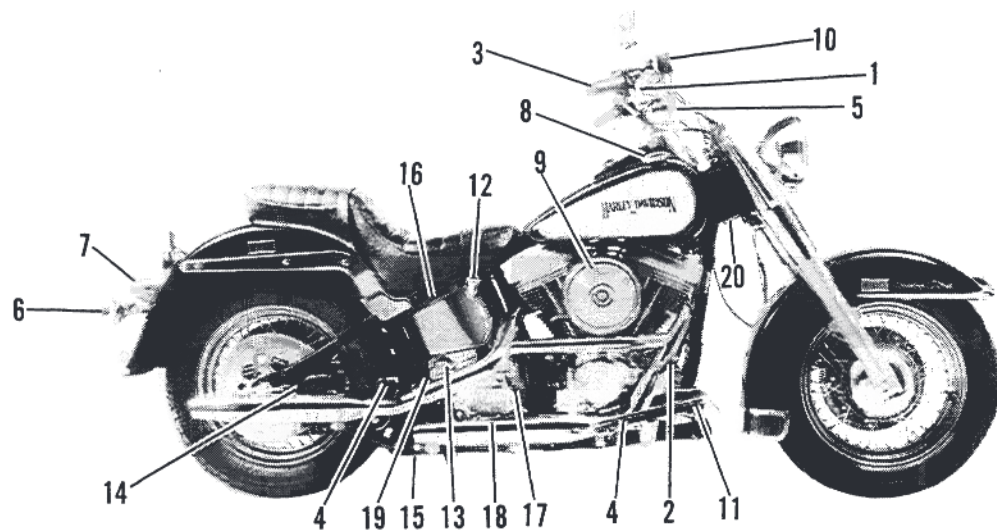
- |                                     |   |                             |
|-------------------------------------|---|-----------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster      |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)       |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under seat)    |
| 4. Footrest(s)                      | 11. Rear brake master cylinder & reservoir  | 17. Transmission fill plug  |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Engine Oil tank drain   |
| 7. Tail/stop lamp                   |   | 20. Fork lock brackets      |
|                                     |   | 21. Passing lamp            |

FLSTC - Right Side View



- |                                     |                                 |                                    |
|-------------------------------------|---------------------------------|------------------------------------|
| 1. Clutch handlever                 | 8. Jiffy stand                  | 16. Voltage regulator              |
| 2. Gear shifter                     | 9. Ignition/light switch        | 17. Ignition coil                  |
| 3. Footrest(s)                      | 10. Carburetor choke knob       | 18. Ignition module                |
| 4. Horn                             | 11. Engine oil filter           | 19. Fuel supply valve              |
| 5. Headlamp                         | 12. Primary chain cover         | 20. Primary chain inspection cover |
| 6. Front turn signal & running lamp | 13. Rear axle adjuster          | 21. Clutch inspection cover        |
| 7. Rear turn signal lamp            | 14. Rear sprocket and drive     | 22. Primary drain plug             |
|                                     | 15. Timing inspection hole plug |                                    |

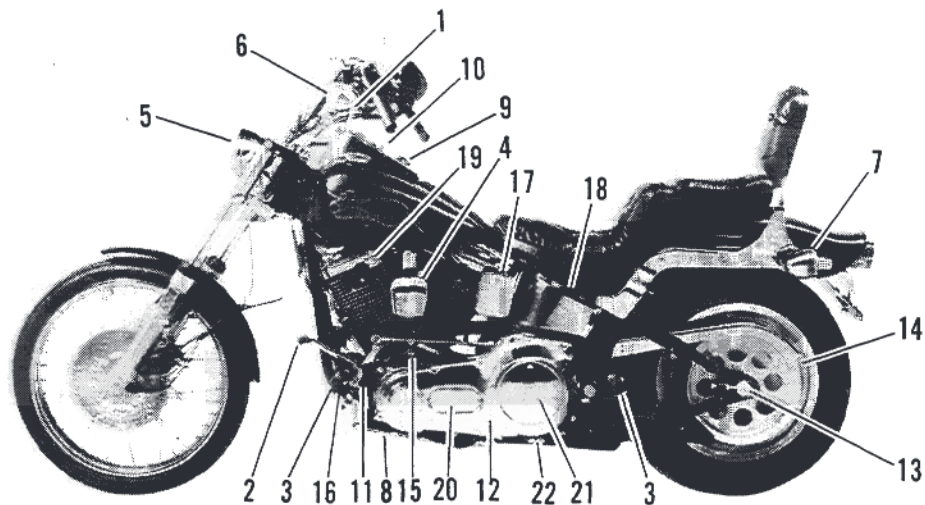
FLST - Left Side View



- |                                     |   |                             |
|-------------------------------------|---|-----------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster      |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)       |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under seat)    |
| 4. Footrest(s)                      | 11. Rear brake master cylinder & reservoir  | 17. Transmission fill plug  |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Engine Oil tank drain   |
| 7. Tail/stop lamp                   |   | 20. Fork lock brackets      |

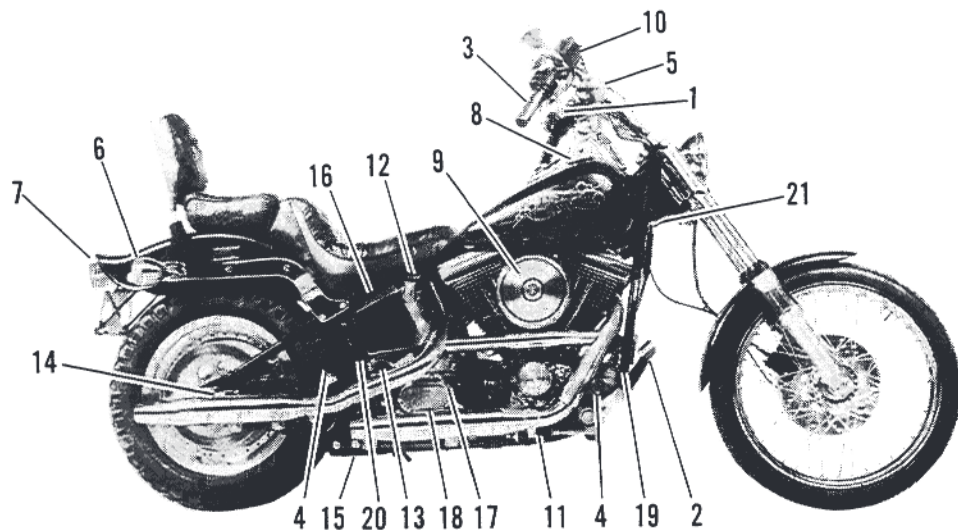
FLST - Right Side View





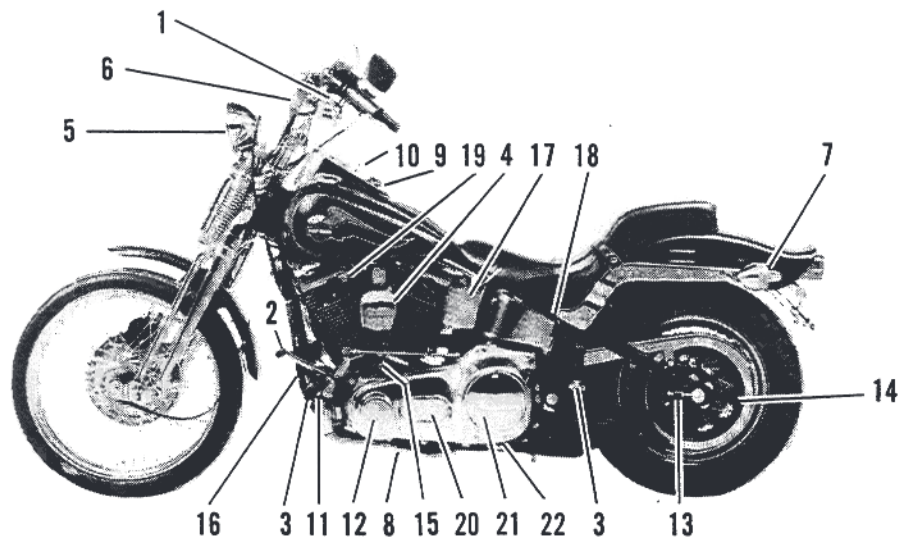
- |                                     |                                  |                                    |
|-------------------------------------|----------------------------------|------------------------------------|
| 1. Clutch handlever                 | 8. Jiffy stand                   | 16. Voltage regulator              |
| 2. Gear shifter                     | 9. Ignition/light switch         | 17. Ignition coil                  |
| 3. Footrest(s)                      | 10. Carburetor choke knob        | 18. Ignition module                |
| 4. Horn                             | 11. Engine oil filter            | 19. Fuel supply valve              |
| 5. Headlamp                         | 12. Primary chain cover          | 20. Primary chain inspection cover |
| 6. Front turn signal & running lamp | 13. Rear axle adjuster           | 21. Clutch inspection cover        |
| 7. Rear turn signal lamp            | 14. Rear sprocket and drive plug | 22. Primary drain plug             |
|                                     | 15. Timing inspection hole plug  |                                    |

FXSTC - Left Side View



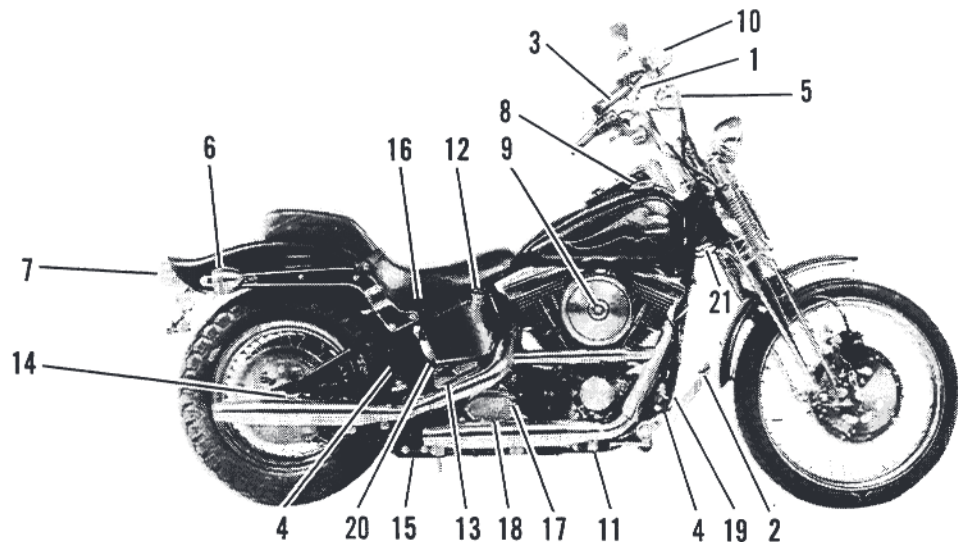
- |                                     |   |                                |
|-------------------------------------|---|--------------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 15. Shock absorber(s)          |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 16. Battery (under seat)       |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 17. Transmission fill plug     |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 18. Transmission drain plug    |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 19. Rear brake fluid reservoir |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 20. Engine Oil tank drain      |
| 7. Tail/stop lamp                   | 14. Rear axle adjuster                      | 21. Fork lock brackets         |

FXSTC - Right Side View



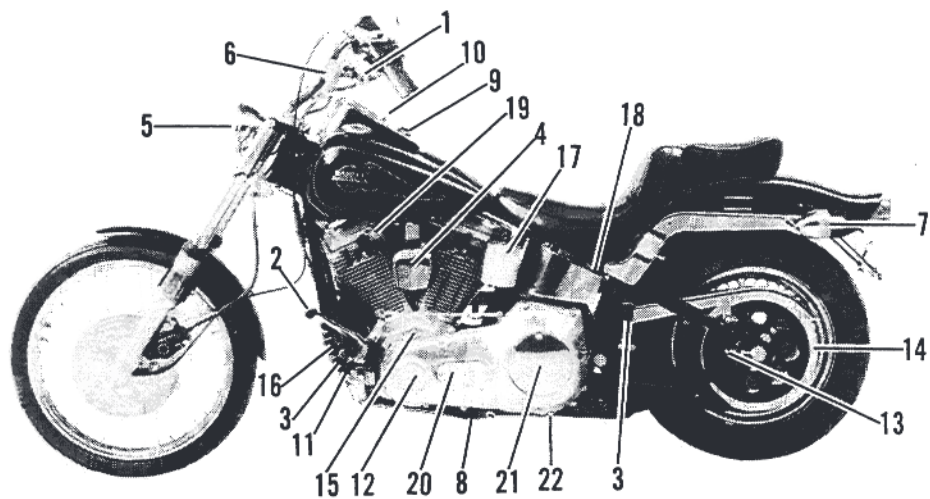
- |                                     |                                 |                                    |
|-------------------------------------|---------------------------------|------------------------------------|
| 1. Clutch handlelever               | 8. Jiffy stand                  | 16. Voltage regulator              |
| 2. Gear shifter                     | 9. Ignition/light switch        | 17. Ignition coil                  |
| 3. Footrest(s)                      | 10. Carburetor choke knob       | 18. Ignition module                |
| 4. Horn                             | 11. Engine oil filter           | 19. Fuel supply valve              |
| 5. Headlamp                         | 12. Primary chain cover         | 20. Primary chain inspection cover |
| 6. Front turn signal & running lamp | 13. Rear axle adjuster          | 21. Clutch inspection cover        |
| 7. Rear turn signal lamp            | 14. Rear sprocket and drive     | 22. Primary drain plug             |
|                                     | 15. Timing inspection hole plug |                                    |

FXSTS - Left Side View



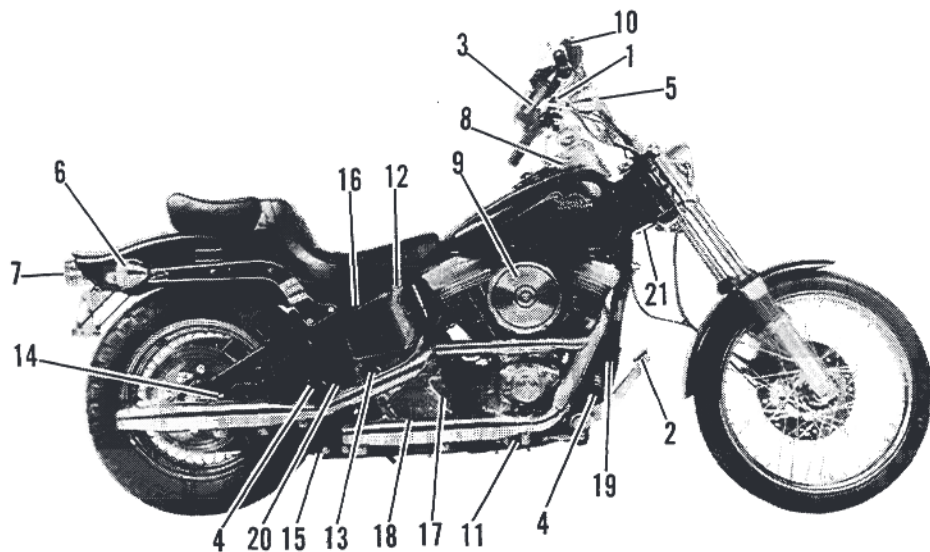
- |                                     |   |                                |
|-------------------------------------|---|--------------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster         |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)          |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under seat)       |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 17. Transmission fill plug     |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug    |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Rear brake fluid reservoir |
| 7. Tail/stop lamp                   |   | 20. Engine Oil tank drain      |
|                                     |   | 21. Fork lock brackets         |

FXSTS - Right Side View



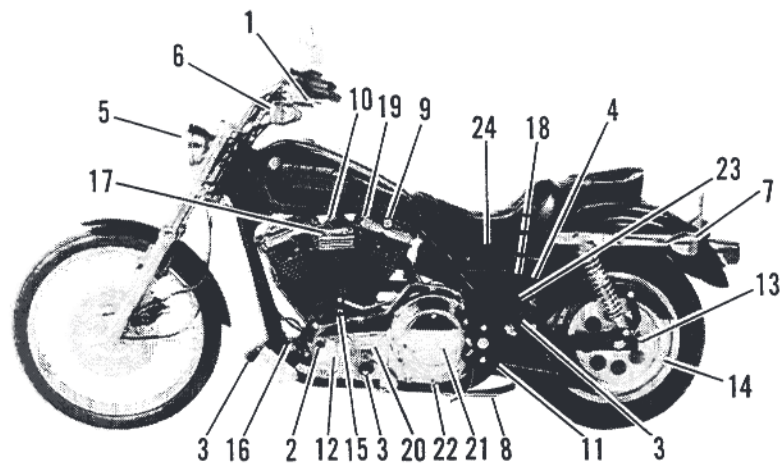
- |                                     |                                 |                                    |
|-------------------------------------|---------------------------------|------------------------------------|
| 1. Clutch handlever                 | 8. Jiffy stand                  | 16. Voltage regulator              |
| 2. Gear shifter                     | 9. Ignition/light switch        | 17. Ignition coil                  |
| 3. Footrest(s)                      | 10. Carburetor choke knob       | 18. Ignition module                |
| 4. Horn                             | 11. Engine oil filter           | 19. Fuel supply valve              |
| 5. Headlamp                         | 12. Primary chain cover         | 20. Primary chain inspection cover |
| 6. Front turn signal & running lamp | 13. Rear axle adjuster          | 21. Clutch inspection cover        |
| 7. Rear turn signal lamp            | 14. Rear sprocket and drive     | 22. Primary drain plug             |
|                                     | 15. Timing inspection hole plug |                                    |

FXST - Left Side View



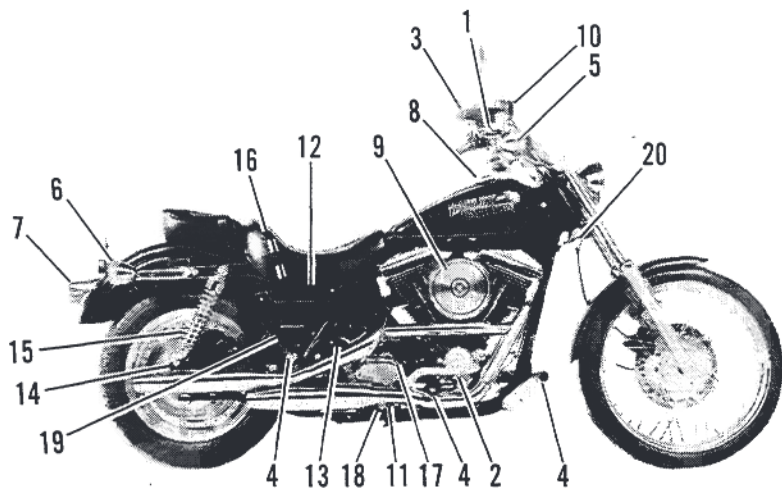
- |                                     |   |                                |
|-------------------------------------|---|--------------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 15. Shock absorber(s)          |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 16. Battery (under seat)       |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 17. Transmission fill plug     |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 18. Transmission drain plug    |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 19. Rear brake fluid reservoir |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 20. Engine Oil tank drain      |
| 7. Tail/stop lamp                   | 14. Rear axle Adjuster                      | 21. Fork lock brackets         |

FXST - Right Side View



- |                                     |                                 |  |
|-------------------------------------|---------------------------------|--|
| 1. Clutch handlever                 | 9. Ignition/light switch        | 18. Ignition module                          |
| 2. Gear shifter                     | 10. Carburetor choke knob       | 19. Fuel supply valve                        |
| 3. Footrest(s)                      | 11. Engine oil filter           | 20. Primary chain inspection cover           |
| 4. Horn                             | 12. Primary chain cover         | 21. Clutch inspection cover                  |
| 5. Headlamp                         | 13. Rear axle adjuster          | 22. Primary drain plug                       |
| 6. Front turn signal & running lamp | 14. Rear sprocket and drive     | 23. Engine Oil tank drain (under side cover) |
| 7. Rear turn signal lamp            | 15. Timing inspection hole plug | 24. Seat release                             |
| 8. Jiffy stand                      | 16. Voltage regulator           |  |
|                                     | 17. Ignition coil               |  |

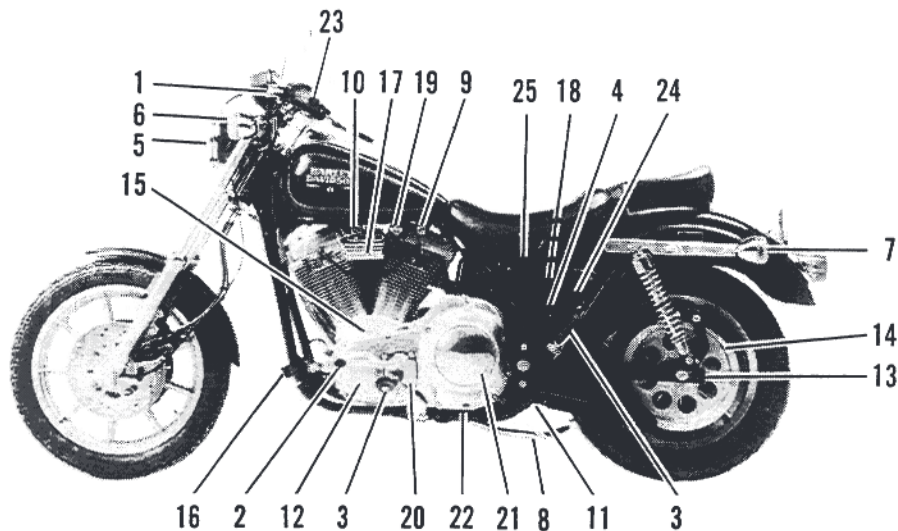
FXLR - Left Side View



- |                                     |   |                                |
|-------------------------------------|---|--------------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster         |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)          |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under seat)       |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 17. Transmission fill plug     |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug    |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Rear brake fluid reservoir |
| 7. Tail/stop lamp                   |   | 20. Fork lock brackets         |

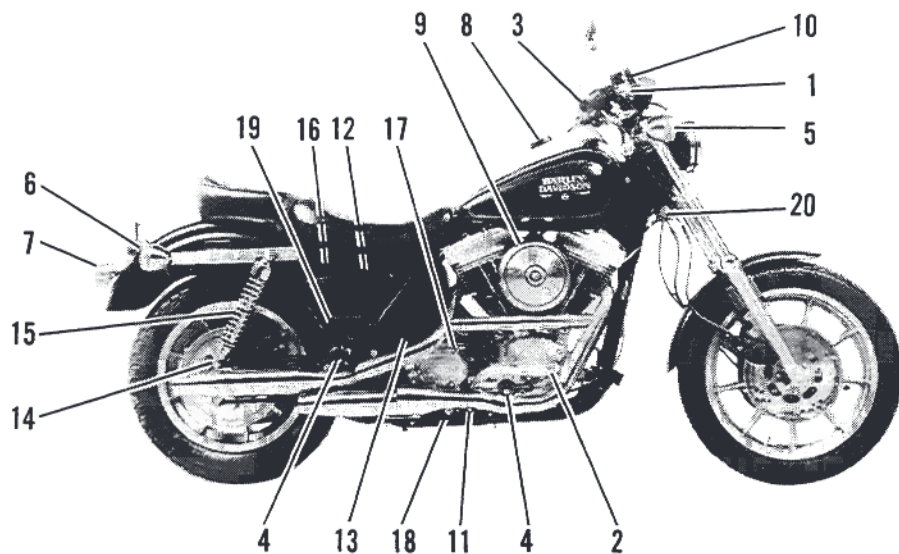
FXLR - Right Side View





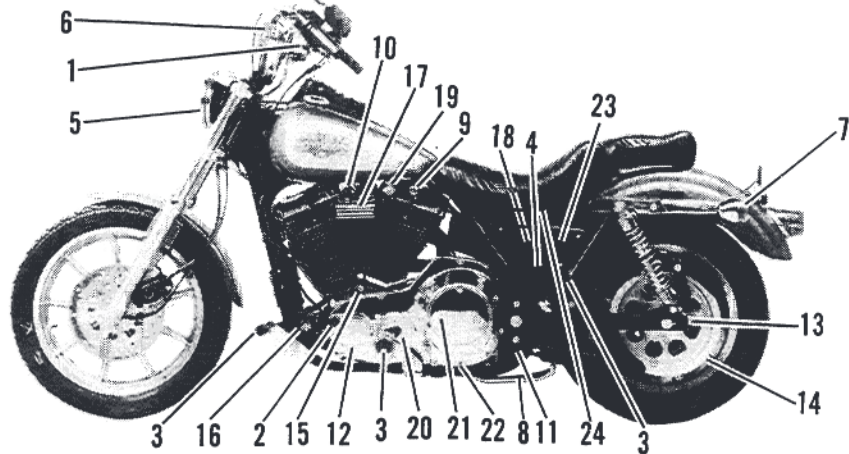
- |                                     |                                 |  |
|-------------------------------------|---------------------------------|--|
| 1. Clutch handlever                 | 9. Ignition/light switch        | 18. Ignition module                          |
| 2. Gear shifter                     | 10. Carburetor choke knob       | 19. Fuel supply valve                        |
| 3. Footrest(s)                      | 11. Engine oil filter           | 20. Primary chain inspection cover           |
| 4. Horn                             | 12. Primary chain cover         | 21. Clutch inspection cover                  |
| 5. Headlamp                         | 13. Rear axle adjuster          | 22. Primary drain plug                       |
| 6. Front turn signal & running lamp | 14. Rear sprocket and drive     | 23. Front suspension air valve               |
| 7. Rear turn signal lamp            | 15. Timing inspection hole plug | 24. Engine Oil tank drain (under side cover) |
| 8. Jiffy stand                      | 16. Voltage regulator           | 25. Seat release                             |
|                                     | 17. Ignition coil               |  |

FXRS-SP - Left Side View



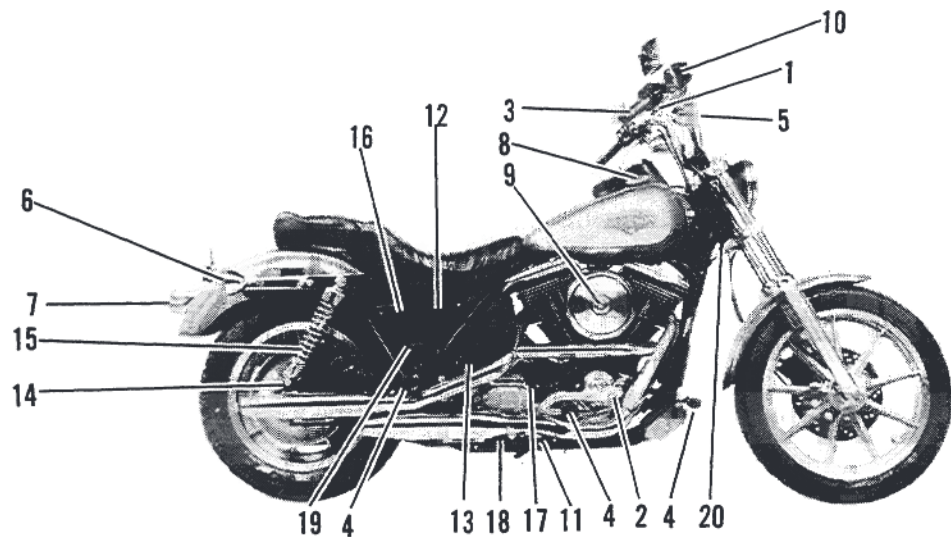
- |                                     |   |                                |
|-------------------------------------|---|--------------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster         |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)          |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under seat)       |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 17. Transmission fill plug     |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug    |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Rear brake fluid reservoir |
| 7. Tail/stop lamp                   |   | 20. Fork lock brackets         |

FXRS-SP - Right Side View



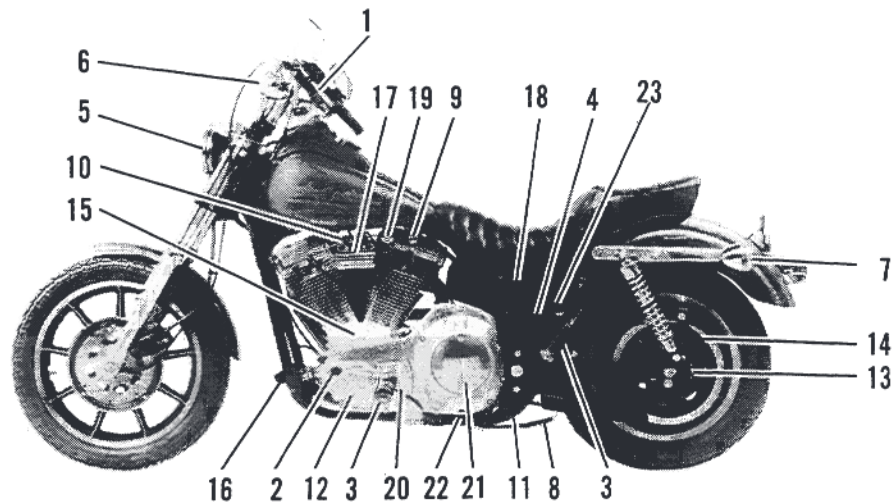
- |                                     |                                 |  |
|-------------------------------------|---------------------------------|--|
| 1. Clutch handlever                 | 9. Ignition/light switch        | 18. Ignition module                          |
| 2. Gear shifter                     | 10. Carburetor choke knob       | 19. Fuel supply valve                        |
| 3. Footrest(s)                      | 11. Engine oil filter           | 20. Primary chain inspection cover           |
| 4. Horn                             | 12. Primary chain cover         | 21. Clutch inspection cover                  |
| 5. Headlamp                         | 13. Rear axle adjuster          | 22. Primary drain plug                       |
| 6. Front turn signal & running lamp | 14. Rear sprocket and drive     | 23. Engine Oil tank drain (under side cover) |
| 7. Rear turn signal lamp            | 15. Timing inspection hole plug | 24. Seat release                             |
| 8. Jiffy stand                      | 16. Voltage regulator           |  |
|                                     | 17. Ignition coil               |  |

FXRS - Left Side View



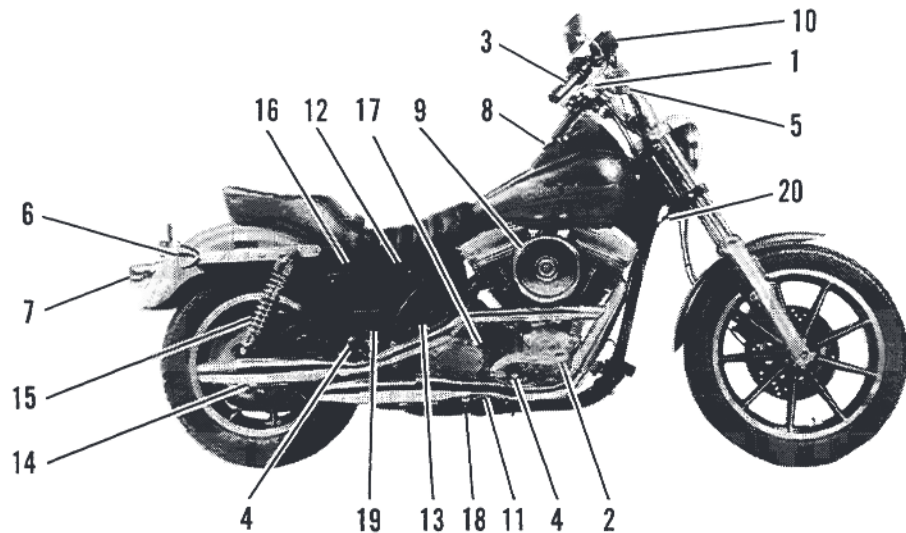
- |                                     |   |                                |
|-------------------------------------|---|--------------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster         |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)          |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under seat)       |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 17. Transmission fill plug     |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug    |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Rear brake fluid reservoir |
| 7. Tail/stop lamp                   |   | 20. Fork lock brackets         |

FXRS - Right Side View



- |                                     |                                 |  |
|-------------------------------------|---------------------------------|--|
| 1. Clutch handlever                 | 9. Ignition/light switch        | 18. Ignition module                          |
| 2. Gear shifter                     | 10. Carburetor choke knob       | 19. Fuel supply valve                        |
| 3. Footrest(s)                      | 11. Engine oil filter           | 20. Primary chain inspection cover           |
| 4. Horn                             | 12. Primary chain cover         | 21. Clutch inspection cover                  |
| 5. Headlamp                         | 13. Rear axle adjuster          | 22. Primary drain plug                       |
| 6. Front turn signal & running lamp | 14. Rear sprocket and drive     | 23. Engine Oil tank drain (under side cover) |
| 7. Rear turn signal lamp            | 15. Timing inspection hole plug |  |
| 8. Jiffy stand                      | 16. Voltage regulator           |  |
|                                     | 17. Ignition coil               |  |

FXR - Left Side View



- |                                     |   |                                |
|-------------------------------------|---|--------------------------------|
| 1. Front brake handlever            | 8. Fuel Filler cap                          | 14. Rear axle Adjuster         |
| 2. Rear brake pedal                 | 9. Carburetor/air cleaner                   | 15. Shock absorber(s)          |
| 3. Throttle control grip            | 10. Front brake master cylinder & reservoir | 16. Battery (under seat)       |
| 4. Footrest(s)                      | 11. Rear brake master cylinder              | 17. Transmission fill plug     |
| 5. Front turn signal & running lamp | 12. Engine Oil fill plug & dipstick         | 18. Transmission drain plug    |
| 6. Rear turn signal lamp            | 13. Electric starter motor                  | 19. Rear brake fluid reservoir |
| 7. Tail/stop lamp                   |   | 20. Fork lock brackets         |

FXR - Right Side View

# NOTES

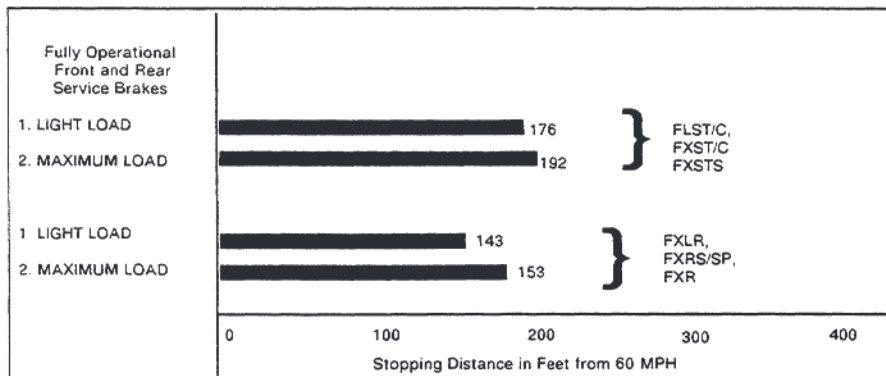
# STOPPING DISTANCE

Description of vehicle: Harley-Davidson 1989 FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP and FXR models.

