1990 Owner's Manual

HARLEY-DAVIDSON, INC.®

IMPORTANT NOTICE!

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

WARNING

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

CAUTION

Means there is a 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.

Printed in the U.S.A.

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.

WE CARE ABOUT YOU

When enjoying your Harley-Davidson motorcycle, be sure to ride safely, defensively and within the limits of the law. Ride with your headlamp on, always wear a helmet, proper eyewear and protective clothing, and insist your passenger does too. Never ride while under the influence of alcohol or drugs. Know your Harley® and read your Owner's Manual cover to cover. Protect your privilege to ride by joining the American Motorcyclist Association.

Harley-Davidson, Inc.

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Printed in U.S.A.

PERSONAL INFORMATION	VEHICLE INFORMATION
Name _____	Vehicle Identification No. _____
Address _____	Key No. Ignition _____
Telephone No. _____	

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.

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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

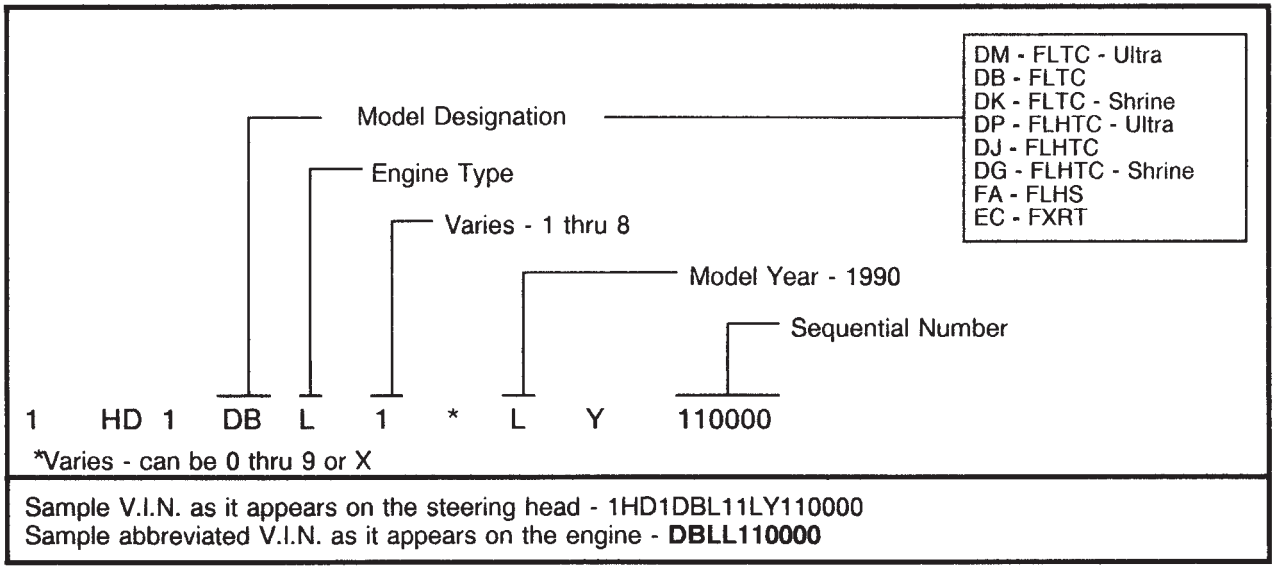
NOTES

VEHICLE IDENTIFICATION NUMBER (V.I.N.)

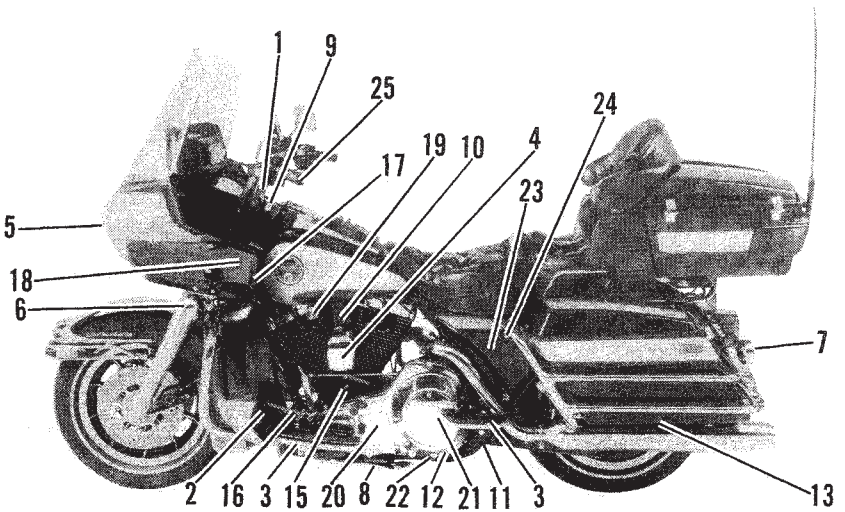
The full 17 digit serial, or Vehicle Identification Number (V.I.N.) is stamped on the steering head and on a label located on the right front frame downtube. An abbreviated V.I.N. is stamped on the left side crankcase at the base of the rear cylinder.

NOTE

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

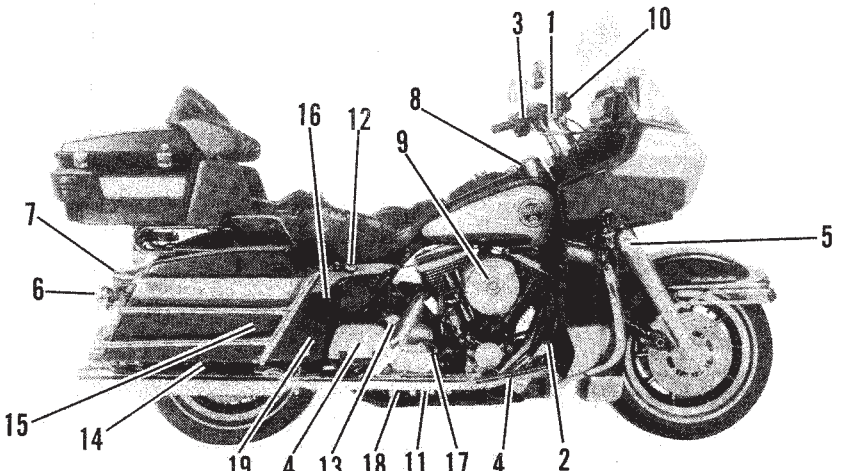


Sample V.I.N. as it appears on the steering head - 1HD1DBL11LY110000
Sample abbreviated V.I.N. as it appears on the engine - **DBLL110000**



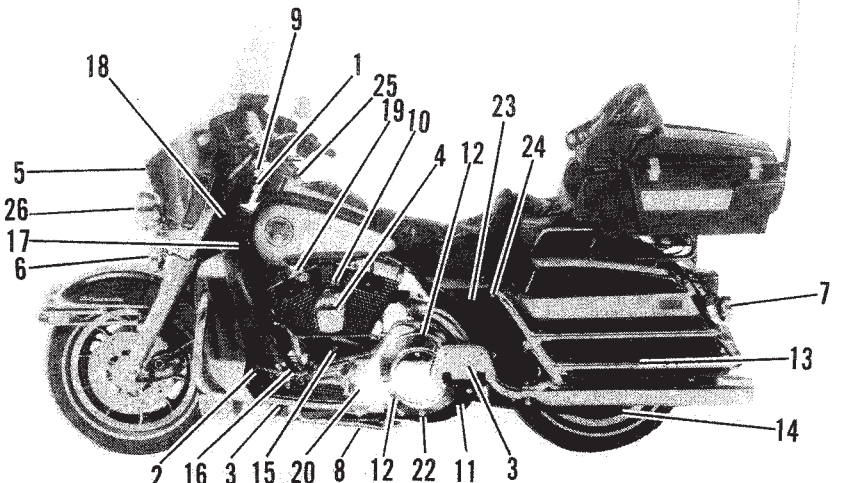
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch/fork lock
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
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. Rear brake fluid reservoir (under side cover)
24. Rear suspension air valve
25. Front suspension air valve

FLTC Ultra - Left Side View



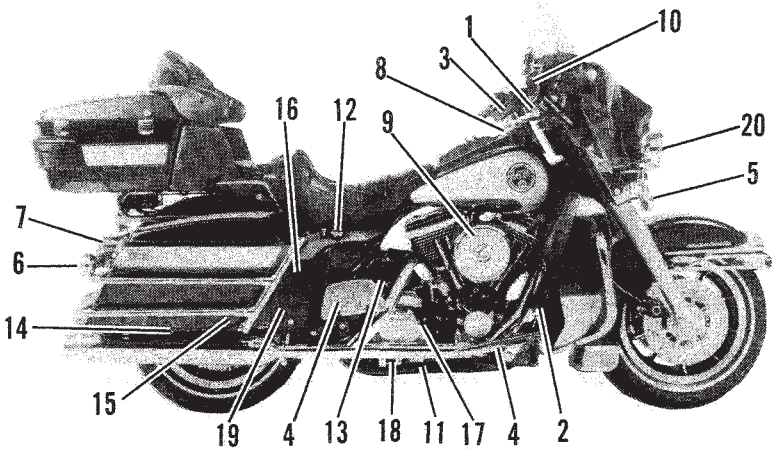
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FLTC Ultra - Right Side View



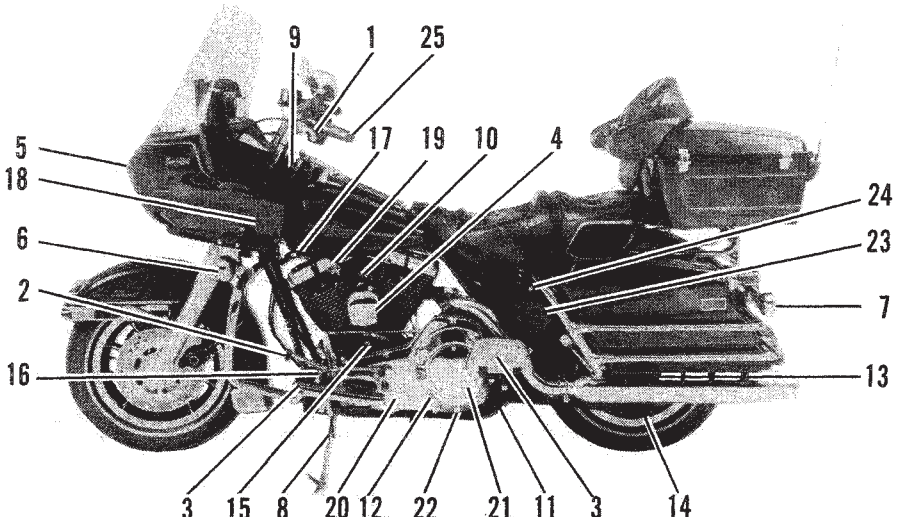
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch/fork lock
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
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. Rear brake fluid reservoir (under side cover)
24. Rear suspension air valve
25. Front suspension air valve
26. Passing lamp

FLHTC Ultra - Left Side View



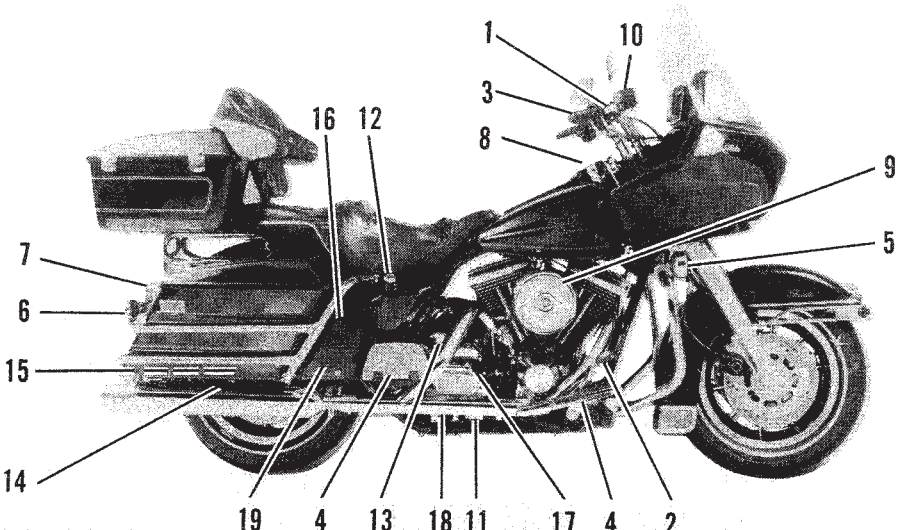
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FLHTC Ultra - Right Side View



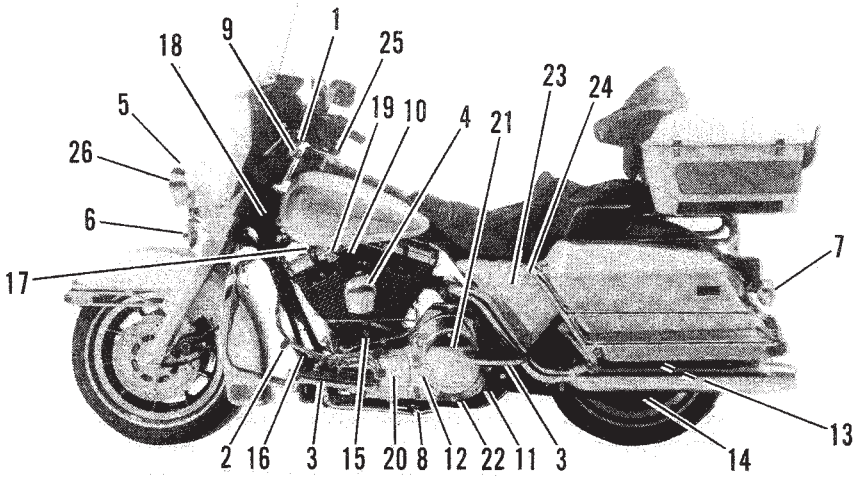
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch/fork lock
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
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. Rear brake fluid reservoir (under side cover)
24. Rear suspension air valve
25. Front suspension air valve

FLTC - Left Side View



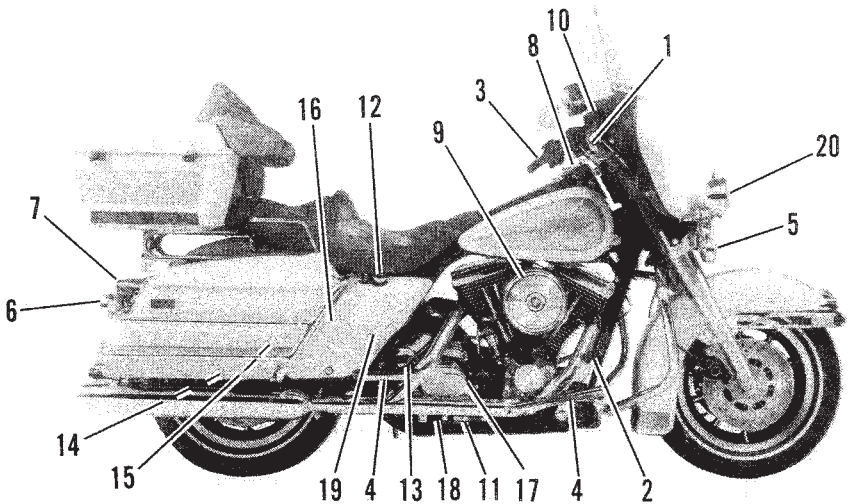
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FLTC - Right Side View