Required by Federal Consumer Information Regulations.

Notice: The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions. The information may not be correct under other conditions.

These figures indicate braking performance that can be met or exceeded by the vehicle to which it applies, without locking the wheels, under different conditions of loading.



1. Light Load Vehicle Weight . . . . . includes 200 lb. driver - no accessories
2. Maximum loaded Vehicle Weight . . . . . includes 300 lb. driver and passenger plus full accessory load.



## DIMENSIONS (IN.)

	FLST /C	FLST /C	FXST S	FXLR	FXST /C	FXRS *(SP)	FXR, FXRS
Wheel Base	62.50	62.50	66.30	64.50	63.20	64.70	63.13
Overall Length	93.80	93.80	94.30	92.50	91.63	93.20	91.65
Overall Width	38.00	38.00	29.00	29.00	31.00	31.00	31.00
Road Clearance	5.25	5.25	5.63	5.38	5.25	6.00	5.25
Overall Height	49.00	59.40	47.00	47.00	48.00	50.00	48.00
Saddle Height	26.50	26.50	26.12	26.12	26.50	27.50	26.50

## WEIGHT (LBS.)

	FLST /C	FLST /C	FXST S	FXLR	FXST /C	FXRS *(SP)	FXR, FXRS
DRY WEIGHT - (as shipped from the factory)	650	710	625	575	618	585	575
GVWR	1085	1085	1085	1085	1085	1085	1085
GAWR - Front	390	390	390	390	390	309	390
GAWR - Rear	695	695	695	695	695	695	695

\* (SP) Sport

### NOTE

Gross Vehicle Weight Rating (GVWR) (maximum allowable loaded vehicle weight) and corresponding

Gross Axle Weight Ratings (GAWR) are given on a label located on the frame down tube.

## CAPACITIES (U.S.)

	FLST /C	FXST /C	FXSTS	FXR FXRS FXLR	FXRS -SP
Fuel Tank (Gallons) Total	4.2	5.2	4.2	4.2	4.2
Reserve	0.75	1.2	1.2	0.4	0.4
Oil Tank (Quarts) w/filter	3.0	3.0	3.0	3.0	3.0
Transmission (Pints)	1	1	1	1	1
Front Fork - Each (Ounces, wet)	11.5	10.2	None	9.2	10.5
Primary Chaincase (Quarts)	1.5	1.5	1.5	1.5	1.5

## IGNITION SYSTEM

Spark Timing	..... start	TDC
	Fast Idle	35° BTDC
	1800-2800 RPM	35° BTDC
Battery	.....	12 Volt, 19 amp. hr.

## Spark Plugs

Type	HD-5R6A
Size	14mm
Gap	0.038-0.043 in.

## ENGINE

Number of Cylinders	2
Type	4-Cycle, 45 Degree V-Type
Compression Ratio	8.5 to 1

Horse power @rpm	Bore in. (mm)	Stroke in. (mm)	Displacement cu. (cc)	Torque lb-ft @rpm
69.5@5000 54@4500*	3.498 (88.8)	4.25 (108.0)	81.6 (1338.6)	80@4000 80@2500*

\*California models

1340 cc motorcycles manufactured for California produce peak horsepower & torque at lower rpm.

## TRANSMISSION

Type	Constant Mesh, Foot Shift
Speeds	5 Forward

## NUMBER OF SPROCKET TEETH

Engine	24
Clutch	37
Transmission	32
Rear Wheel	70

## OVERALL GEAR RATIOS

First (Low) Gear	10.93	Third Gear	5.40
Second Gear	7.45	Fourth Gear	4.16
		Fifth Gear	3.37

## TIRE DATA

### WARNING

For your own personal safety, tires, rims and air valves must be correctly matched to wheel rims. See your Harley-Davidson dealer. Mismatching tires, tubes, rims and air valves may result in damage to the tire bead during mounting or may allow the tire to slip on the rim, possibly causing tire failure. In addition, using tires other than those specified may adversely affect motorcycle stability. Use only tube tires on all Harley-Davidson laced (wire spoke) wheels and tubeless type tires on all Harley-Davidson cast and disc wheels. Protective rubber rim strips must be used with tube type tires when mounted on laced (wire spoked) wheels. Tire sizes are molded on the tire sidewall. Tube sizes are printed on the tube.

### WARNING

DUNLOP K291T front and rear tires are not the same. They are not interchangeable. Use the front tire **ONLY** for a front tire. **DO NOT** put a rear tire on the front of a vehicle.

### WARNING

Maximum inflation pressure must not exceed specification on tire sidewall.

1989 DUNLOP TIRES ONLY		TIRE PRESSURE PSI (COLD)	
		FRONT	REAR
Solo Rider	FLST/C	36	36
Rider & one passenger	FLST/C	36	40
Solo Rider	FXST/C, FXSTS	30	32
Rider & one passenger	FXST/C, FXSTS	30	32
Solo Rider	FXLR	30	36
Rider & one passenger	FXLR	30	40
Solo Rider	FXRS/SP, FXR	30	36
Rider & one passenger	FXRS/SP, FXR	30	40

## FUEL

Use a good quality leaded or unleaded gasoline (87 pump octane or higher). Octane rating is usually found on the pump.

### WARNING

Remove fuel filler cap slowly. Fill fuel tank slowly to prevent spillage. Do not overfill. Do not fill above the bottom of the filler neck insert. Leave air space to allow for fuel expansion. Expansion can cause an overfilled tank to overflow gasoline through the filler cap onto surrounding areas. After refueling, be sure fuel filler cap is securely tightened.

### CAUTION

Gasohol spills can stain the paint on your Harley-Davidson.

Today's service station pumps are increasingly of the higher capacity variety. With the high flow of gasoline into a motorcycle tank, air entrapment and pressurization is a possibility. The pressurized air may force gasoline to escape through whatever opening is available within the filler tube. This may not only soil clothing, but may create a potential fire hazard.

## BULB CHART - FLST/C, FXST/C, FXSTS

LAMP DESCRIPTION (ALL LAMPS 12 V)	NUMBER OF BULBS REQUIRED	CURRENT DRAW (AMPERAGE)	HARLEY- DAVIDSON PART NUMBER
Headlamp	1		
FLST/C	1	3.90	67713-86
FXST/C, FXSTS	1	2.73	67698-81A
Tail and Stop Lamp	1		68165-64
Tail Lamp		0.59	
Stop lamp		2.10	
Instrument Panel Lamps			
High Beam Indicator	1	0.04	68462-64
Oil Pressure Indicator	1	0.08	68462-64
Neutral Indicator	1	0.08	68462-64
Turn signal Indicator		0.08	68462-64
Speedometer	1	0.27	71099-74
Turn signal Lamps			
Front	2	2.10	68165-64
Rear	2	2.10	68572-64A
Fender tip Lamps - FLST/C	2	0.5	53439-79
Passing Lamps - FLST/C	2	2.34	68674-69

## BULB CHART - FXLR, FXRS/SP, FXR

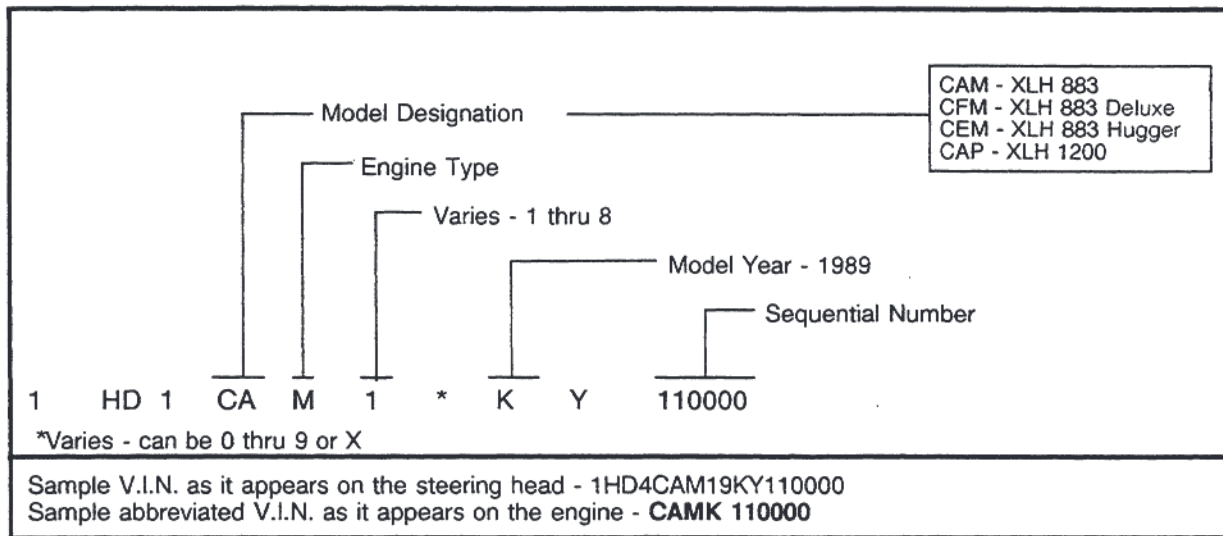
LAMP DESCRIPTION (ALL LAMPS 12 V)	NUMBER OF BULBS REQUIRED	CURRENT DRAW (AMPERAGE)	HARLEY- DAVIDSON PART NUMBER
Headlamp High Beam Low Beam	1	3.90 2.73	67698-81A
Tail and Stop Lamp Tail Lamp Stop lamp	1	0.59 2.10	68165-64
Turn signal Lamps Front Rear	2 2	2.10 2.10	68165-64 68572-64A
Instrument Panel Lamps Fuel Gauge Speedometer Tachometer High Beam Indicator Neutral Indicator Oil Pressure Indicator Turn Signal Indicator	1 2 1 1 1 1 1 1 1 2 2	0.04 0.08 0.08 0.08 0.08 0.27 0.27 0.08 0.08 0.08 0.27 0.27	71099-74 53439-71 53439-71 67862-86 (FXR/S) 68421-87 (FXLR) 68597-86 FXRS-SP) 67851-86 (FXR/S) 68419-87 (FXLR) 68574-86 (FXRS-SP) 68536-86 (FXR/S) 68420-87 (FXLR) 68489-86 (FXRS-SP) 67864-86 (FXR/S) 68468-86 (FXRS-SP) none (FXLR)

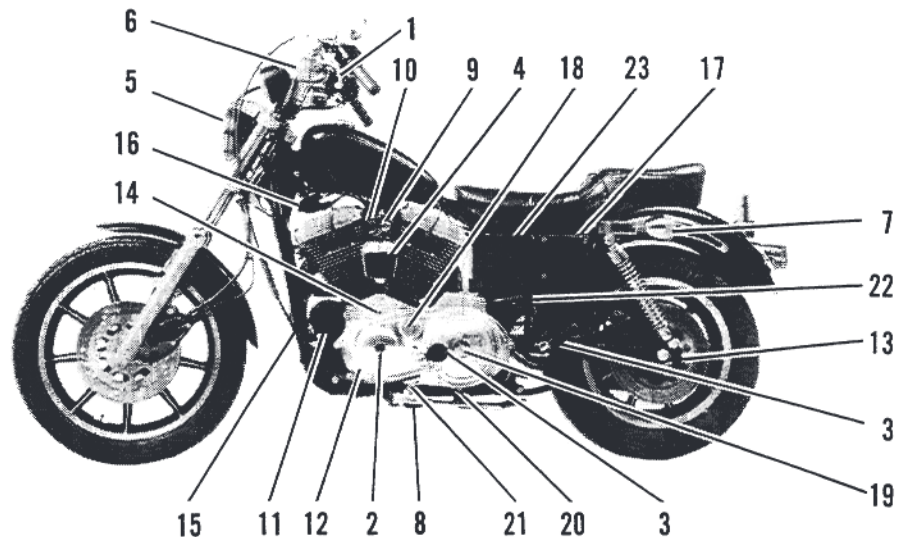
# VEHICLE IDENTIFICATION NUMBER (V.I.N.)

The full 17 digit serial, or Vehicle Identification Number (V.I.N.) is stamped on the steering head and on a label located on the right front frame downtube. An abbreviated V.I.N. is stamped on the left side crankcase at the base of the rear cylinder.

## NOTE

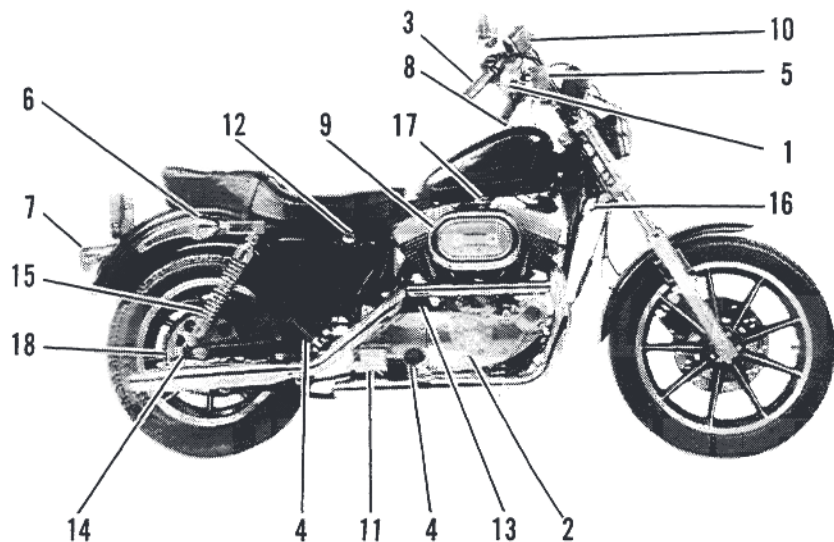
*Always give the full 17 digit Vehicle Identification Number when ordering parts or making any inquiry about your motorcycle.*





- |                                     |                                 |  |
|-------------------------------------|---------------------------------|--|
| 1. Clutch handlelever               | 8. Jiffy stand                  | 16. Ignition coil                        |
| 2. Gear shifter                     | 9. Ignition/light switch        | 17. Ignition module (under side cover)   |
| 3. Footrest(s)                      | 10. Carburetor choke knob       | 18. Primary chain inspection & fill plug |
| 4. Horn                             | 11. Engine oil filter           | 19. Clutch inspection cover              |
| 5. Headlamp                         | 12. Primary chain cover         | 20. Primary & transmission drain plug    |
| 6. Front turn signal & running lamp | 13. Rear axle adjuster          | 21. Primary & transmission level plug    |
| 7. Rear turn signal lamp            | 14. Timing inspection hole plug | 22. Engine oil tank drain hose           |
|                                     | 15. Voltage regulator           | 23. Battery                              |

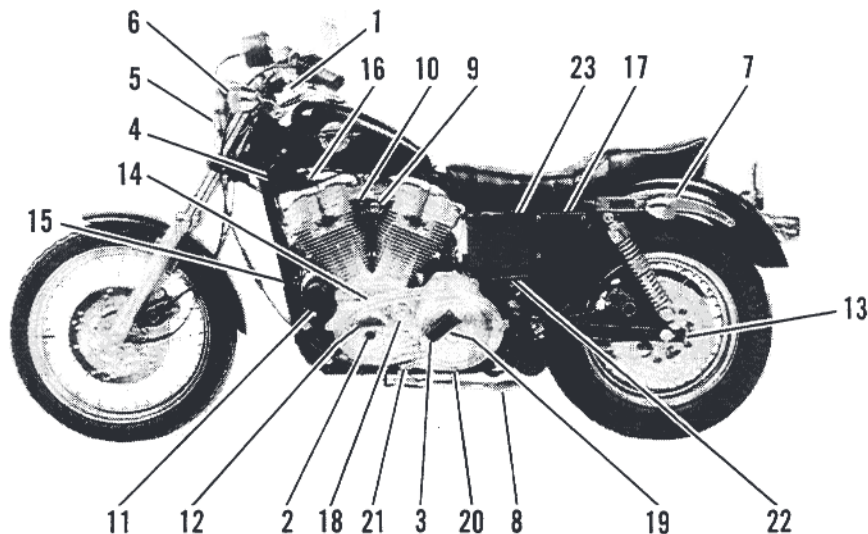
XLH 1200 - Left Side View



- |                                     |   |                                     |
|-------------------------------------|---|-------------------------------------|
| 1. Front turn signal & running lamp | 7. Tail/stop lamp                           | 12. Engine Oil fill plug & dipstick |
| 2. Rear brake pedal                 | 8. Fuel Filler cap                          | 13. Electric starter motor          |
| 3. Throttle control grip            | 9. Carburetor/air cleaner                   | 14. Rear axle Adjuster              |
| 4. Footrest(s)                      | 10. Front brake master cylinder & reservoir | 15. Shock absorber(s)               |
| 5. Front turn signal & running lamp | 11. Rear brake master cylinder & reservoir  | 16. Fork lock brackets              |
| 6. Rear turn signal lamp            |   | 17. Fuel supply valve               |
|                                     |   | 18. Rear sprocket & drive           |

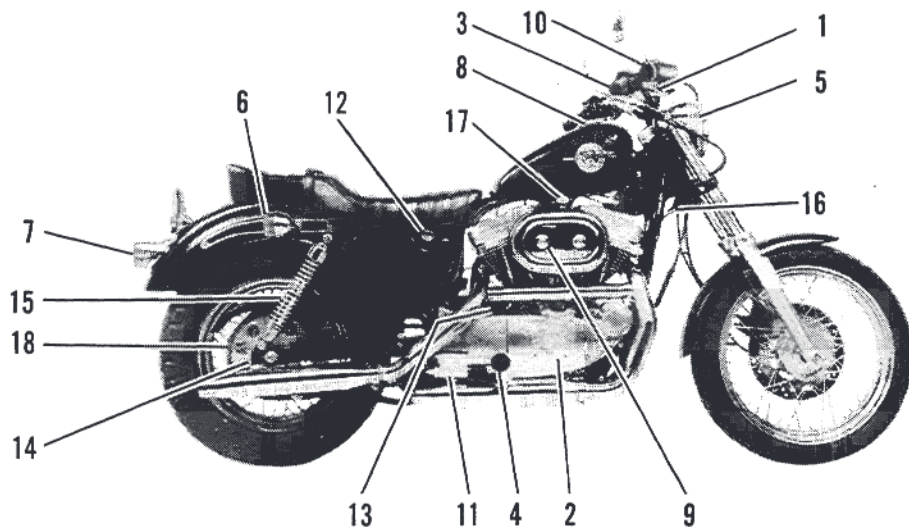
XLH 1200 - Right Side View





- |                                     |                                 |  |
|-------------------------------------|---------------------------------|--|
| 1. Clutch handlever                 | 8. Jiffy stand                  | 16. Ignition coil                        |
| 2. Gear shifter                     | 9. Ignition/light switch        | 17. Ignition module (under side cover)   |
| 3. Footrest(s)                      | 10. Carburetor choke knob       | 18. Primary chain inspection & fill plug |
| 4. Horn                             | 11. Engine oil filter           | 19. Clutch inspection cover              |
| 5. Headlamp                         | 12. Primary chain cover         | 20. Primary & transmission drain plug    |
| 6. Front turn signal & running lamp | 13. Rear axle adjuster          | 21. Primary & transmission level plug    |
| 7. Rear turn signal lamp            | 14. Timing inspection hole plug | 22. Engine oil tank drain hose           |
|                                     | 15. Voltage regulator           | 23. Battery                              |

XLH 883 - Left Side View



- |                                     |   |                                     |
|-------------------------------------|---|-------------------------------------|
| 1. Front brake handlever            | 7. Tail/stop lamp                           | 12. Engine Oil fill plug & dipstick |
| 2. Rear brake pedal                 | 8. Fuel Filler cap                          | 13. Electric starter motor          |
| 3. Throttle control grip            | 9. Carburetor/air cleaner                   | 14. Rear axle Adjuster              |
| 4. Footrest(s)                      | 10. Front brake master cylinder & reservoir | 15. Shock absorber(s)               |
| 5. Front turn signal & running lamp | 11. Rear brake master cylinder & reservoir  | 16. Fork lock brackets              |
| 6. Rear turn signal lamp            |   | 17. Fuel supply valve               |
|                                     |   | 18. Rear sprocket & drive           |

XLH 883 - Right Side View

# NOTES

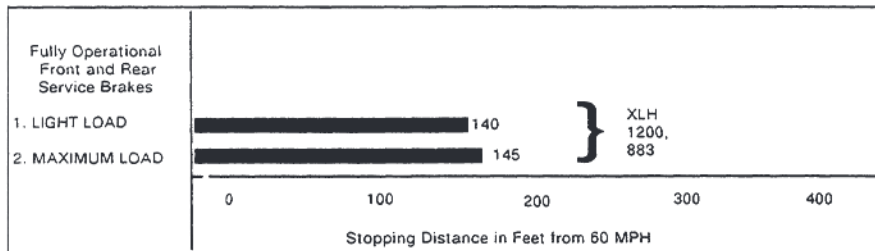
# STOPPING DISTANCE

Description of vehicle: Harley-Davidson 1989 XLH 1200, 883 models.

Required by Federal Consumer Information Regulations.

Notice: The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions, The information may not be correct under other conditions.

These figures indicate braking performance that can be met or exceeded by the vehicle to which it applies, without locking the wheels, under different conditions of loading.



- 1. Light Load Vehicle Weight ..... includes 200 lb. driver - no accessories
- 2. Maximum loaded Vehicle Weight ..... includes 300 lb. driver and passenger plus full accessory load.

## DIMENSIONS (IN.)

	XLH 1200	XLH 883	XLH 883, & Hugger
Wheel Base .....	60.00	60.00	60.50
Overall Length .....	87.50	87.50	87.50
Overall Width. ....	33.00	33.0	33.00
Road Clearance .....	6.75	6.75	5.90
Overall Height .....	49.75	47.50	49.75
Saddle Height .....	29.00	28.50	26.75

## WEIGHT (LBS.)

	XLH 1200	XLH 883, & Hugger
DRY WEIGHT		
(as shipped from the factory) .....	457	463
GVWR .....	900	900
GAWR - Front .....	320	320
GAWR - Rear .....	580	580

### NOTE

*Gross Vehicle Weight Rating (GVWR) (maximum allowable loaded vehicle weight) and corresponding Gross Axle Weight Ratings (GAWR) are given on a label located on the frame steering head.*

## CAPACITIES (U.S.)

Fuel Tank (Gallons)	
Total .....	2.25
Reserve .....	0.25
Oil Tank (Quarts)	
w/filter .....	3
Transmission (Pints) .....	1 1/2
Front Fork - Each	
(Ounces, wet) .....	9

## IGNITION SYSTEM

Spark Timing .....	start .....	5° BTDC
	Fast Idle .....	40° BTDC
	1800-2800 RPM .....	40° BTDC
Battery .....	12Volt, 19 amp. hr.	

## Spark Plugs

Type .....	HD-6R12
Size .....	12mm
Gap .....	0.038-0.043 in.

## ENGINE

Number of Cylinders ..... 2  
Type ..... 4-Cycle, 45 Degree V-Type  
Compression Ratio ..... 9.0 to 1

Horse power @rpm	Bore in. (mm)	Stroke in. (mm)	Displacement cu. (cc)	Torque lb-ft @rpm
XLH 1200 68@6000	3.500 (84)	3.812 (96.8)	73.4 (1200)	72@4000
XLH 883 55@6000	3.000 (76)	3.812 (96.8)	53.9 (883)	55@4500

## TRANSMISSION

Type ..... Constant Mesh, Foot Shift  
Speeds ..... 4 Forward

## NUMBER OF SPROCKET TEETH

Engine ..... 34  
Clutch ..... 59  
Transmission ..... 21  
Rear Wheel ..... 48

## OVERALL GEAR RATIOS

First (Low) Gear ... 9.48 Third Gear ..... 4.98  
Second Gear ..... 6.61 Fourth Gear ..... 3.98

## TIRE DATA

### WARNING

For your own personal safety, tires, rims and air valves must be correctly matched to wheel rims. See your Harley-Davidson dealer. Mismatching tires, tubes, rims and air valves may result in damage to the tire bead during mounting or may allow the tire to slip on the rim, possibly causing tire failure. In addition, using tires other than those specified may adversely affect motorcycle stability. Use only tube tires on all Harley-Davidson laced (wire spoke) wheels and tubeless type tires on all Harley-Davidson cast and disc wheels. Protective rubber rim strips must be used with tube type tires when mounted on laced (wire spoked) wheels. Tire sizes are molded on the tire sidewall. Tube sizes are printed on the tube.

1989 DUNLOP TIRES ONLY		TIRE PRESSURE PSI (COLD)	
		FRONT	REAR
Solo Rider	XLH 1200 883	30 26	36 30
Rider & one passenger	XLH 1200 883	30 26	40 32

#### WARNING

Maximum inflation pressure must not exceed specification on tire sidewall.

## FUEL

Use a good quality unleaded gasoline (87 pump octane or higher). Octane rating is usually found on the pump.

#### WARNING

Remove fuel filler cap slowly. Fill fuel tank slowly to prevent spillage. Do not overfill. Do not fill above the

bottom of the filler neck insert. Leave air space to allow for fuel expansion. Expansion can cause an overfilled tank to overflow gasoline through the filler cap onto surrounding areas. After refueling, be sure fuel filler cap is securely tightened.

#### CAUTION

Gasohol spills can stain the paint on your Harley-Davidson.

Today's service station pumps are increasingly of the higher capacity variety. With the high flow of gasoline into a motorcycle tank, air entrapment and pressurization is a possibility. The pressurized air may force gasoline to escape through whatever opening is available within the filler tube. This may not only soil clothing, but may create a potential fire hazard.

### BULB CHART - XLH

LAMP DESCRIPTION (ALL LAMPS 12 V)	NUMBER OF BULBS REQUIRED	CURRENT DRAW (Amperage)	HARLEY-DAVIDSON PART NUMBER
Headlamp	1	3.9/2.73	67698-81A
Tail and Stop Lamp Tail Lamp Stop Lamp	1	0.59 2.1	68165-64
Turn Signal Lamps Front Rear	2 2	2.1 2.1	68165-64 68572-64A
Instrument Lamps High Beam Indicator Oil Pressure Indicator Neutral Indicator Turn Signal Indicator Speedometer Tachometer	1 1 1 1 1 1	0.04 0.08 0.08 0.27 0.27 0.27	68597-86 68489-86 68574-86 68468-86 53439-79 53439-79



## NOTES

## SAFE OPERATING RULES

Before operating your new motorcycle it is your responsibility to read and follow operating and maintenance instructions in this manual, and follow these basic rules for your personal safety.

- Know and respect the rules of the road (see RULES OF THE ROAD). Also read and observe the MOTORCYCLE SAFETY booklets that come with this Owner's Manual. You should also read and know the contents of the MOTORCYCLE HANDBOOK for your state.
- Use only genuine Harley-Davidson approved parts and accessories.
- Gasoline is extremely flammable and is explosive under certain conditions. Refuel in a well ventilated area with the engine turned off. Remove fuel filler cap slowly. Do not smoke or allow open flames or sparks when refueling or servicing the fuel system. Always close the fuel supply valve when the engine is not running to prevent flooding of the carburetor and the surrounding area with gasoline. Do not fill fuel tank above the bottom of the filler neck insert. Leave air space to allow for fuel expansion.
- Motorcycle exhaust contains poisonous carbon monoxide gas. Do not inhale exhaust gases and never run the engine in a closed garage or confined area.
- Before starting engine, check for proper operation of brake, clutch, shifter, throttle controls, correct fuel and oil supply.
- Be sure jiffy stand is fully retracted before riding the motorcycle. If jiffy stand is not fully retracted during vehicle operation, it could contact the road surface causing a momentary disturbance before retracting. This momentary disturbance could distract the rider, possibly causing loss of vehicle control.
- A new motorcycle must be operated according to special break-in procedure. (See BREAK-IN - THE FIRST 500 MILES.)
- Operate motorcycle only at moderate speed and out of traffic until you have become thoroughly familiar with its operation and handling characteristics under all conditions. If you are an inexperienced rider we recommend that you obtain information and formal training in correct motorcycle riding technique.
- Do not exceed the legal speed limit or drive too fast for existing conditions. Always reduce speed when poor driving conditions exist. High speed increases the influence of any other condition affecting stability and possibility of loss of control.

- Pay strict attention to road surfaces and wind conditions. Any two wheeled vehicle may be subject to upsetting forces. Wind blasts from passing trucks, holes in the pavement, rough road surfaces, rider control error, etc., may influence the handling characteristics of your motorcycle. Should this happen, reduce speed and guide the motorcycle with a relaxed grip to a controlled condition. Do not brake abruptly or force the handlebar because this may aggravate an unstable condition. New riders should gain experience under various conditions while driving at moderate speeds.
- Operate your motorcycle defensively. Remember a motorcycle does not afford the same protection as an automobile in an accident. One of the most common accident situations occurs when the driver of the other vehicle fails to see or recognize a motorcycle and turns left into the on-coming motorcyclist. Operate only with headlamp on.
- Wear an approved helmet, clothing and footgear suited to motorcycle riding. Bright or light colors are best for greater visibility in traffic, especially at night. Avoid loose, flowing garments and scarves.
- The exhaust pipes and mufflers get very hot when the engine is running and remain too hot to touch for some time after the engine is turned off. Wear clothing that will completely cover the legs when riding. Avoid contact with the exhaust system.
- When carrying passengers, it is your responsibility to instruct them on proper riding procedures. (See Riding Tips for Motorcyclist included in your Owner's Kit.)
- Do not allow others, under any circumstances, to operate your motorcycle unless you are certain that they are experienced, licensed riders and are familiar with the operation of your particular motorcycle.
- When leaving motorcycle unattended, lock the steering head and remove ignition key from switch. Protect your motorcycle against theft.
- Safe motorcycle operation requires mental awareness and good judgment combined with a defensive driving attitude. Don't allow fatigue, alcohol or drugs to endanger your safety or the safety of others. Vehicles equipped with a sound system should have the volume adjusted to a nondistracting level before operating vehicle.
- Maintain your motorcycle in proper operating condition in accordance with the **MAINTENANCE INTERVALS** in this Owner's Manual. Particularly important to motorcycle stability is the tire inflation

pressure, tread condition, and proper adjustment of wheel bearings and steering head bearings. Do not operate motorcycle with a loose, worn or damaged steering system or front and rear suspension system because handling will be adversely affected. Contact your dealer for repair of steering or suspension system wear or damage.

- Be sure all equipment required by federal, state, and local law is installed and in good operating condition.
- Maintain proper tire pressure and wheel and tire balance. Improper tire and wheel balance and abnormal tread wear can cause poor handling. Inspect your tires periodically. Replace tires with approved tires only. (See your Harley-Davidson dealer.)
- Do not exceed the Gross Vehicle Weight Rating of your motorcycle. Maximum allowable vehicle weights with rider and passenger are specified on the Identification Label affixed to your vehicle. Overloading, particularly at the rear of a motorcycle, can cause instability. Carefully check any approved accessories for the maximum weight capacities.
- Do not tow a trailer.
- Regularly inspect shock absorbers and front forks. Worn parts can affect stability. If you have questions as to how these should function, see your Harley-Davidson dealer.
- Keep hazardous substances such as brake and battery fluids and cleaning compounds away from eyes and skin and out of mouth. Keep all hazardous substances out of the reach of children.
- Consult your dealer regarding any questions you may have about your motorcycle. Should any abnormality occur in the operation of your motorcycle, immediately contact your Harley-Davidson dealer for correction of the problem. Continued operation of a misperforming motorcycle will probably aggravate an initial problem, cause repairs to be more costly and perhaps affect your personal safety.
- The front and rear guards may provide limited leg protection and cosmetic vehicle protection under unique circumstances (i.e., fall to the side while stopped, very slow speed slide). It is not intended to provide protection in a collision with another vehicle or other object.