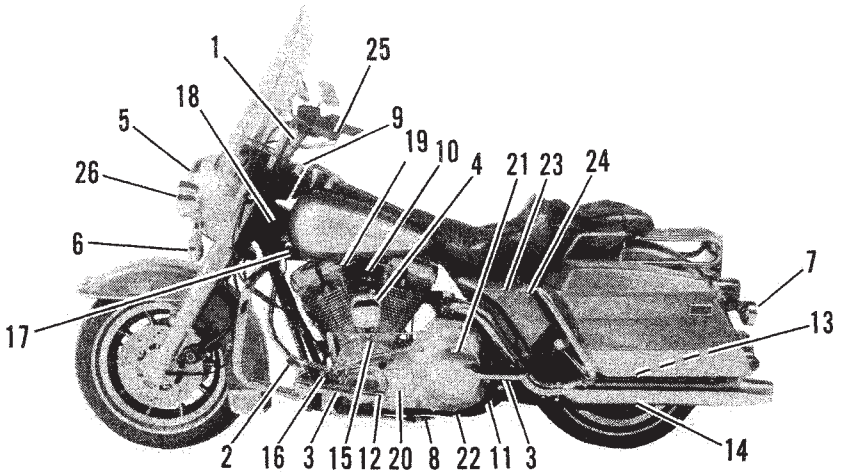
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch/fork lock
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
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. Rear brake fluid reservoir (under side cover)
24. Rear suspension air valve
25. Front suspension air valve
26. Passing lamp

FLHTC - Left Side View



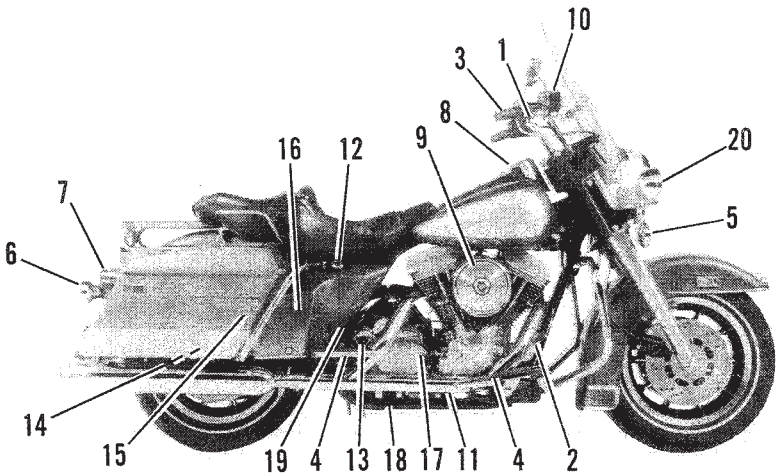
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FLHTC - Right Side View



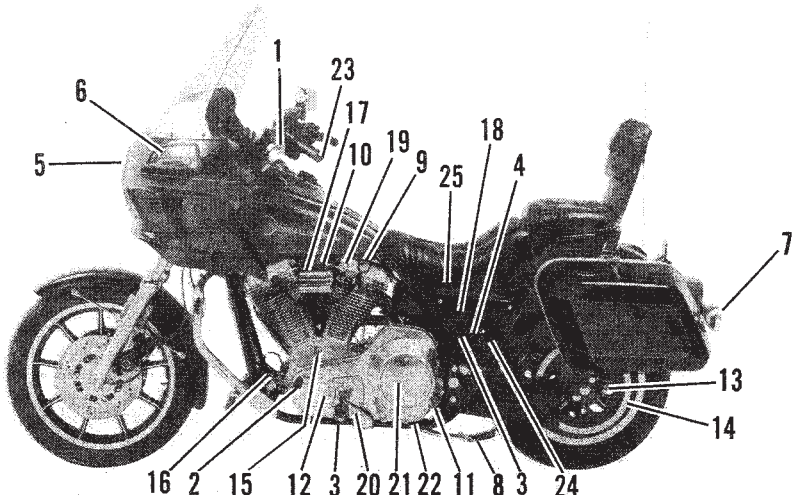
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch/fork lock
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
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. Rear brake fluid reservoir (under side cover)
24. Rear suspension air valve
25. Front suspension air valve
26. Passing lamp

FLHS - Left Side View



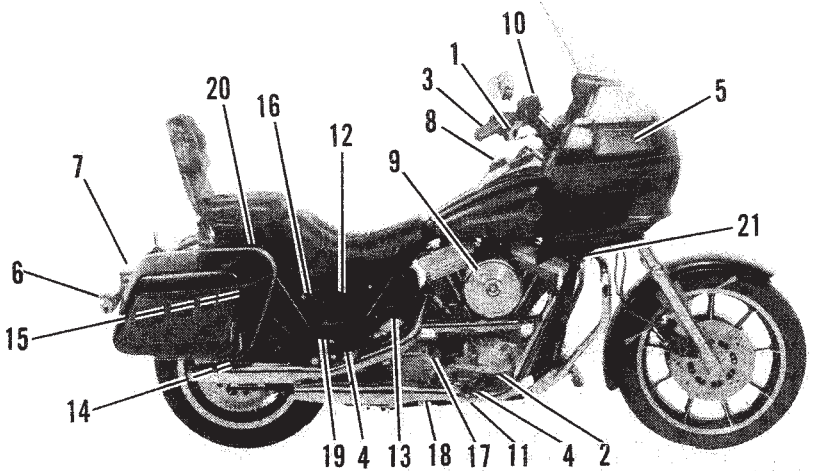
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FLHS - Right Side View



1. Clutch handlever
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/fork lock
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. Front suspension air valve
24. Engine Oil tank drain (under side cover)
25. Seat release

FXRT - Left Side View



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

FXRT - Right Side View

NOTES

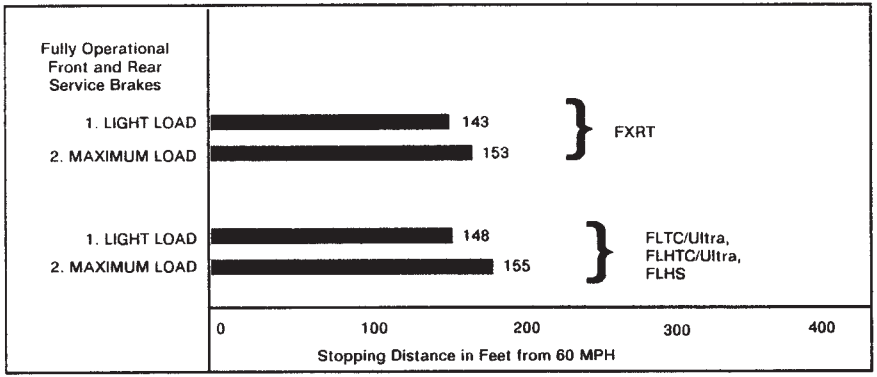
STOPPING DISTANCE

Description of vehicle: Harley-Davidson 1990 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
DRY WEIGHT (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
Fuel Tank (Gallons)				
Total	5	5	5	3.8
Reserve	0.9	0.9	0.9	0.4
Oil Tank (Quarts) w/filter	4	4	4	3.0
Transmission (Pints)	1	1	1	1
Front Fork - Each (Ounces, wet)	7.75	7.75	7.75	10.5
Primary Chaincase (Quarts, approx.).	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, 22 amp. hr.
		FXRT - 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. in. (cc)	Torque lb-ft @rpm
FLT Models 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
Second Gear 7.45
Third Gear 5.40
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 spoked) 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.

1990 VEHICLES DUNLOP TIRES ONLY		TIRE PRESSURE PSI (COLD)	
		FRONT	REAR
Solo Rider	FLTC/Ultra	36	36
	FLHTC/Ultra	36	36
	FLHS	36	36
Rider & one passenger	FLTC/Ultra	36	40
	FLHTC/Ultra	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 (at least 87 pump octane). Octane rating is usually found on the pump.

CAUTION

Using gasoline that has an alcohol additive, such as methanol, may cause fuel system rubber components' failure and/or engine damage.

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.

Todays' 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/ULTRA, FLHTC/ULTRA, 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/ULTRA, FLHS	1	2.73	67697-81
Tail and Stop Lamp	1 (Ultra – 3)		68165-64
Tail Lamp		0.59	
Stop lamp		2.10	
Passing Lamps - FLHTC/ULTRA, 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/ULTRA, FLHTC/ULTRA	4	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	1		67697-81
High Beam		3.90	
Low Beam		2.73	
Tail and Stop Lamp	1		68165-64
Tail Lamp		0.59	
Stop lamp		2.10	
Turn signal Lamps			
Front	2	2.10	68165-64
Rear	2	2.10	68572-64A
Instrument Panel Lamps			
Fuel Gauge	1	0.04	71099-74
Speedometer	2	0.08	53439-71
Tachometer	1	0.08	53439-71
High Beam Indicator	1	0.08	68588-86
Neutral Indicator	1	0.27	68574-83
Oil Pressure Indicator	1	0.08	68489-83
Turn Signal Indicator	2	0.27	68465-86

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

FLSTC	Heritage Softail Classic
FLST	Heritage Softail
FXSTC	Softail Custom
FXST	Softail
FXSTS	Softail Springer
FLSTF	Fat Boy
FXLR	Low Rider Custom
FXRS-SP	Low Rider Sport
FXRS-CON	Low Rider Convertible
FXRS	Low Rider
FXR	Super Glide

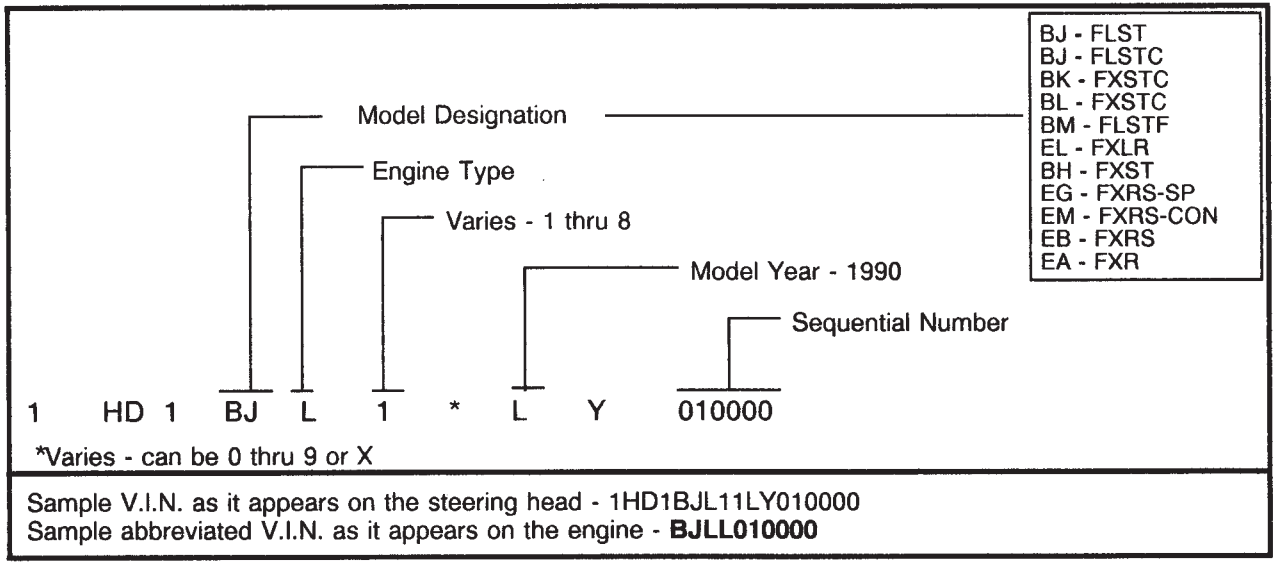
NOTES

VEHICLE IDENTIFICATION NUMBER (V.I.N.)

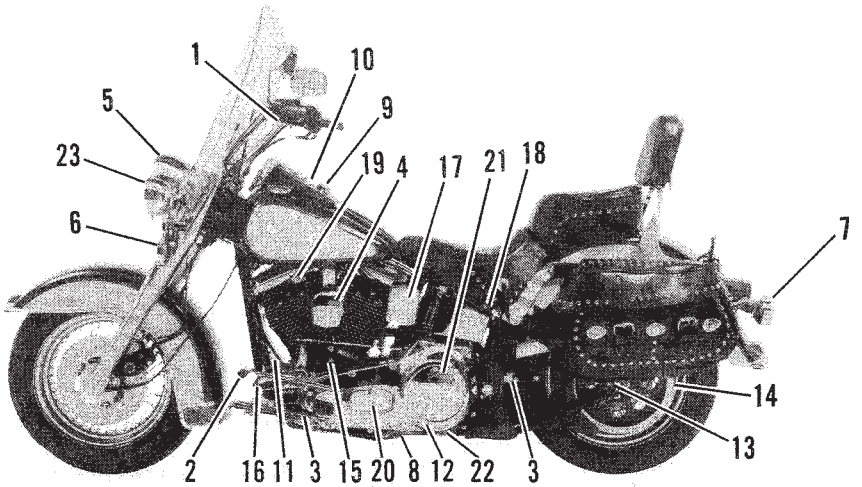
The full 17 digit serial, or Vehicle Identification Number (V.I.N.) is stamped on the steering head and on a label located on the right front frame downtube. An abbreviated V.I.N. is stamped on the left side crankcase at the base of the rear cylinder.

NOTE

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

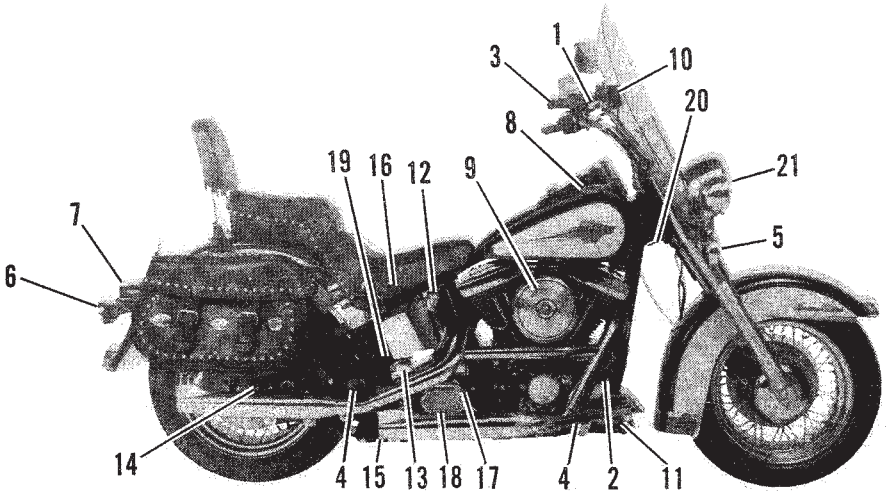


Sample V.I.N. as it appears on the steering head - 1HD1BJL11LY010000
Sample abbreviated V.I.N. as it appears on the engine - **BJLL010000**



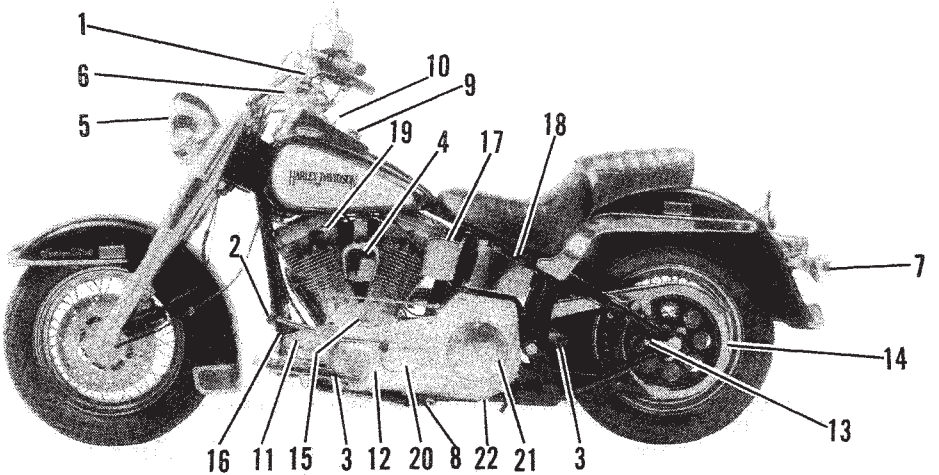
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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



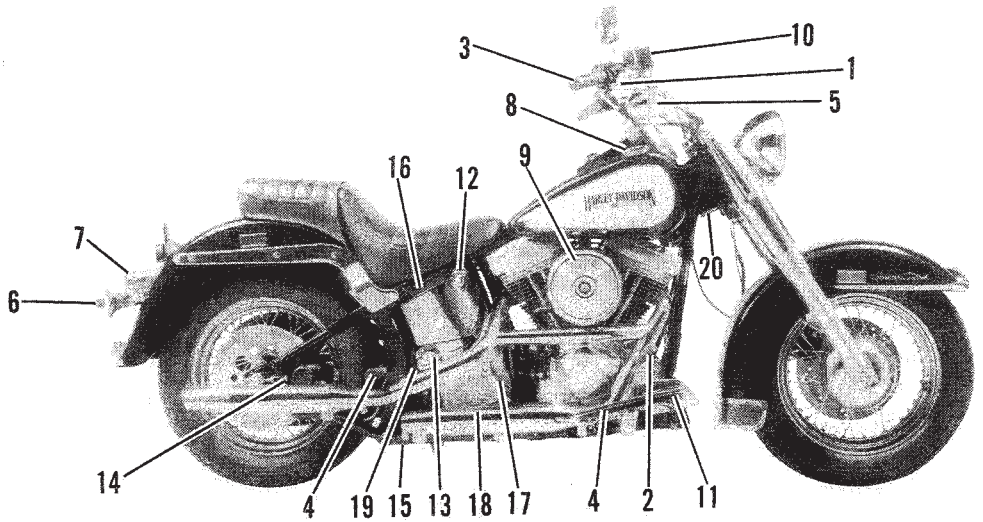
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder & reservoir
12. Engine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

FLSTC - Right Side View



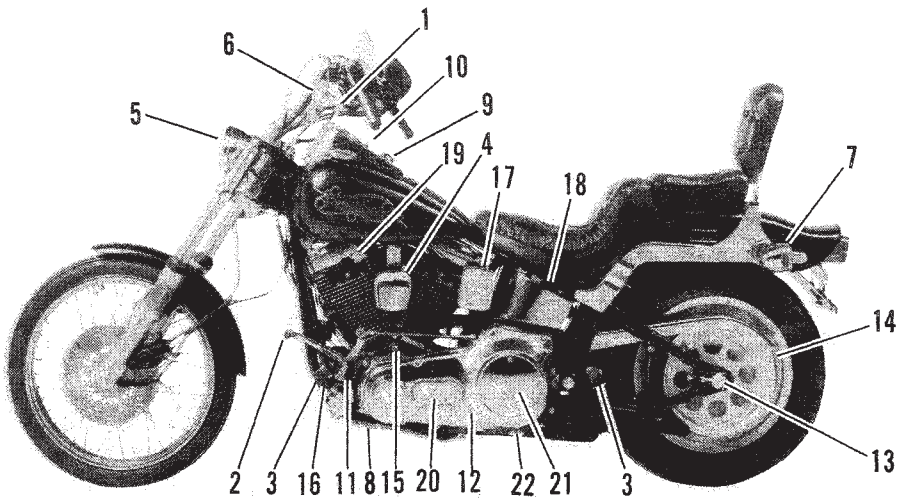
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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

FLST - Left Side View



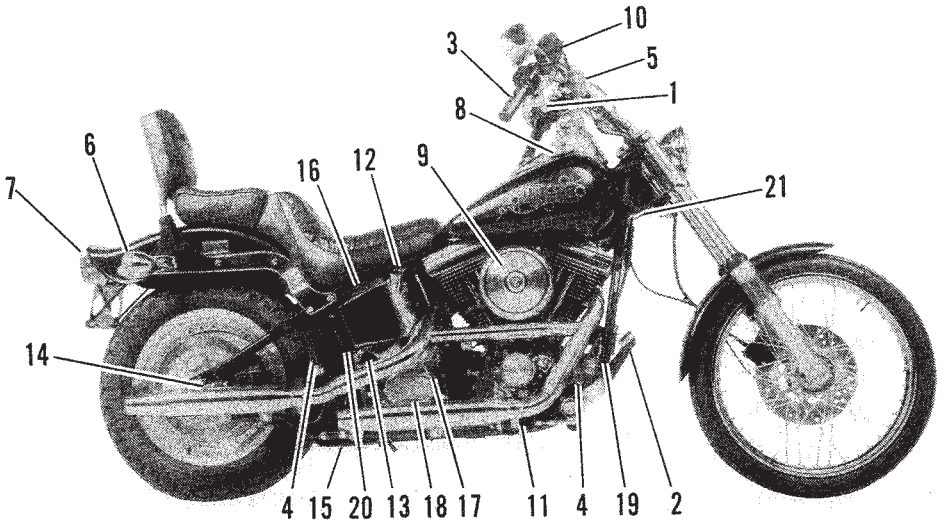
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder & reservoir
12. Engine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

FLST - Right Side View



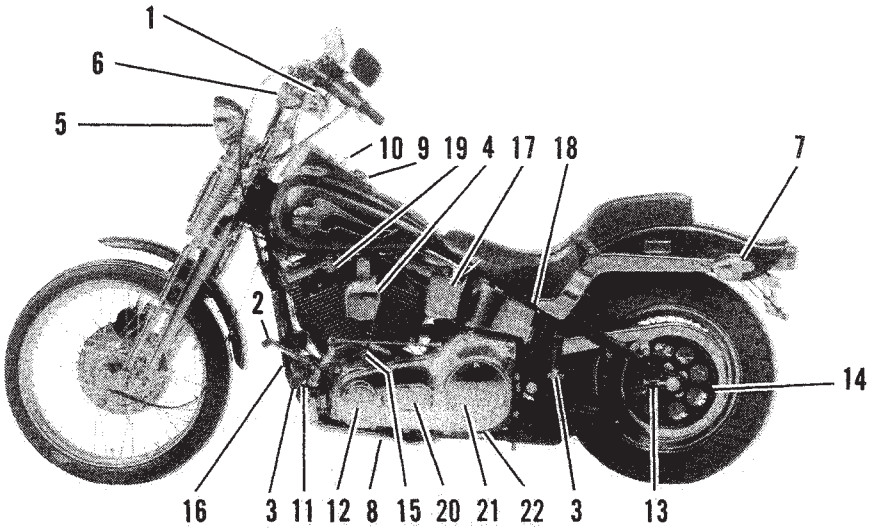
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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

FXSTC - Left Side View



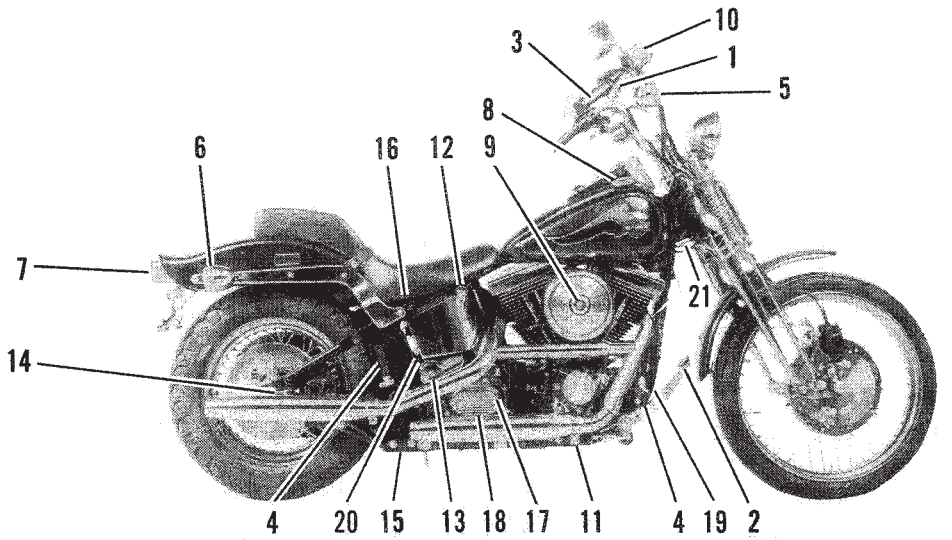
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FXSTC - Right Side View



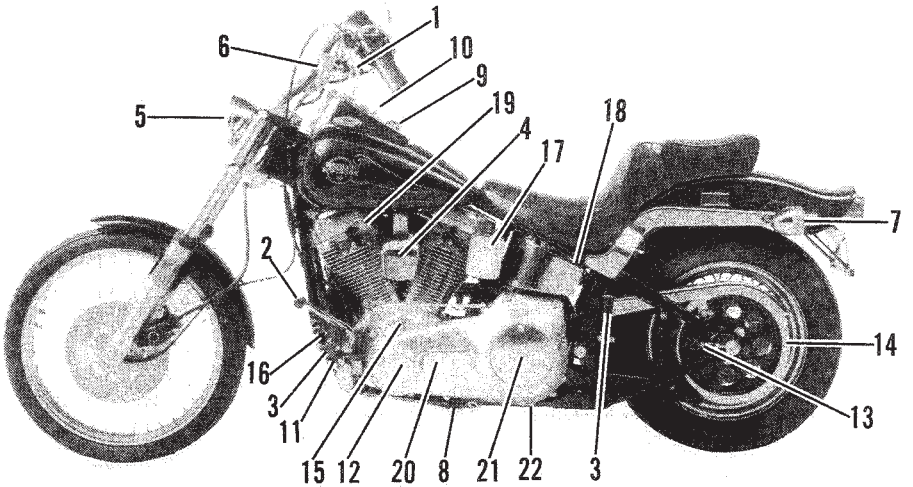
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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

FXSTS - Left Side View



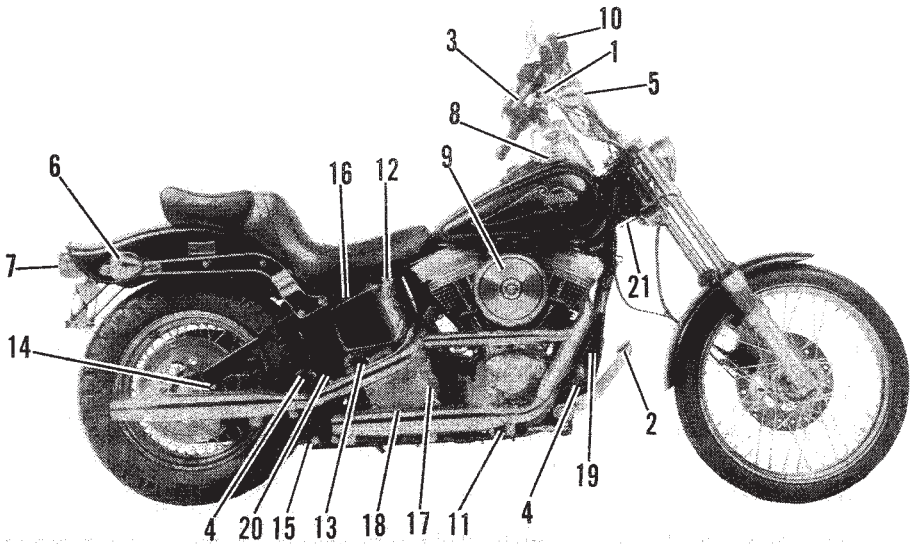
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FXSTS - Right Side View



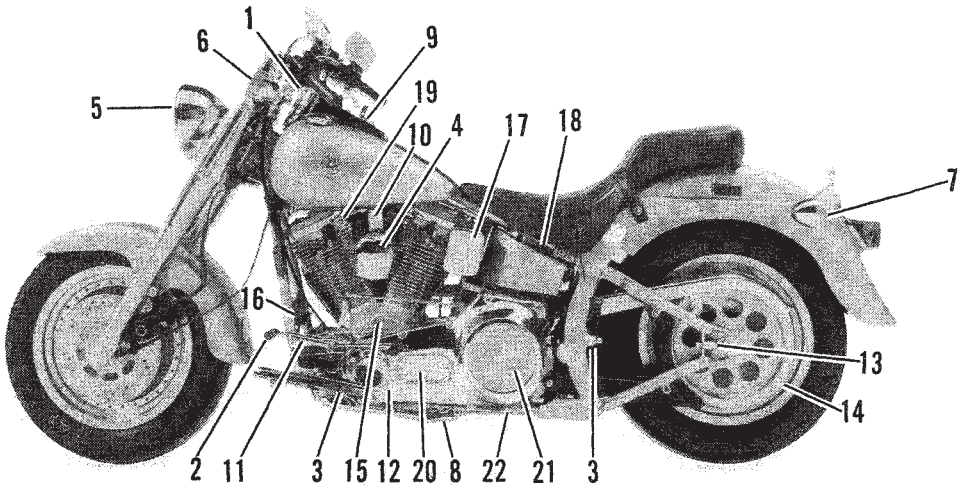
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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

FXST - Left Side View



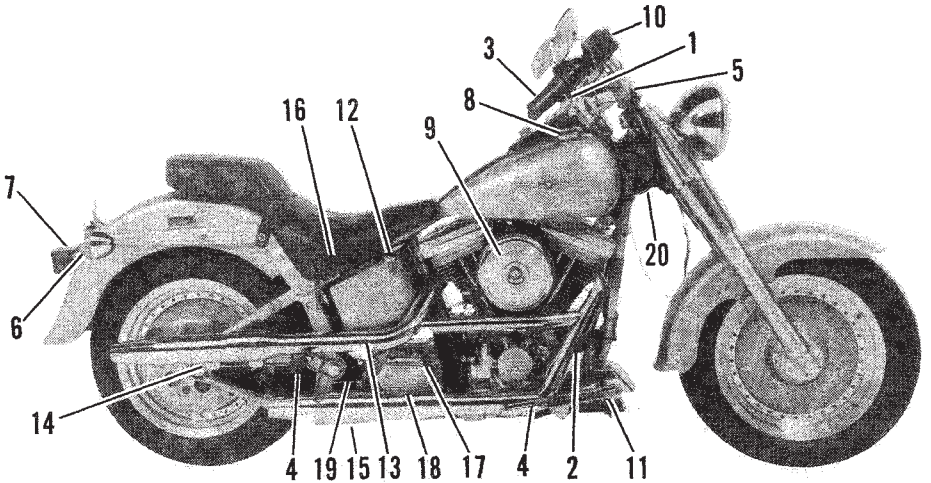
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FXST - Right Side View



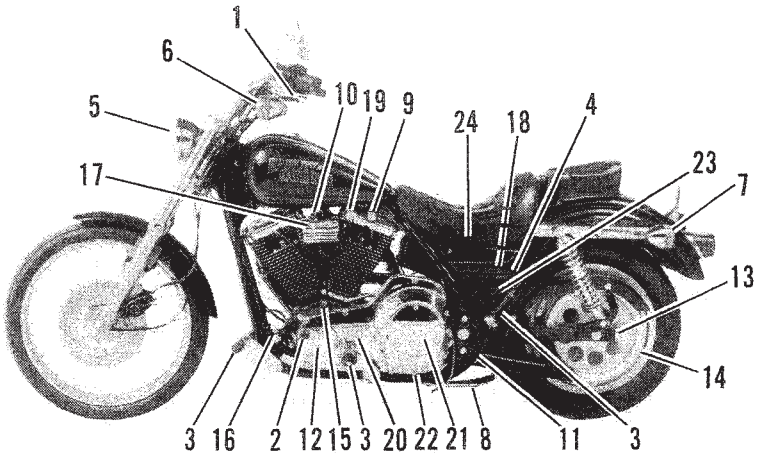
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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