- California vehicles, equipped with Evaporative Emission controls, have a plugged carburetor overflow fitting. The fuel supply valve on the vehicle should be turned off when the vehicle is not operating. If the fuel supply valve is not turned off when the vehicle is not operating, fuel can drain into the engine, dilute the the engine oil and cause engine damage.
- Do not tow your motorcycle with a tow chain or rope attached to another vehicle and your motorcycle. Impaired steering and handling, because of the force on the chain or rope, may cause loss of control and possible personal injury. If a disabled motorcycle must be transported, use a truck or trailer.
- Always sound your horn, actuate your turn signals and pass on the left side when passing other vehicles going in the same direction. Never try to pass another vehicle going in the same direction at street intersections, on curves, or when going up or down a hill.
- At street intersections give the right-of-way to the vehicle on your right. Do not presume too much when you have the right-of-way; the other driver may not know you have it.
- Always signal when preparing to stop, turn, or pass.
- All traffic signs, including those used for the control of traffic at intersections, should be obeyed promptly and to the letter. SLOW DOWN signs near schools and caution signs at railroad crossings should always be observed and your actions governed accordingly.
- When intending to turn to the left, give signal at least 100 feet before reaching the turning point. Move over to the centerline of the street (unless local rules require otherwise), slow down, enter the intersection of the street and then turn carefully to the left.

## **RULES OF THE ROAD**

- Keep on the right side of the road centerline when meeting other vehicles coming in the opposite direction. Ride to left of center of your lane to avoid possible oily pavement.

- Never anticipate a traffic light. When a change is indicated from GO to STOP (or vice versa) in the traffic control systems at intersections, await the change.
- While turning either right or left, watch for pedestrians as well as vehicles.
- Do not leave the curb or parking area without signaling and being sure that your way is clear to enter moving traffic. A moving line of traffic has the right-of-way.
- Be sure that your license plate is installed in the position specified by law and that it is clearly visible under all conditions. Keep it clean.
- Ride at a safe speed - a speed consistent with the type of highway you are on, and always note whether the road is dry, oily, icy or wet. Each varying condition on the highway means adjusting your speed and driving habits accordingly.

## ACCESSORIES AND CARGO

### WARNING

The addition of accessories and additional weight to this motorcycle can affect the motorcycle's stability, handling characteristics, and safe operating speed. **Because Harley-Davidson cannot test and make specific recommendations concerning every accessory or combination of accessories sold, the rider must be responsible for safe operation of the motorcycle when installing accessories or carrying additional weight. The following guidelines should be used when equipping a motorcycle and carrying passengers and cargo.**

1. **The Gross Vehicle Weight Rating (GVWR) is shown on the information plate located on the frame steering head. GVWR is the sum of the weight of the motorcycle and accessories and the maximum weight of the rider, passenger and cargo that may be safely carried. Do not tow a trailer with this motorcycle. Do not exceed the Gross Vehicle Weight Rating as indicated on the frame label. Overloading the motorcycle or towing a trailer will cause unstable handling and reduced braking efficiency which could result in an accident and personal injury.**

2. Keep cargo weight concentrated close to the motorcycle and as low as possible to minimize the change in the motorcycle's center of gravity. Distribute weight evenly on both sides of the vehicle and do not load bulky items too far behind the rider or add weight to the handlebars or front forks. Do not exceed 15 pounds maximum load on each saddlebag or 25 pounds maximum in Tour Pak.
3. Luggage racks are designed for lightweight items - do not overload racks.
4. Be sure cargo is secure and will not shift while riding. Recheck load periodically.
5. Accessories that change the operator's riding position may increase reaction time and affect handling.
6. Additional electrical equipment may overload the motorcycle's electrical system and cause an unsafe operating condition.
7. The front and rear guard may provide limited leg protection and cosmetic vehicle protection under unique circumstances (i.e., fall to the side while stopped, very slow speed slide). It is not intended to provide protection in a collision with another vehicle or other object.
8. Large surfaces such as fairings, windshields, backrests, and luggage racks can adversely affect handling. These items should be designed and approved by Harley-Davidson specifically for the motorcycle model and be properly installed.

#### **WARNING**

Softail models are special edition, custom motorcycles. They have been carefully designed and engineered to be ridden in the original configuration. **DO NOT** alter the handling characteristics of these motorcycles by adding weight, such as fairings or radios. Do not attempt "custom" alterations such as extended forks on the front end. Present Softail models are not designed for and must **NEVER** be used with a sidecar.

The FXSTS motorcycle was **NOT** designed for sidecar use. The springer fork was **NOT** designed for sidecar use. **DO NOT** use either the motorcycle or the springer fork for this purpose. Use of the vehicle or the fork for this purpose could cause personal injury.

The above constitute misuse of the vehicle. Misuse of the vehicle could adversely affect handling characteristics, posing a potential hazard to the rider.

#### NOTE

This Owner's Manual covers 1989 Harley-Davidson motorcycles. Some features explained are unique to certain models. These features may be available as accessories for your Harley-Davidson vehicle. See your Harley-Davidson dealer for a complete list of accessories that will fit your model.

#### NOTE

Refer to the side-view photographs in the front of the manual to locate the items discussed in this manual.

## IGNITION/LIGHT SWITCH

### WARNING

DO NOT modify the ignition/light switch wiring to circumvent the automatic-on headlight feature. High visibility is an important safety consideration for motorcycle riders.

See Figure 1 and Table 1. The ignition/light key switch controls electrical functions of the motorcycle.

### CAUTION

To prevent theft of your motorcycle, always lock ignition and remove key when motorcycle is left unattended.

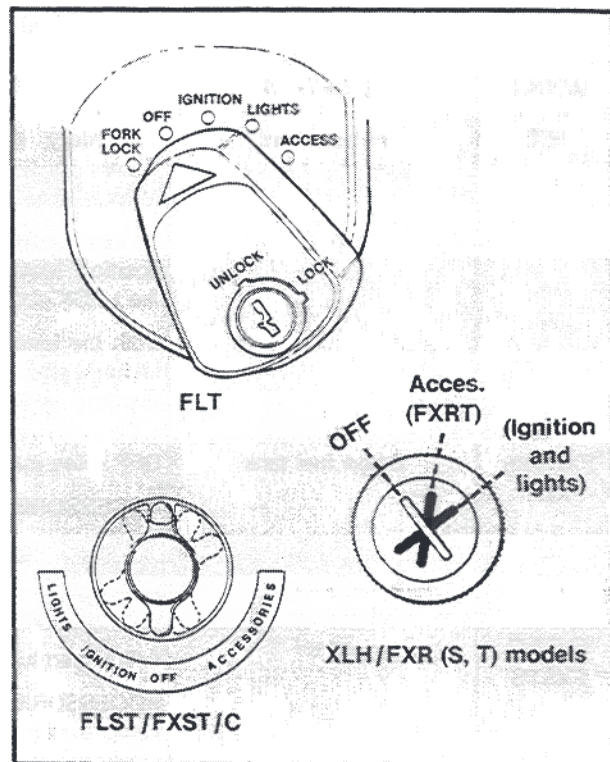


Figure 1. Ignition/Light Key Switch



**Table I. Ignition/Light Switch**

MODEL	LOCATION	SWITCH POSITIONS/FUNCTION
FLT	At bottom of instrument panel	<p>To unlock the switch and the front fork, insert the key and turn it counterclockwise. Press the lever down and turn it to the OFF position. Remove the key after the switch is unlocked.</p> <p>To lock the fork, push down on lever and turn it to the left, to the FORK LOCK position. Move fork to the full left lock position. Turn the key to the right, to the LOCK position.</p> <p>Both the ignition and lights operate when the switch is in the IGNITION and LIGHTS position as required by law in some localities. The ACCESS position operates accessories only.</p>
FXR (all) XLH	Below fuel tank	<p>OFF - Key may be removed, ignition and lights off.</p> <p>ACCESSORIES - (FXRT only) - Operates accessories only.</p> <p>IGNITION - Ignition and lights are ON in both clockwise positions.</p>
FXST/C FLST/C FXSTS	On fuel tank instrument panel	<p>OFF - Ignition, lights and accessories off.</p> <p>LIGHT and IGNITION - Ignition and lights are ON.</p> <p>ACCESSORIES - Accessories are ON. Switch is locked or unlocked by lifting switch cover, inserting key and turning key counterclockwise to lock, clockwise to unlock. Key may be removed in locked or unlocked position.</p>

## ELECTRIC STARTER

See Figure 2. The electric starter switch (9) is located on the right handlebar control. Put engine stop switch (10) in RUN position and transmission in neutral. Turn ignition ON and push the START switch to operate starter motor.

## ENGINE STOP SWITCH

See Figure 2. Engine stop switch (10) is located on the right handlebar control. The engine stop switch turns ignition ON or OFF and should be used at all times to stop the engine, especially in an emergency. To stop engine, push switch to position marked OFF - then turn key to OFF.

### NOTE

*Switch must be in RUN position to operate engine.*

## THROTTLE CONTROL GRIP

See Figure 2. The throttle control grip (11) is located on the right handlebar control. Turn control grip clockwise to close throttle; turn control grip counterclockwise to open throttle.

A spring loaded friction adjusting screw is located at the bottom of the throttle grip clamp. Turn the knob (13) outward so throttle returns to idle position when hand is removed from throttle grip. Turn the knob inward to increase friction on grip as described to provide a damping effect on throttle motion. This reduces rider fatigue on long trips, where steady speeds are maintained. The throttle friction screw **should not** be used under normal stop and go operating conditions.

### WARNING

**Do not overtighten the friction adjustment screw. Operation with the friction screw overtightened is not recommended because of the possible hazard involved when the engine will not return to idle automatically in an emergency.**

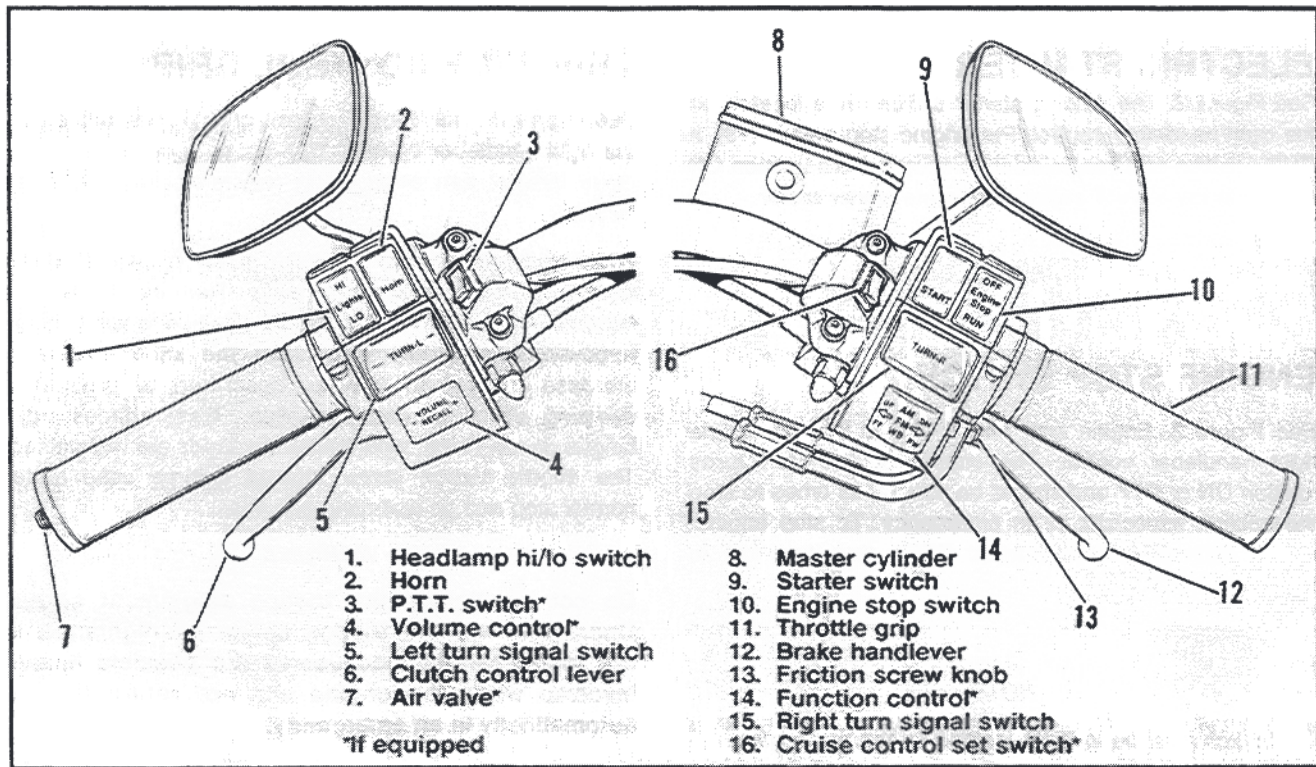


Figure 2. Handlebar Controls

## CHOKE/ENRICHENER

See Figure 3. Engine speed increases as the choke knob is pulled out. By moving the choke/enrichener knob, you adjust the air/fuel mixture to start a cold or warm engine.

The choke knob has four detented positions. In the first position with the choke knob all the way in, the engine operates at low idle speed.

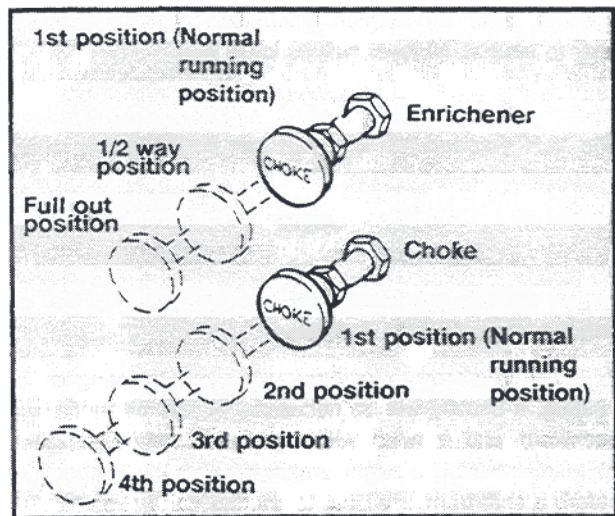


Figure 3. Setting the Choke/Enrichener

Pull choke knob all the way out for cold engine starting. Use the middle detents as the situation requires.

### XLH CONSTANT VELOCITY (C.V.)

#### CARBURETOR ENRICHENER

A constant velocity carburetor uses an "enrichener" instead of a "choke". An enrichener is operated the same way as a choke. There are two differences:

1. When starting a cold engine, the throttle control **MUST BE CLOSED** for the enrichener to work properly .
2. The enrichener has two detents. One full out, one 1/2 way out.

#### NOTE

See *OPERATION* for detailed C.V. carburetor operation.

## CLUTCH HAND LEVER

#### WARNING

**Be sure fingers are not positioned between hand control levers and handlebar grips or operation of these controls could be impaired.**

See Figure 2. The clutch hand lever (6) is located on the left handlebar where it is operated with the fingers of the left hand. Pull lever in against handlebar grip to disengage clutch; release the lever slowly to its outward position to engage clutch.

## GEAR SHIFTER

See Figure 4. The gear shifter is located on the left side, where it is operated with the toe of the left foot.

### NOTE

Some motorcycles have a "heel-toe" shifter lever. With this shift lever, upshifts can be made with the heel of the left foot. Downshifts can be made with the toe.

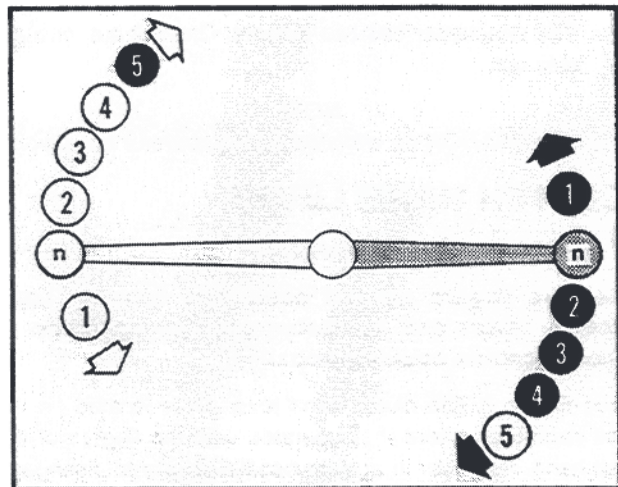


Figure 4. Gear Shifter

Pushing lever all the way down (full stroke) shifts transmission to the next lower gear, while lifting lever all the way up (full stroke) shifts transmission into the next higher gear.

The operator must release the lever after each gear change to allow lever to return to its central position before another gear change can be made.

Neutral position is between first (low) and second gears. First gear is the last gear position that can be found by pushing lever full strokes downward. To shift from first gear to neutral, lift lever half its full stroke.

### NOTE

The XLH 4-speed transmission can be shifted to neutral from first or second gear.

### NOTE

The mechanism on 5-speed transmissions does not permit shifting to neutral from second gear. Neutral can only be engaged from first gear.

With the motorcycle standing still and the engine not running, it usually will be necessary to roll the motorcycle backward and forward with the clutch fully disengaged while maintaining a slight pressure on the foot shift lever before a shift from one gear to another can be made.

Even with the engine running and the motorcycle standing still, difficulty may be experienced in shifting gears. This difficulty arises when transmission gears are not turning and shifting parts are not lined up to permit engagement. When this difficulty is experienced, *do not under any circumstances*, attempt to force the shift. The results of such abuse will be a damaged or broken shifter mechanism. Either roll the motorcycle as indicated above, or if the engine is running, engage the clutch very slightly while applying light pressure to the shifter lever to make the shift. Both of these procedures set transmission gears in motion and then the shift can be made easily. See Shifting Gears in the OPERATION section.

## BRAKES

The brake pedal controls the rear wheel brake and is located on the right side where it is operated by the right foot. See Figure 2. The brake hand lever (12) controls the front wheel brake and is located on the right handlebar, where it is operated by the fingers of the right hand.

Brakes should be applied uniformly and evenly to prevent wheels from locking up. A balance between rear and front braking is generally best.

## WARNING

**Do not apply either brake strongly enough to lock the wheel. This may cause the wheel to skid with possible loss of control of the motorcycle.**

## HORN SWITCH

See Figure 2. The horn is operated by the horn switch (2) on the left handlebar control.

## PASSING LAMP SWITCH- FLT MODELS

See Figure 5. Use the passing lamp switch to turn on the passing lamps as required.

### NOTE

*The passing lamps do not work when the headlamp is on high beam.*

## HEADLAMP DIMMER SWITCH

See Figure 2. The headlamp dimmer switch (1) on the left handlebar controls the headlamp high and low beams.

### NOTE

*The beam (blue) indicator light remains lit when high beam is on.*

# CRUISE CONTROL - ULTRA MODELS

## Theory of Operation

The Harley-Davidson cruise control is designed to be safely operated with a minimum of movement by the rider. It has been designed so all rider control actions are natural and easy.

### NOTE

- Remember; the rider always over-rides and controls the system.
- The system is managed by a small computer that gets its operation information from ENGINE SPEED, via the tachometer.
- Besides the computer, the system has other components: a servo-motor (controlled by the computer), which operates the throttle during CRUISE operation, a clutch which disengages the servomotor during non-cruise operation and several internal switches, all sending information to the computer.
- The system does not have "RESUME" or "ACCELERATE" features. They were designed out of the system.

- Because the system is driven by engine speed, it does not work well at speeds below 40 mph. Always operate the cruise control at speeds above 40 mph, in 4<sup>th</sup> or 5<sup>th</sup> gear (preferably 5<sup>th</sup>).
- System will allow rider to increase speed 10 mph or more (depending on how hard the rider rolls on the throttle and the condition of the bike) over the "SET" point before de-activating. This feature allows the rider to momentarily increase speed, if necessary. Rolling on the throttle to greatly increase speed may de-activate the system.

## Controls (Figures 2 and 5 and Table 2)

There are two rider-operated control switches:

1. An "ON/OFF" switch located:
  - FLTC - on the front of the instrument pod.
  - FLHTC - on the far right of the inner fairing.

This switch turns the system on or off.

### NOTE

The red light will come on to indicate the system is **ON**. If the red light does **NOT** come on, the system is **NOT ON**, you cannot "SET" speed - see your Dealer.

2. A "SET" switch located in the right handlebar control group.

Momentarily depress this switch to set the speed you want the system to maintain.

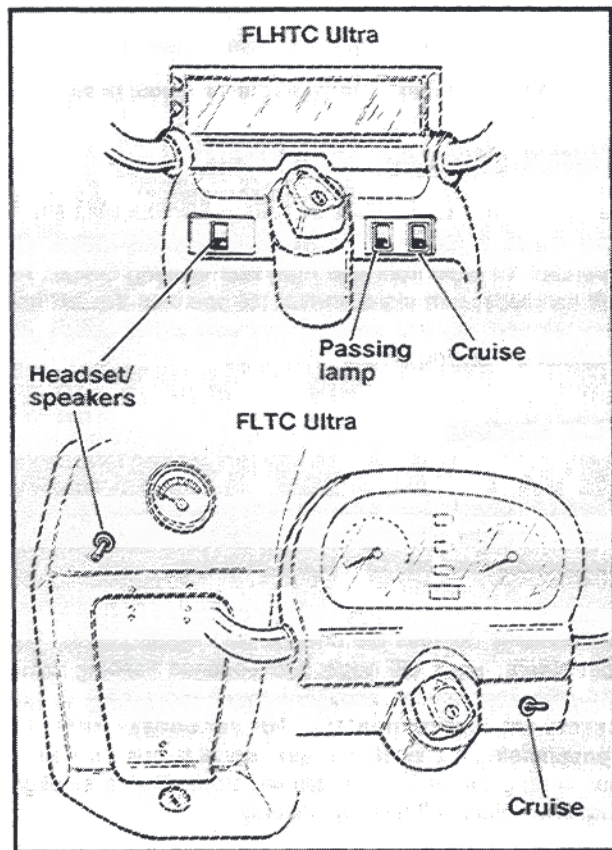


Figure 5. Cruise, Headset, Passing lamp Controls

## Operation

### NOTE

The cruise control system is not intended for use :

- in heavy traffic.
- on roads with sharp or blind curves.
- on slippery roads of any kind.

### Turn On/Activate the System:

1. Turn the fairing/pod mounted "ON/OFF" switch to the ON position.
2. Increase motorcycle speed to the desired cruising speed.
3. Momentarily depress the "SET" switch to set the speed. The system will quickly (approximately 1 1/2 seconds or less) begin to maintain the desired motorcycle speed.
4. The system has a "decelerate" function. Press the switch and release to reduce speed in 1 mph increments. Press and hold the switch in to reduce speed continuously, at approximately 1 mph per second.



## De-Activate/Turn Off the System:

There are several ways to de-activate/turn off the system:

- Roll the throttle OFF (to the stop).
- Pull in the clutch lever (disengage the clutch).
- Engage either or both brake(s).

The above actions temporarily de-activate (disengage) the system. The system will still be **ON** and ready to operate if you **SET** it again. It will not resume the previous setting automatically.

- Turn the fairing/pod mounted “ON/OFF” switch **OFF**. (This action turns the system **OFF** until you turn it **ON** again.)

### NOTE

*System WILL NOT work if:*

- *Rider operates bike at engine speeds below 2000 rpm.*
- *Brake light bulb is burned out.*
- *Throttle cables are too tight. (See Dealer.)*

- *Brake light is on constantly. (See Dealer.)*
- *Front brake light switch is out of adjustment. (See Dealer.)*

## TURN SIGNAL SWITCHES

See Figure 2. The right handlebar turn signal switch (15) operates the right front and right rear flashing lamps. The left handlebar turn signal switch (5) operates the left front and left rear flashing lamps. Front-turn signal lamps also function as running lamps.

## FLT Models

The FLT Models turn signal switches are controlled by a small computer which gets its operation information from the speedometer and turn signal switches.

Momentarily depress the desired turn signal switch. The turn signal lamps will begin and continue flashing. When the computer senses enough forward movement (a time period of approximately 10 seconds) from the speedometer, it cancels the turn signal lamps. If you are not moving forward, (for example; stopped at a stoplight) the turn signals will flash indefinitely.

#### NOTE

*If you have one turn signal flashing and you depress the switch for the opposite signal, the first signal is canceled and the opposite signal begins flashing.*

If you are stopped and want to stop the lamps from flashing, briefly depress the turn signal switch. The turn signal lamps will stop flashing.

## HAZARD WARNING FLASHER - FLT MODELS

The hazard warning flasher operates all four turn signal lamps at the same time. It is controlled by the turn signal switches. The hazard warning flasher will operate when the ignition switch is in the ignition, lights or access position.

Turn on the emergency 4-way flasher by momentarily (approximately 1 1/2 seconds) depressing BOTH turn signal switches at once. Turn off the 4-way flasher the same way.

## SOUND SYSTEM CONTROLS

See Figures 2, 5 thru 8 and Table 2 for sound system controls. For a more detailed explanation of the sound system controls, read the Harley-Davidson Premium Sound System Handbook.

#### WARNING

On **ULTRA-GLIDES** If the **C.B.** is **ON** to monitor incoming transmissions at the same time the stereo is **ON**, the **C.B.** will mute the stereo. If you have compensated for the muting effect by turning up the stereo, turning off **C.B.** will stop the muting effect and the stereo will be loud. This can be startling and possibly distract you from motorcycle operation. Turn music **DOWN** before turning **OFF C.B.**

#### NOTE

*Headsets are not on AVC circuit.*

**Table 2. Sound System Handlebar Controls Summary**

LEFT - Volume / Recall Control	RIGHT - Receiver / Tape Function Control
<p><b>Volume :</b> Forward - Louder (+) Back - softer (-)</p> <p><b>Recall :</b> Press to show Receiver LCD display <b>NOT</b> being shown.</p> <p><b>NOTE</b> Set handlebar control to desired volume level; AVC circuit will raise or lower volume as vehicle speed increases or decreases.</p>	<p><b>Receiver Functions</b> Push <b>IN</b> - AM / FM / WB Selection <b>DN</b> - Seek / Scan (<b>Down</b> scale) <b>UP</b> - Seek / Scan (<b>UP</b> scale)</p> <p><b>Tape Functions</b> Push <b>FF</b> - Fast Forward Tape (Fast Forward) <b>RW</b> - Rewind Tape (<b>ReWind</b>)</p>

**Ultra-Glide - Sound System/Intercom/C.B. Additional Controls Summary**

Rider Manual Controls		Passenger Manual Controls	
<p><b>Push To Talk Switch (PTT):</b> (C.B. must be <b>ON</b> to transmit.) (Release PTT to receive)</p> <p><b>Fairing/Pod switches:</b></p>	<p>(Handlebar) Press &amp; hold to transmit on <b>C.B.</b> or speak on <b>Intercom</b> when <b>C.B.</b> &amp; intercom are <b>OFF</b>. (Over-rides &amp; mutes music on all speakers &amp; headsets)</p> <p><b>Left</b> Switches music between headsets or external speakers</p> <p><b>Right</b> Cruise control &amp; passing lamps</p>	<p>Control rear speakers/amp-lifier, tuner &amp; intercom</p> <p><b>Volume control:</b> (Will not go louder than front amplifier/speakers)</p> <p><b>Tuner Function control:</b></p>	<p>(Bottom of right rear speaker enclosure)</p> <p>Includes Push To Talk Switch (PTT) for <b>intercom</b> &amp; <b>C.B.</b> (Over-rides intercom <b>OFF</b>)</p> <p>Includes same Functions as <b>RIGHT - Receiver / Tape Function Control</b> above.</p>
<p><b>Console Control Panel – C.B./Intercom Controls</b></p>			
<p>(Left to right, top)</p>		<p>(Left to right, bottom)</p>	
<p><b>C.B. Vol:</b></p>	<p>Reception volume control</p>	<p><b>Intercom:</b></p>	<p>On/off</p>
<p><b>Channel:</b></p>	<p>C.B. channel display only</p>	<p><b>Up/Down:</b></p>	<p>Channel selector</p>
<p><b>Squelch:</b></p>	<p>Tune to reduce noise</p>	<p><b>Local/DX:</b></p>	<p>Local/Distance</p>
<p><b>Voice-Activated Control</b></p>		<p><b>WARNING</b></p>	
<p><b>Intercom</b> switch must be <b>ON</b>.</p>	<p>Speaking activates intercom system on headset.</p>	<p>If <b>C.B.</b> is <b>ON</b> to monitor, at same time stereo is <b>ON</b>, it will mute the stereo. If you have compensated for the muting effect by turning up the stereo, turning off <b>C.B.</b> will allow stereo to be very loud. Turn music <b>DOWN</b> before turning <b>OFF C.B.</b></p>	
<p>(Microphone will be live)</p>	<p>(Over-rides &amp; mutes music on ALL speakers &amp; headsets)</p>	<p><i>NOTE: Headsets are not on AVC circuit.</i></p>	

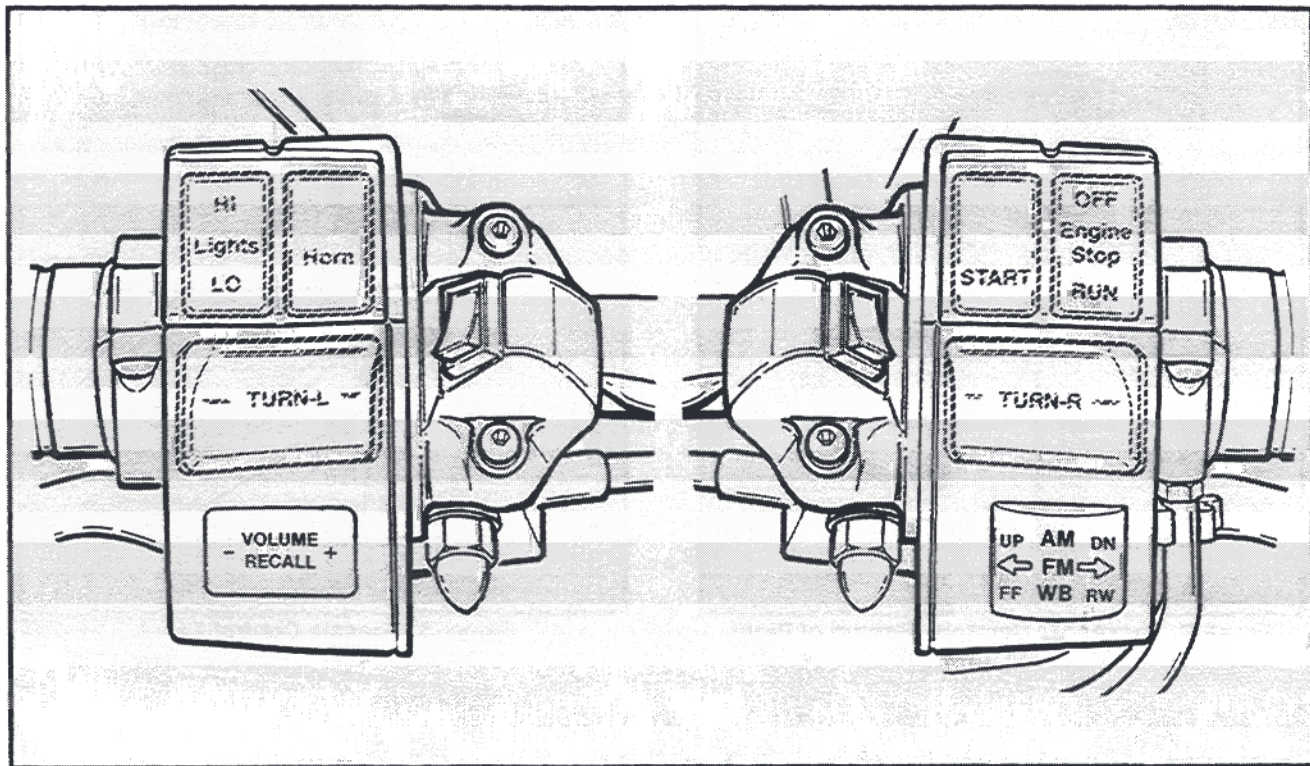


Figure 6. Sound System/Cruise Control Handlebar Controls

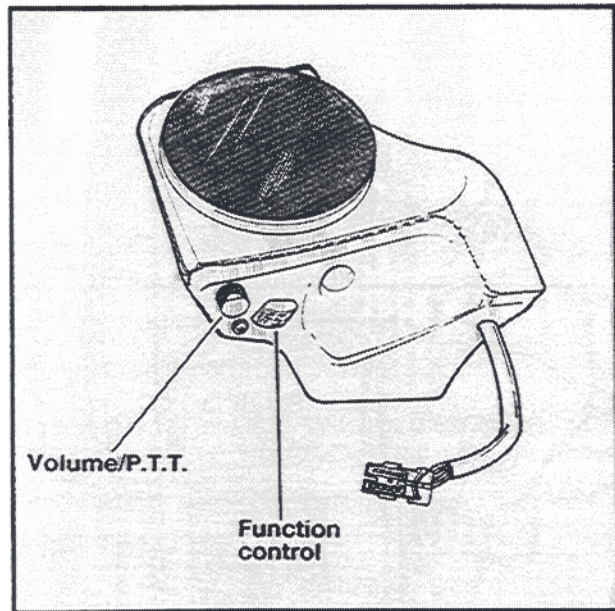


Figure 7. Passenger Controls (Bottom of Right Rear Speaker)

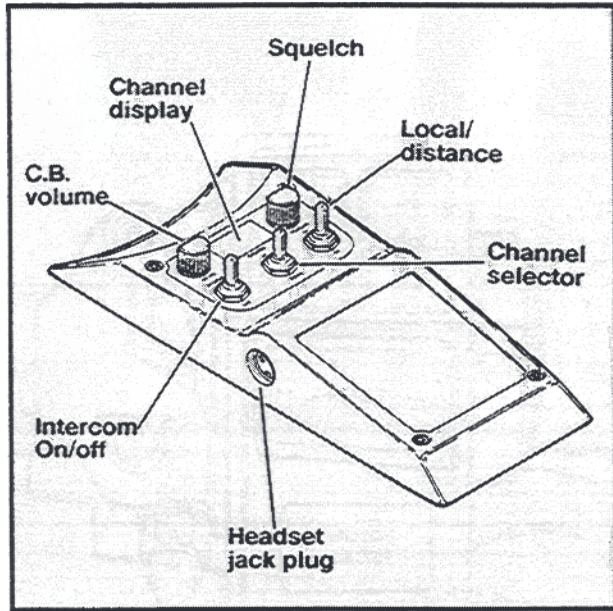


Figure 8. Console Control Panel

## INDICATOR LIGHTS

Four or five indicator lights are provided.