FLSTF - Left Side View



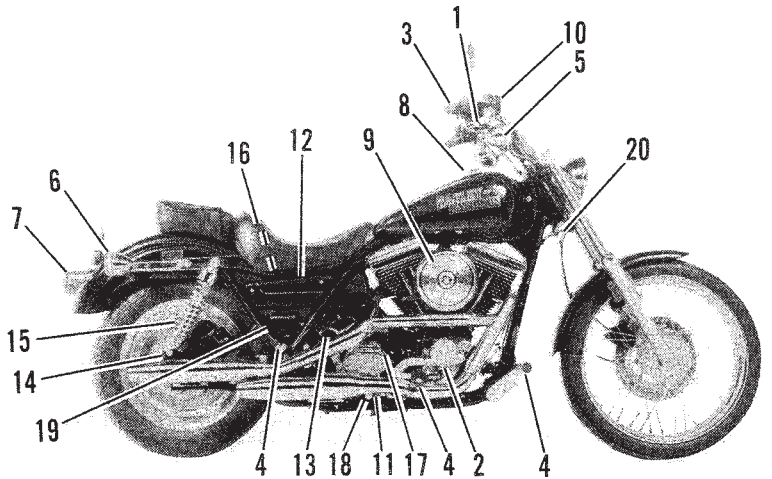
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder & reservoir
12. Engine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

FLSTF - Right Side View



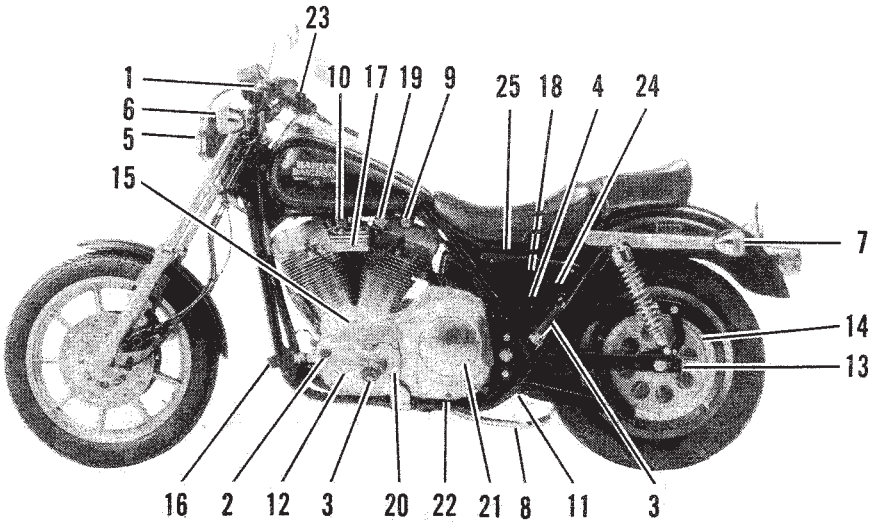
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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. Engine Oil tank drain (under side cover)
24. Seat release

FXLR - Left Side View



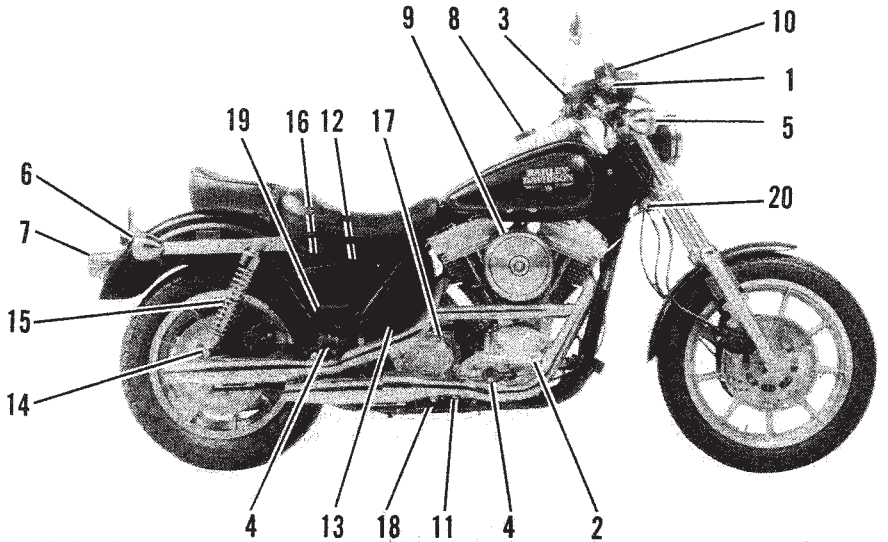
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FXLR - Right Side View



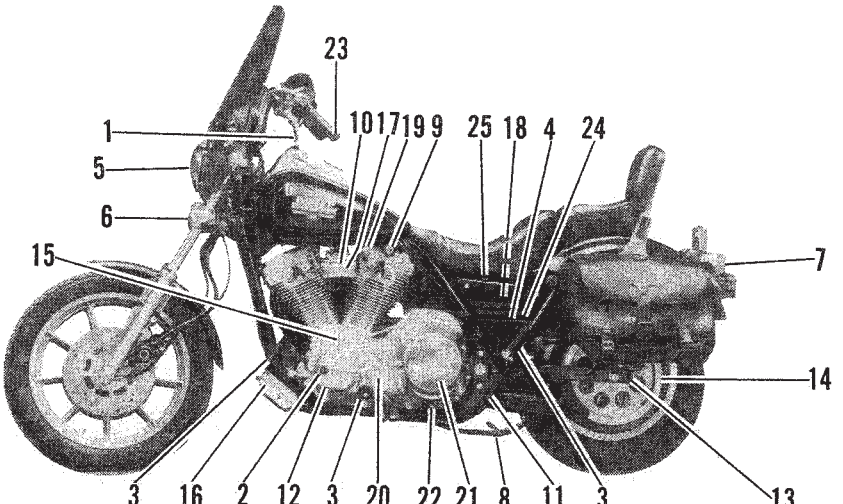
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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. Front suspension air valve
24. Engine Oil tank drain (under side cover)
25. Seat release

FXRS-SP - Left Side View



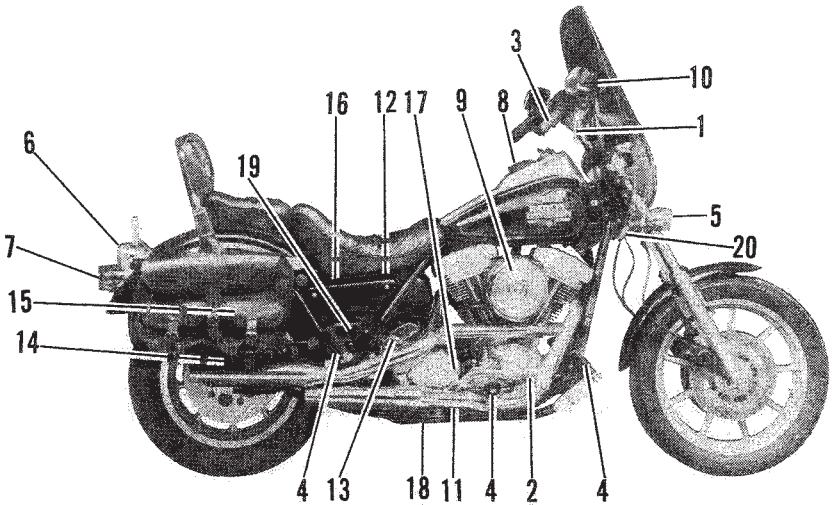
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FXRS-SP - Right Side View



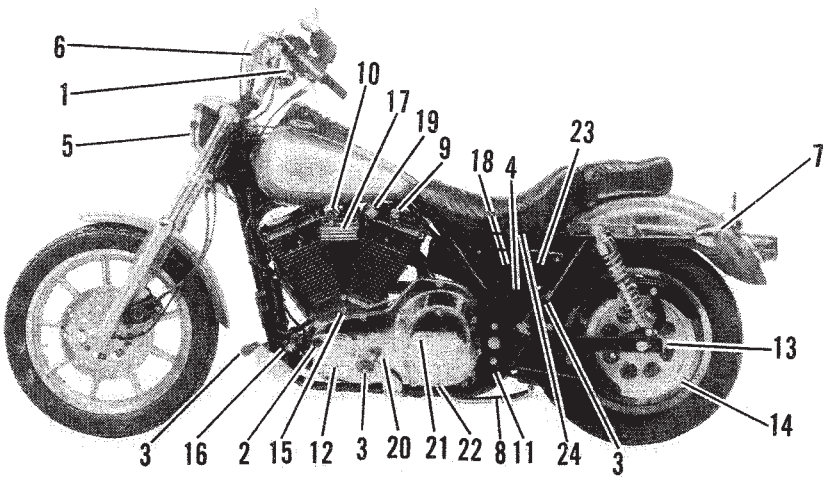
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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. Front suspension air valve
24. Engine Oil tank drain (under side cover)
25. Seat release

FXRS-CON - Left Side View



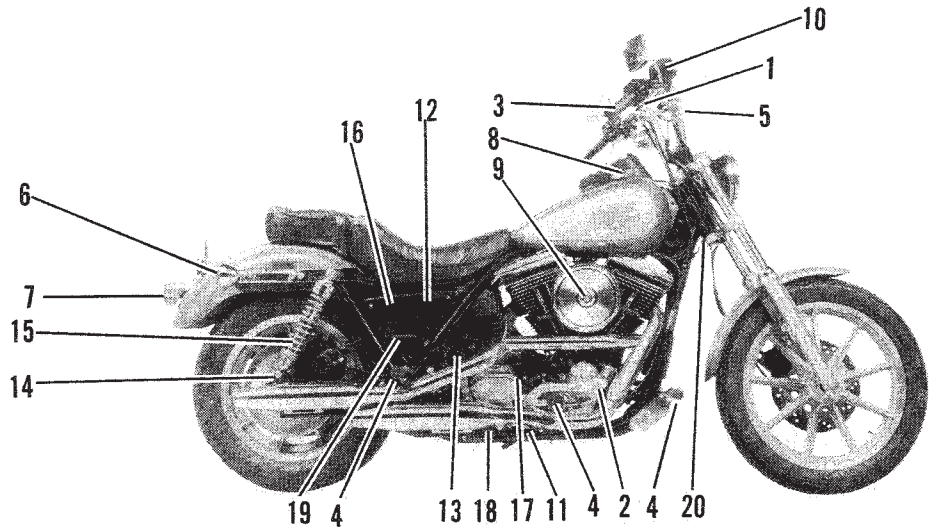
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FXRS-CON - Right Side View



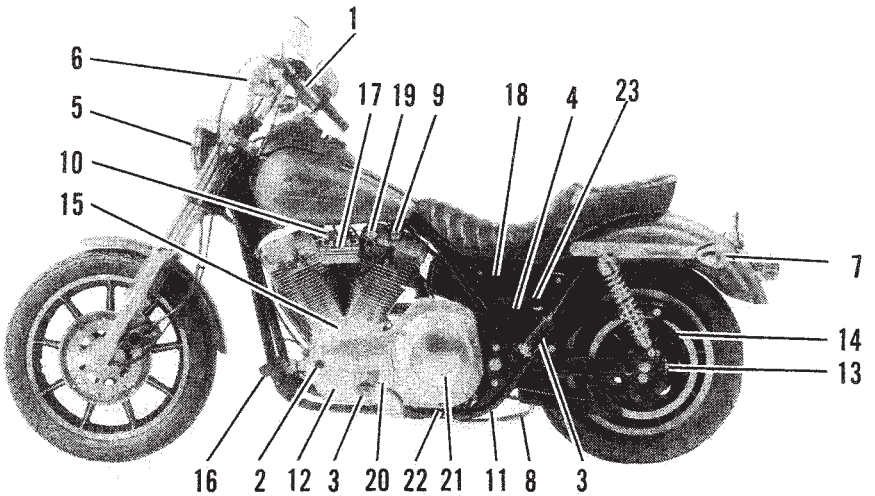
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Rear sprocket and drive
15. Timing 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. Engine Oil tank drain (under side cover)
24. Seat release

FXRS - Left Side View



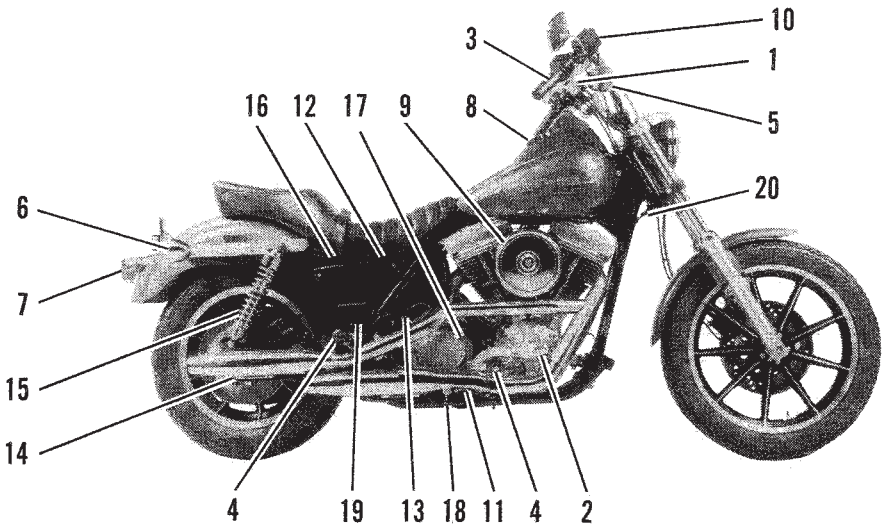
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder
12. Engine Oil fill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

FXRS - Right Side View



1. Clutch handlever
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. Engine Oil tank drain (under side cover)

FXR - Left Side View



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

FXR - Right Side View

NOTES

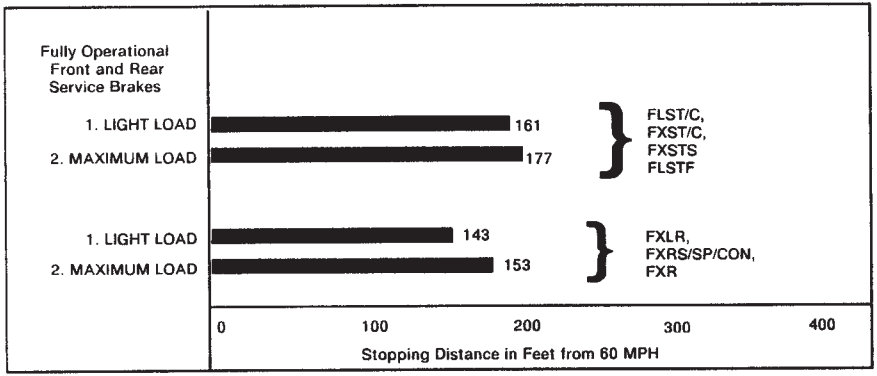
STOPPING DISTANCE

Description of vehicle: Harley-Davidson 1990 FLST/C/F, FXST/C, FXSTS, FXLR, FXRS/SP/CON 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.)

	Wheel Base	Overall Length	Overall Width	Road Clr'nc	Overall Height	Saddle Height
FLST	62.50	93.80	38.00	5.25	49.00	26.50
FLST/C	62.50	62.50	38.00	5.25	59.40	26.50
FXST/C	66.30	94.30	29.00	5.63	47.00	26.12
FXSTS	64.50	92.50	29.00	5.38	47.00	26.12
FLSTF	62.50	93.80	38.00	5.25	49.00	26.50
FXLR	63.20	91.63	31.00	5.25	48.00	26.50
FXRS -SP	64.70	93.20	31.00	6.00	50.00	27.50
FXRS -CON	64.70	93.20	31.00	6.00	59.50	27.50
FXR, FXRS	63.13	91.65	31.00	5.25	48.00	26.50

WEIGHT (LBS.)

	DRY WEIGHT	GVWR	GAWR-Front	GAWR-Rear
FLST	650	1085	390	695
FLST/C	710	1085	390	695
FXSTS	625	1085	390	695
FLSTF	650	1085	390	695
FXLR	575	1085	390	695
FXST/C	618	1085	390	695
FXRS-SP	585	1085	390	695
FXRS-CON	615	1085	390	695
FXR,FXRS	575	1085	390	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.)

	FLST/C/F	FXST/C	FXSTS	FXR FXRS FXLR	FXRS -SP -CON
Fuel Tank (Gallons) Total	4.2	5.2	4.2	4.2	4.2
Reserve	0.75	1.2	0.75	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, approx.)	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. in. (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 Fourth Gear 4.16
Second Gear ..... 7.45 Fifth Gear 3.37
Third Gear 5.40

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 spoked) 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.

1990 VEHICLES DUNLOP TIRES ONLY		TIRE PRESSURE PSI (COLD)	
		FRONT	REAR
Solo Rider	FLST/C/F	36	36
Rider & one passenger	FLST/C/F	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	FXR, FXRS/SP/CON	30	36
Rider & one passenger	FXR, FXRS/SP/CON	30	40

FUEL

Use a good quality leaded or unleaded gasoline (at least 87 pump octane). 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

Using gasoline that has an alcohol additive, such as methanol, may cause fuel system rubber components' failure and/or engine damage.

CAUTION

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

Todays' 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/F, FXST/C, FXSTS

LAMP DESCRIPTION (ALL LAMPS 12 V)	NUMBER OF BULBS REQUIRED	CURRENT DRAW (AMPERAGE)	HARLEY-DAVIDSON PART NUMBER
Headlamp	1		
FLST/C/F	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	008	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 - FLSTC	2	2.34	68674-69

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

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

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

XLH 883
XLH 883 Deluxe
XLH 883 Hugger
XLH 1200

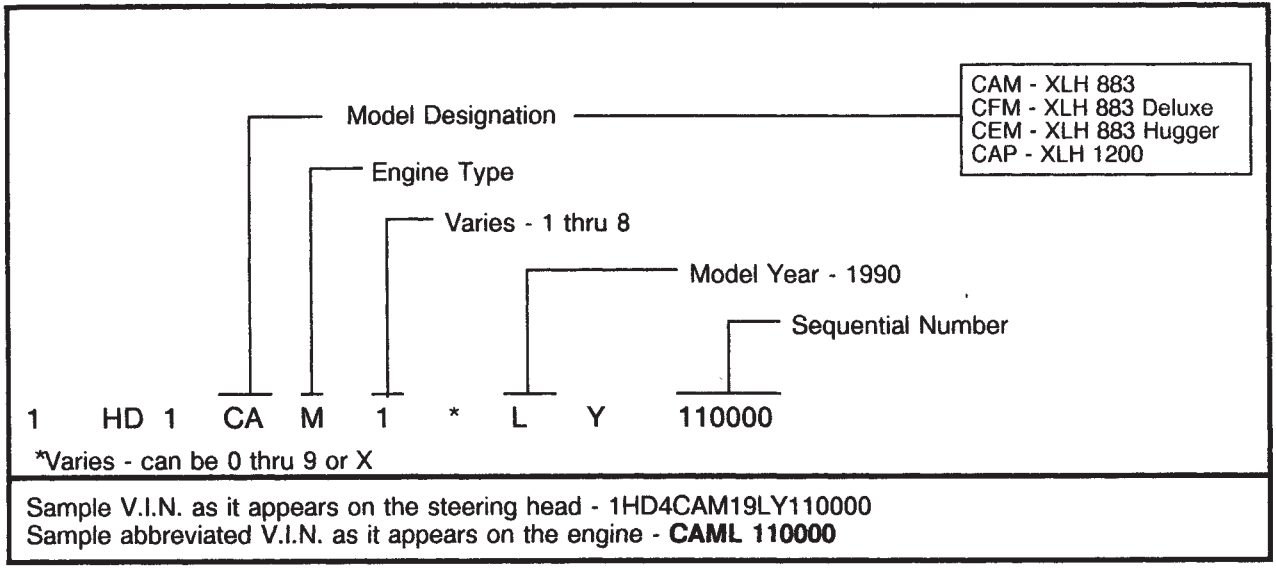
NOTES

VEHICLE IDENTIFICATION NUMBER (V.I.N.)

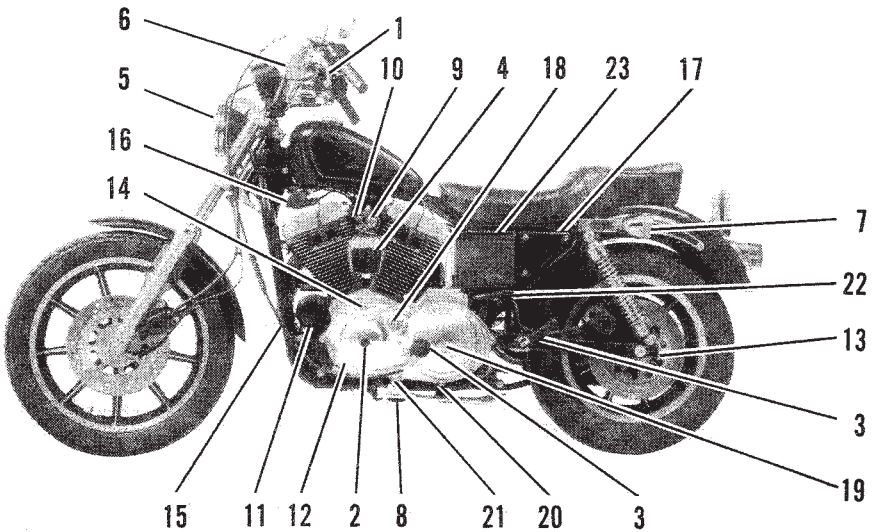
The full 17 digit serial, or Vehicle Identification Number (V.I.N.) is stamped on the steering head and on a label located on the right front frame downtube. An abbreviated V.I.N. is stamped on the left side crankcase at the base of the rear cylinder.

NOTE

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

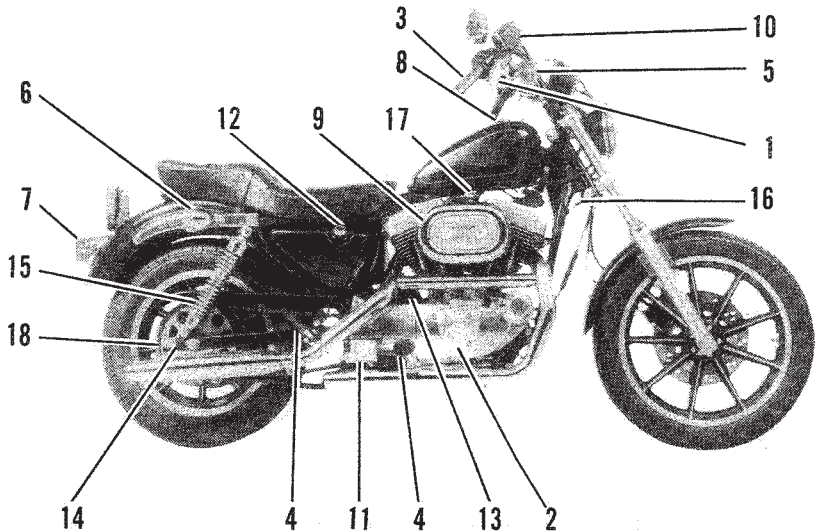


Sample V.I.N. as it appears on the steering head - 1HD4CAM19LY110000
Sample abbreviated V.I.N. as it appears on the engine - **CAML 110000**



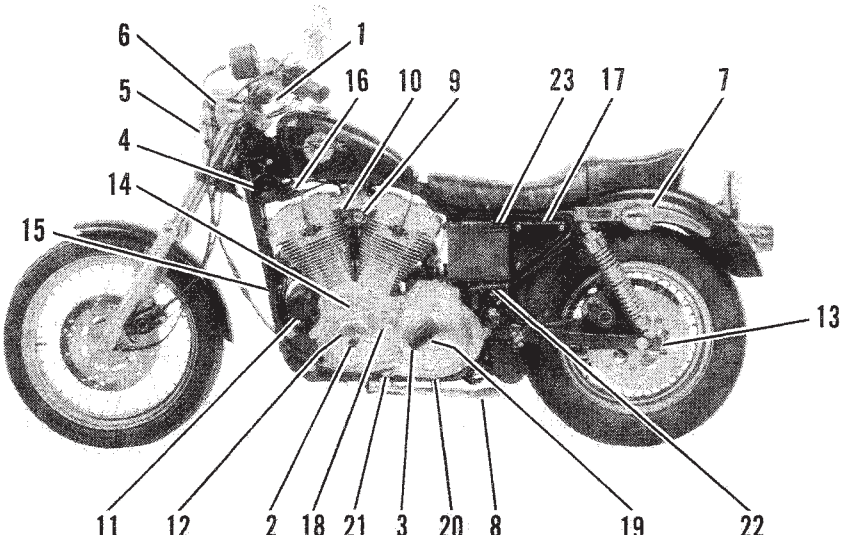
1. Clutch handlever
2. Gear shifter
3. Footrest(s)
4. Horn
5. Headlamp
6. Front turn signal & running lamp
7. Rear turn signal lamp
8. Jiffy stand
9. Ignition/light switch
10. Carburetor choke knob
11. Engine oil filter
12. Primary chain cover
13. Rear axle adjuster
14. Timing inspection hole plug
15.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

XLH 1200 - Left Side View



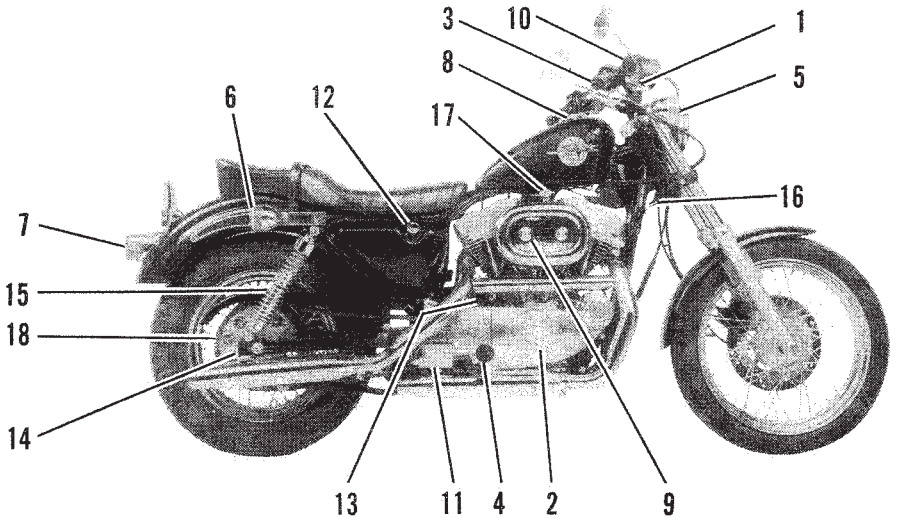
1. Front brake handlever
2. Rear brake pedal
3. Throttle control grip
4. Footrest(s)
5. Front turn signal & running lamp
6. Rear turn signal lamp
7. Tail/stop lamp
8. Fuel Filler cap
9. Carburetor/air cleaner
10. Front brake master cylinder & reservoir
11. Rear brake master cylinder & reservoir
12. Engine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

XLH 1200 - Right Side View



1. Clutch handlever
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. Timing inspection hole plug
15. Voltage regulator
16. Ignition coil
17. Ignition module (under side cover)
18. Primary chain inspection & fill plug
19. Clutch inspection cover
20. Primary & transmission drain plug
21. Primary & transmission level plug
22. Engine oil tank drain hose
23. Battery

XLH 883 - Left Side View



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

XLH 883 - Right Side View

NOTES

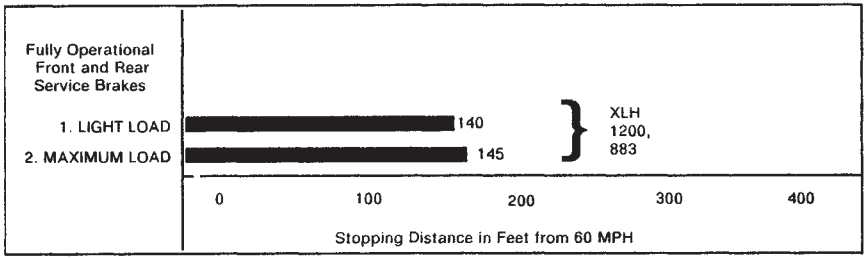
STOPPING DISTANCE

Description of vehicle: Harley-Davidson 1990 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 & Deluxe	XLH 883 Hugger
Wheel Base	60.00	60.00	60.50
Overall Length	87.50	87.50	87.50
Overall Width.	35.00	33.0	35.00
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
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)	1.5
Front Fork - Each (Ounces, wet)	9

IGNITION SYSTEM

Spark Timing	start	5° BTDC
	Fast Idle	40° BTDC
	1650-1950 RPM	40° BTDC
Battery		12 Volt, 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. in. (cc)	Torque lb-ft @rpm
XLH 1200 68@6000	3.498 (88.9)	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 spoked) 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.

1990 VEHICLES DUNLOP TIRES ONLY		TIRE PRESSURE PSI (COLD)	
		FRONT	REAR
Solo Rider	XLH 1200	30	36
	883	26	30
Rider & one passenger	XLH 1200	30	40
	883	26	32

WARNING

Maximum inflation pressure must not exceed specification on tire sidewall.

FUEL

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

CAUTION

Using gasoline that has an alcohol additive, such as methanol, may cause fuel system rubber components' failure and/or engine damage.

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.

Todays' 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	1		68165-64
Tail Lamp		0.59	
Stop Lamp		2.1	
Turn Signal Lamps			
Front	2	2.1	68165-64
Rear	2	2.1	68572-64A
Instrument Lamps			
High Beam Indicator	1	0.04	68597-86
Oil Pressure Indicator	1	0.08	68489-86
Neutral Indicator	1	0.08	68574-86
Turn Signal Indicator	1	0.27	68468-86
Speedometer	1	0.27	53439-79
Tachometer	1	0.27	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 motorcyle 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 a disabled motorcyle with another vehicle. The steering and handling of the disabled motorcyle will be impaired because of the force on the tow line. Impaired handling can cause loss of control and possible personal injury. If a disabled motorcyle must be transported, use a truck or trailer.

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.
- 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, 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.

- 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 1990 Harley-Davidson motorcycles. Some features explained are unique to certain models. These features may be available as accessories for your Harley-Davidson motorcycle. 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.