The **red** OIL indicator light, when on, signals that oil is not circulating through the engine. The OIL indicator light will glow when the ignition is turned on prior to starting engine. With engine running, light should be off when engine speed is above idle.

The **blue** BEAM indicator light, when on, signals that the high beam headlamp filament is operating.

The **green** NEUTRAL light turns on to indicate when transmission is in neutral.

The **yellow** TURN indicator will flash when turn signals are activated. On motorcycles with two TURN indicators, the flashing indicates turn direction. Motorcycles equipped with 4-way hazard flashers will flash both turn indicators when the hazard flashers are operating.

If the oil pressure indicator light does not go off at speeds above idling, it is usually because of an empty oil tank or diluted oil. In freezing weather the oil feed may clog with ice and sludge, thus preventing circulation of the oil. A grounded oil signal switch wire, faulty signal switch,

damaged or improperly installed check valve and/or trouble with the pump will also cause the light to remain illuminated.

### CAUTION

**If the oil pressure indicator light fails to go off, always check the oil supply first. If oil supply is normal and the light still does not operate normally, stop the engine at once and do not drive further until the trouble is located and the necessary repairs are made.**

## TACHOMETER

See Figure 9. If so equipped, the tachometer registers the engine speed in revolutions per minute (rpm).

### CAUTION

**Do not operate the engine above maximum safe RPM as shown in Table 6 (red zone on tachometer). Engine damage may occur. Lower the RPM by upshifting to a higher gear or reducing the amount of throttle.**

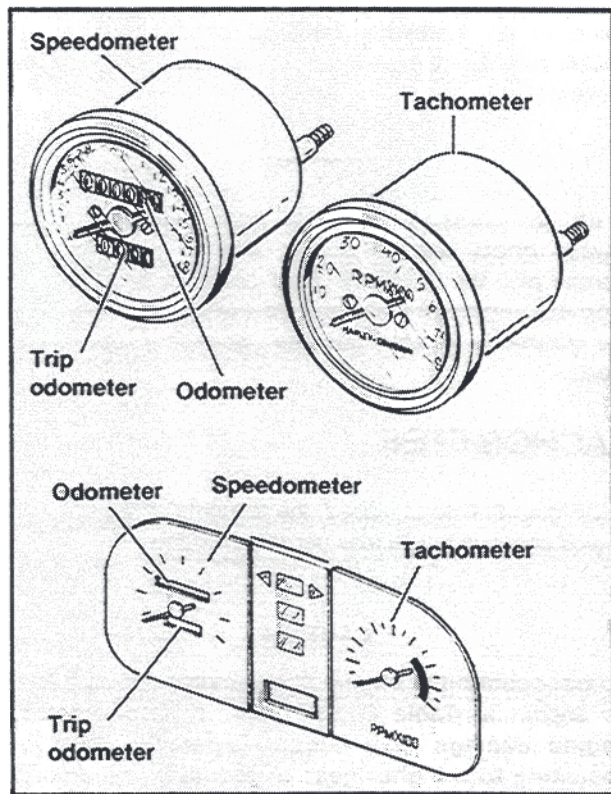


Figure 9. Speedometer, Odometer, Tachometer

## SPEEDOMETER/ODOMETER

See Figure 9. The speedometer registers miles per hour of forward speed. The odometer registers the number of miles the vehicle has traveled.

### WARNING

Never travel at a speed faster than the posted speed limit. Excessive speed could cause possible loss of control.

### CAUTION

Never attempt to tamper with or alter the vehicle odometer. This is illegal and the speedometer will be damaged.

Use the trip-odometer to register number of miles traveled on a trip or between refueling. Use the knurled knob on the speedometer or dash panel to reset the trip odometer to zero.

## MIRRORS (CONVEX)

See Figure 10. Your vehicle is equipped with convex mirrors. A convex mirror has a curved surface. This type of mirror is designed to give a much wider view to the rear than a flat mirror. However, cars and other objects seen in this type of mirror will look smaller and farther away than when seen in a flat mirror. Therefore you must use care when judging the size or distance of objects seen in these mirrors.

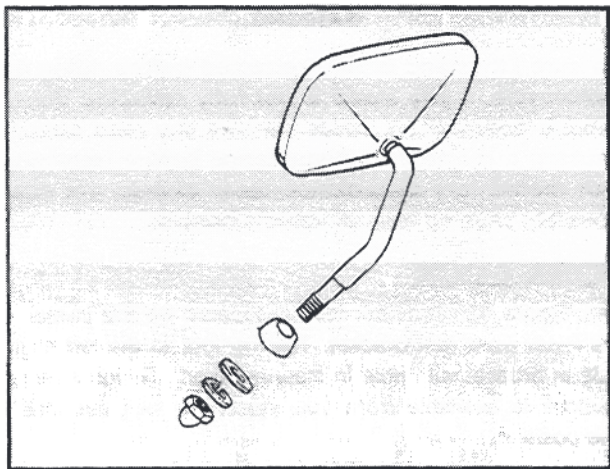


Figure 10. Mirror

## WARNING

**Objects in mirrors are closer than they appear.**

Adjust the mirrors to clearly reflect the area behind the motorcycle.

## NOTE

*Adjust mirrors so you can see a small portion of your shoulders in each mirror. This will help you establish the relative distance of vehicles to the rear of your vehicle.*

## OIL PRESSURE GAUGE

The oil pressure gauge registers engine oil pressure. Engine oil pressure will normally vary from 5 psi at idle speed to 12 - 15 psi at 50 mph when engine is at normal operating temperature.

## VOLTMETER

The voltmeter indicates electrical system voltage. With the engine running above 1500 rpm, the voltmeter should register 13 - 14.5 volts with battery at full charge.



## CLOCK (In Radio)

The clock runs continually as long as there is battery power. See the Harley-Davidson Premium Sound System Handbook to reset.

## FUEL GAUGE

The fuel gauge indicates the approximate amount of fuel in the fuel tanks.

### NOTE

*The FXRS left-side fuel cap is a fuel gauge only. Do not remove.*

## JIFFY STAND

See Figure 11. The jiffy stand is located on the left side of the motorcycle and swings outward to support the motorcycle for parking.

### CAUTION

**Always park the motorcycle on a level, firm surface. Vehicle weight could cause motorcycle to fall over. Cosmetic damage could occur.**

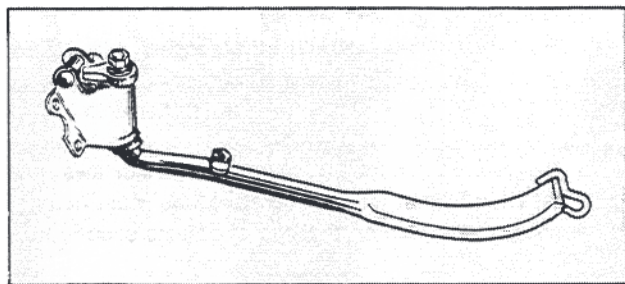


Figure 11. Jiffy Stand (Typical)

### WARNING

**Be sure jiffy stand is fully retracted before riding the motorcycle. If jiffy stand is not fully retracted during vehicle operation, it could contact the road surface causing a momentary disturbance before retracting. This momentary disturbance could distract the rider, possibly causing loss of vehicle control.**

## FORK LOCK

See Figure 12. The fork lock is located on the center of the lower front fork bracket. Turning fork to the left aligns hole in bracket with hole in steering head. A high strength padlock is available from your dealer to lock the fork in this position.

Order Part No. 45737-72A. Use of the padlock will discourage unauthorized use or theft when parking your motorcycle.

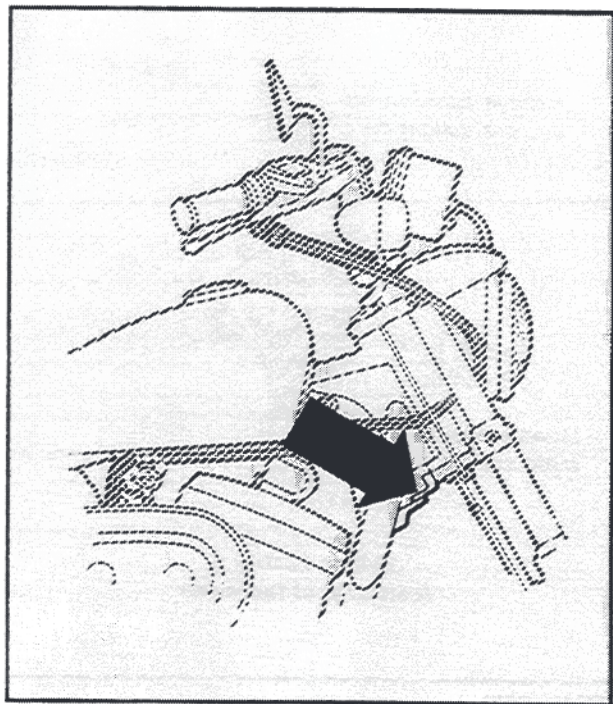


Figure 12. Fork Lock - All Models Except FLT's

#### NOTE

*FLT models have the fork lock incorporated in the Ignition/Light switch. See Table 1, IGNITION/LIGHT SWITCH.*

#### WARNING

**Do not operate vehicle with forks locked. This will restrict the vehicle's turning ability and could cause personal injury.**

#### FUEL SUPPLY VALVE

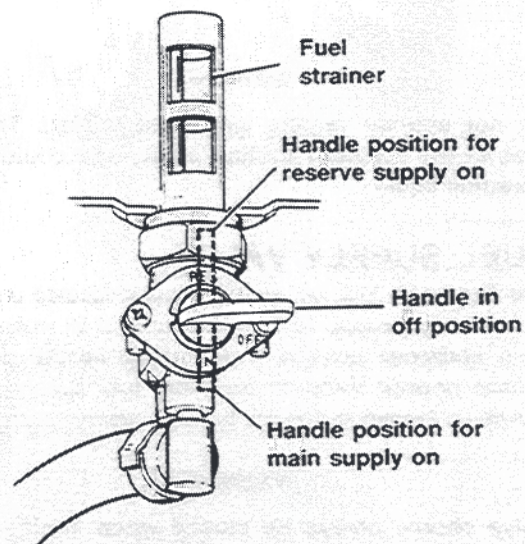
See Figure 13. The fuel supply valve is located under the fuel tank. Fuel supply to carburetor is shut off when handle is in horizontal position. Turning the handle down to vertical position turns on the main fuel supply; turning handle up to vertical position turns on reserve supply.

#### WARNING

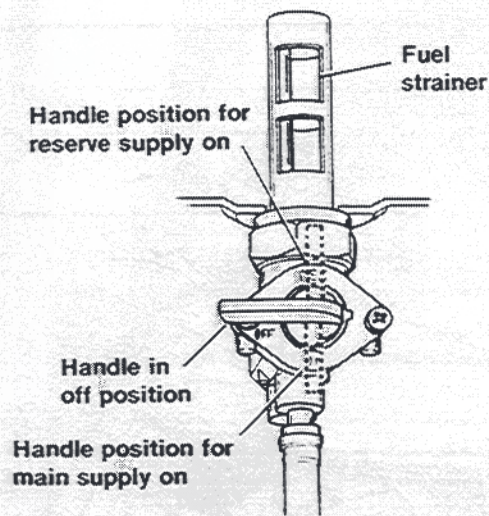
**Valve should always be closed when engine is not running to prevent accidentally flooding engine or surroundings with gasoline.**

#### NOTE

*To always maintain a reserve supply, do not operate the motorcycle with the valve in the reserve (RES) position after refueling.*



**XLH MODELS**  
(Right side of fuel tank)



**1340cc MODELS**  
(Left side of fuel tank)

Figure 13. Fuel Supply Valve

## FUEL FILLER CAP (Figure 14)

To open, turn cap counterclockwise and lift up. To close turn cap clockwise until it clicks. The ratchet action of the fuel cap prevents overtightening.

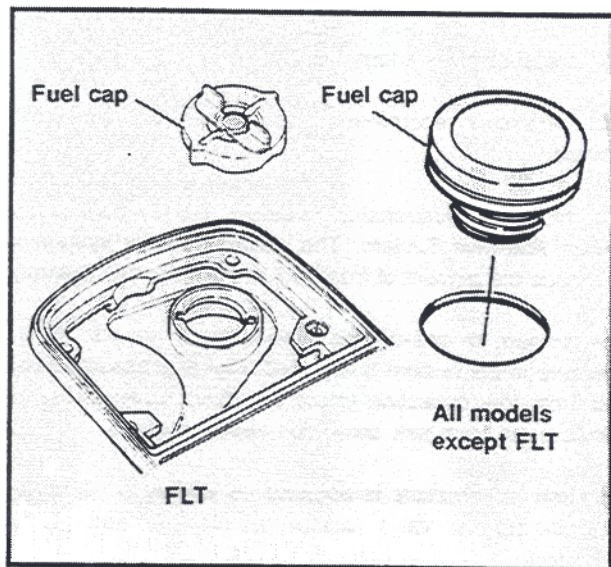


Figure 14. Fuel Filler Cap

### NOTE

*FLT filler caps are located beneath a door and do not have a ratchet action. The filler cap should be fully closed before closing the fuel door.*

### NOTE

*Some models have a dual tank configuration. The left side tank cap has a left hand thread. Operation of fuel filler cap is just the opposite of right hand fuel filler cap.*

### WARNING

Remove fuel filler cap slowly. Fill fuel tank slowly to prevent fuel spillage. Do not fill above the bottom of the filler neck insert. Leave air space to allow for fuel expansion. Expansion can cause an overfilled tank to overflow fuel through the filler cap vent onto surrounding areas. After refueling, be sure filler cap is securely tightened

### WARNING

Do not use decorative "spinner" or "bullet" type fuel cap covers, which may possibly cause loosening of the cap from the tank upon impact.

### CAUTION

Gasohol spills can stain the paint on your Harley-Davidson.

## SUSPENSION ADJUSTMENTS

See Table 3 for instructions on suspension adjustments.

**Table 3. Suspension Adjustments**

MODEL	ADJUSTMENT PROCEDURE
FLT Models	Procedure A
FXRT & FXRS-SP (Front only)	Procedure B
FLST/C FXST/C FXSTS	Procedure C
XLH, FXLR FXR, FXRS-SP (Rear only)	Procedure D

## PROCEDURE A ADJUSTABLE AIR SUSPENSION

### FLT Models

See Figure 15. The FLT models feature air-adjustable suspension. Air pressure may be varied to suit your own personal comfort. Lower pressure gives a softer ride and high pressure gives a firmer ride.

Table 4 shows recommended pressures for your riding comfort.

This front air suspension features Harley-Davidson's unique Anti-Dive System. The purpose of this system is to reduce the amount of front fork deflection while braking.

The amount of anti-dive is automatically set as the air pressure in the system is adjusted. Higher pressure allows less front fork deflection (more anti-dive). Lower pressure allows more front fork deflection (less anti-dive).

The front air pressure is adjusted by adding or removing air from the air valve located at the left end of the handlebar.

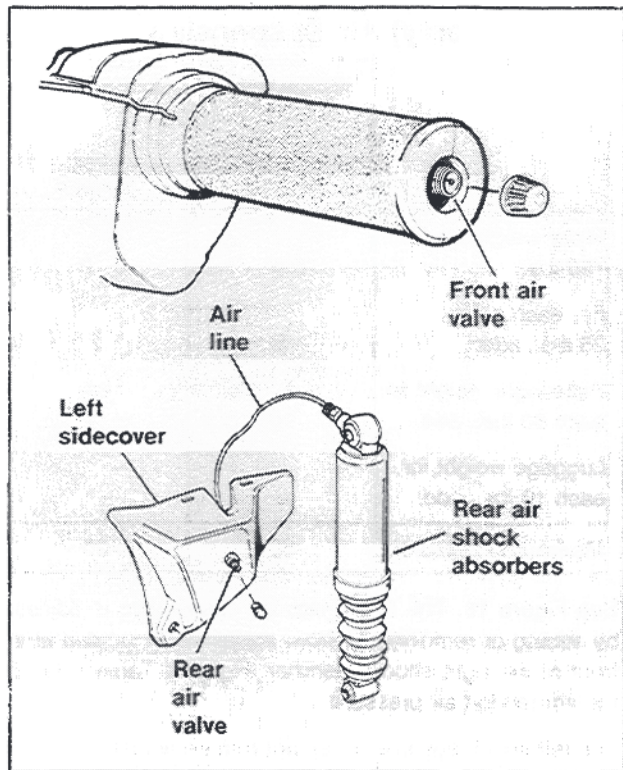


Figure 15. Air Suspension Components - FLT Models

#### CAUTION

Front suspension pressures over 25 psi or less than 10 psi are not recommended. Damage to air control components can result.

Rear air suspension is adjusted by adding or removing air from the air valve located on the left sidecover below the passenger seat. See Table 4 for the recommended air pressure.

Table 4. FLT Air Suspension

LOADING	RECOMMENDED PRESSURES (PSI)	
	SHOCK	FORKS
Rider weight up to 150 lbs:	0	15
For each extra 25 lbs., add:	1.5	-
Passenger weight for each 50 lbs., add:	1.5	-
Luggage weight for each 10 lbs., add:	-	1
Maximum Pressures:	20	25

### CAUTION

Maximum air pressure of this system is 25 psi. Air components fill rapidly. To avoid possible damage to components, use low air line pressure. Pressure in front forks and air shocks should be checked weekly if in daily use or before each trip if used occasionally.

## PROCEDURE B ADJUSTABLE AIR SUSPENSION FXRT and FXRS-SP (Front only)

The FXRT features air adjustable suspension front and split shock rear air adjustable suspension. The FXRS-SP has air adjustable front suspension. See Table 5 for recommended air pressures:

**Table 5. FXRT and FXRS-SP (Front only) Air Suspension**

LOADING	RECOMMENDED PRESSURES (PSI)	
	SHOCK	FORKS
Rider weight up to 150 lbs:	0-5	8-12
For each extra 25 lbs., add:	5	2
Passenger weight for each 50 lbs., add:	10	1
Luggage weight for each 10 lbs., add:	3	-
Maximum Pressures:	60	20

See Figure 16. The FXRT rear air suspension is adjusted by adding or removing air from the air valve located at the front of the right shock absorber. Refer to Table 5 for the recommended air pressure.

The left shock absorber does not require adjustment.

See Procedure D to adjust FXRS-SP rear suspension.

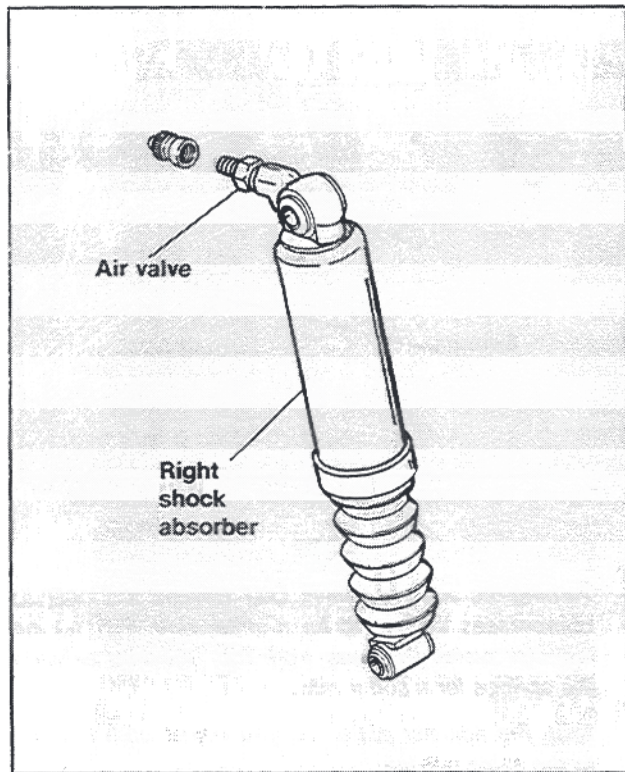


Figure 16. Right Rear Shock Absorber - FXRT

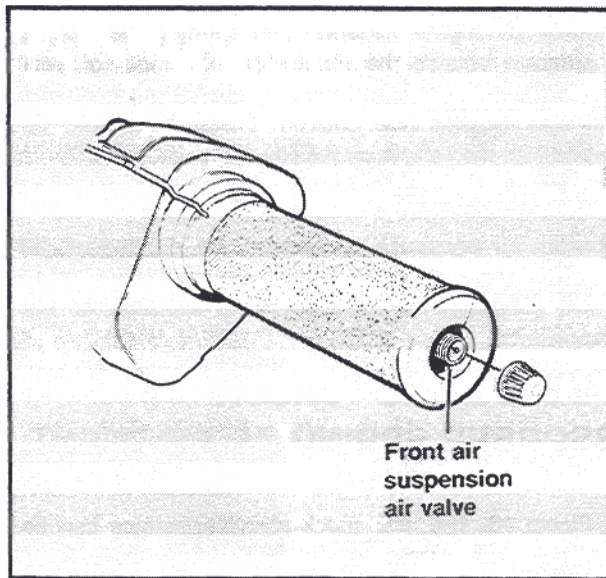


Figure 17. Front Air Suspension - FXRT, FXRS-SP

See Figure 17. The front suspension air pressure is adjusted by adding or removing air from the air valve located at the left end of the handlebars. Refer to Table 5 for the recommended air pressure.



The preferred pressure for your personal riding comfort can be selected from Table 5. Lower pressure gives a softer ride and higher pressure gives a firmer ride. Setting the pressure outside the recommended range for your loading will result in a reduction of available suspension travel and reduced ride comfort. Pressures should be adjusted with the vehicle on the jiffy stand.

#### WARNING

Maximum air pressure should not be exceeded. All air components fill rapidly and we recommend low air line pressure be used to avoid damage to the components.

## PROCEDURE C - SHOCK ABSORBER SPRING ADJUSTMENT Softtail Models

See Figure 18. The rear shock absorber springs can be adjusted for the weight the motorcycle is to carry. The shock absorbers springs are variable over a wide range. A spanner wrench for this purpose is available from your Harley-Davidson dealer.

To change the spring compression:

- 1 Loosen the locknuts.
- 2 Use the spanner wrench and extend or compress the springs to the desired position.

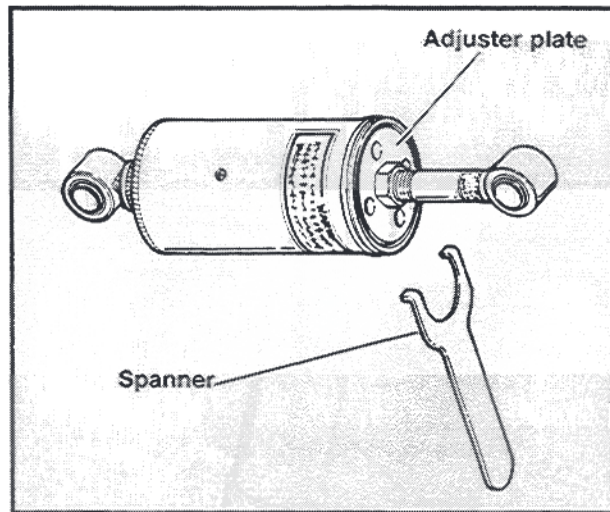


Figure 18. Shock Adjustment - Softtail Models

#### NOTE

- Turning the adjuster plates *OUT* (toward the locknut) compresses the spring for a stiffer ride. Turning the adjuster plates *IN* (away from the locknut) extends the springs for a softer ride.
  - Mark the adjuster plates so you adjust both springs to the same position.
3. Tighten the locknuts against the adjuster plates.

### WARNING

Both shock absorber adjuster plates must be adjusted to the same position. Not having the springs adjusted to the same length could cause handling difficulties.

The average weight solo rider might use the extended (fully IN) spring position. A heavy solo rider might require the position with springs slightly compressed; a rider and passenger may require the compressed spring position (fully OUT). Experimentation will show you what the best spring positions are for you.

## PROCEDURE D - SHOCK ABSORBER SPRING ADJUSTMENT FXR, FXRS/SP, XLH Models

See Figure 19. The rear shock absorber spring preload can be adjusted for the weight the motorcycle is to carry. The shock absorbers have five preload positions. The average weight solo rider might use the extended spring preload position (off cam or first cam step). A heavy solo rider might require additional preload (second or third cam step); a rider and passenger may require maximum preload (fifth cam step).

To adjust the rear shock absorber springs, turn cushion spring adjusting cam to the desired position with a spanner wrench.

### WARNING

Both shock absorber spring adjusting cams must be adjusted to the same position. Not having the cams adjusted to the same position could cause handling difficulties.

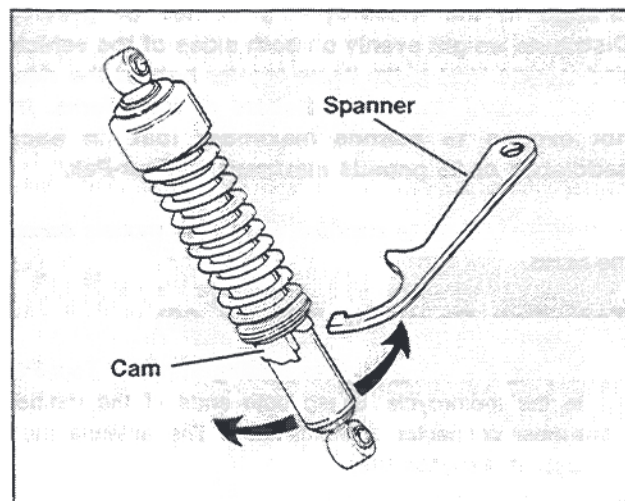


Figure 19. Shock Adjustment - FXR, XLH

When returning to off-cam position, cams should be backed off in opposite direction. A spanner wrench for this purpose is available from your Harley-Davidson dealer.

## LUGGAGE

### FLT Models

#### WARNING

Keep cargo weight concentrated close to the motorcycle and as low as possible to minimize the change in the motorcycle's center of gravity. Distribute weight evenly on both sides of the vehicle and do not load bulky items too far behind the rider or add weight to the handlebars or front forks. Do not exceed 15 pounds maximum load in each saddlebag or 25 pounds maximum in Tour-Pak.

The King Tour-Pak is standard on all FLT models except the FLHS.

### Tour-Pak Removal (Figure 20)

1. Unplug the wiring harness leading from the Tour-Pak to the motorcycle. Grasp both ends of the molded rubber connector and pull apart. The antenna must also be disconnected.

#### CAUTION

**Do not pull on the wires because this may break them.**

2. Open Tour-Pak and remove mat at bottom of Tour-Pak exposing bolt heads.
3. Remove bolts and washers with wrench at inside of Tour-Pak. Remove Tour-Pak from luggage rack.

#### NOTE

*The Tour-Pak can be moved forward or back by selecting different bolt holes in the bottom of the Tour-Pak body. This allows you to adjust the passenger backrest forwards or backwards approximately 1 1/4 inches. The motorcycle is shipped with the Tour-Pak in the forward position*

#### NOTE

- *When reinstalling King Tour-Pak, reconnect lights at the rubber connector.*
- *Tour-Pak drawcatches should be closed whenever motorcycle is in operation.*

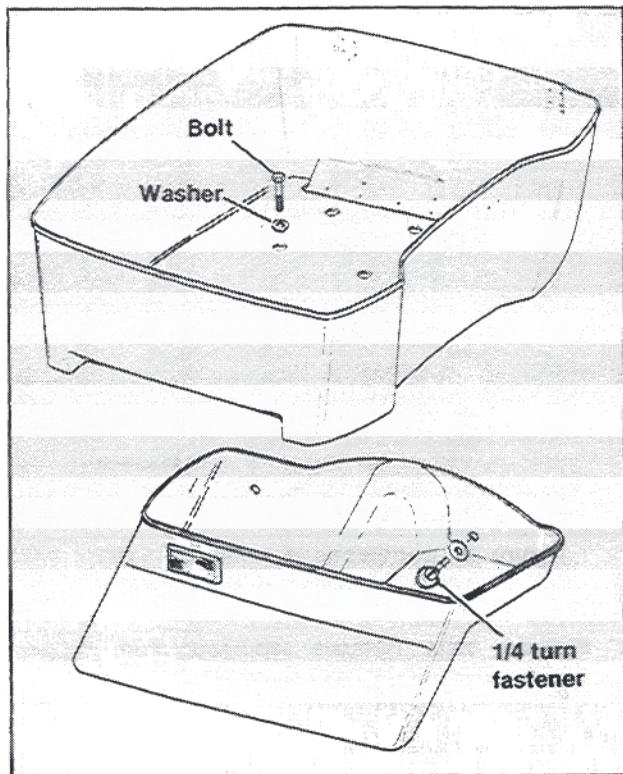


Figure 20. Tour-Pak & Saddlebag Installation-FLT

#### WARNING

The Tour-Pak supports the passenger backrest. Check the Tour-Pak mounting bolts periodically for tightness. Be sure that they are in good condition and tightened properly when installing the Tour-Pak.

#### Saddlebag Removal (Figures 20 and 21)

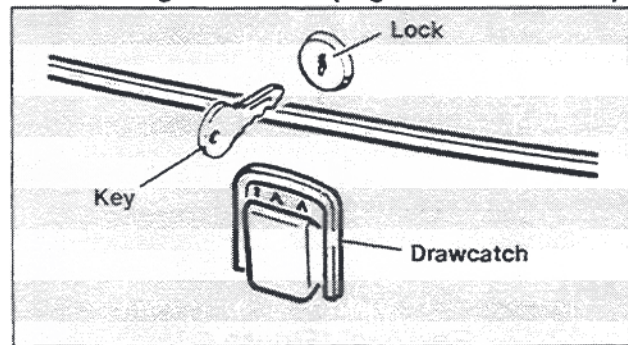


Figure 21. Lock and Drawcatch

The saddlebags must be removed from the motorcycle when performing some operations.

To remove saddlebags:

1. Unlock the lock, lift the drawcatch up. Lift the cover off.

2. Lift wire loop and turn the 1/4 turn fasteners counterclockwise until they release. Lift the saddlebag free of motorcycle.

*NOTE*

*When installing saddlebag covers, be sure that the covers are engaged in the catch at the front ends. If catches are not engaged, the covers may come loose during vehicle operation.*

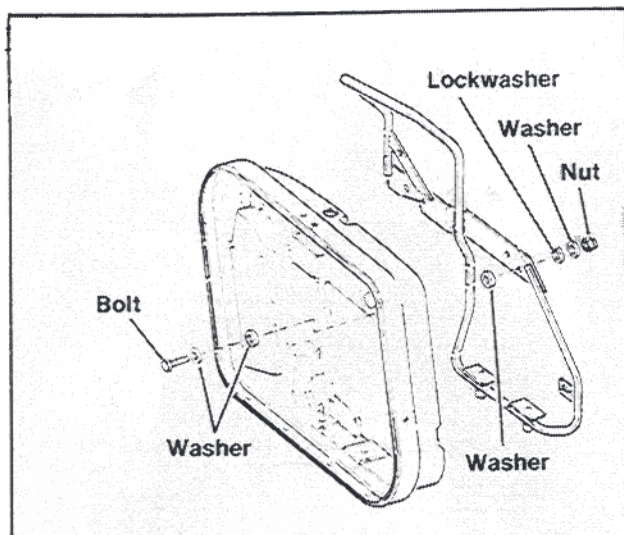
*NOTE*

*Saddlebag and Tour-pak drawcatches should be closed whenever motorcycle is in operation.*

## **FXRT**

### **Saddlebag Removal (Figure 22)**

1. Hold bolts with wrench at inside of saddlebag. Remove the nuts behind the saddlebag support bracket.
2. Remove bolts. Remove saddlebag from support bracket.