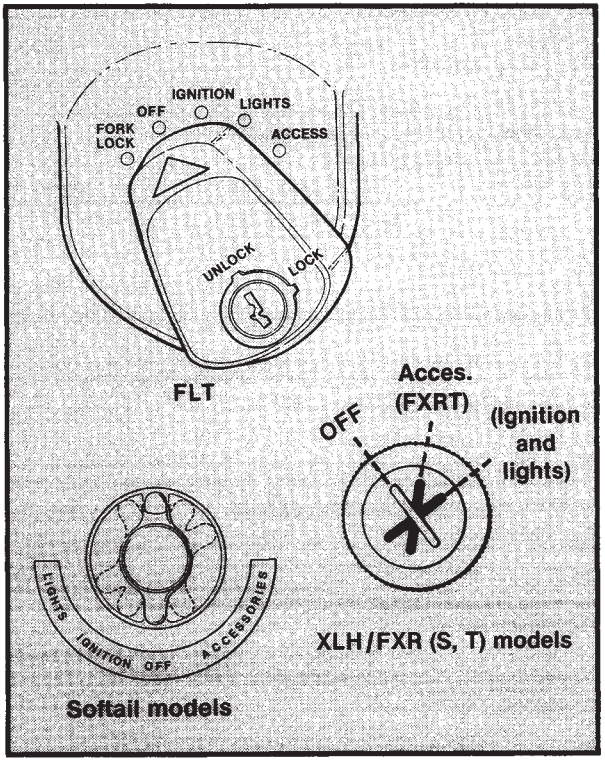


Figure 1. Ignition/Light Key Switch

Table I. Ignition/Light Switch

MODEL	LOCATION	SWITCH POSITIONS/FUNCTION
FLT	At bottom of instrument panel	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. 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. 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.
FXR (all) XLH	Below fuel tank	OFF - Key may be removed, ignition and lights off. ACCESSORIES - (FXRT only) - Operates accessories only. IGNITION - Ignition and lights are ON in both clockwise positions.
FXST/C FLST/C/F FXSTS	On fuel tank instrument panel	OFF - Ignition, lights and accessories off. LIGHT and IGNITION - Ignition and lights are ON. 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.

ELECTRIC STARTER SWITCH

See Figure 2. The electric starter switch (9) is located on the right handlebar control group. 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.

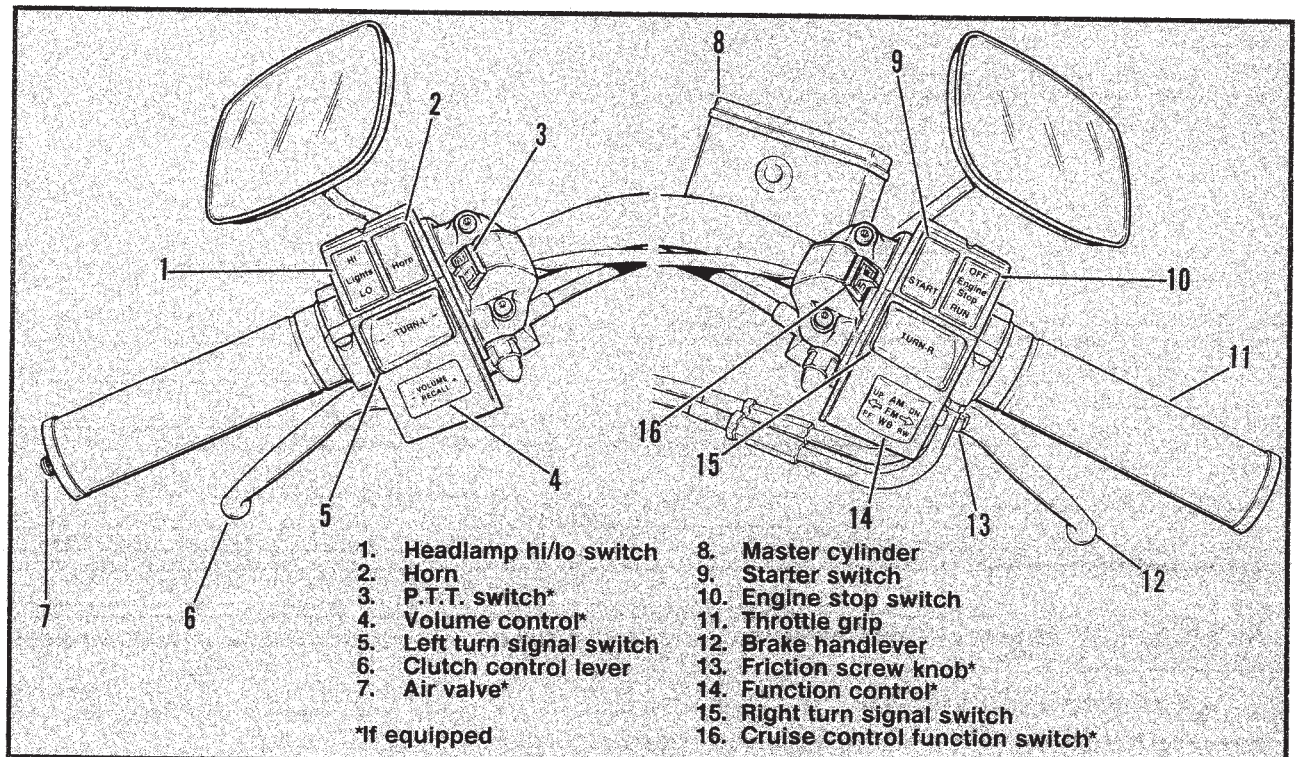
THROTTLE CONTROL GRIP

See Figure 2. The throttle control grip (11) is located on the right handlebar control group. 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 on all models except Ultras. 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.



1. Headlamp hi/lo switch
2. Horn
3. P.T.T. switch*
4. Volume control*
5. Left turn signal switch
6. Clutch control lever
7. Air valve*

*If equipped

8. Master cylinder
9. Starter switch
10. Engine stop switch
11. Throttle grip
12. Brake handlever
13. Friction screw knob*
14. Function control*
15. Right turn signal switch
16. Cruise control function switch*

Figure 2. Handlebar Controls

ENRICHENER

CONSTANT VELOCITY (C.V.) CARBURETOR ENRICHENER – ALL MODELS

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

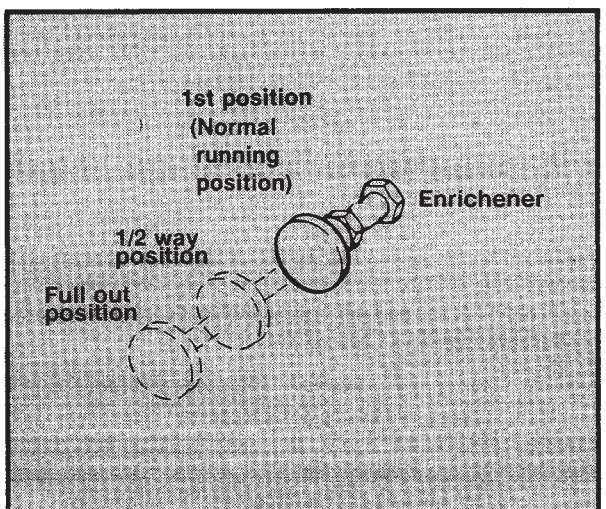


Figure 3. Setting the Enrichener

1. When starting a cold engine, the throttle control **MUST BE CLOSED** for the enrichener to work properly.
2. The enrichener does not have detents. The enrichener knob position can be adjusted from full in to full out.

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

Pull enrichener knob all the way out for cold engine starting. Change the enrichener knob position between full out or full in as the situation requires.

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.

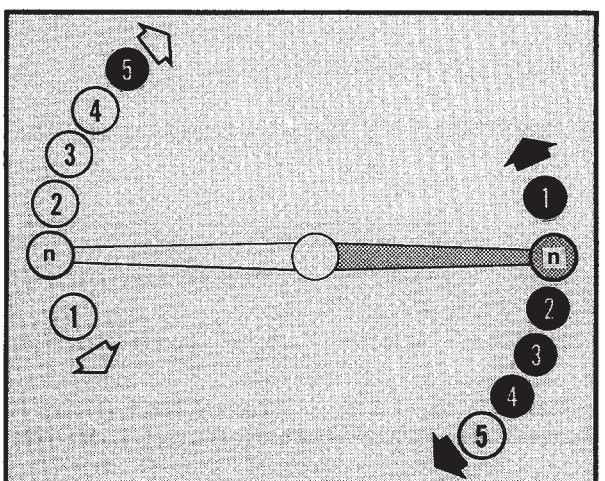


Figure 4. Gear Shifter

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 group.

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.

PASSING LAMP SWITCH - FLT, FLSTC MODELS

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

NOTE

- *On the FLSTC, the passing lamp switch is on the left inside of the triple clamp shroud.*
- *The passing lamps do not work when the headlamp is on high beam.*

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 will not work at vehicle speeds below 40 mph. Always operate the cruise control at speeds above 40 mph, in 4th or 5th gear (preferably 5th).*
- *The system is managed by a small computer that gets its operation information from VEHICLE SPEED, via the speedometer. The tachometer provides information to disengage the system if engine rpm's suddenly increase (disengage clutch, slippery or icy roads).*
- *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 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 Ultra - on the right front side of the instrument pod.
   - FLHTC Ultra - 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" cruise speed - see your Dealer.*

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

See OPERATION. This switch controls several system functions, including: SET, RESUME, ACCELERATE and DECELERATE.

NOTE

The switch is "self-centering". After you press the switch to the desired function it will return to the center (ready) position.

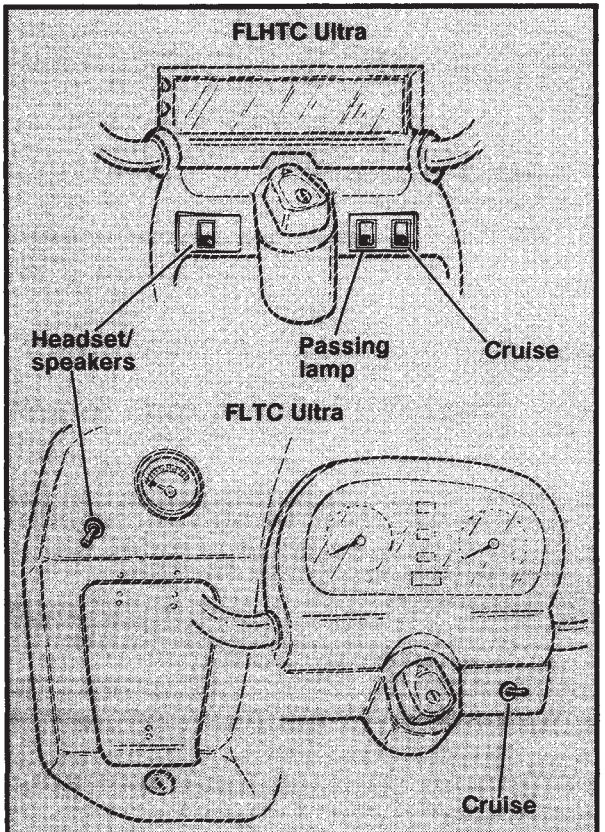


Figure 5. Cruise, Helmet Speakers, Spotlamp Controls

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.

Set, Resume:

2. Increase motorcycle speed to the desired cruise speed.
3. Momentarily press the "RESUME/SET" switch **DOWN** to set the speed. The system will quickly (approximately 1 $^1/_2$ seconds or less) begin to maintain the desired motorcycle speed.
4. If the system has been deactivated (see De-Activate/Turn Off the System), you can resume the previously set speed by pressing the RESUME/SET switch **UP**.

NOTE

*The computer will hold the SET speed in its memory for the RESUME function until the system is turned **OFF**.*

Accelerate, Decelerate:

5. The system has a "accelerate" function. If you are at your SET speed, press the switch **UP** for $^3/_4$ second and release to increase speed in 1 mph increments. Press and hold the switch up to increase speed continuously, at approximately 1 mph per second.

6. The system has a "decelerate" function. If you are at your SET speed, press the switch **DOWN** for $^1/_2$ second and release to reduce speed in 1 mph increments. Press and hold the switch down to reduce speed continuously, at approximately 1 mph per second.

NOTE

The accelerate feature has a $^3/_4$ second time delay. The decelerate feature has a $^1/_2$ second time delay. These delays are built into the system to prevent an accidental "nudge" changing your desired speed.

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 **RESUME** or **SET** it again.

- Turn the fairing/pod mounted "ON/OFF" switch **OFF** or turn off vehicle ignition. (These actions turn the system **OFF** until you turn it **ON** again.) Turning the system/ignition **OFF** also deletes the previously set cruise speed from memory so you can program a new cruise speed when you next turn the system **ON.**

NOTE

System WILL NOT work if:

- *An uphill grade is so long and/or steep, the throttle cables are pulled their full length when the system tries to maintain vehicle speed. This feature prevents stretching the cables.*
- *Rider operates bike at vehicle speeds below 40 mph.*
- *Brake light bulbs are burned out.*
- *Throttle cables are too tight. (See Dealer.)*
- *Brake lights are 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 Turn Signal Switches

The FLT Models turn signal switches are controlled by a small microprocessor 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 microprocessor 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 4-WAY FLASHER - FLT MODELS

The hazard warning 4-way flasher operates all four turn signal lamps at the same time. It is controlled by the turn signal switch microprocessor. The hazard warning flasher will operate when the ignition switch is in the ignition, lights or access position.

Turn on the hazard warning 4-way flasher by momentarily (approximately $^3/_4$ second) 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

Helmet speakers are not on the AVC (Automatic Volume Control) circuit.

Table 2. Sound System Handlebar Controls Summary

LEFT – Volume / Recall Control	RIGHT – Receiver / Tape Function Control
Volume: Forward - Louder (+) Back - Softer (-) **Recall:** Press to show Receiver LCD display **NOT** being shown. *NOTE* *Set handlebar control to desired volume level; AVC circuit will raise or lower volume as vehicle speed increases or decreases.*	**Receiver Functions** Push **IN** - AM / FM / WB Selection **DN** - Seek / Scan (**DowN** scale) **UP** - Seek / Scan (**UP** scale) **Tape Functions** Push **FF** - Fast Forward Tape (**F**ast **F**orward) **RW** - Rewind Tape (**R**e**W**ind)

Ultra Glide – Sound System/Intercom/C.B. Controls Summary

Rider Manual Controls		Passenger Manual Controls	
Push To Talk Switch (**PTT**): (**C.B.** must be **ON** to transmit.) (Release **PTT** to receive)	(Left handlebar) Press & hold to transmit on **C.B.** or speak on **Intecom** when C.B. & intercom are **OFF**. (Over-rides & mutes music on all speakers & helmet speakers)	Controls rear speakers/amplifier, tuner & intercom	(Bottom of right rear speaker enclosure)
Fairing/ Pod switches: **Left-**	Switches music between helmet speakers or external speakers	**Volume control:** (Will not go louder than front amplifier/speakers)	Includes **P**ush **T**o **T**alk Switch (**PTT**) for **intercom** & **C.B.** (Over-rides Mute/Sens **OFF**)
Right-	Cruise control & passing lamps	**Tuner Function control:**	Includes same Functions as **RIGHT - Receiver / Tape Function Control** above.

Console Control Panel (Left to right, top)		C.B./Intercom Controls (Left to right, bottom)	
Up/Down:	Channel selector	**C.B. Vol:**	Reception volume control
Channel:	C.B. channel display only	**Mute/Sens:**	On/off/Intercom/mic. sensitivity
Local/DX:	Local/Distance	**Squelch:**	Tune to reduce noise
Voice-Activated Control			
Mute/Sens (Intercom) switch must be **ON**. Turn knob clockwise to adjust mic. mute sensitivity to your voice. (**Microphone** will be **live**)	Speaking activates intercom system on helmet speakers. Mute/Sens knob adjusts mic. voice sensitivity. (Voice over-rides & mutes music on ALL speakers including helmet.)	**WARNING: If C.B. is ON to monitor, at same time stereo is ON, it will mute the stereo. If you compensate for the muting effect by turning up the stereo, turning off C.B. will allow stereo to be very loud. Turn music DOWN before turning OFF C.B.** *NOTE: Helmet speakers are not on AVC circuit.*	

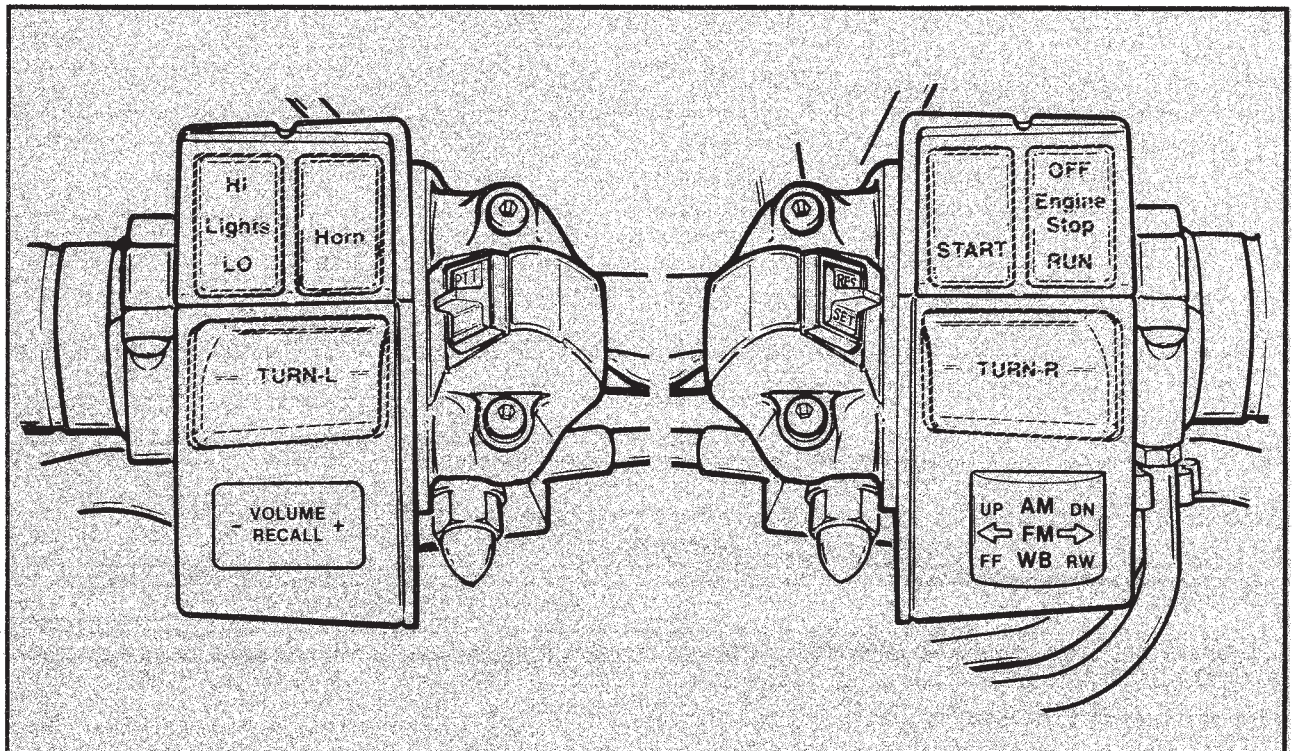


Figure 6. Sound System/Cruise Control Handlebar Controls

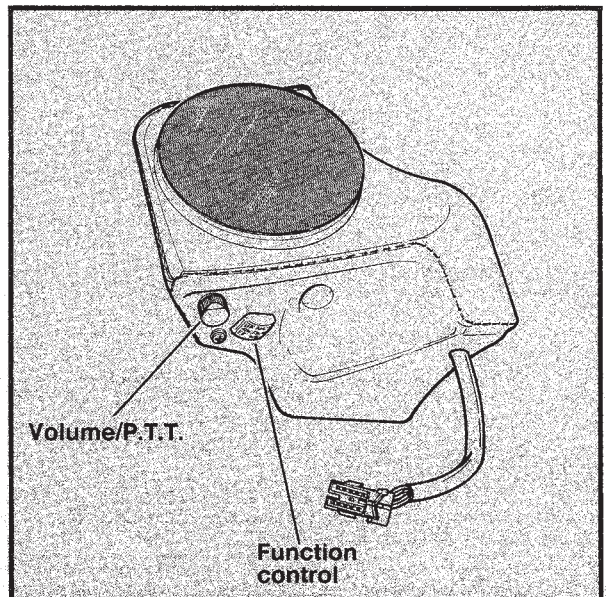


Figure 7. Passenger Controls (Bottom of Right Rear Speaker)

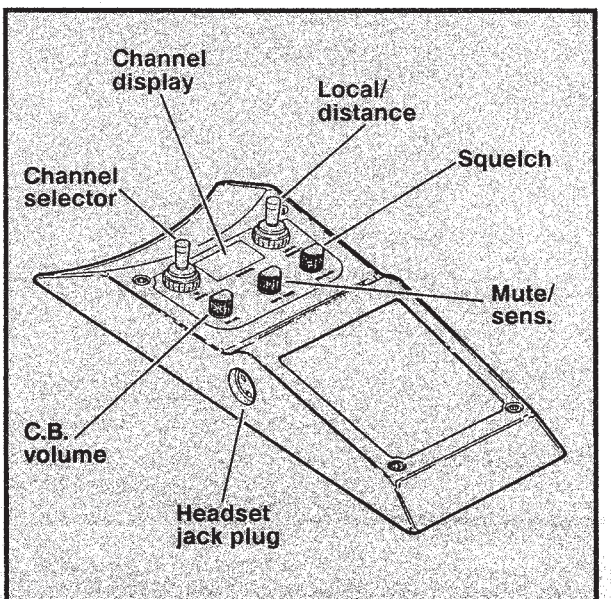


Figure 8. Console Control Panel

INDICATOR LIGHTS

Four or five indicator lights are provided.

The ***red*** OIL indicator light, when lit, 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 lit, 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 vehicle is 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.

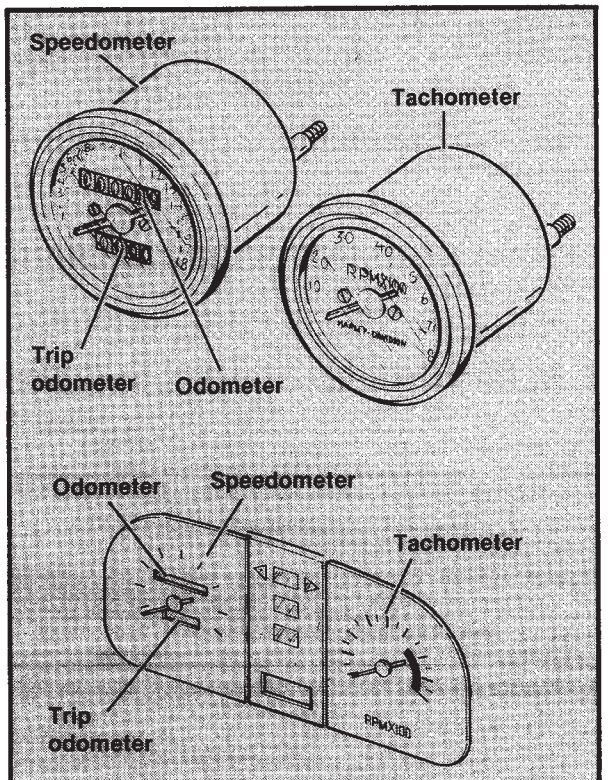


Figure 9. Speedometer, Odometer, Tachometer

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.

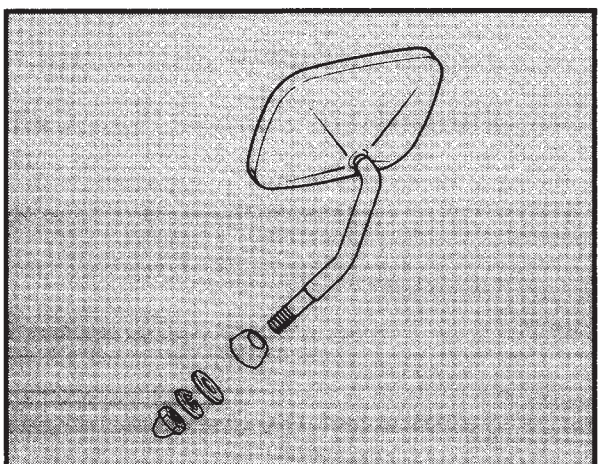


Figure 10. Mirror

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 motorcycle.

OIL PRESSURE GAUGE

The oil pressure gauge indicates 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.

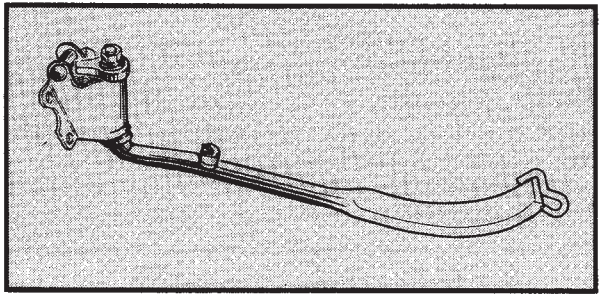


Figure 11. Jiffy Stand (Typical)

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.

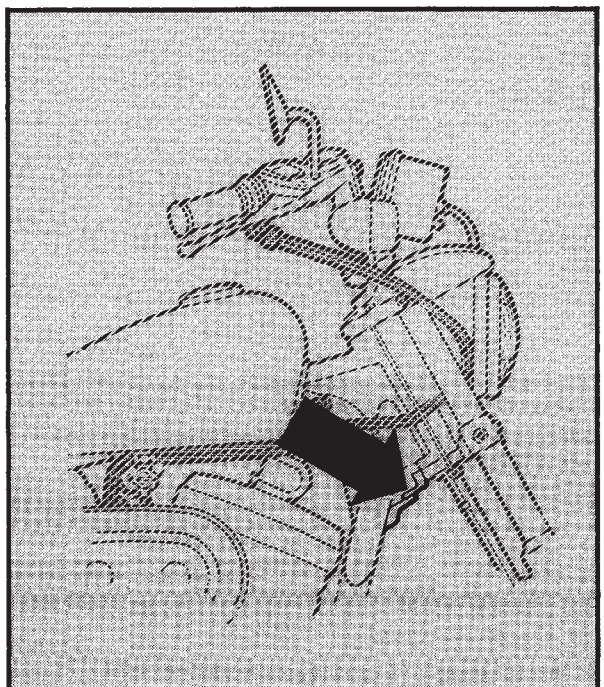


Figure 12. Fork Lock - All Models Except FLT's

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.

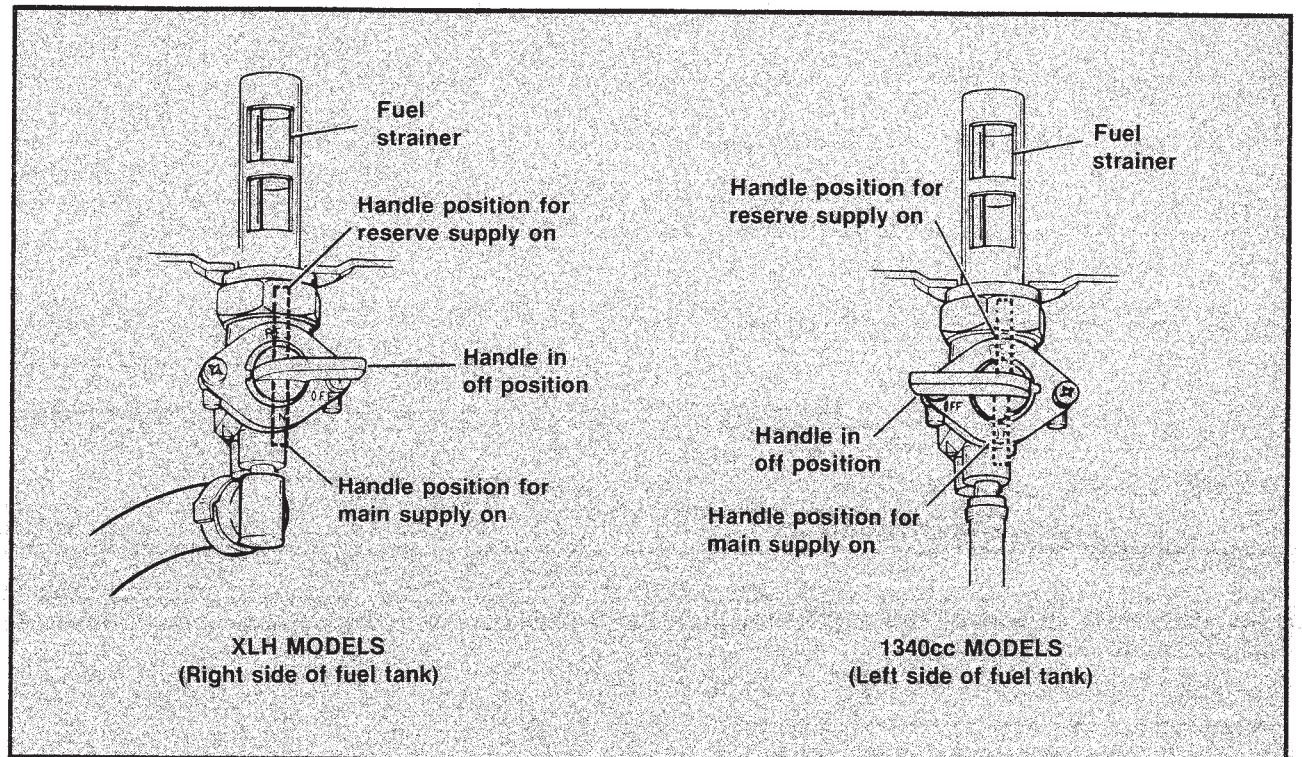


Figure 13. Fuel Supply Valve

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.

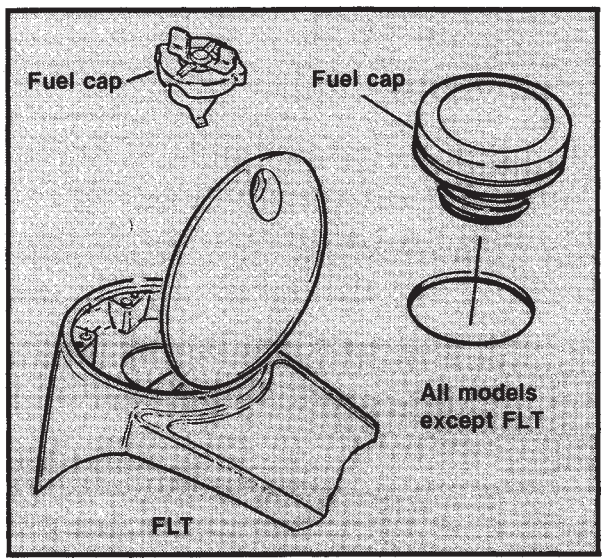


Figure 14. Fuel Filler Cap

NOTE

FLT models 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 the cap to loosen 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 & FXRS-CON (Front only)	Procedure B
FLST/C/F FXST/C FXSTS	Procedure C
XLH, FXLR, FXR, FXRS-SP & FXRS-CON (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.

The 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.