**Figure 22. Saddlebag Installation - FXRT**

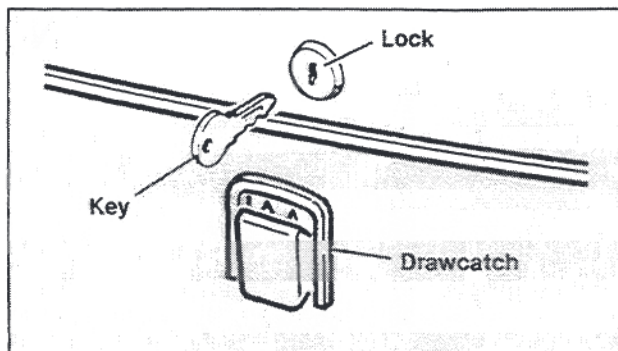
See Figure 23. The saddlebags and Tour-Pak open with a lock and a drawcatch. Drawcatch can be unlocked by inserting key in lock and turning key to horizontal position. Lift drawcatch up and open saddlebag or Tour-Pak.

To close, be sure the drawcatch is in the open position until lid seats. Then snap the drawcatch closed. To lock, turn the key to vertical position and remove for security.

The saddlebags are provided with travel bags that can be removed, packed and set down into the open saddlebag outer. They can then be closed and locked as described above.

**NOTE**

*Saddlebag drawcatches should be closed whenever motorcycle is in operation.*



**Figure 23. Lock and Drawcatch**

**WARNING**

**Maximum recommended load for each saddlebag is 15 lbs with maximum inflation pressure in rear tire. Overloading could cause handling difficulties.**

# NOTES

# OPERATING RECOMMENDATIONS

## CAUTION

Do not run the engine at extremely high RPM with clutch disengaged or transmission in neutral. Do not exceed maximum safe RPM specified in Table 6 under any conditions.

**Table 6. Maximum Recommended RPM.**

MODEL	MAXIMUM ENGINE SPEED (RPM)
XLH Models	5800
All other models	5200

## CAUTION

Do not exceed maximum recommended safe engine speed. Do not idle the engine unnecessarily for more than a few minutes with motorcycle standing still.

## NOTE

*The 1340cc ignition module has a "cut-out" feature which will automatically retard the spark advance to 0° if the engine exceeds 5100 RPM.*

*The XLH ignition module has a "cut-out" feature which will automatically retard the spark advance to 0° if the engine exceeds 6000 RPM.*

An engine run long distances at high speed must be given closer than ordinary attention to avoid overheating and possible damage. Have the engine checked regularly and keep it well tuned. This applies particularly to a motorcycle equipped with windshield, fairing and lowers.

## WARNING

**When riding on wet roads or under rainy conditions, braking efficiency is greatly reduced. Caution must be used when applying the brakes, accelerating and turning. This is especially true immediately after the rain begins and the oil from the road surface combines with the water.**

When descending a long, steep grade, downshift and use engine compression together with intermittent application of both brakes to slow the motorcycle. Avoid continuous use of the brakes which may overheat them and cause reduced braking efficiency.

Do not coast for a long distance with the engine off because the transmission is properly lubricated only when the engine is running. To prevent transmission damage, do not tow the motorcycle.



## BREAK-IN THE FIRST 500 MILES

The sound design, quality materials, and workmanship that is built into your new Harley-Davidson will give you optimum performance right from the start. However, for the first 500 miles, to wear-in critical parts, observe the few simple driving rules below. This will assure future performance and durability.

1. During the first 50 miles, keep the engine speed below 2500 RPM in any gear.
2. Up to 500 miles, vary the engine speed, avoiding any steady speed for long distances. Engine speed up to 3000 RPM is permissible in any gear.
3. Avoid fast starts at wide open throttle. Drive slowly until engine warms up.
4. Avoid running the engine at extremely low RPM in higher gears.

DO NOT exceed 50 mph for the first 50 miles.

DO NOT exceed 55 mph for the first 50 - 500 miles.

See Table 7. On 5-speed vehicles without tachometers, shift as follows:

**Table 7. Gear Change - 5-Speeds without tachometer**

GEAR CHANGE	SPEED
<b>Acceleration (Upshift)</b>	
First to Second	15 mph (25 km/h)
Second to Third	25 mph (40 km/h)
Third to Fourth	40 mph (65 km/h)
Fourth to Fifth	50 mph (80 km/h)
<b>Deceleration (Downshift)</b>	
Fifth to Fourth	40 mph (65 km/h) or less
Fourth to Third	30 mph (50 km/h) or less
Third to Second	20 mph (30 km/h) or less
Second to First	10 mph (15 km/h) or less

## PRE-RIDING CHECKLIST

### NOTE

*Read section on CONTROLS AND INDICATORS before riding your motorcycle.*

Before riding your motorcycle at any time, make a general inspection to be sure it is in safe riding condition.

1. Check amount of fuel in tank and add fuel if required.

#### **WARNING**

**Remove fuel filler cap slowly. Fill fuel tank slowly to prevent fuel spillage. Do not fill above the bottom of filler neck insert. Leave air space to allow for fuel expansion. Expansion can cause an overfilled tank to overflow fuel through the filler cap vent to surrounding areas. After refueling, be sure filler cap is securely tightened.**

#### **CAUTION**

**Gasohol spills can stain the paint on your Harley-Davidson.**

2. Check oil tank oil level. See MAINTENANCE AND LUBRICATION section.
3. Check controls to be sure they are operating properly; operate the front and rear brakes, throttle, clutch and shifter.
4. Check steering for smoothness by turning the handlebars through the full operating range.
5. Check tire condition and pressure. Incorrect pressure will result in poor riding characteristics and can affect handling and stability. See TIRE DATA, for correct inflation pressures to use.
6. Check all electrical equipment and switches including the stoplamp, turn signals and horn for proper operation.
7. Check for any fuel, oil or hydraulic fluid leaks.
8. Check rear belt/chain adjustment. Service as necessary.
9. Check tightness of all fasteners except engine head bolts.

#### **CAUTION**

**Do not attempt to tighten engine head bolts. Re-tightening can cause engine damage.**

## STARTING THE ENGINE

### GENERAL

#### WARNING

Before starting engine, always shift transmission to neutral to prevent accidental movement which could possibly cause damage to motorcycle and/or personal injury.

#### CAUTION

Never accelerate the engine above 2500 RPM immediately after a cold start. The engine should be allowed to run slowly for 15-30 seconds. This will allow the engine to warm up and let oil reach all surfaces needing lubrication. Extended idling with either choke or enrichener in the full out position for a period longer than 30 seconds is not recommended.

#### NOTE

*Engine stop switch on the right handlebar controls must be in RUN (ignition on) position to start engine.*

Use recommended oil for extended expected temperatures. See engine lubrication table in the MAINTENANCE AND LUBRICATION section.

1989 Harley-Davidson motorcycles may be equipped with one of three styles of carburetors:

- 1200, 883cc-C.V.carburetor without accelerator pump
- 1200, 883cc-C.V.carburetor with accelerator pump
- 1340cc carburetor

Starting/warm-up procedures may differ slightly, depending on your vehicle's carburetor.

If you read this section and still have questions about the correct operation of your motorcycle, talk to your authorized Harley-Davidson dealer.

#### CAUTION

You must pay close attention to the vehicle's warm-up time. Either excessive or insufficient use of the choke/enrichener may cause poor performance, erratic idle, poor fuel economy and spark plug fouling.

#### NOTE

*The following starting and operating instructions for all Harley-Davidson motorcycles are recommendations. They may be modified for individual vehicles.*

## COOL ENGINE

### Outside Temperature Cooler than 50° 1340cc CARBURETOR

To start a cool engine, open throttle twice, then fully release. See Figure 3. Pull choke knob to full out detent (fast idle) position. Turn the ignition switch on and press starter switch to operate the electric starter.

After the engine starts, adjust the choke position (middle detents) to give a satisfactory high idle. When driving during the warm-up period, adjust the choke to give good driveability.

### 1200, 883cc – C. V. CARBURETOR

BE SURE THROTTLE IS CLOSED. Pull enricher knob to full out position. Turn the ignition switch on and press starter switch to operate the electric starter.

1. See Figure 2. After initial 15-30 second warm-up, ride for 5 minutes or 3 miles with enricher knob in full out position.
2. After 5 minutes or 3 miles, push the enricher knob in to 1/2 way detent position. Ride 2 minutes or 2 miles.
3. After 2 minutes or 2 miles, push the enricher knob fully in.

## COOL ENGINE

### Outside Temperature Warmer than 50° 1340cc CARBURETOR

To start a cool engine at temperatures above 50° F, open throttle twice, then fully release. Pull choke knob to full out detent (fast idle) position (above 65° F, "choking" may not be required). Turn the ignition switch on and press starter switch to operate the electric starter.

After the engine starts, adjust the choke position (middle detents) to give a satisfactory high idle. When driving during the warm-up period, adjust the choke to give good driveability.

### 1200, 883cc – C. V. CARBURETOR

BE SURE THROTTLE IS CLOSED. Pull enricher knob to full out position. Turn the ignition switch on and press starter switch to operate the electric starter.

1. See Figure 3. After initial 15-30 second warm-up, ride for 3 minutes or 2 miles with enricher knob in full out position.
2. After 3 minutes or 2 miles, push the enricher knob in to 1/2 way detent position. Ride 2 minutes or 2 miles.
3. After 2 minutes or 2 miles, push the enricher knob fully in.

## WARM OR HOT ENGINE

### NOTE

*If the engine does not start after a few turns or if one cylinder fires weakly but engine does not start, it is usually because of an over-rich (flooded) condition. This is especially true of a hot engine. If the engine is flooded, close choke/enrichener all the way, turn ignition on and operate starter with throttle wide open. DO NOT "pump" the throttle while turning over the engine.*

### 1340cc CARBURETOR

To start a warm or hot engine, set throttle 1/4 open, turn on ignition switch and operate the electric starter. DO NOT USE CHOKE.

### 1200, 883cc – C. V. CARBURETOR

Open throttle 1/8 - 1/4. Turn on ignition switch and operate electric starter. DO NOT USE ENRICHENER.

## STOPPING THE ENGINE

See Figure 2. Stop the engine by turning off the engine stop switch (10) on right handlebar, then turn off the ignition key switch. If the engine should be stalled or stopped in any way, turn off the key switch at once to prevent battery discharge.

## SHIFTING GEARS

### Four-Speed Transmission

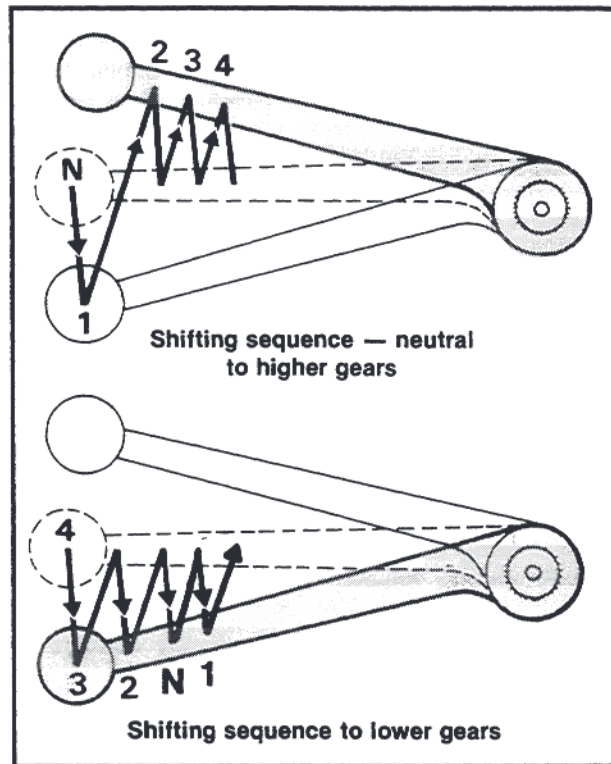
See Figure 2. To start moving with motorcycle upright and engine idling, pull the clutch lever (6) to fully disengage clutch. See Figure 24. Push shifter lever down firmly but gently to end of its travel to engage first gear. Then release the clutch lever slowly to engage the clutch and at the same time, open throttle gradually.

Engage second gear after the motorcycle has run a few yards as follows: Close the throttle, disengage the clutch and lift the gear shifter pedal up to the end of its travel. Engage the clutch and operate the throttle gradually. Repeat the same operation to engage third and fourth gears.

For correct operation of your motorcycle under average conditions, the following shifting points are recommended:

**Table 8. Gear Change - 4-Speed**

GEAR CHANGE	SPEED
<b>Acceleration (Upshift)</b>	
First to Second	15 mph (25 km/h)
Second to Third	25 mph (40 km/h)
Third to Fourth	40 mph (65 km/h)
<b>Deceleration (Downshift)</b>	
Fourth to Third	30 mph (50 km/h) or less
Third to Second	20 mph (30 km/h) or less
Second to First	10 mph (15 km/h) or less



**Figure 24. Shifting sequence - 4-Speed**

To shift to lower gears, reverse the movement of the gear shifter lever, disengage the clutch completely before each gear change and only partially close the throttle so that the engine will not drag when clutch is again engaged. Keep in mind that by lifting the gear shift lever up, a higher gear is engaged; by pushing the gear shifter lever down, a lower gear is engaged. When stopping, operate gear shift until neutral is reached. Note that neutral is 1/2 stroke up from first gear or 1/2 stroke down from second gear.

#### **CAUTION**

**Do not shift gears without fully disengaging the clutch.**

#### **WARNING**

**When shifting to lower gears with the motorcycle in motion, do not downshift at speeds higher than those listed in the table. Shifting to lower gears when speed is too high may severely damage the**

**transmission or cause the rear wheel to lose traction.**

Shift to neutral before stopping engine. Shifting mechanism can be damaged by shifting gears while engine is stopped.

#### *NOTE*

*Always start motorcycle in motion in first gear.*

When engine speed decreases, as in climbing a hill or running at a reduced speed, shift to the next lower gear while partially closing the throttle so that the engine accelerates as soon as the clutch lever is pulled.

See Gear Shifter in the CONTROLS AND INDICATORS section.

### **Five-Speed Transmission**

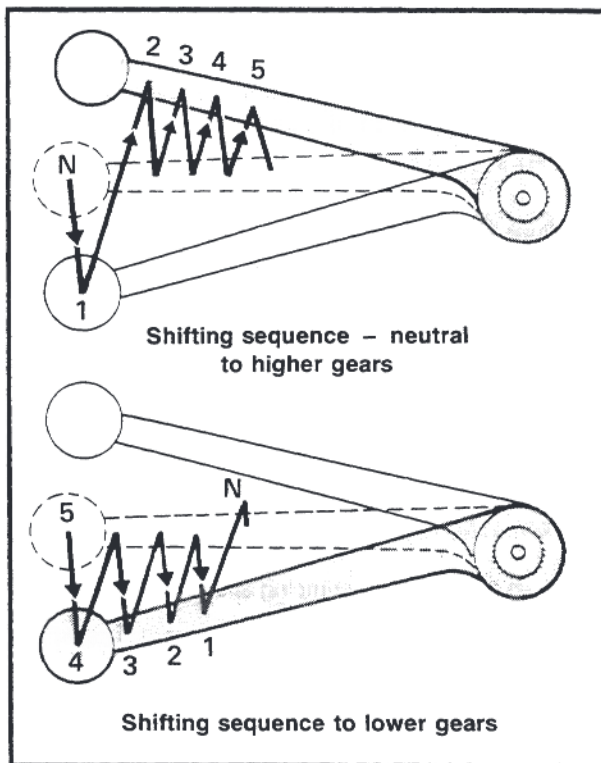
See Figures 4, 25 and Table 9. Follow the shifting instructions given for four-speed shifting transmissions. The recommended shift points for five-speed transmissions are as follows:

**Table 9. Gear Change - 5-Speed**

GEAR CHANGE	SPEED
<b>Acceleration (Upshift)</b>	
First to Second	15 mph (25 km/h)
Second to Third	25 mph (40 km/h)
Third to Fourth	40 mph (65 km/h)
Fourth to Fifth	50 mph (80 km/h)
<b>Deceleration (Downshift)</b>	
Fifth to Fourth	40 mph (65 km/h) or less
Fourth to Third	30 mph (50 km/h) or less
Third to Second	20 mph (30 km/h) or less
Second to First	10 mph (15 km/h) or less

**NOTE**

*The mechanism on 5-speed transmissions does not permit shifting to neutral from second gear. Neutral can only be engaged from first gear.*



**Figure 25. Shifting Sequence - 5-Speed**



## SAFE OPERATING MAINTENANCE

Good maintenance means a safe machine. A careful check of certain equipment must be made after periods of storage and frequently between the regular service intervals to determine if additional maintenance is necessary.

The following items should be checked:

1. Tires for correct pressure, abrasions or cuts.
2. Belt/chains for proper tension. Rear chain lubrication if applicable.
3. Brakes, steering and throttle for responsiveness.
4. Brake fluid level and condition. Hydraulic lines and fittings for leaks. Also, check brake pads and discs for wear.
5. Cables for fraying or crimping and free operation.
6. Engine oil, primary chaincase and transmission fluid levels.
7. Wheel spoke tightness, if applicable.
8. Headlamp, taillamp, brake lamp and directional lamp operation.

## WARNING

**For your personal welfare, all the listed service and maintenance recommendations should be performed. Lack of regular maintenance, at the suggested intervals, may affect the safe operation of your motorcycle.**

## BREAK-IN MAINTENANCE

### NOTE

*The performance of new motorcycle initial service is required to keep your new motorcycle warranty in force, and to assure proper emissions system operation.*

After a new motorcycle has been driven its first 500 miles the motorcycle should be taken to the dealer from whom it was purchased for initial service operations with which the dealer is familiar. If it is impossible to take the motorcycle to a dealer at the mileage intervals mentioned, the owner should at least give the following outlined attention, or arrange to have it given, and take the motorcycle to the dealer for more complete servicing as soon as it is convenient.

We recommend the following maintenance procedures be performed by your Harley-Davidson dealer.

### WARNING

Stop the engine and support the motorcycle securely before performing all service procedures. Service should be performed using proper tools, in an adequately lighted and ventilated work area.

When working on the motorcycle, do not support motorcycle by placing supports under the brake pedal. Damage to the brake system could occur causing possible malfunction and personal injury.

### WARNING

For your personal welfare, all the listed service and maintenance recommendations should be followed because they may affect the safe operation of your motorcycle.

## CHECK AT FIRST 500 MILES

1. Change engine oil.
2. Replace oil filter.
3. Clean tappet oil screen.\*
4. Change primary chaincase lubricant and clean magnetic drain plug.
5. Inspect air cleaner and service as required.
6. Check and adjust primary chain.

7. Check battery electrolyte level; check and clean connections.
8. Check rear brake pedal height adjustment.
9. Inspect brake pad linings and discs for wear.
10. Check brake fluid level and condition.
11. Check clutch adjustment.
12. Inspect fuel valve, lines and fittings for leaks.
13. Inspect oil lines and brake system for leaks.
14. Lubricate the following: front brake handlever, throttle control cables, clutch control cable and handlever.

### CAUTION

**DO NOT lubricate the enrichener cable on vehicles equipped with C.V. carburetor.**

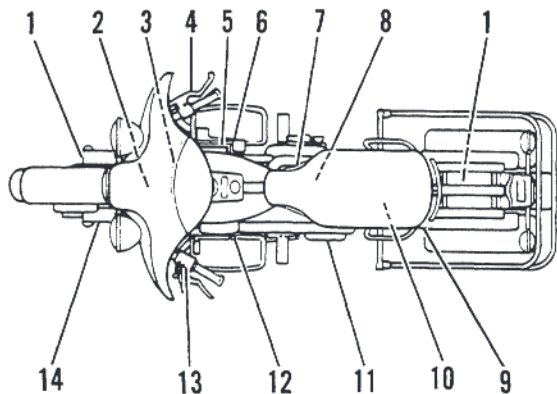
15. Check tightness of all fasteners, except engine head bolts.
16. Check stabilizer links\* and engine mounts.
17. Check tire pressure and inspect tread.
18. Check engine low and high idle speed adjustment.
19. Check operation of throttle and choke controls.
20. Check operation of all electrical equipment and switches.
21. Check vehicle alignment.
22. Check wheel spoke tightness.\*
23. Check and adjust rear drive belt or chain.

\*If applicable.

24. Change transmission lubricant and clean magnetic drain plug.\*
25. Clean fuel tank filter screen.
26. Check rear fork pivot nut tightness.\*

27. Check front fork bearing adjustment.
28. Check and adjust air suspension system.\*
29. Road test.  
\*If applicable.

## LUBRICATION SUMMARY



### CAUTION

DO NOT lubricate enricher cable on vehicles equipped with C.V. carburetor.

### Lubrication Intervals

Regular Lubrication Intervals	P r e r i d e	5	5	1
		0	0	0
Service Operation				
1. Wheel bearings				^
2. Steering head bearings				^
3. Speedometer cable			<	
4. Throttle grip sleeve, throttle control cables, choke control cable*, front brake handle lever				
5. Air cleaner			^	
6. Rear brake pedal grease fitting*			^	
7. Engine oil (check)	<	^	^	
8. Transmission lubricant		^	^	
9. Rear fork bearings*		^	^	
10. Oil filter		^	^	
11. Primary chaincase lubricant		^	^	
12. Shifter pivot fitting*		^	^	
13. Clutch control cable and handle lever				
14. Front fork oil*				<

\*If applicable

## REGULAR SERVICE INTERVALS

Regular lubrication and maintenance will help keep your new Harley-Davidson operating at peak performance. Your Harley-Davidson dealer knows best how to service your motorcycle with factory approved methods and equipment assuring you of thorough and competent workmanship.

### NOTE

*Regular service interval operations are required to keep your new motorcycle warranty in force. The use of other than Harley-Davidson approved parts and service procedures may void the warranty. Also, any alterations to the emission system components, such as the carburetor and exhaust system, may be in violation of Federal and State laws.*

## REGULAR MAINTENANCE INTERVALS

<b>ODOMETER READING (miles)</b> <b>SERVICE OPERATIONS</b> (see chart code below)	P	5	2	5	7	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	
	ri	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	0
Engine Oil <sup>a</sup>	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I
Oil filter		R		R		R		R		R		R		R		R		R		R		R	
Air cleaner		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL	
Tappet oil screen <sup>aa</sup>		I		I		I		I		I		I		I		I		I		I		I	
Rear belt <sup>aa</sup>	I	A		IA		IA		IA		IA		IA		IA		IA		IA		IA		IA	
Rear chain <sup>aa</sup> (Lubricate every 300 miles)	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Primary chain		I		I		I		I		I		I		I		I		I		I		I	
Primary chaincase lubricant		R		R		R		R		R		R		R		R		R		R		R	
Battery fluid level, connections <sup>a</sup>		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Rear brake pedal height adjustment		I		I		I		I		I		I		I		I		I		I		I	
Brake pad linings and discs for wear		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Brake fluid level and condition <sup>a</sup>		I		I		I		I		I		I		I		I		I		I		I	
Clutch adjustment		A		A		A		A		A		A		A		A		A		A		A	
Fuel valve, lines and fittings for leaks		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Front brake hand lever, throttle control cables, choke control cable, clutch control cable and hand lever		L		L		L		L		L		L		L		L		L		L		L	
All fasteners except engine head bolts		T		T		T		T		T		T		T		T		T		T		T	
Tire pressure and inspect tire for wear/damage	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Engine low and fast idle speed	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Operation of throttle and choke controls	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I

<sup>a</sup>Also perform prior to storage, or annually.  
<sup>aa</sup>If applicable.

Chart Code:

I - Inspect, and if necessary correct, clean or replace  
 A - Adjust  
 R - Replace or change

T - Tighten to proper torque  
 L - Lubricate with specified lubricant  
 X - Perform.

### REGULAR MAINTENANCE INTERVALS (CONT'D)

ODOMETER READING (miles) SERVICE OPERATIONS (see chart code below)	P	5	2	5	7	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5																
	re r i d e	00	500	000	500	000	1000	000	1500	000	1750	000	2000	000	2250	000	2500	000	2750	000	3000	000	3250	000	3500	000	3750	000	4000	000	4250	000	4500	000	4750	000	5000	
Operation of all electrical equipment and switches	I	I	I	I	I	I	I		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	
Ignition timing and vacuum operated electric switch (V.O.E.S.)		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I
Spark plugs				I		R		I		R		I		R		I		R		I		R		I		R		I		R		I		R		I		R
Transmission lubricant <sup>**</sup>		R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R
Rear fork pivot nut <sup>**</sup>		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I
Engine mounts <sup>**</sup>		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I
Stabilizer links <sup>**</sup>		I				I				I				I				I				I				I				I				I				I
Air suspension components <sup>**</sup>		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I
Condition of rear shock absorbers		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I
Swing arm bearings <sup>**</sup>		I		I		IL		I		IL		I		IL		I		IL		I		IL		I		IL		I		IL		I		IL		I		IL
Wheel bearings <sup>**</sup>						IL				IL				IL				IL				IL				IL				IL				IL				IL
Wheel spoke tightness <sup>**</sup>		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I		I
Front fork oil <sup>**</sup>						R				R				R				R				R				R				R				R				R
Front fork bearing adjustment		I		I		IL		I		IL		I		IL		I		IL		I		IL		I		IL		I		IL		I		IL		I		IL
Throttle control grip sleeve, speedometer cable		L		L		L		L		L		L		L		L		L		L		L		L		L		L		L		L		L		L		L
Grease fittings (2), shift and brake lever pivots <sup>**</sup> , rear brake linkage <sup>**</sup>						IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL
Condition of rear brake caliper mounting pins and boots						IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL		IL
Road test		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

<sup>\*\*</sup>Also perform prior to storage, or annually.

<sup>\*\*</sup>If applicable.

Chart Code:

I - Inspect, and if necessary correct, clean or replace

A - Adjust

R - Replace or change

T - Tighten to proper torque

L - Lubricate with specified lubricant

X - Perform.

## ENGINE LUBRICATION

Engine oil is a major factor in the performance and service life of the engine. Use the proper grade of oil for the lowest temperature expected before the next oil change as shown below. Your Harley-Davidson dealer has the proper grade oil to suit your requirements.

Use Harley-Davidson MULTI-GRADE OIL for normal and severe usage in air temperatures between 20°F and 100°F. For other conditions, or if MULTI-GRADE is not available, use oils as shown in table 10, below.

**Table 10. Recommended Engine Oils**

Harley-Davidson Type	Viscosity	Harley-Davidson Rating	Ambient Temperature °F	Cold Weather Starts Below 50° F.
H.D Multi-grade	SAE 20W50	HD 240	Above 20° to 100°	Excellent
H.D. Regular Heavy	SAE 50	HD 240	Above 60° to 100°	Poor
H.D.Extra Heavy	SAE 60	HD 240	Above 80° to 100°	Poor

## CHECKING OIL LEVEL (Figures 26, 27 and 28)

Engine oil level should be checked only when engine is at normal operating temperature. The engine will require a longer warm up period in colder weather. The motorcycle should be driven to ensure oil is hot and is at normal operating oil pressure. When the above conditions are met, turn the engine off. Refer to Table 11.

See Figure 28. Wipe off dipstick and insert into tank with plug pushed completely into filler neck. Remove and note oil level. If oil level is down to or below lower mark on dipstick add only enough oil to bring level to upper mark on dipstick. See Figure 27. For FLST/C, FXST/C and FXSTS add only to fill mark on dipstick.

### CAUTION

**Do not allow hot oil level to fall below lower mark on dipstick. Do not overfill oil tank. Overfilling may cause oil carryover to the air cleaner.**

### CAUTION

**Do not switch brands indiscriminately because some oils interact chemically when mixed. Use of inferior oils or non-detergent oils can damage the engine.**

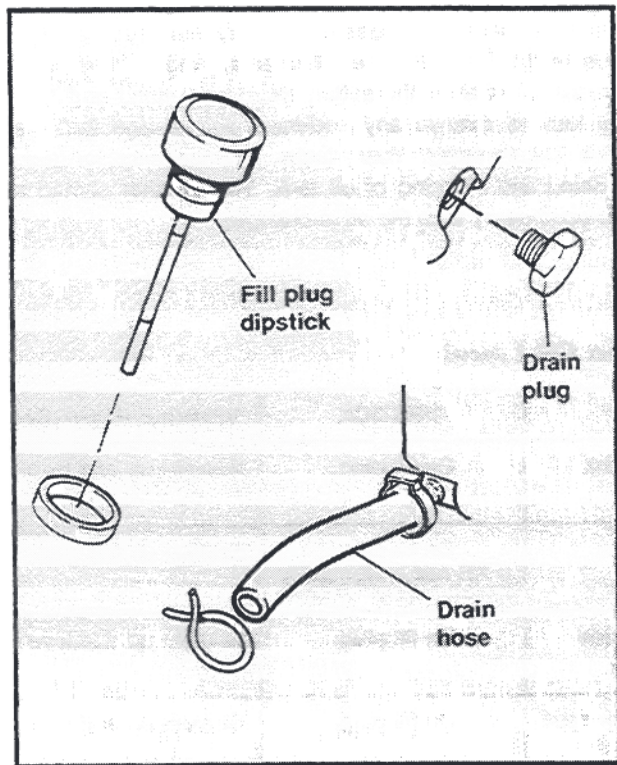


Figure 26. Fill Plug Dipstick & Oil Tank Drains

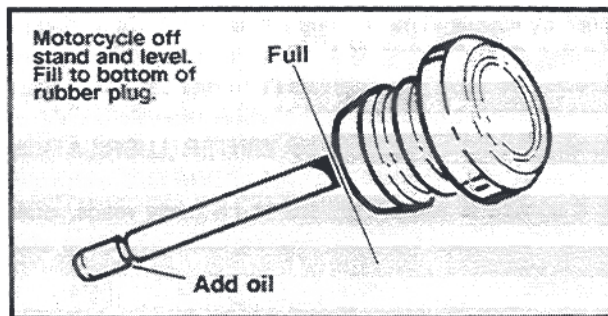


Figure 27. Engine Oil Level - Softtail Models

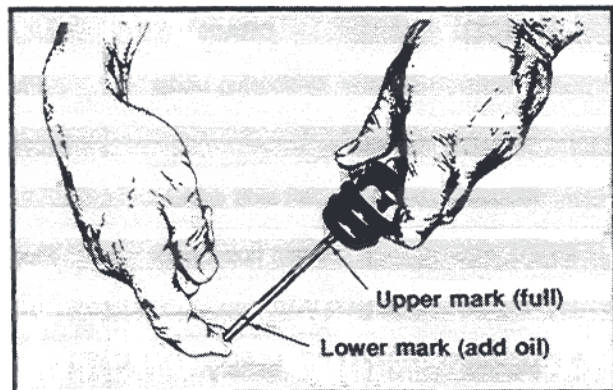


Figure 28. Oil Level Dipstick - All Other Models



Check oil supply at each complete fuel refill. Oil should be changed after the first 500 miles for a new engine, and thereafter at 5000 mile intervals in normal service at warm or moderate temperatures. Oil change intervals should be shorter in cold weather - see WINTER LUBRICATION. Completely drain oil tank of used oil and refill with fresh oil. If service is extremely hard or on dusty roads, drain and refill at shorter intervals. Draining should be done after

a ride while oil is hot. It is not necessary to drain the crankcase because it does not accumulate used oil. At the time of the first 500 mile oil change, and at least every second oil change thereafter, thoroughly flush and clean out tank to remove any sediment and sludge that may have accumulated. Your dealer has facilities for quick flushing and cleaning of oil tank. The oil filter should be replaced every time the oil is changed.

**Table 11. Checking Oil Level**

<b>MODEL</b>	<b>DRAIN</b>	<b>FILL</b>	<b>DIPSTICK</b>	<b>VEHICLE POSITION</b>
FLT Models	Drain plug under right side cover.	Plug on right side cover.	On fill plug.	Straight up and level.
FXR Models	Drain hose under left side cover.	Under seat.	On fill plug. (FXR has a sightglass on left side of oil tank)	Resting on jiffy stand.
FXST/C, FLST/C, FXSTS Models	Drain hose, right side of oil tank.	Plug, right side of oil tank.	On fill plug.	Straight up and level.
XLH Models	Drain hose under battery.	Right side below seat.	On fill plug.	Straight up and level.

## OIL FILTER

Oil filters are located underneath the motorcycle, behind the transmission, on FLT and FXR engines. On XLH and Softail models, filters are mounted in front of the engine.

Completely drain oil tank before removing oil filter. Clean filter gasket contact surface on mounting plate. Surface should be smooth and free of any debris or old gasket material. Apply a thin film of oil to gasket contact surface on mounting plate and to gasket on new oil filter.

### NOTE

*On XLH models pour four ounces of clean oil into filter.*

See Figure 29. Screw filter onto adapter until gasket contacts plate surface. Apply another 1/4 to 1/2 turn by hand.

### WARNING

**Be sure no oil gets on rear tire when changing the filter. Traction will be adversely affected.**

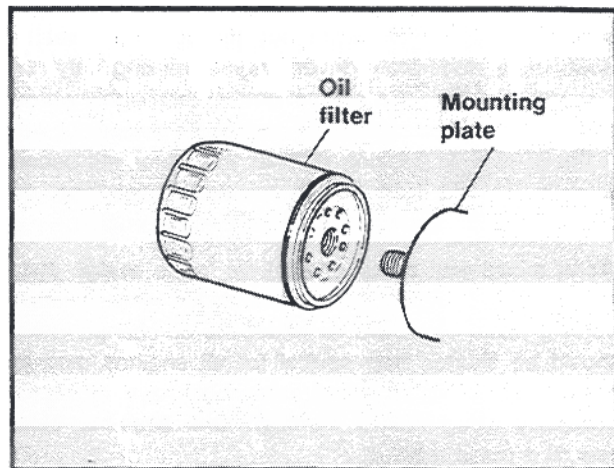


Figure 29. Oil Filter

## Winter Lubrication

Combustion in any engine produces water vapor. When starting and warming up in cold weather, much of the vapor condenses to water on the relatively cool metal surfaces. If engine is driven enough to get the crankcase

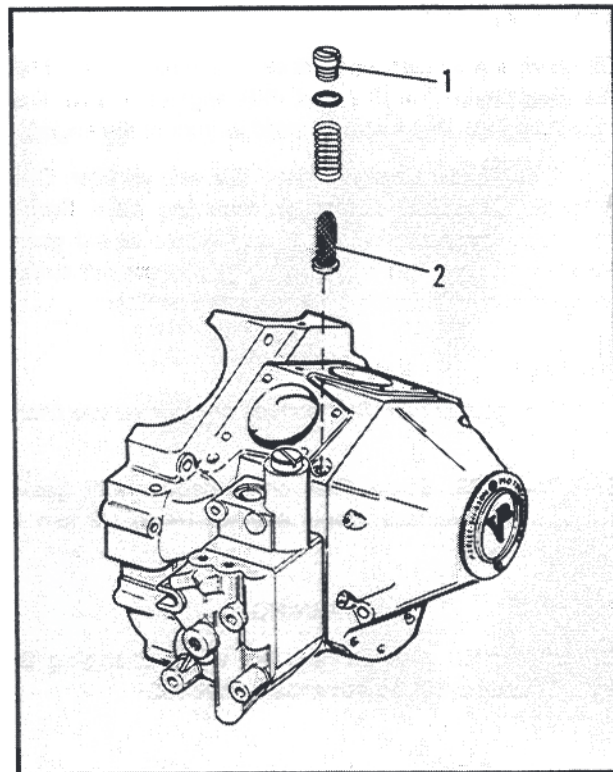
thoroughly warmed up frequently, most of this water is again vaporized and blown out through the breather. However, a moderately driven engine, making only short runs now and then and seldom getting thoroughly warmed up, is likely to accumulate an increasing amount of water in the oil tank. In freezing weather this water will become slush or ice and if allowed to accumulate too long, may block the oil lines and cause damage to the engine.

Water mixed with oil for some time forms sludge that is harmful to the engine and causes undue wear of various working parts. Therefore, in winter the oil change interval should be shorter than normal for all engines, and any engine used only for short runs must have oil drained frequently along with a thorough tank flush-out before new oil is put in tank.

The farther below freezing the temperature drops, the shorter the oil change interval should be.

### **Tappet Oil Filter Screen (Figure 30) (1340cc Engines Only)**

The tappet oil filter screen is located in the crankcase above the oil pump. Unscrew the slotted plug (1), remove and clean or replace the screen (2) initially at 500 miles and every 5000 miles thereafter. Oil screen is installed with closed end up.



**Figure 30. Tappet Filter Screen**

## TRANSMISSION LUBRICATION

### 1340cc Models

The transmission lubricant level should be checked monthly. When filling the transmission, use Harley-Davidson TRANSMISSION LUBRICANT, Part No. 99892-84.

#### NOTE

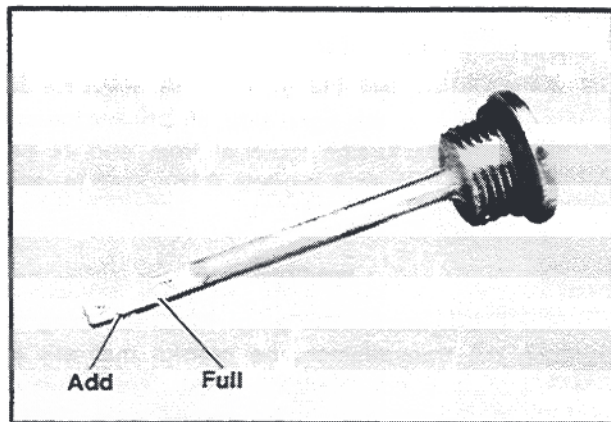
*When checking the transmission lubricant level, motorcycle should be standing STRAIGHT UP, not leaning on the jiffy stand.*

#### NOTE

*Keep motorcycle upright for a short period of time to equalize lubricant level in the transmission compartments.*

When the engine reaches normal operating temperature, turn the engine off and position motorcycle STRAIGHT UP and LEVEL.

See Figure 31. Remove the threaded filler plug. Clean dipstick and reinstall all the way. Remove dipstick and take reading. Lubricant level should be between the two marks on the dipstick. Add lubricant if necessary.



**Figure 31. Transmission Lubricant Dipstick-1340cc**

Do not overfill or leakage may occur. The transmission capacity is approximately one pint. When reinstalling the filler plug, tighten it to 25-75 in-lbs (finger tight).

The transmission should be drained and refilled with fresh lubricant after the first 500 miles and thereafter seasonally or every 5000 miles, whichever comes first.

On all models, except the Softail models, the transmission drain plug is located underneath the transmission, in the

middle of the case. When reinstalling the drain plug, tighten it to 7 ft-lbs torque.

On the Softail models, the transmission magnetic drain plug is located at the right side of the transmission housing. Remove foreign material from end of plug. Reinstall drain plug so it projects 0.16 - 0.18 in. above surface of housing.

#### WARNING

Do not overtighten drain plug. When draining and refilling the transmission, be careful that dirt and debris do not get into the case. Do not allow draining lubricant to get on rear wheel, tires or brakes. Traction could be adversely affected.

#### NOTE

*XLH models transmission and primary chaincase share common lubricant supply.*

## PRIMARY CHAINCASE LUBRICATION

Lubrication is a major factor in the performance and service life of the clutch components. Use Harley-

Davidson PRIMARY CHAINCASE LUBRICANT, Part No. 99887-84 for all operating temperatures.

Chaincase lubricant should be changed initially at 500 miles and every 5000 miles thereafter. Chaincase capacity is approximately 1-1/2 quarts in 1340cc models, 1-1/2 pints in XLH models.

## CHECKING CHAINCASE LUBRICANT

### 1340cc Models

1. Position motorcycle STRAIGHT UP and LEVEL.
2. See Figure 28. Remove screws and washers that secure clutch inspection cover.
3. Remove clutch inspection cover carefully to avoid damaging O-ring or finish on cover.
4. Primary chaincase lubricant should be level with bottom of clutch inspection opening.

#### CAUTION

**Replace O-ring if damaged or not sealing properly to avoid Lubricant leakage.**

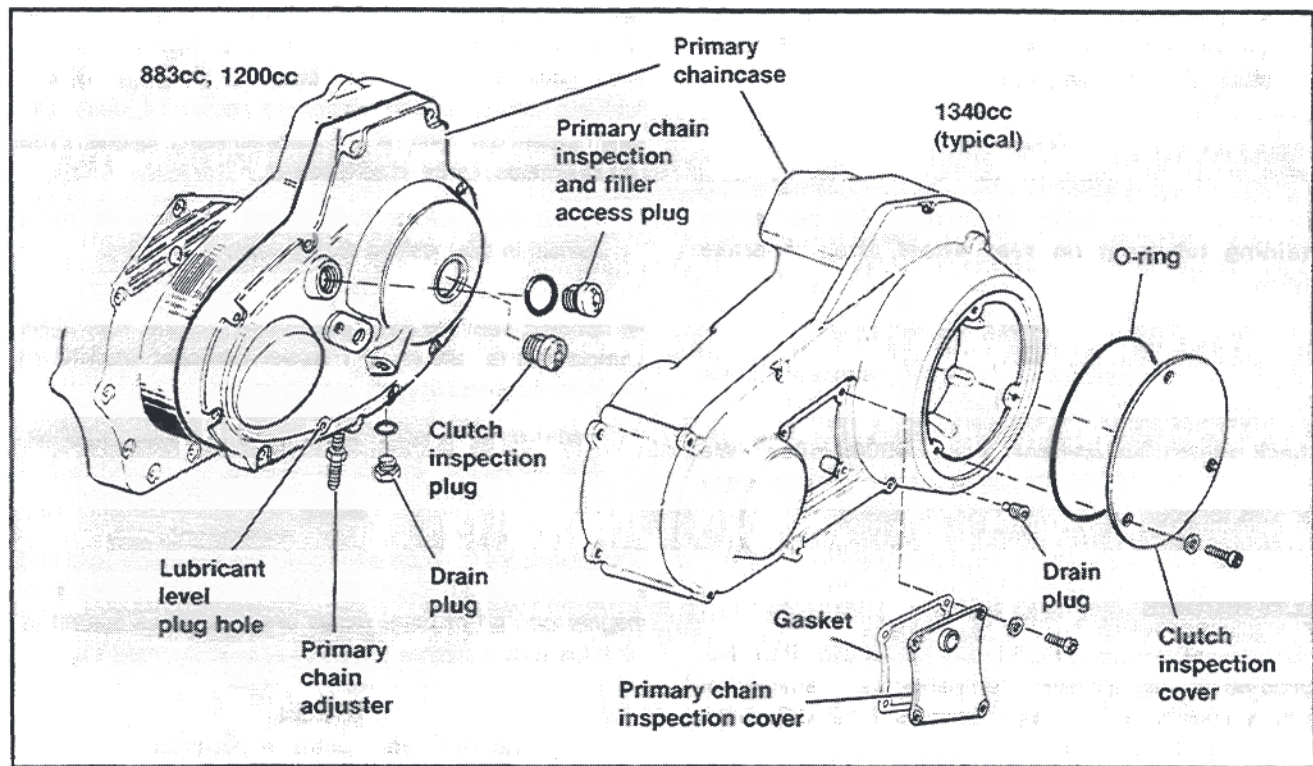


Figure 32. Primary Chaincase

5. Replace clutch inspection cover and secure with screws and new washers. Tighten to 4-6 ft-lbs torque. Do not overtighten.

### CAUTION

**When draining or refilling with lubricant, do not allow dirt or debris to enter chaincase. Do not allow draining lubricant on rear wheel, tire, or brake components.**

### NOTE

*Whenever draining chaincase lubricant, inspect and clean chaincase magnetic drain plug.*

Check clutch adjustment every 5000 miles. We recommend your Harley-Davidson dealer perform these services for you.

## XLH Models

Use Harley-Davidson SPORT-TRANS FLUID Part No. 99896-88 for all operating temperatures. Capacity of primary chaincase and transmission is 1-1/2 U.S. pints. Drain while lubricant is hot.

See Figure 32. The drain plug is located on the underside of the chaincase. The filler access is located near the top of the chaincase cover. The lubricant level plug is located near the bottom of the chaincase cover. To determine correct lubricant level in the transmission and chaincase compartments, proceed as follows:

1. Stand motorcycle straight up. Motorcycle must remain in this position during entire procedure.

### NOTE

*An opening between the transmission and the front chain compartments allows the same lubricant supply to lubricate the parts in both compartments.*

2. Remove transmission and primary chaincase lubricant filler screw and lubricant level plug.

### NOTE

*If the lubricant is to be changed, remove drain plug and allow lubricant to drain. Remove foreign material from magnet on end of plug. Install drain plug and tighten to 10 ft-lbs torque before proceeding with the next step.*

### CAUTION

**Do not over-tighten drain plug.**

3. Add lubricant until it begins to overflow through lubricant level hole. Let excess lubricant continue to flow from lubricant level hole until it ceases to run. This establishes correct lubricant level.
4. Install and tighten lubricant level plug and filler screw.

## PRIMARY CHAIN

See Figure 33. The primary (front) chain adjustment should be checked initially at 500 miles and every 5000 miles thereafter and serviced as necessary. If the chain is allowed to run loose, it will cause the motorcycle to jerk when running at low speed, and both chain and sprocket will wear excessively.

Inspect chain occasionally for links in bad condition. If any are found, replace entire chain.

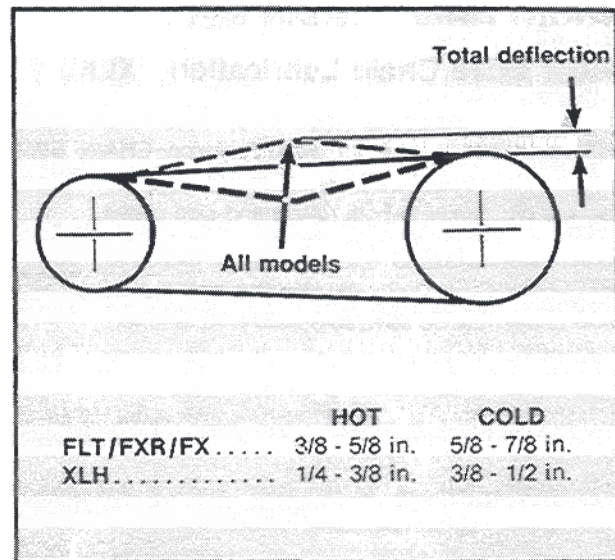


Figure 33. Primary Chain Adjustment



## REAR DRIVE CHAIN/BELT

### Rear Drive Chain Lubrication - XLH

Brush dirt off rear drive (secondary) chain and lubricate at 300 mile intervals with Harley-Davidson CHAIN SPRAY or CHAIN LUBE PLUS if available; if not available, use engine oil. Apply to both rollers and side plates.

If the motorcycle is operated under extremely dusty or dirty conditions, thorough cleaning and lubrication of the rear chain may be advisable from time to time.

#### NOTE

*An O-ring chain requires less frequent lubrication.*

Periodically remove accumulated surface dirt only by wiping with rag dampened in Kerosene.

To protect the chain from rust and lubricate the roller surfaces, periodically lubricate the chain with HARLEY-DAVIDSON CHAIN LUBE PLUS, Part No. 99865-81, especially after cleaning.

#### CAUTION

Never SOAK your O-ring chain in cleaning solvent. This will wash the lubricant out of the rollers.

#### CAUTION

Be sure the lubricant you use is recommended for use on O-ring chains. Incorrect lubricant will deteriorate the O-rings, causing rapid chain wear.

### Rear Chain Adjustment - XLH

See Figure 34. A properly adjusted chain should have the correct deflection midway between the transmission sprocket and the rear wheel sprocket.

1. Loosen axle nut on right side.
2. With the motorcycle upright and one rider sitting on it, turn the axle adjuster nuts on both sides of the rear wheel an equal amount of turns to keep the rear wheel in alignment. See your Harley-Davidson dealer for correct VEHICLE ALIGNMENT.

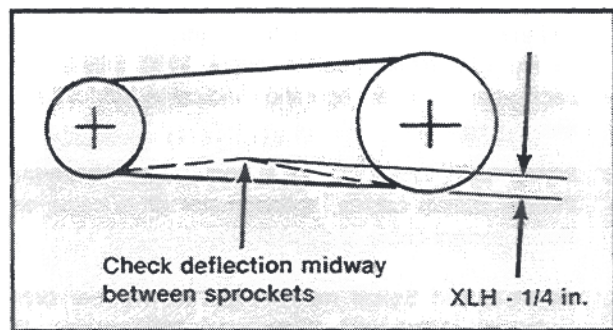


Figure 34. Rear Chain Adjustment

3. Establish correct free play in chain midway between sprockets. Tighten axle nut to 60 - 65 ft-lbs torque.
4. Check rear brake caliper position on rear brake disc. Disc should run true within brake caliper.

#### WARNING

A misaligned rear wheel and/or brake caliper could cause rear brake disc to bind, resulting in severe damage and/or personal injury.

## Rear Drive Belt

The rear drive (secondary) belt inner tooth surface has a thin coating of polyethylene. During initial operation, this coating will wear as it is burnished into the belt fabric. This is a normal condition and not an indication of belt wear.

Belt tension should be checked after the first 500 miles and every 2500 miles thereafter.

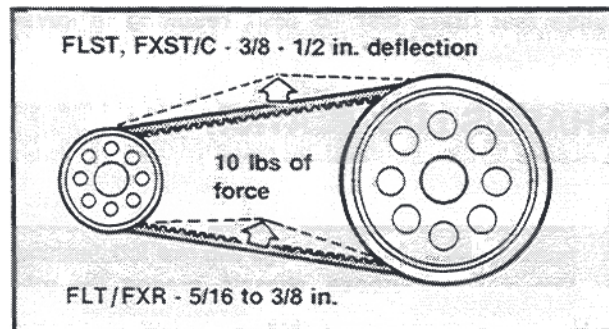


Figure 35. Belt Adjustment

See Figure 35. When 10 lbs of force is applied at the midpoint of the belt's appropriate strand, deflection should be as shown. Rear wheel must be on the ground and one rider sitting on the motorcycle.

BELT TENSION GAUGE, Part No. HD-35381 can be used to check belt tension. If belt requires adjustment, see your Harley-Davidson dealer, or follow instructions given in the applicable Service Manual.

Check rear brake caliper position on rear brake disc. Disc should run true within brake caliper.

### **WARNING**

**A misaligned rear wheel and/or brake caliper could cause rear brake disc to bind, resulting in severe damage and/or personal injury.**

## **CHASSIS LUBRICATION**

### **Greasing**

1. Use recommended wheel bearing grease for steering head bearings, wheel bearings and rear fork bushings. Use a multi-purpose chassis grease for other applications.
2. Repack front and rear wheel bearings every 10,000 miles (more often in adverse conditions), or yearly if operated under winter conditions or prior to storage. Replace seals and axle spacers if they show any wear or distortion.

3. Remove and lubricate handlebar throttle control grip sleeve with fresh graphite every 5000 miles, once each year, or when operation indicates lubrication is necessary.
4. Every 5000 miles lubricate front brake handlever, throttle control cables, speedometer drive cable and clutch control cable and handlever.
5. On FLT, and Softail models, grease the rear brake pedal and shifter shaft pivots every 5000 miles at the fitting.
6. On XLH pack rear swing arm pivot bearings with fresh grease at 10,000 mile intervals. Inspect rear swing arm pivot bushings.
7. Pack the steering head bearings with fresh grease at 10,000 mile intervals or 2 years, whichever occurs first.

### **Oil Applications**

All control connections and parts as indicated in the **REGULAR MAINTENANCE INTERVAL CHART** should be oiled regularly, particularly after washing motorcycle or driving in wet weather.

## Front Fork Oil

Drain front fork oil and refill every 10,000 miles or annually. If fork does not appear to be working properly or an appreciable amount of oil leakage should develop, attention should be given by a Harley-Davidson dealer. Incorrect rebound action will result if there is insufficient oil in either side of fork.

The Springer fork does not require fork oil.

## FUEL STRAINER

See Figure 13. A screen type fuel strainer is located on top of the supply valve inside the fuel tank. Check the fuel valve, lines and fittings for leakage as part of the pre-ride inspection. Screen should be cleaned after the first 500 miles and every 5000 miles thereafter.

## CARBURETOR

The carburetor has been specifically designed for emissions control operation. All jets are fixed at the factory.

Carburetor controls include throttle, choke and low/high idle speed adjusting screws. Operation should be checked and adjusted after the first 500 miles and every 5000 miles thereafter.

## CAUTION

**Operation at higher altitudes (approximately 4000 ft. elevation) may require carburetor modifications for best engine performance. See your Harley-Davidson dealer for these adjustments.**

We recommend that any carburetor service be performed by your Harley-Davidson dealer.

## AIR CLEANER (Figure 36)

Carburetor air cleaner is equipped with a plastic foam air filter element which is oil saturated.

Remove air cleaner cover and inspect filter element at least every 5000 miles, or more often under dusty conditions. The need for servicing is indicated by the appearance of the outside surface of the filter. Filter should be cleaned and re-oiled if a film of dirt has built up covering the surface pores, or if light spots show on the surface which means that dust is drying out the oil. A dark appearance is normal, as long as pores in the filter remain open and covered with an oil film.

1. To clean filter, remove it from screen and wash it in a non-flammable petroleum solvent or detergent and water. Allow to dry thoroughly.

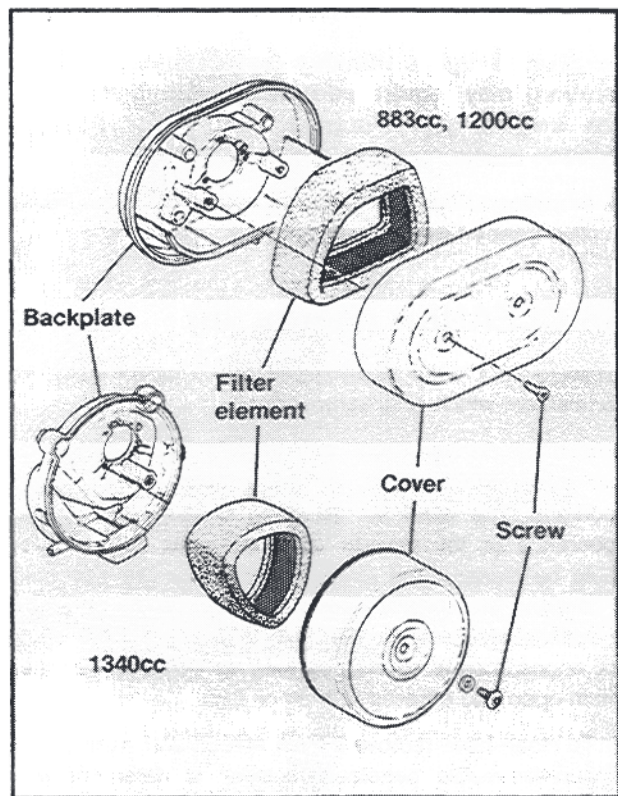


Figure 36. Air Cleaner

2. Evenly apply 1 to 1 1/2 tablespoons of engine oil to the filter element with an atomizer or work that amount of oil into the filter element by hand. There should be no excess.
3. Replace element on screen so that the grooves are toward screen, and install on engine.

#### CAUTION

**Do not run engine without filter element in place. Debris could be drawn into engine, causing damage.**

## HYDRAULIC TAPPETS

Tappets are self-adjusting, hydraulic type. They automatically adjust length to compensate for engine expansion and valve mechanism wear, keeping the valve mechanism free of lash when the engine is running.

When starting an engine which has been turned off even for a few minutes, the valve mechanism may tend to be slightly noisy until the hydraulic units completely refill with oil. If at any time, other than for a short period immediately after engine is started, valve mechanism becomes abnormally noisy, it is an indication that one or more of the hydraulic units may not be functioning properly. Always check the oil supply in the oil tank first, since normal circulation of oil through the engine is necessary for proper operation of the hydraulic units.

If there is oil in the tank, the units may not be functioning properly because of dirt in the oil supply passages leading to the lifter units. Inspect and clean tappet oil supply filter screen (1340cc engines, Figure 30). See your Harley-Davidson dealer for service.

## CLUTCH (Figure 37)

Periodic adjustment of the clutch and oiling of the clutch control cable is required every 5000 miles to compensate for lining wear. The need for attention to clutch and controls will also be indicated by the clutch slipping under load, or dragging in released position. In any case, the first thing to be checked is the control cable adjustment. See your Harley-Davidson dealer for proper service.

## BRAKES

Every 5000 miles, check the fluid level in the master cylinder reservoirs and check brake pads and brake discs for wear. Use only D.O.T. 5 HYDRAULIC BRAKE FLUID that is approved for brake system use and which is available from your Harley-Davidson dealer.

### WARNING

Because brake performance is a critical safety item,

brake system servicing requires special tools, correct replacement parts and procedures. We recommend that you see your Harley-Davidson dealer for these services.

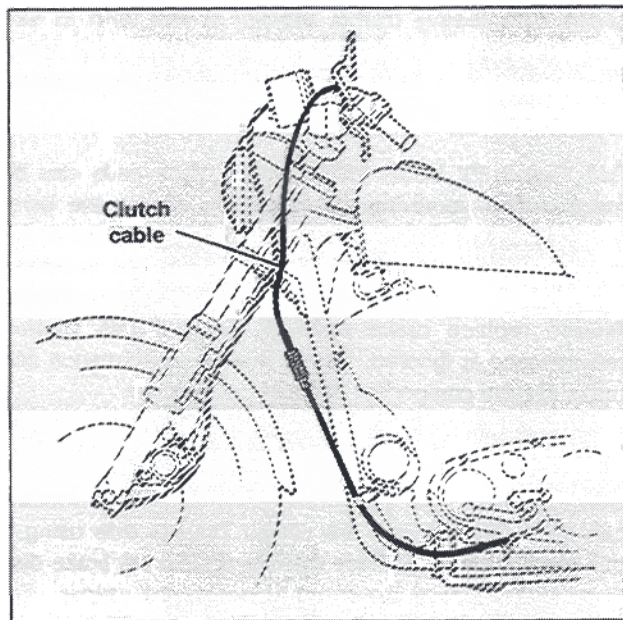


Figure 37. Clutch Control Cable (Typical)

### WARNING

Brake pads must be inspected for wear every 2500 miles. However, if you ride under adverse conditions, steep hills, heavy traffic, etc., or if you tend to use one brake only, more frequent inspection, 1000 miles or less, will be necessary. We do not recommend using only one brake.

See Figure 38. Visual inspection of brake pads can be made without removing the caliper by viewing the lower area of each caliper with the aid of a flashlight. If the brake pad friction material is 1/16 in. thick or less (the thickness of a nickel), **the pads must be replaced immediately.** Always replace brake pads in pairs. If this routine maintenance is ignored, loss in braking performance and brake system component damage could occur.

See Figure 39. The rear brake outer pad on all models can be measured from the caliper bracket side using a thin plastic 6 in. rule. Place the rule against the brake disc through the through the space alongside the caliper. For XLH models see Figure 40. The outer surface of the brake pad backing plate should measure 1/4 in. or more away

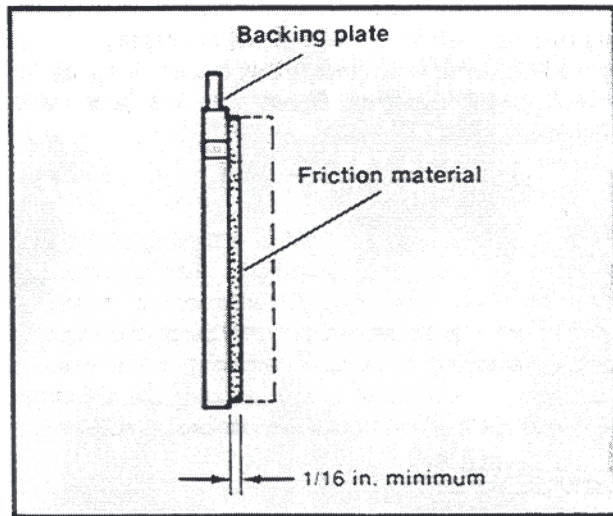


Figure 38. Brake Pad - Side View

from the brake disc. **If it measures less than 1/4 in., replace both brake pads immediately.**

#### NOTE

*This 1/4 in. dimension includes the thickness of the backing plate plus minimum 1/16 in. for friction material.*

A 243

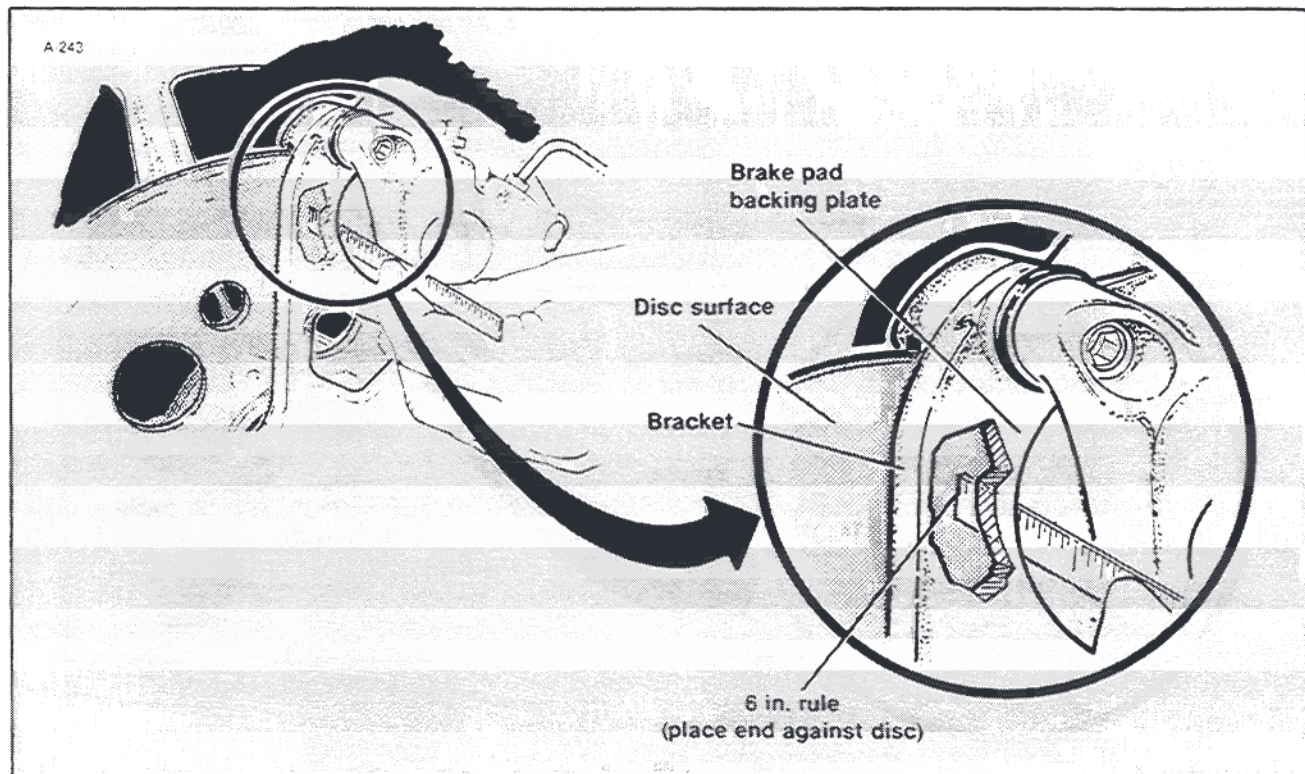


Figure 39. Measuring Rear Brake Outer Pad (Typical)



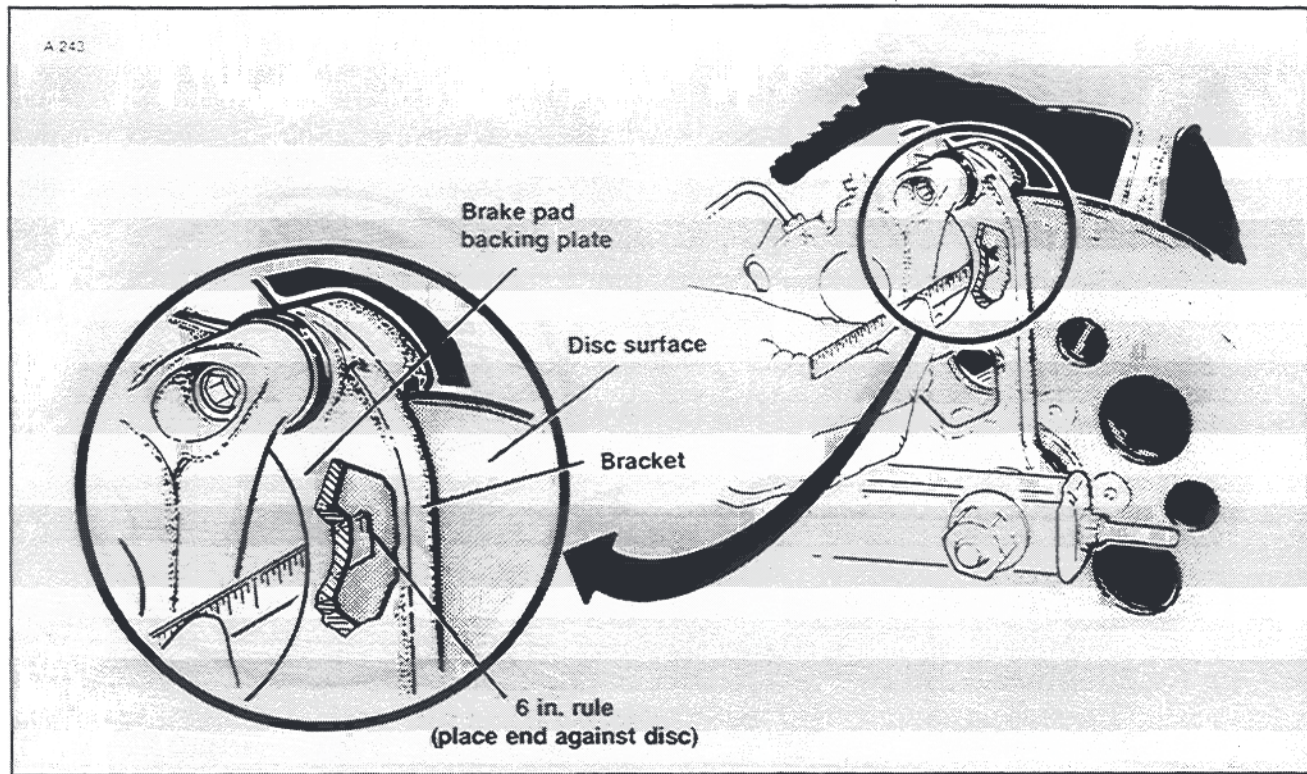


Figure 40. Measuring Rear Brake Outer Pad - XLH Models

## TIRES

Be sure to keep tires properly inflated. See TIRE DATA, for correct cold tire inflation pressures. Check before riding when tires are cold. Do not over-inflate tires.

### WARNING

**Improper tire inflation will cause abnormal tread wear and could result in unstable handling. Under-inflation could result in the tire slipping on the rim, or sudden tire failure.**

Check inflation pressure and inspect tread for punctures, cuts breaks, etc., at least weekly if in daily use; or before each trip, if used occasionally.

### WARNING

**Riding with excessively worn, unbalanced or improperly inflated tires is hazardous and will adversely affect traction, steering and handling.**

**Do not attempt to use damaged or punctured and repaired tire(s). Once a motorcycle tire has been damaged or punctured, it is unsafe to use.**

**Same as original equipment tires should be used. Other tires may not fit correctly, could cause unstable handling, and may be hazardous to use.**

**Because tires, tubes and wheels are critical safety items, and servicing these items requires special tools and skills, we recommend you see your dealer for these services.**

## SHOCK ABSORBERS

Shock absorbers and rubber bushings should be inspected every 5000 miles for leaks and bushing deterioration.

### NOTE

*Softail models shock absorbers are not repairable. See your dealer if leakage or malfunction occurs.*

## VEHICLE ALIGNMENT

### Isolation Mounted Engine Models

The stabilizer links and engine mounts should be checked for wear according to Service Manual procedures after the

first 500 miles and every 5000 miles thereafter. Stabilizer links should be replaced if they have 0.025 in. or more end play. See your Harley-Davidson dealer for this service.

#### **WARNING**

**Vehicle alignment is important. Vehicle stability is adversely affected if wheels are out of alignment. Major alignment of the front and rear wheel is partially controlled by two stabilizer links. One at the front of the engine and one at the top of the engine. Do not change the adjustment of the links. Changing the adjustment as little as 1/3 turn could adversely affect motorcycle stability.**

### **All Models**

Vehicle alignment should be checked after the first 500 miles, every 5000 miles thereafter and whenever the rear wheel is removed and installed or when the rear drive chain/belt is adjusted.

#### **WARNING**

**Major alignment should be performed only by your Harley-Davidson dealer using Service Manual procedures.**

## **WHEEL BEARINGS**

Bearings should be repacked at 10,000 mile intervals, once a year, or prior to storage. Use proper wheel bearing grease and new seals. Excessive play or roughness indicates worn bearings that will require replacement. Check each time wheel is removed.

## **FRONT FORK BEARINGS**

#### **WARNING**

**Adjustment of front fork bearings is critical. Improperly adjusted bearings will adversely affect motorcycle handling and stability. We recommend that fork bearing adjustments be performed by your Harley-Davidson dealer.**

Check front fork for proper bearing adjustment at 500 miles and every 5000 miles thereafter. With front end of motorcycle raised off the floor, make sure front fork turns freely without any binding or interference and that there is no appreciable front to rear fork shake indicating excessive bearing looseness. Steering head bearings should be adjusted according to Service Manual procedure, if necessary.

## REAR FORK PIVOT SHAFT

On all models except Softails, the tightness of the rear fork pivot nuts should be checked after the first 500 miles and every 5000 miles thereafter.

## SPARK PLUGS

Check the spark plugs every 5000 miles and replace if necessary. Replace the spark plugs every 10,000 miles on all models.

Disconnect spark plug cables from plugs by pulling on the molded connector caps. Connection is the simple snap-on type.

### CAUTION

**Do not pull on wires because this may damage the internal conductor causing high resistance and reduction in firing voltage.**

Before installing spark plugs, the gap should be checked and adjusted if necessary to 0.038 - 0.043 in.

Be sure that your motorcycle has the correct spark plug:

1340cc Models	.....	Harley-Davidson	5R6A
883, 1200cc Models	.....	Harley-Davidson	6R12

Spark plugs must be tightened to the torque specified for proper heat transfer. See chart below. If a torque wrench is not available, tighten plugs finger tight and tighten an additional one quarter turn with a spark plug wrench.

MODEL	TORQUE (ft-lbs)
1340cc Models	18 - 22
883, 1200cc Models	11 - 18

## IGNITION TIMING

Ignition timing is preset at the factory. Spark timing is advanced electronically as engine speed increases to suit starting, low speed and high speed requirements.

Ignition timing should be checked every 5000 miles. If ignition timing is not correct, see your Harley-Davidson dealer.

The engines in these vehicles have been designed specifically to achieve optimum fuel economy within exhaust emission controls. Ignition characteristics have been developed to provide maximum engine performance and driveability.

**Note**

The ignition control unit uses a two-stage curve. In certain transient load conditions, as the throttle is opened, the timing changes from normal to fully advanced. At this point, the operator can sometimes hear a noise that is similar to pre-ignition detonation. This noise should not be confused with detonation, which can be stopped by the use of a higher grade of fuel. It is caused by the instant pressure rise in the combustion chambers as the spark advances rapidly. This noise doesn't affect engine performance.

## HEADLAMP (Figure 41)

The headlamps are either sealed beam or replaceable quartz halogen bulb type. When replacement is required, use only the specified sealed beam unit or bulb, available from your Harley-Davidson dealer. Improper wattage sealed beam or bulb may cause charging system problems.

**CAUTION**

Never touch the quartz bulb with your fingers. Fingerprints will etch the glass and cause the bulb to fail. Always wrap the bulb in paper or a clean dry cloth during handling.

**WARNING**

The bulb contains Halogen gas under pressure. handle bulb carefully and wear eye protection to avoid possible personal injury.

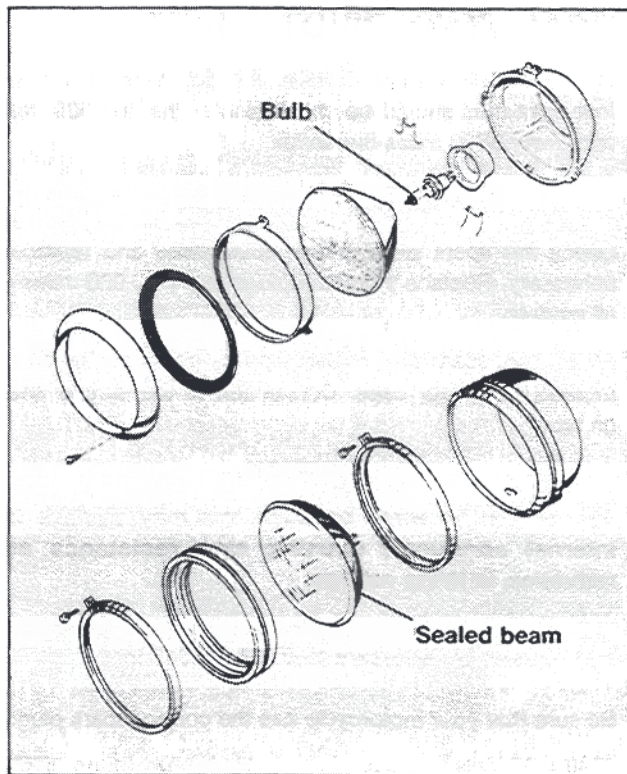


Figure 41. Headlamp

## ALTERNATOR CHARGING RATE AND RECTIFIER/REGULATOR

See Figure 42. The alternator output is controlled and changed to direct current by the rectifier/regulator located at the front of the engine. The rectifier/regulator increases charging rate when battery is low or lamps are lit, decreases charging rate when no lamps are lighted and when battery charge is up. This unit requires no interval attention. Should any electrical system trouble be experienced, that might be traceable to the alternator or rectifier/regulator, the motorcycle should be taken to your Harley-Davidson dealer who has the necessary electrical testing equipment to give required attention.

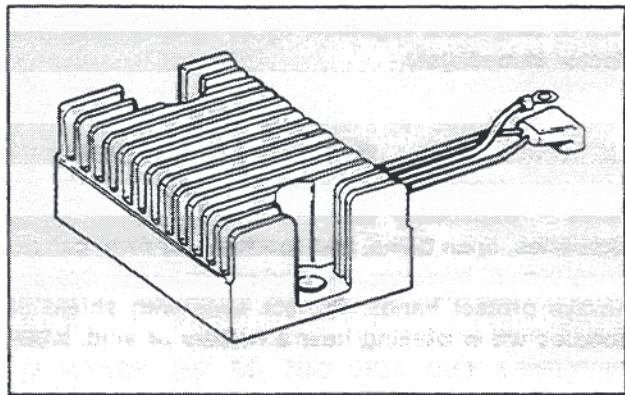


Figure 42. Rectifier/Regulator

## BATTERY (Figure 43)

See the following table for battery location.

Table 12. Battery Location

MODEL	LOCATION ON MOTORCYCLE
FLT Models	Right side - remove right saddlebag and right side cover to gain access to battery
FXR Models	Under seat
FXST/C, FLST/C, FXSTS Models	Under seat
XLH Models	Left side

It is the care given a battery, rather than the time and miles of service, which is most important in determining its life.

See Figure 43. Inspect the battery solution level at least once a month, adding pure distilled water as often as necessary to keep the solution above the plates. If the motorcycle is not used for an extended period of time, check battery solution level before placing in service.

Remove the battery filler plugs. With a hydrometer or syringe, add water to each cell to raise level of solution between upper and lower level limits shown on battery. Motorcycle should be in an upright position to check the solution level.

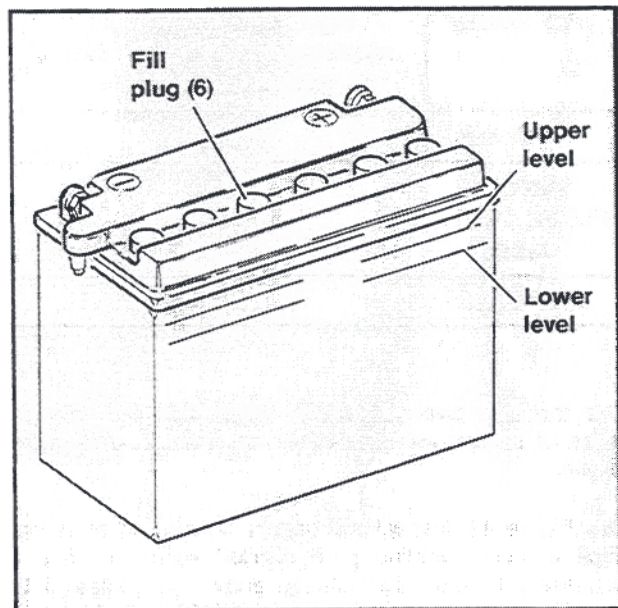


Figure 43. Battery

Clean connections and check tightness every 2500 miles or monthly.

#### **WARNING**

Batteries contain sulfuric acid which can cause severe burns. Avoid contact with skin, eyes or clothing.

#### **ANTIDOTE**

External - Flush with water.

Internal - Drink large quantities of water followed by milk of magnesia, vegetable oil, or beaten eggs. Call doctor immediately.

#### **WARNING**

Batteries produce explosive hydrogen gas at all times - especially when being charged. Keep cigarettes, open flame, and sparks away from battery at all times. Ventilate area when charging battery. Always protect hands. Protect eyes with shield or goggles when working near a battery or acid. **KEEP BATTERIES AND ACID OUT OF THE REACH OF CHILDREN!**

## CAUTION

If battery is filled to a higher level than specified, some of the solution will be forced out through the vent tube when battery is charging. This will not only weaken the solution, but also may damage parts near the battery. Keep battery clean and lightly coat terminals with petroleum jelly to prevent corrosion. Do not overtighten terminal connections. To prevent battery case damage caused by pressure build-up, be sure vent tube is properly routed and not kinked or obstructed.

## Battery Sulfation

Battery sulfation is the usual reason batteries stop holding an electrical charge.

Sulfation occurs when a battery stands in a discharged condition (low specific gravity of electrolyte) over a period of time or when the battery plates are exposed to the air because of low electrolyte level.

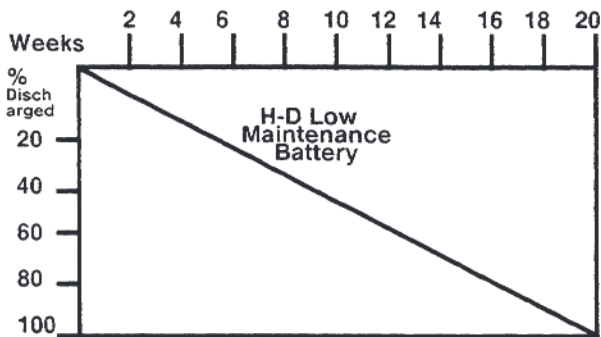
This causes the active lead materials to crystallize, permanently damaging the affected area. When this happens the battery will not hold a charge, and it cannot be restored to full capacity.

It is not true that the battery is no longer discharging when the motorcycle is parked and the ignition is turned off.

There are two possible ways for the battery to discharge itself.

1. Self Discharge: This is normal and occurs because the battery discharges internally. See Table 13. Batteries discharge continuously at a rate depending on the ambient temperature and the battery's state of charge.

**Table 13. Self Discharge Rate at 77° F**



2. Current drain: This occurs through electrical accessories that require continuous electricity, such as radio memories, clocks, etc. The current drain of each motorcycle is different depending on the model, model year and what electrical accessories it has.



To reduce battery self discharge, remove and store the battery in a cool, (not freezing) dry place when the motorcycle is being stored.

#### CAUTION

The more discharged a battery is, the more easily it can freeze.

## JUMP STARTING PROCEDURE

Harley-Davidson does not recommend jump-starting a vehicle, however we realize that there may be circumstances when it is done. Therefore, we suggest jump-starting be done as follows:

#### WARNING

When making connections, be sure the jumper cable clamps do not accidentally touch each other or anything else except battery terminals or appropriate ground.

#### WARNING

**Do not smoke or allow sparks while performing this procedure. Smoking or sparks could cause an explosion.**

#### NOTE

*This procedure presumes the BOOSTER battery is in another vehicle.*

#### WARNING

**Be sure the vehicles are not touching. Metallic parts contact between the two vehicles will cause a common ground which could ignite the gasoline in the tanks.**

#### CAUTION

**Be sure radio (if equipped) is turned off. A voltage surge will erase or damage the radio memory circuits.**

#### CAUTION

**All Harley-Davidson motorcycles have a 12 Volt battery and a 12 Volt electrical system. Be sure the the booster vehicle has a 12 Volt system or electrical components may be damaged.**

1. Turn off all unnecessary lights and accessories.

#### POSITIVE CABLE

2. See Figure 44. Connect one end of a jumper cable to the DISCHARGED battery positive (+) terminal.
3. Connect the other end of the same cable to the BOOSTER battery positive (+) terminal.

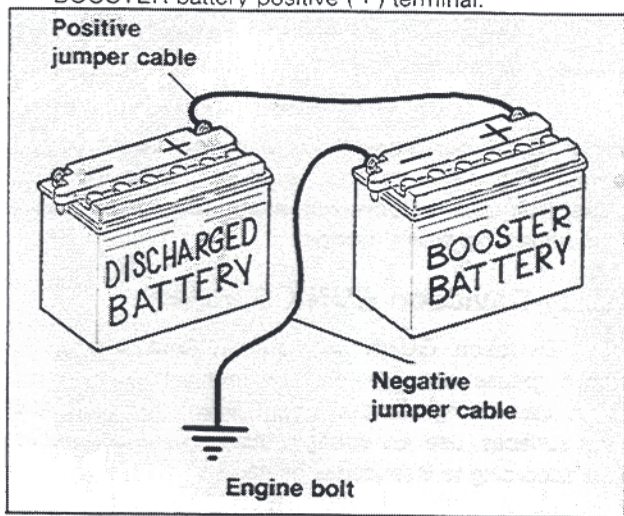


Figure 44. Jump Start Cable Connections

#### NEGATIVE CABLE

4. Connect one end of a jumper cable to the BOOSTER battery negative (-) terminal.

#### WARNING

- Suggested spot for ground cable connection is the **ENGINE CASE BOLTS**.
  - Do not connect negative cable to or near the discharged battery negative terminal. If you do, a spark could cause an explosion.
  - Be sure you do not connect the negative cable near the battery vent tube. A spark could cause an explosion.
  - Do not connect the negative cable to painted or chrome parts. They will become discolored at the attachment point.
5. Connect other end of the same cable to a safe ground, (away from the DISCHARGED battery).
  6. Start motorcycle.
  7. Disconnect cables in reverse order of steps 2, 3, 4, 5. That is: steps 5, 4, 3, 2.

## CIRCUIT BREAKERS

There are four circuit breakers to protect the motorcycle wiring: main, lighting, accessory, and ignition. Sound system equipped motorcycles may have one or two additional circuit breakers.

Each of these breakers is self-resetting and automatically returns steady power to the circuit when an electrical fault that causes it to trip is found and corrected. If the electrical fault is not found and corrected, the breaker cycles on and off causing the motorcycle to operate erratically and eventually the battery will lose its charge.

For electrical problems, it is best to see your Harley-Davidson dealer who has necessary parts and equipment to perform electrical services.

## GENERAL MAINTENANCE

Chrome and aluminum parts must be maintained regularly to ensure that they retain their original shine and luster. Care should be taken to keep your new Harley-Davidson motorcycle cleaned and waxed as often as possible to inhibit rust and corrosion.

## CLEANING YOUR MOTORCYCLE

To aid you in keeping your motorcycle clean, see your Harley-Davidson dealer for the following products:

### WARNING

**Observe warnings and cautions given on labels of cleaning compounds to prevent personal injury or damage to your motorcycle.**

### WARNING

**Do not wash your brake discs with any cleaners that contain either chlorine or silicon. Chlorine will cause rust and silicon will make the brake discs slick, impairing brake function.**

### Harley-Davidson GUNK Cleaner

Harley-Davidson GUNK will quickly and efficiently remove grease and oil from the metal parts of your motorcycle leaving a clean, bright finish. For unpainted metal surfaces, use full strength. For enameled surfaces dilute according to instructions on can.

### CAUTION

Do not allow GUNK cleaner to come in contact with any plastic parts such as windshield, trim strips, seat or saddlebags, since it will discolor the surface or cause deterioration. Use Harley-Davidson PLASTIC CLEANER, VINYL DRESSING or mild soap and water to clean these materials.

### CAUTION

When washing your motorcycle, be careful not to get the brakes, engine, mufflers or air cleaner too wet. Wet brake pads or a wet disc may affect braking, and a wet engine could start and run poorly until it dries. Start engine immediately after washing and be sure brakes and engine are operating properly before riding in traffic.

The following is a list of genuine Harley-Davidson parts, etc. designed for routine maintenance of your Harley-Davidson motorcycle.

	FLTC/ULTRA FLHT/ULTRA	FLST/C	XLH
	FLHS FXR/S/SP	FXST/C	883
	FXRT FXLR	FXSTS	1200
Oil Filters	63805-80	63805-80	63805-80
Spark Plugs	32311-83	32311-83	32317-86
Primary Chaincase			
Lube (qt.)	99887-84	99887-84	99896-88
Transmission			
Lube (qt.)	99892-84	99892-84	-
Fork Oil (Type E)	99884-80	99884-80	99884-80
Brake Fluid (DOT 5)	99902-77	99902-77	99902-77
Fuel Additive	99893-86	99893-86	99893-86
Rear Chain	-	-	40021-79B
Rear Belt	40001-85	40023-86	-
Air Cleaner	29259-86	29259-86	29036-88
Batteries - FXR	65991-82A	65991-82A	65991-82A
FLT	66010-82A		
Engine Oil	Genuine Motorcycle Oil (Qts. & Gallons) Multi-grade - 20W50 Regular Heavy - SAE 50 Extra Heavy - SAE 60		

Semi-Synthetic Transmission Lube - Qt. 99892-84,  
Gal. 99891-84  
Primary Chaincase Lube - Qt. 99887-84, Gal. 99886-84  
Fork Oil "Type E" - 16 oz. 99884-80  
Fork Oil Screamin' Eagle (heavy) - 16 oz. 99881-87  
D.O.T. 5 Brake Fluid - 12 oz. 99902-77, Gal. 99901-77  
Chain Lube plus (Recommended for O-ring chains.) -  
8 oz. 99865-81  
Gunk Motorcycle cleaner - 16 oz. Aerosol 99750-77,  
Gal. 99751-78, Qt. 99756-77  
Harley Glaze Polish & Sealant - 8 oz. 99701-84  
Genuine Fuel Additive - 8 oz. 99893-86  
Sport-Trans Fluid - Qt. 99896-86, Gal. 99895-88

## STORAGE

### Warning

**Proper long-term storage is important for the safe, trouble free operation of your Harley-Davidson motorcycle. Should you choose not to perform these tasks yourself, contact your Harley-Davidson dealer. He has the trained technicians who can complete the work according to Service Manual procedures using proper tools and equipment.**

## Placing Motorcycle In Storage

If the motorcycle will not be operated for several months, such as during the winter season, there are several things which should be done to protect parts against corrosion, to preserve the battery and to prevent the build-up of gum and varnish in the carburetor.

### Warning

**Fuel is flammable, Do not store motorcycle having gasoline in tank within the home or garage where open flames, pilot lights, sparks or electric motors are present.**

1. Drain all fuel from the fuel tank and carburetor float bowl. Spray the inside of the fuel tank with one of the commercially available rust preventatives. Follow the manufacturer's instructions.
2. Fill the oil tank and pinch off or remove and plug the line leading from the bottom of the oil tank to the feed fitting (marked F) on the oil pump. This will eliminate the possibility of oil seeping past the check ball into the oil pump and filling the engine flywheel compartment with oil. This does not apply to XLH models.

3. Adjust the chains/belts.

#### NOTE

*There is a drain screw at the bottom of the XLH C. V. carburetor float bowl. It is there to drain the float bowl. If you do not clean the float bowl, be sure you at least drain it.*

4. Remove the carburetor float bowl, clean it and check the float level.
5. Check tire inflation. If the motorcycle will be stored for an extended period of time, securely support the motorcycle under the frame so that all weight is off the tires.
6. Wax painted and chrome surfaces.
7. See BATTERY for proper battery care. Remove battery from the motorcycle and charge. Store the battery above freezing temperatures, trickle charge once a month and keep the electrolyte level above the plates.

#### Warning

**Keep battery away from areas that may have sparks or flames. A spark could cause an explosion.**

8. If motorcycle is to be covered, use a material such as light canvas, that will breathe. Plastic materials that do not breathe promote the formation of condensation.

## Removal From Storage

#### Warning

**After extended periods of storage and prior to starting vehicle, place transmission in gear, disengage clutch and push vehicle back and forth a few times to ensure proper clutch disengagement.**

1. See BATTERY for proper battery care. Be sure plates are covered by electrolyte before charging. Charge the battery, Fill with distilled water to the proper level and install it.
2. Remove and inspect the spark plugs. Replace if necessary.
3. Clean and oil the air cleaner element.
4. Remove the carburetor float bowl, clean it and check the float level.
5. Fill fuel tank with fresh gasoline.
6. If oil feed line was pinched off or plugged, unplug it and reconnect.
7. Start the engine and run until it reaches normal operating temperature.

8. Drain and flush the oil tank. Install a new oil filter and fill oil tank with the proper grade oil. Check the transmission lubricant level.
9. Check controls to be sure they are operating properly; operate the front and rear brakes, throttle, clutch and shifter.
10. Check steering for smoothness by turning the handlebars through the full operating range.
11. Check tire pressure. Incorrect pressure will result in poor riding characteristics and can affect handling and stability.
12. Check all electrical equipment and switches including the stoplamp, turn signals and horn for proper operation.
13. Check for any fuel, oil or brake fluid leaks.

## GENERAL

The following checklist of possible operating troubles and their probable causes will be helpful in keeping your motorcycle in good operating condition. More than one of these conditions may be causing the trouble and all should be carefully checked.

### WARNING

The troubleshooting section of this Owner's Manual is intended solely as a guide to diagnosing problems. Carefully read the appropriate sections of this manual before performing any work. Repair and maintenance operations not listed in this Owner's Manual are in the service manual and should be performed by your Harley Davidson dealer.

## ENGINE

### Starter Does Not Operate or Does Not Turn Engine Over

1. Engine run switch in "OFF" position.
2. Ignition switch not on.

3. Discharged battery or loose or corroded connections (solenoid chatters).

### Engine Turns Over But Does Not Start

1. Fuel tank empty.
2. Fuel valve turned off.
3. Fuel valve or filter clogged.
4. Discharged battery or loose or broken battery terminal connections.
5. Fouled spark plugs.
6. Spark plug cables in bad condition and shorting or cable connections loose.
7. Ignition timing badly out of adjustment.
8. Loose wire connection at coil or battery connection.
9. Engine flooded with fuel as a result of overchoking.
10. Engine oil too heavy (winter operation).

### Starts Hard

1. Spark plugs in bad condition or have improper gap or are partially fouled.
2. Spark plug cables in bad condition and leaking.
3. Battery nearly discharged.
4. Loose wire connection at one of the battery terminals or at coil.
5. Carburetor control not adjusted correctly.



6. Engine oil too heavy (winter operation).
7. Ignition not timed properly. See dealer.
8. Fuel tank cap bent or plugged, or carburetor fuel line closed off, restricting fuel flow.
9. Water or dirt in fuel system and carburetor.
10. Choke disc stuck in open position.
11. Air leak at intake manifold.

### **Starts But Runs Irregularly or Misses**

1. Spark plugs in bad condition or partially fouled.
2. Spark plug cables in bad condition and leaking.
3. Spark plug gap too close or too wide.
4. Battery nearly discharged.
5. Damaged wire or loose connection at battery terminals or coils.
6. Intermittent short circuit due to damaged wire insulation.
7. Water or dirt in fuel system, carburetor or filter.
8. Fuel tank cap vent plugged or carburetor vent line closed off.
9. Carburetor controls misadjusted.
10. Air leak at intake manifold or air cleaner.

### **A Spark Plug Fouls Repeatedly**

1. Incorrect spark plug for the kind of service.
2. Piston rings badly worn or broken. See dealer.

3. Fuel mixture too rich.
4. Valve guides badly worn. See dealer.
5. Excessive enrichener use.

### **Pre-ignition or Detonation (Knocks or Pings)**

1. Excessive carbon deposit on piston head or in combustion chamber.
2. Incorrect spark plug for the kind of service.
3. Ignition timing advanced. See dealer.
4. Fuel octane rating too low.

### **Overheats**

1. Insufficient oil supply or oil not circulating.
2. Heavy carbon deposit. See dealer.
3. Ignition timing retarded. See dealer.

### **Excessive Vibration**

1. Stabilizer links worn or loose.\* See dealer.
2. Engine isolation mounts loose.\* See dealer.
3. Rear fork pivot shaft nuts loose.\* See dealer.
4. Front engine mounting bolts loose.\* See dealer.
5. Engine to transmission mounting bolts loose.\* See dealer.

- 6 Broken frame. See dealer.
- 7 Front or rear chain belt badly worn or links tight as a result of insufficient lubrication.\*
- 8 Wheels and or tires damaged. See dealer.
- 9 Internal engine problem. See dealer.
- 10 Vehicle not properly aligned. See dealer.

\*If applicable.

## LUBRICATION SYSTEM

### Oil Does Not Return to Oil Tank

1. Oil tank empty.
2. Restricted oil lines or fittings. See dealer.
3. Restricted oil filter. See dealer.

### Engine Uses Too Much Oil or Smokes Excessively

1. Piston rings badly worn or broken. See dealer.
2. Valve guides worn. See dealer.

## Engine Leaks Oil From Cases, Push Rods, Hoses

1. Loose parts. See dealer.
2. Imperfect seal at gaskets, push rod cover, washers, etc. See dealer.
3. Restricted oil return line to tank. See dealer.
4. Restricted breather hose to air cleaner. See dealer.

## ELECTRICAL SYSTEM.

### Alternator Does Not Charge

1. Module not grounded. See dealer.
2. Engine ground wire loose or broken.\* See dealer.
3. Loose or broken wires in charging circuit. See dealer.

### Alternator Charge Rate is Below Normal

1. Weak battery.
2. Loose or corroded connections.

\*If applicable.

## **CARBURETOR**

### **Carburetor Floods**

1. Excessive "pumping" of hand throttle grip.

## **TRANSMISSION**

### **Transmission Shifts Hard**

1. Bent shifter rod. See dealer.
2. Transmission shifting mechanism needs adjustment." See dealer.

### **Transmission Jumps Out of Gear**

1. Shifter rod improperly adjusted. See dealer.
2. Shifter forks (inside transmission) improperly adjusted. See dealer.
3. Worn shifter dogs in transmission. See dealer.

### **Clutch Slips**

1. Clutch controls improperly adjusted. See dealer.
2. Worn friction discs.
3. Insufficient clutch spring tension.

### **Clutch Drags or Does Not Release**

1. Clutch controls improperly adjusted. See dealer.
2. Insufficient clutch spring tension. See dealer.
3. Clutch discs warped. See dealer.

### **Clutch Chatters**

1. Friction discs or steel discs worn or warped. See dealer.

\*If applicable.

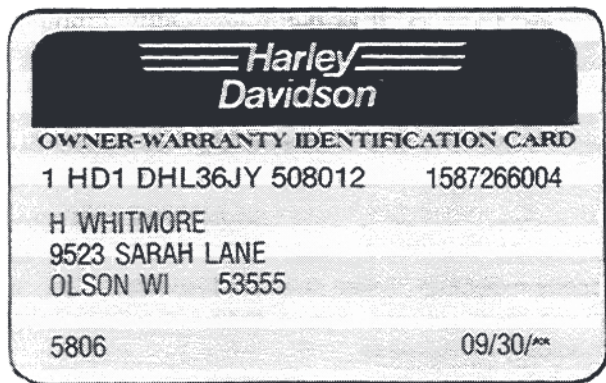
## **BRAKES**

### **Brakes Do Not Hold Normally**

1. Master cylinder low on fluid. See dealer.
2. Brake line contains air bubbles. See dealer.
3. Master or wheel cylinder piston worn. See dealer.
4. Brake pads contaminated with grease or oil. See dealer.
5. Brake pads badly worn (1/16 in. minimum lining thickness). See dealer.
6. Brake disc badly worn or warped. See dealer.
7. Brake fades due to heat build up. Brake pads dragging or excessive braking. See dealer.
8. Brake drags. Insufficient brake pedal or hand lever free play. See dealer.

## OWNER'S IDENTIFICATION CARD

See Figure 45. A permanent Owner's Identification Card is issued to each Harley-Davidson new motorcycle owner when the completed warranty registration form is received at Harley-Davidson, Inc.



**Figure 45. Owner's Warranty Identification Card**

The Owner's Identification Card is a permanent record showing proof of your ownership and gives all of the

information necessary for you and your dealer to simplify and expedite service and obtain parts and accessories.

Keep this card in your possession, since it is required by your Harley-Davidson dealer for any warranty service performed on your motorcycle.

If you have any questions regarding service or warranty, we recommend that you contact your Harley-Davidson dealer for service.

## WARRANTY AND MAINTENANCE

This Owner's Manual contains your new motorcycle warranty and a number of tear-out service coupons.

The approved service and maintenance procedures on each coupon and the mileage intervals cover items which are the owner's responsibility to have performed. All of the specified maintenance services must be performed to keep your warranty in force.

Bring this Owner's Manual along when you visit your dealer at the specified mileages to have your motorcycle inspected and serviced. Have the owner record stubs dated and signed for required proof of service during the warranty period. The dealer records should be retained by

the dealer, or owner, as a record of proper maintenance. Also keep other receipts covering any service or maintenance performed. These records should be transferred to each subsequent owner.

#### **WARNING**

**We caution you against the use of certain non-standard parts such as after-market and custom made extended front forks which may adversely affect performance and handling, and could cause an accident with possible injury to yourself or others. Removing or altering factory installed standard parts may also affect performance and cause injury. The use of any non-standard parts including mufflers may void your warranty according to terms of the warranty.**

Harley-Davidson dealerships are independently owned and operated and may sell parts and accessories that are not manufactured or approved by Harley-Davidson. Therefore, you should understand that we are not and cannot be responsible for the quality, suitability, or safety of any non-Harley-Davidson part, accessory or design modification, including labor, which may be sold and/or installed by our dealers.

## **IMPORTANT**

If you move from your present address, or sell your motorcycle, please fill out and mail the post card at the back of this manual.

## **CALIFORNIA EVAPORATIVE EMISSION CONTROL**

All new 1989 Harley-Davidson motorcycles sold in the state of California are equipped with an evaporative emission control system. This system is designed to meet the CARB regulations in effect at the time of manufacture.

The system requires a small amount of maintenance. Periodic inspection is required to make sure hoses are properly routed, not kinked or blocked, and that all fittings are secure. Mounting hardware should also be checked periodically for tightness.

Kits are available through authorized Harley-Davidson dealers to convert non-California vehicles to California specifications. If this need should arise, see your local California Harley-Davidson dealer for details.

## EPA NOISE REGULATIONS

EPA noise regulations require that the following statements be included in the Owner's Manual.

**TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED:** Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW.

1. Replacing the muffler(s) and/or the entire exhaust system with parts not certified to be noise legal for street use.
2. Removing or modifying the muffler internal baffles in any way.
3. Replacing the air intake/cleaner assembly with one not certified to be noise legal for street use.

4. Modifying the air intake/cleaner assembly in such a way as to make the vehicle no longer noise legal for street use.

Harley-Davidson recommends that any and all noise related maintenance be done by an authorized Harley-Davidson dealer using genuine Harley-Davidson parts.

### IMPORTANT

**If you move from your present address, or sell your motorcycle, please fill out and mail the post card at the back of this manual. This is necessary in the event that the Company needs to contact the owner concerning information that could affect the safe operation of his motorcycle.**

## WARRANTY/SERVICE INFORMATION

Your selling dealer is responsible for providing the warranty repair work on your motorcycle.

For normal service work or warranty work under the above conditions, you may obtain the name and location of your nearest Harley-Davidson dealer by calling **1-800-558-2001** (toll free), in any state except Wisconsin, Alaska, and Hawaii. In Wisconsin, call **1-800-242-3102** (toll free). Service is 24 hours a day, 365 days per year.

# HARLEY-DAVIDSON LIMITED WARRANTY (12 MONTHS/UNLIMITED MILEAGE)

*Harley-Davidson warrants to the first retail purchaser and his authorized transferees of our new 1989 model motorcycles/sidecars that our Selling Dealer will repair or replace without charge any parts (except tires, maintenance items and battery under certain conditions) found under normal use in the U.S.A. or Canada to be defective in factory materials or workmanship, and upon the following terms and conditions:*

## DURATION AND TRANSFER

1. The duration of this limited warranty is twelve months, measured from the date of initial retail purchase from an authorized Harley-Davidson Selling Dealer, with no mileage limitation.
2. Any unexpired portion of this limited warranty may be transferred, with written authorization, upon the resale of the motorcycle/sidecar during the first 12 months of ownership. To obtain authorization, a transfer application must be filed with Harley-Davidson together with a fee of \$25.00 to cover administrative costs, and the motorcycle/sidecar must pass inspection by one of our participating Dealers. The customer is responsible for any charge incurred for work performed by the Dealer beyond the inspection procedure itself. (See your Owner's Manual for complete details.)

## OWNER OBLIGATIONS

1. To qualify for warranty protection, you and the Selling Dealer must complete the Warranty Registration Form and return it to us within 10 days after delivery. We will then send you an Owner-Warranty Identification Card.
2. To obtain warranty service, return your motorcycle/sidecar at your expense within the warranty period to the Selling Dealer, or to any other authorized Dealer if you have moved a long distance, are touring a long distance, or need emergency service. You must be able to present your Owner-Warranty Identification Card and/or Owner's Manual upon our Dealer's request. Our Dealer should be able to provide warranty service

during his normal business hours and as soon as possible, depending upon his service department's workload and the availability of necessary parts.

## EXCLUSIONS

This warranty will not apply to any motorcycle/sidecar as follows:

1. Which has not been operated or maintained as specified in the Owner's Manual.
2. Which has been abused, altered outside of original factory specifications, improperly stored or used "off the highway", for racing or competition of any other kind.
3. Which has had the odometer removed or tampered with.

## OTHER LIMITATIONS

This warranty does not cover:

1. Parts and labor for normal maintenance as recommended in the Owner's Manual, including such items as the following: lubrication, oil and filter change, fuel system cleaning, battery maintenance, engine tune-up, spark plugs, brake, clutch and chain/belt adjustment (including chain replacement).
2. Seats, saddlebags, paint, chrome, or trim deterioration caused by ordinary wear and tear, exposure or improper maintenance.
3. Motorcycle battery after the first 6 months following the date of original retail motorcycle purchase, however, if your battery is found to

be defective, within the terms of this limited warranty, between the seventh through twelfth months, you will be charged for the full cost of our dealer's installation labor and for the cost of the battery's replacement, on a pro-rated basis. (See your dealer for complete details.)

## IMPORTANT/READ CAREFULLY

1. Our Dealers are independently owned and operated and may sell other products. Because of this, HARLEY-DAVIDSON IS NOT RESPONSIBLE FOR THE SAFETY, QUALITY, OR SUITABILITY OF ANY NON-HARLEY-DAVIDSON PART, ACCESSORY OR DESIGN MODIFICATION INCLUDING LABOR WHICH MAY BE SOLD AND/OR INSTALLED BY OUR DEALERS.
2. THERE IS NO OTHER EXPRESS WARRANTY (OTHER THAN EMISSIONS AND NOISE WARRANTIES) ON THE MOTORCYCLE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS IS LIMITED TO THE DURATION OF THIS WARRANTY.
3. TO THE FULLEST EXTENT ALLOWED BY LAW, HARLEY-DAVIDSON AND ITS DEALERS SHALL NOT BE LIABLE FOR LOSS OF USE, INCONVENIENCE, LOST TIME, COMMERCIAL LOSS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

HARLEY-DAVIDSON, INC.  
**LIMITED WARRANTY TRANSFER FORM**

(PLEASE PRINT)

VEHICLE IDENTIFICATION NUMBER

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

DEALERSHIP

-----		
NUMBER		
-----		
NAME		
-----		
ADDRESS		
-----		
CITY	STATE	ZIP

PURCHASER

-----		
FIRST	INITIAL	LAST
NAME		
-----		
ADDRESS		
-----		
CITY	STATE	ZIP

WARRANTY EXPIRATION DATE  
WILL BE 12 MONTHS FROM INITIAL  
RETAIL PURCHASE DATE

INSPECTION PERFORMED BY  
TRANSFER DEALER ON:

M	D	YR
---	---	----

**WARRANTY TRANSFER INSTRUCTIONS:**

To validate the warranty transfer, the following items must be complied with:

1. The prior purchaser must provide proof that required scheduled maintenance services have been performed. In the event they have not, it is the responsibility of the customer to have the next scheduled maintenance service performed or any other required work at his expense.
2. The vehicle must be inspected by an authorized Harley-Davidson Dealer to determine its condition if any of the
3. The Limited Warranty Transfer Form must be completed and forwarded to Harley-Davidson, Inc. by the dealer with the \$25.00 Transfer Fee. Upon receipt of this form the purchaser will receive a Owner-Warranty Identification Card.

conditions, listed under Exclusions in the Limited Warranty exist, the Warranty is not transferable.

*NOTE: Attach \$25.00 transfer fee to this form.*

**HARLEY-DAVIDSON USE ONLY**

**TRANSFER  
FEE RECEIVED:**

PURCHASER SIGNATURE

DATE

--	--

DEALER SIGNATURE

DATE

Copy Distribution:

White Original - to Harley-Davidson, Inc.

Yellow - for Customer      Pink - for Dealer

(Warranty Transfer Forms are available from your Harley-Davidson Dealer).



## **HARLEY-DAVIDSON EMISSION CONTROL SYSTEM WARRANTY**

The following warranty applies to the emission control system and is in addition to the LIMITED WARRANTY, and NOISE CONTROL SYSTEM WARRANTY.

Harley-Davidson Inc., warrants to the first owner and each subsequent owner that his vehicle is designed and built so as to conform at the time of sale with applicable regulations of the U.S. Federal Environmental Protection Agency at the time of manufacture and that it is free from defects in materials and workmanship which cause his motorcycle not to meet U.S. Environmental Protection Agency Standards within 5 years or 18,641 miles (30,000 kilometers) whichever occurs first.

The warranty period shall begin on the date the motorcycle is delivered to the first retail purchaser or, if the motorcycle is placed in service as a demonstrator or company vehicle prior to sale at retail, on the date it is first placed in service.

### **THE FOLLOWING ITEMS ARE NOT COVERED BY THE EMISSION CONTROL SYSTEM WARRANTY**

1. Failures which arise as a result of misuse, alterations, accident or non-performance of maintenance as specified in the Owner's Manual.
2. The replacement of parts (such as spark plugs, fuel and oil filters, etc.) used in required maintenance.
3. Loss of time, inconvenience, loss of motorcycle use or other consequential damages.
4. Any motorcycle on which the odometer mileage has been changed so that the mileage cannot be determined.

### **RECOMMENDATIONS FOR REQUIRED MAINTENANCE**

IT IS RECOMMENDED THAT ANY EMISSION SYSTEM MAINTENANCE BE PERFORMED BY AN AUTHORIZED HARLEY-DAVIDSON DEALER USING GENUINE HARLEY-DAVIDSON REPLACEMENT PARTS. THE MAINTENANCE, REPLACEMENT OR REPAIR OF THE EMISSION CONTROL SYSTEM MAY BE PERFORMED BY ANY OTHER QUALIFIED SERVICE OUTLET OR INDIVIDUAL. NON-GENUINE PARTS MAY BE USED ONLY IF SUCH PARTS ARE CERTIFIED TO COMPLY WITH U.S. ENVIRONMENTAL PROTECTION AGENCY STANDARDS.

**HARLEY-DAVIDSON, INC., P.O. Box 653 Milwaukee, Wisconsin 53201 U.S.A.**

## HARLEY-DAVIDSON NOISE CONTROL SYSTEM WARRANTY

The following warranty applies to the noise control system and is in addition to the LIMITED WARRANTY, and EMISSION CONTROL SYSTEM WARRANTY.

Harley-Davidson Inc., warrants to the first owner and each subsequent owner that his vehicle is designed and built so as to conform at the time of sale with applicable regulations of the U.S. Environmental Protection Agency (as tested following F-76 Drive-By test procedure) at the time of manufacture and that it is free from defects in materials and workmanship which cause his motorcycle not to meet U.S. Environmental Protection Agency Standards within 1 year or 3,730 miles (6,000 kilometers) whichever occurs first.

The warranty period shall begin on the date the motorcycle is delivered to the first retail purchaser or, if the motorcycle is placed in service as a demonstrator or company vehicle prior to sale at retail, on the date it is first placed in service.

### THE FOLLOWING ITEMS ARE NOT COVERED BY THE NOISE CONTROL SYSTEM WARRANTY

1. Failures which arise as a result of misuse, alterations, or accident as specified in the Owner's Manual.
2. Replacing, removing, or modifying any portion of the NOISE CONTROL SYSTEM (consisting of the exhaust system and air intake/cleaner assembly) with parts not certified to be noise legal for street use.
3. Loss of time, inconvenience, loss of motorcycle use or other consequential damages.
4. Any motorcycle on which the odometer mileage has been changed so that the mileage cannot be determined.

### RECOMMENDATIONS FOR REQUIRED MAINTENANCE

IT IS RECOMMENDED THAT ANY NOISE SYSTEM MAINTENANCE BE PERFORMED BY AN AUTHORIZED HARLEY-DAVIDSON DEALER USING GENUINE HARLEY-DAVIDSON REPLACEMENT PARTS. THE MAINTENANCE, REPLACEMENT OR REPAIR OF THE NOISE CONTROL SYSTEM MAY BE PERFORMED BY ANY OTHER QUALIFIED SERVICE OUTLET OR INDIVIDUAL. NON-GENUINE PARTS MAY BE USED ONLY IF SUCH PARTS ARE CERTIFIED TO COMPLY WITH U.S. ENVIRONMENTAL PROTECTION AGENCY STANDARDS.

HARLEY-DAVIDSON, INC., P.O. Box 653 Milwaukee, Wisconsin 53201 U.S.A.

# NOTES





## SERVICE LITERATURE

For more detailed and complete technical and parts information the following publications are available (Fall of 1989) through your Harley-Davidson dealer. Order by part numbers below.

<b>Publication</b>	<b>FLT/FXR Part No.</b>	<b>FLST/C, FXST/C, FXSTS Part No.</b>	<b>XLH Part No.</b>
<b>Service Manual</b> .....	<b>99483-89</b>	<b>99482-89</b>	<b>99484-89</b>
<b>Parts Catalog</b> .....	<b>99439-89</b>	<b>99439-89</b>	<b>99451-89</b>

# NOTES

# INDEX

	Page No.		Page No.
Accessories and Cargo .....	67	Carburetor .....	128
Adjustable Suspension - FLTC, FLHTC, FLHS ...	90	Chain, Drive .....	126
Adjustable Suspension - FXRT .....	92	Chain, Primary .....	125
Adjustable Suspension - FXR, XLH .....	95	Chassis Lubrication .....	128
Adjustable Suspension - Softail Models .....	94	Check at First 500 Miles .....	111
Air Cleaner .....	129	Checking Chaincase Lubricant .....	122
Alternator Charging Rate and Rectifier/Regulator ..	139	Checking Oil Level .....	116
		Choke/Enrichener .....	73
Battery 139		Circuit Breakers .....	144
Battery Sulfation .....	141	Cleaning Your Motorcycle .....	144
Brakes 75,131		Clock .....	86
Break-In Maintenance .....	110	Clutch .....	131
Break-In - The First 500 Miles .....	110	Clutch Handlever .....	73
Bulb Chart - FLTC, FLHTC, FLHS .....	21	Controls and Indicators .....	69
Bulb Chart - FXR .....	22	Custom .....	23
Bulb Chart - FLST/C, FXST/C, FXSTS .....	49		
Bulb Chart - FXLR, FXRS/SP, FXR .....	50	Dimensions - FLTC, FLHTC, ,FLHS, FXRT .....	18
Bulb Chart - XLH .....	61	Dimensions - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR .....	46
		Dimensions - XLH .....	58
California Evap. Emission Control .....	154	Drive - Chain .....	126
Capacities - FLTC, FLHTC, FXRT .....	18	Drive - Belt .....	126
Capacities - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR .....	46		
Capacities - XLH .....	58	Electric Starter .....	71
			173



	Page No.		Page No.
Engine - FLTC, FLHTC, FLHS, FXRT	18	Identification - XLH	51
Engine - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR	47	Ignition System - FLTC, FLHTC, FLHS, FXRT	19
Engine - XLH	58	Ignition System - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SE, FXR	47
Engine Lubrication	116	Ignition System - XLH	59
Engine Stop Switch	71	Ignition/Light Key Switch	69
EPA Noise Regulations	155	Ignition Timing	137
		Indicator Lights	78
Fork Lock	86	Jiffy Stand	86
Front Fork Bearings	136	Jump Start Procedure	142
Fuel	20, 48, 60	Luggage	96
Fuel Gauge	86		
Fuel Strainer	129	Maintenance and Lubrication	110
Fuel Supply Valve	87	Maintenance Intervals Chart	114
		Maintenance Coupons	161
Gear Shifter	74	Mirrors	85
General Maintenance	144		
		No. of Sprocket Teeth - FLTC, FLHTC, FLHS, FXRT	19
Hazard Warning Flasher	79	No. of Sprocket Teeth - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR	47
Headlamp	138	Number of Sprocket Teeth - XLH	59
Headlamp Dimmer Switch	75		
Horn Switch	75	Odometer	84
Hydraulic Tappets	130	Oil Filter	119
		Oil Pressure Gauge	85
Identification - FLTC, FLHTC, FLHS, FXRT	3	Operation	101
Identification - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR	25	Operating Recommendations	101

	<b>Page No.</b>
Overall Gear Ratios - FLTC, FLHTC, FLHS, FXRT	19
Overall Gear Ratios - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR	47
Overall Gear Ratios - XLH	59
Owner's Identification Card	153
Passing Lamp Switch	75
Pre-riding Checklist	102
Primary Chain - 1340cc	125
Primary Chain - XLH	125
Primary Chaincase Lubrication - 1340cc	122
Primary Chaincase Lubrication - XLH	124
Rear Drive Chain/Belt	126
Rear Fork Pivot Shaft	137
Rear Shock Absorber Adjustment - FLT, FXRT	85
Rear Shock Absorber Adjustment - Softail Models	94
Rear Shock Absorber Adjustment - FXR, XLH	95
Regular Service Intervals	113
Rider Troubleshooting	149
Rules of the Road	66
Saddlebag(s) - FLT	96
Safe Operating Maintenance	110
Safe Operating Rules	63
Safety First	63
Service Literature	171

	<b>Page No.</b>
Shifting Gears	105
Shock Absorbers	135
Sound System Controls	79
Spark Plugs	136
Specifications - FLTC, FLHTC, FLHS, FXRT	17
Specifications - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR	13
Specifications - XLH	57
Speedometer	79
Starting the Engine	104
Stopping Distance - FLTC, FLHTC, FLHS, FXRT	17
Stopping Distance - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SE, FXR	45
Stopping Distance - XLH	57
Stopping the Engine	106
Storage	146
Suspension Adjustments	90
Tachometer	83
Throttle Control Grip	73
Tire Data - FLTC, FLHTC, FLHS, FXRT	19
Tire Data - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR	47
Tire Data - XLH	59
Tires	135
Tour-Pak - FLT	96
Transmission - FLTC, FLHTC, FLHS, FXRT	19
	<b>175</b>

	<b>Page No.</b>
Transmission - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR .....	47
Transmission - XLH .....	59
Transmission Lubrication - 1340cc .....	121
Transmission Lubrication - XLH .....	122
Trip Odometer .....	84
Troubleshooting .....	147
Turn Signal Switches .....	78
Vehicle Alignment .....	135
Vehicle Identification Number (VIN) - FLTC, FLHTC, FLHS, FXRT .....	3
Vehicle Identification Number (VIN) - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR .....	25
Vehicle Identification Number (VIN) - XLH .....	51

	<b>Page No.</b>
Voltmeter .....	85
Warranties:	
Motorcycle Limited Warranty .....	156
Emission Control System Warranty .....	158
Noise Control System Warrant .....	159
Warranty and Responsibilities .....	153
Warranty and Maintenance .....	153
Warranty Service Information .....	155
Warranty (Important) Transfer .....	154, 157
Weights - FLTC, FLHTC, FLHS, FXRT .....	18
Weights - FLST/C, FXST/C, FXSTS, FXLR, FXRS/SP, FXR .....	46
Weights - XLH .....	58
Wheel Bearings .....	136

**10,000 MILE**  
(16000 km)  
**MAINTENANCE**

\_\_\_\_\_  
Date

\_\_\_\_\_  
Mileage

\_\_\_\_\_  
Dealer (or other) Signature

**OWNER RECORD**

**10,000 MILE**  
(16000 km)  
**MAINTENANCE**

You are authorized to perform the applicable maintenance and lubrication services listed on the back of this coupon. These services are to be performed at your regular rates and paid for by me, the owner. I also authorize you to road test this motorcycle for proper operation.

\_\_\_\_\_  
Owner's Signature

\_\_\_\_\_  
VIN

Date \_\_\_\_\_ Mileage \_\_\_\_\_

**DEALER RECORD**

## 10,000 MILE MAINTENANCE

1. Change engine oil.
2. Replace oil filter.
3. Clean tappet oil screen.\*
4. Change primary chaincase lubricant and clean magnetic drain plug.
5. Check and adjust chains/belt.
6. Inspect air cleaner and service as required.
7. Check battery electrolyte level. Check and clean battery connections.
8. Check rear brake pedal adjustment.
9. Inspect brake pads and discs for wear.
10. Check brake fluid reservoir levels and condition.
11. Inspect oil lines and brake system for leaks.
12. Lubricate the following: front brake handlever, throttle control cables, choke control cable, clutch control cable and handlever.
13. Check operation of throttle, choke or enricher controls.
14. Check clutch adjustment.
15. Grease the foot shift/brake lever bearings\* and speedometer cable.
16. Check tightness of all fasteners except engine head bolts.
17. Check tire pressure and inspect tread.
18. Check engine low and fast idle speed adjustment.
19. Inspect fuel valve, lines and fittings for leaks.
20. Clean fuel tank filter screen.
21. Check wheel spoke tightness.\*
22. Check operation of all electrical equipment and switches.
23. Check front fork bearing adjustment.
24. Check ignition timing and vacuum hose.
25. Change transmission lubricant and clean the magnetic drain plug.\*
26. Change spark plugs.
27. Check condition of rear shock absorbers.
28. Repack wheel bearings with grease.
29. Repack rear fork bearings.\*
30. Change front fork oil.\*
31. Check rocker bearings tightness.\*
32. Check stabilizer links\* and engine mounts.
33. Check air suspension - pressure, operation and leakage.\*
34. Road test.

\*If applicable.

## 10,000 MILE MAINTENANCE

1. Change engine oil.
2. Replace oil filter.
3. Clean tappet oil screen.\*
4. Change primary chaincase lubricant and clean magnetic drain plug.
5. Check and adjust chains/belt.
6. Inspect air cleaner and service as required.
7. Check battery electrolyte level. Check and clean battery connections.
8. Check rear brake pedal adjustment.
9. Inspect brake pads and discs for wear.
10. Check brake fluid reservoir levels and condition.
11. Inspect oil lines and brake system for leaks.
12. Lubricate the following: front brake handlever, throttle control cables, choke control cable, clutch control cable and handlever.
13. Check operation of throttle, choke or enricher controls.
14. Check clutch adjustment.
15. Grease the foot shift/brake lever bearings\* and speedometer cable.
16. Check tightness of all fasteners except engine head bolts.
17. Check tire pressure and inspect tread.
18. Check engine low and fast idle speed adjustment.
19. Inspect fuel valve, lines and fittings for leaks.
20. Clean fuel tank filter screen.
21. Check wheel spoke tightness.\*
22. Check operation of all electrical equipment and switches.
23. Check front fork bearing adjustment.
24. Check ignition timing and vacuum hose.
25. Change transmission lubricant and clean the magnetic drain plug.\*
26. Change spark plugs.
27. Check condition of rear shock absorbers.
28. Repack wheel bearings with grease.
29. Repack rear fork bearings.\*
30. Change front fork oil.\*
31. Check rocker bearings tightness.\*
32. Check stabilizer links\* and engine mounts.
33. Check air suspension - pressure, operation and leakage.\*
34. Road test.

\*If applicable.

**7500 MILE**  
(12000 km)  
**MAINTENANCE**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Mileage**

\_\_\_\_\_  
**Dealer (or other) Signature**

**OWNER RECORD**

**7500 MILE**  
(12000 km)  
**MAINTENANCE**

You are authorized to perform the applicable maintenance and lubrication services listed on the back of this coupon. These services are to be performed at your regular rates and paid for by me, the owner. I also authorize you to road test this motorcycle for proper operation.

\_\_\_\_\_  
**Owner's Signature**

\_\_\_\_\_  
**VIN**

**Date** \_\_\_\_\_ **Mileage** \_\_\_\_\_

**DEALER RECORD**

## 7500 MILE MAINTENANCE

1. Inspect engine oil.
2. Inspect rear chain/belt.
3. Inspect battery fluid level and connections.
4. Inspect brake pads and discs for wear.
5. Inspect fuel valve, lines and fittings for leaks.
6. Inspect tire pressure and inspect tread.
7. Inspect operation of throttle and choke or enricher controls.
8. Inspect operation of all electrical equipment and switches.
9. Inspect transmission lubricant.\*
10. Check stabilizer links\* and engine mounts.
11. Road test.

\*If applicable

## 7500 MILE MAINTENANCE

1. Inspect engine oil.
2. Inspect rear chain/belt.
3. Inspect battery fluid level and connections.
4. Inspect brake pads and discs for wear.
5. Inspect fuel valve, lines and fittings for leaks.
6. Inspect tire pressure and inspect tread.
7. Inspect operation of throttle and choke or enricher controls.
8. Inspect operation of all electrical equipment and switches.
9. Inspect transmission lubricant.\*
10. Check stabilizer links\* and engine mounts.
11. Road test.

\*If applicable

**5000 MILE**  
(8000 km)  
**MAINTENANCE**

\_\_\_\_\_ **Date**

\_\_\_\_\_ **Mileage**

\_\_\_\_\_ **Dealer (or other) Signature**

**OWNER RECORD**

**5000 MILE**  
(8000 km)  
**MAINTENANCE**

You are authorized to perform the applicable maintenance and lubrication services listed on the back of this coupon. These services are to be performed at your regular rates and paid for by me, the owner. I also authorize you to road test this motorcycle for proper operation.

\_\_\_\_\_ **Owner's Signature**

\_\_\_\_\_ **VIN**

**Date** \_\_\_\_\_ **Mileage** \_\_\_\_\_

**DEALER RECORD**



## 5000 MILE MAINTENANCE

1. Change engine oil.
2. Replace oil filter.
3. Clean tappet oil screen.\*
4. Change primary chaincase lubricant and clean magnetic drain plug.
5. Check and adjust chains/belt.
6. Inspect air cleaner and service as required.
7. Check battery electrolyte level. Check and clean battery connections.
8. Check rear brake pedal adjustment.
9. Inspect brake pads and discs for wear.
10. Check brake fluid reservoir levels and condition.
11. Inspect oil lines and brake system for leaks.
12. Lubricate the following: front brake handlever, throttle control cables, choke control cable, clutch control cable and handlever.
13. Check operation of throttle, choke or enrichener controls.
14. Check clutch adjustment.
15. Grease the foot shift/brake lever bearings\* and speedometer cable.
16. Check tightness of all fasteners except engine head bolts.
17. Check tire pressure and inspect tread.
18. Check engine low and fast idle speed adjustment.
19. Inspect fuel valve, lines and fittings for leaks.
20. Clean fuel tank filter screen.
21. Check wheel spoke tightness.\*
22. Check operation of all electrical equipment and switches.
23. Check front fork bearing adjustment.
24. Check ignition timing and vacuum hose.
25. Change transmission lubricant and clean the magnetic drain plug.\*
26. Inspect spark plugs.
27. Check condition of rear shock absorbers.
28. Check engine mounts.
29. Check air suspension - pressure, operation and leakage.\*
30. Road test.

\*If applicable.

## 5000 MILE MAINTENANCE

1. Change engine oil.
2. Replace oil filter.
3. Clean tappet oil screen.\*
4. Change primary chaincase lubricant and clean magnetic drain plug.
5. Check and adjust chains/belt.
6. Inspect air cleaner and service as required.
7. Check battery electrolyte level. Check and clean battery connections.
8. Check rear brake pedal adjustment.
9. Inspect brake pads and discs for wear.
10. Check brake fluid reservoir levels and condition.
11. Inspect oil lines and brake system for leaks.
12. Lubricate the following: front brake handlever, throttle control cables, choke control cable, clutch control cable and handlever.
13. Check operation of throttle, choke or enrichener controls.
14. Check clutch adjustment.
15. Grease the foot shift/brake lever bearings\* and speedometer cable.
16. Check tightness of all fasteners except engine head bolts.
17. Check tire pressure and inspect tread.
18. Check engine low and fast idle speed adjustment.
19. Inspect fuel valve, lines and fittings for leaks.
20. Clean fuel tank filter screen.
21. Check wheel spoke tightness.\*
22. Check operation of all electrical equipment and switches.
23. Check front fork bearing adjustment.
24. Check ignition timing and vacuum hose.
25. Change transmission lubricant and clean the magnetic drain plug.\*
26. Inspect spark plugs.
27. Check condition of rear shock absorbers.
28. Check engine mounts.
29. Check air suspension - pressure, operation and leakage.\*
30. Road test.

\*If applicable.

**2500 MILE**  
(4000 km)  
**MAINTENANCE**

\_\_\_\_\_  
Date

\_\_\_\_\_  
Mileage

\_\_\_\_\_  
Dealer (or other) Signature

**OWNER RECORD**

**2500 MILE**  
(4000 km)  
**MAINTENANCE**

You are authorized to perform the applicable maintenance and lubrication services listed on the back of this coupon. These services are to be performed at your regular rates and paid for by me, the owner. I also authorize you to road test this motorcycle for proper operation.

\_\_\_\_\_  
Owner's Signature

\_\_\_\_\_  
VIN

Date \_\_\_\_\_ Mileage \_\_\_\_\_

**DEALER RECORD**

## 2500 MILE MAINTENANCE

1. Inspect engine oil
2. Inspect rear chain/belt
3. Inspect battery fluid level and connections.
4. Inspect brake pads and discs for wear.
5. Inspect fuel valve, lines and fittings for leaks.
6. Inspect tire pressure and inspect tread.
7. Inspect operation of throttle and choke or enricher controls.
8. Inspect operation of all electrical equipment and switches.
9. Inspect transmission lubricant.\*
10. Check stabilizer links\* and engine mounts.
11. Road test

\*If applicable

## 2500 MILE MAINTENANCE

1. Inspect engine oil
2. Inspect rear chain/belt
3. Inspect battery fluid level and connections.
4. Inspect brake pads and discs for wear.
5. Inspect fuel valve, lines and fittings for leaks.
6. Inspect tire pressure and inspect tread.
7. Inspect operation of throttle and choke or enricher controls.
8. Inspect operation of all electrical equipment and switches.
9. Inspect transmission lubricant.\*
10. Check stabilizer links\* and engine mounts.
11. Road test.

\*If applicable.

**500 MILE**  
(800 km)  
**MAINTENANCE**

\_\_\_\_\_  
Date

\_\_\_\_\_  
Mileage

\_\_\_\_\_  
Dealer (or other) Signature

**OWNER RECORD**

**500 MILE**  
(800 km)  
**MAINTENANCE**

You are authorized to perform the applicable maintenance and lubrication services listed on the back of this coupon. These services are to be performed at your regular rates and paid for by me, the owner. I also authorize you to road test this motorcycle for proper operation.

\_\_\_\_\_  
Owner's Signature

\_\_\_\_\_  
VIN

Date \_\_\_\_\_ Mileage \_\_\_\_\_

**DEALER RECORD**

## 500 MILE MAINTENANCE

1. Change engine oil.
2. Replace oil filter.
3. Clean tappet oil screen.\*
4. Change primary chaincase lubricant and clean magnetic drain plug.
5. Check and adjust chains/belt.
6. Inspect air cleaner and service as required.
7. Check battery electrolyte level. Check and clean battery connections.
8. Check rear brake pedal adjustment.
9. Inspect brake pads and discs for wear.
10. Check brake fluid reservoir levels and condition
11. Inspect oil lines and brake system for leaks.
12. Lubricate the following: front brake handlever, throttle control cables, choke control cable, clutch control cable and handlever.
13. Check operation of throttle, choke or enrichener controls.
14. Check clutch adjustment.
15. Grease the foot shift and brake lever bearings.\*
16. Check tightness of all fasteners except engine head bolts.
17. Check tire pressure and inspect tread.
18. Check engine low and fast idle speed adjustment.
19. Inspect fuel valve, lines and fittings for leaks.
20. Clean fuel tank filter screen.
21. Check wheel spoke tightness.\*
22. Change transmission lubricant and clean magnetic drain plug.\*
23. Check operation of all electrical equipment and switches.
24. Check front fork bearing adjustment.
25. Check stabilizer links\* and engine mounts.
26. Check air suspension - pressure, operation and leakage.\*
27. Road test.

\*If applicable.

## 500 MILE MAINTENANCE

1. Change engine oil.
2. Replace oil filter.
3. Clean tappet oil screen.\*
4. Change primary chaincase lubricant and clean magnetic drain plug.
5. Check and adjust chains/belt.
6. Inspect air cleaner and service as required.
7. Check battery electrolyte level. Check and clean battery connections.
8. Check rear brake pedal adjustment.
9. Inspect brake pads and discs for wear.
10. Check brake fluid reservoir levels and condition
11. Inspect oil lines and brake system for leaks.
12. Lubricate the following: front brake handlever, throttle control cables, choke control cable, clutch control cable and handlever.
13. Check operation of throttle, choke or enrichener controls.
14. Check clutch adjustment.
15. Grease the foot shift and brake lever bearings.\*
16. Check tightness of all fasteners except engine head bolts.
17. Check tire pressure and inspect tread.
18. Check engine low and fast idle speed adjustment.
19. Inspect fuel valve, lines and fittings for leaks.
20. Clean fuel tank filter screen.
21. Check wheel spoke tightness.\*
22. Change transmission lubricant and clean magnetic drain plug.\*
23. Check operation of all electrical equipment and switches.
24. Check front fork bearing adjustment.
25. Check stabilizer links\* and engine mounts.
26. Check air suspension - pressure, operation and leakage.\*
27. Road test.

\*If applicable.

### **PATENT NOTICE**

Harley-Davidson products are manufactured under one or more of the following patents: U.S. Patents – 2986162, 2987934, 2998809, 3116089, 3144631, 3144860, 3226994, 3229792, 3434887, 3559773, 3673359, 3709317, Des.225, 626.

To the best knowledge of Harley-Davidson, Inc., the material contained herein is accurate as of the date this publication was approved for printing. Harley-Davidson, Inc., reserves the right to change specifications, equipment, or designs at any time without notice and without incurring obligation.

**HARLEY-DAVIDSON, INC.**





\* 9 9 4 6 6 - 8 9 \*



**Harley-Davidson, Inc.**  
Technical Communications Dept.  
Milwaukee, WI 53201

Part No. 99466-89