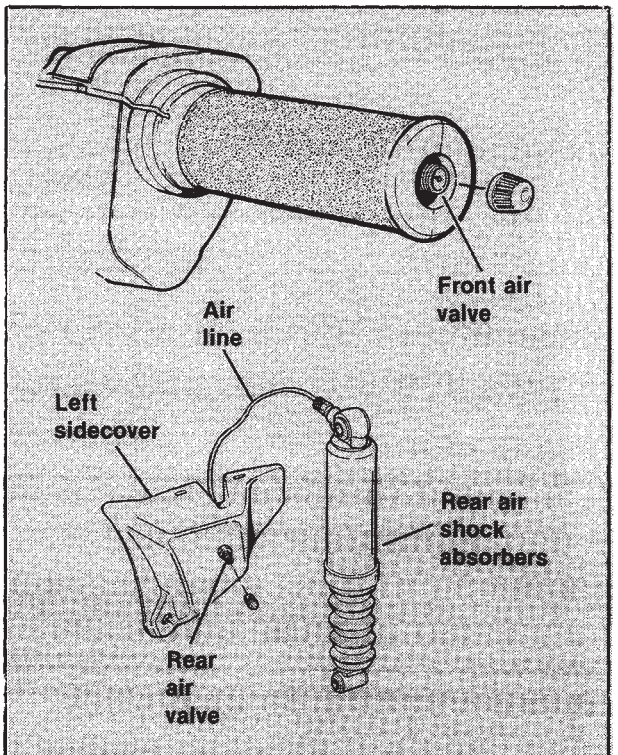


Figure 15. Air Suspension Components - FLT Models

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., add:	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, FXRS-SP & FXRS-CON
(Front only)

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

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

LOADING	RECOMMENDED PRESSURES (PSI)	
	SHOCK	FORKS
Rider weight - up to150 lbs add:	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 & FXRS-CON rear suspension.

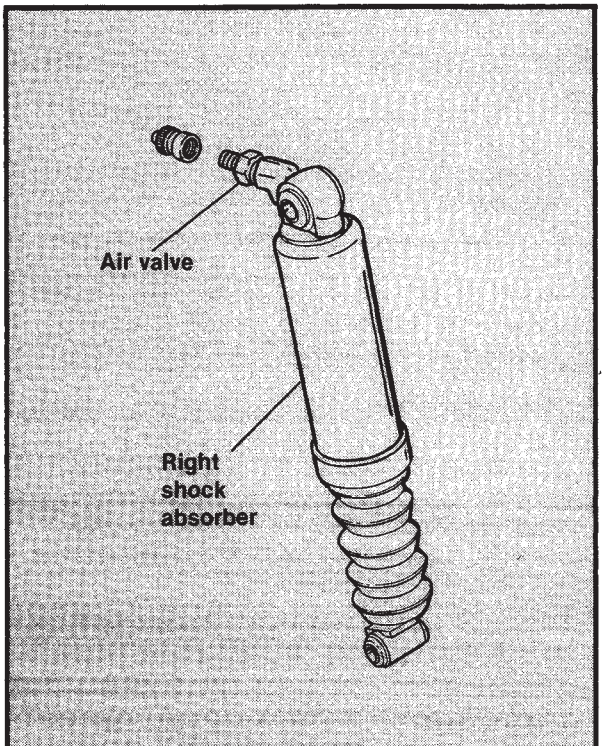


Figure 16. Right Rear Shock Absorber - FXRT

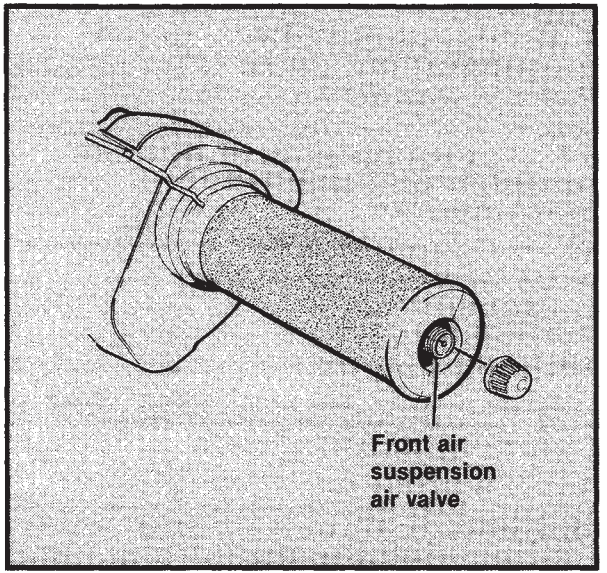


Figure 17. Front Air Suspension - FXRT, FXRS-SP & FXRS-CON

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

Softail 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.

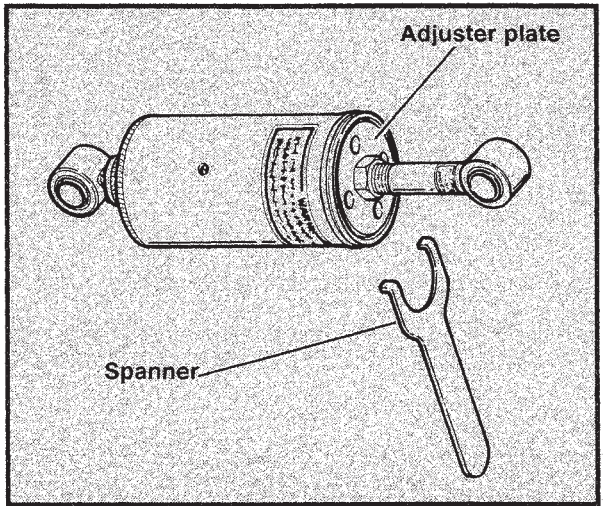


Figure 18. Shock Adjustment - Softail Models

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/S/SP/CON, XLH Models

See Figure 19. The rear shock absorber spring preload can be adjusted for the weight the motorcycle is to carry. FXR model shock absorbers have five preload positions. XLH models have three 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 middle cam step); a rider and passenger may require maximum preload (fifth/third cam step).

To adjust the rear shock absorber springs, turn 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.

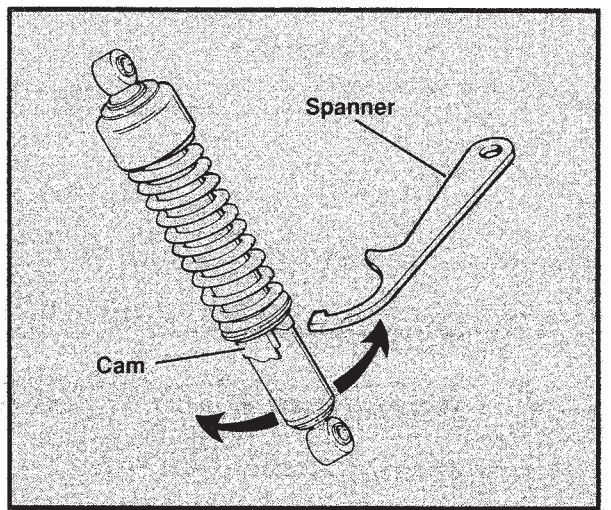


Figure 19. Shock Adjustment - FXR/S/SP/CON, XLH

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 (and Ultras' speakers) must also be disconnected.

CAUTION

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

2. Open Tour-Pak and remove Tour-Pak mat or liner, 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 installing King Tour-Pak, be sure to connect lights, antenna and/or speakers at the rubber connectors.*
- *Tour-Pak drawcatches should be closed whenever motorcycle is in operation.*

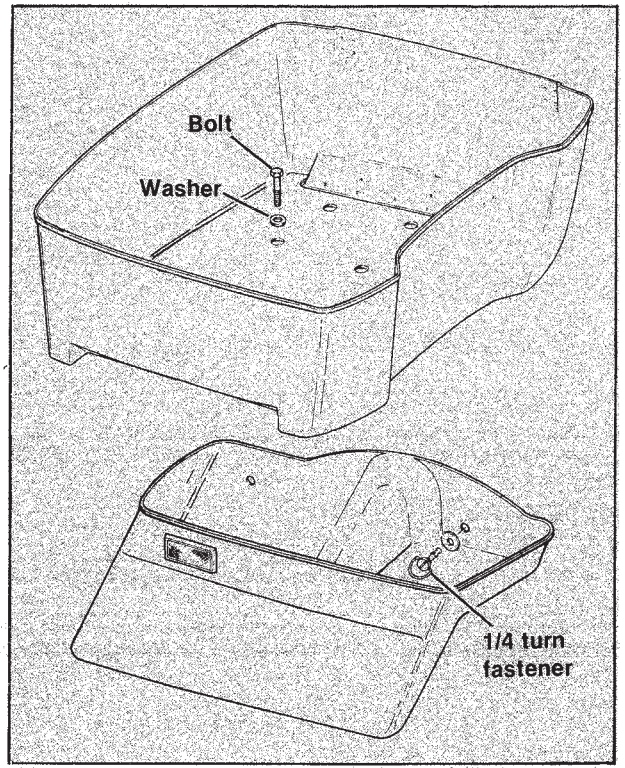


Figure 20. Tour-Pak & Saddlebag Installation-FLT

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)

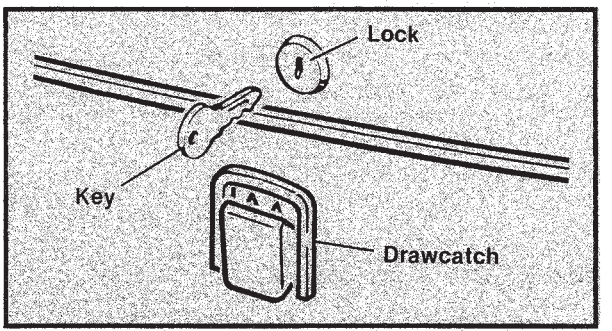


Figure 21. Lock and Drawcatch

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.

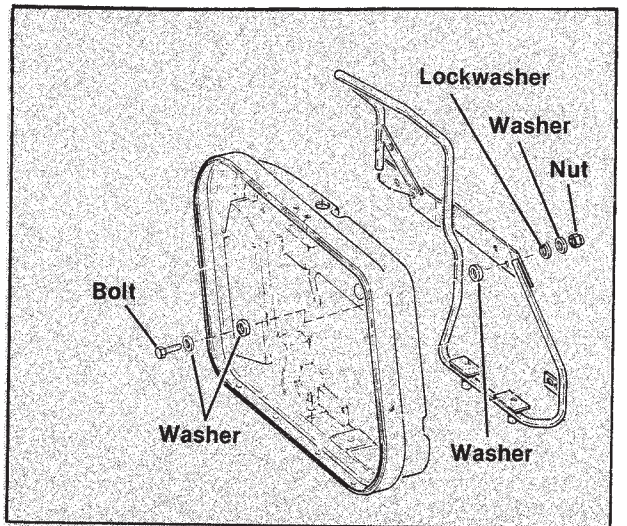


Figure 22. Saddlebag Installation - FXRT

2. Remove bolts. Remove saddlebag from support bracket.

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 placed into the open saddlebag outer. The saddlebag can then be closed and locked as described above.

NOTE

Saddlebag drawcatches should be closed whenever motorcycle is in operation.

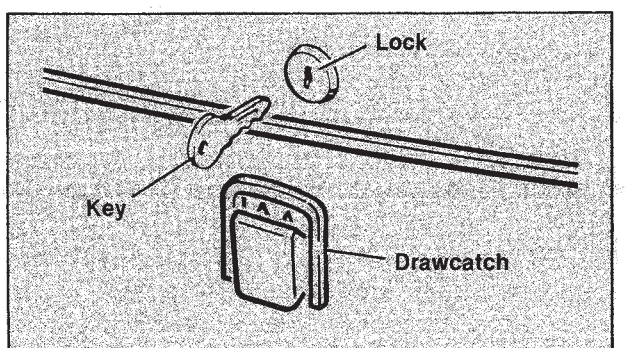


Figure 23. Lock and Drawcatch

WARNING

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

FXRS-CON SADDLEBAG REMOVAL/INSTALLATION

See Figure 24. The saddlebags are fixed at three points each at the rear of the motorcycle by three screws. These screws have large knobs for hand removal. The saddlebags have handles that tuck under the fender braces.

REMOVAL

1. Pull the saddlebag handle from under the fender brace.
2. Use the handle to support the saddlebag and unscrew the knobbed screws.
3. Insert the chrome plated caps in the fender brace sockets.

NOTE

The well nuts are designed to stay in place on the knobbed screws.

INSTALLATION

1. Remove the chrome plated caps from the fender brace sockets. Store in a safe place, such as the saddlebag pouch.

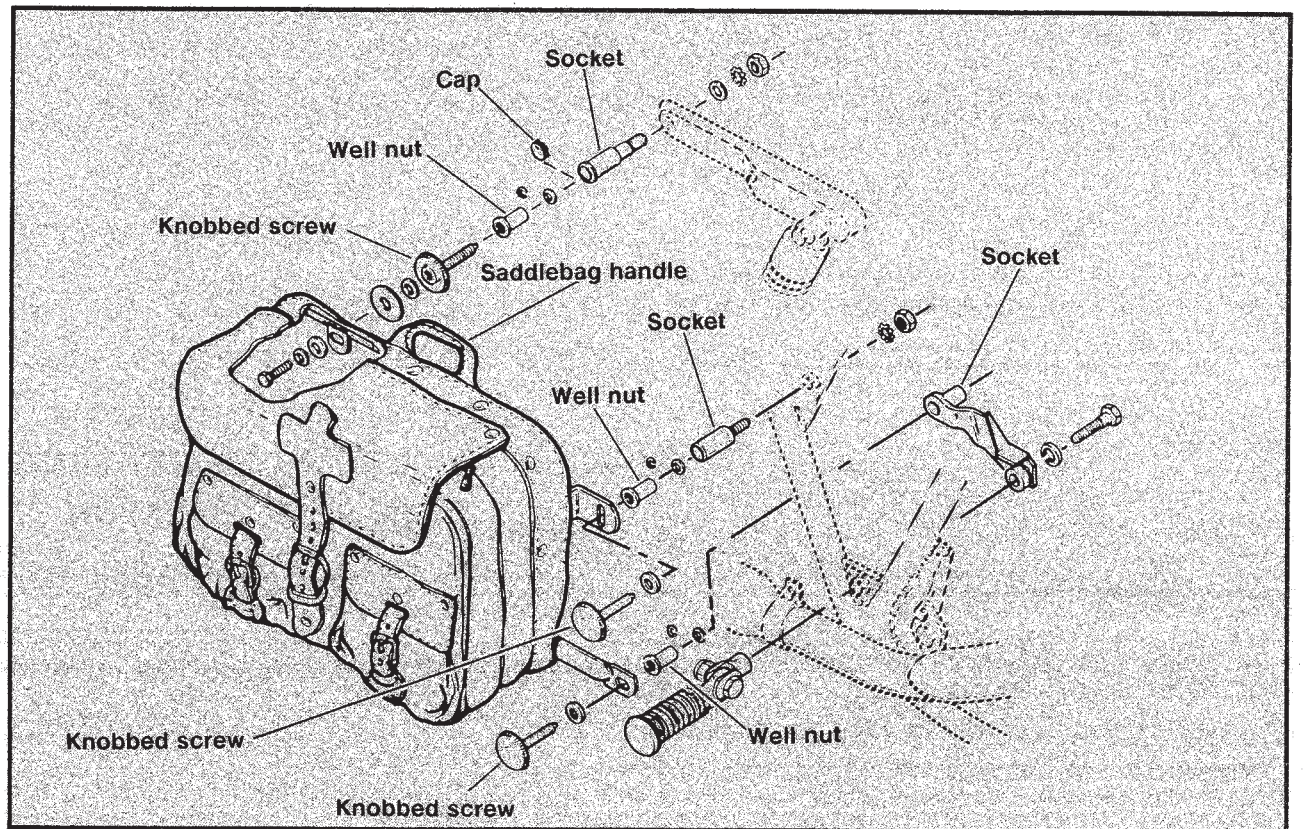


FIGURE 24. FXRS-CON Saddlebag Details

2. Put the saddlebag in position at the three support points.
3. Use the handle to support the saddlebag and screw the knobbed screws and well nuts into the brackets until they are snug.
4. Tuck the handles under the fender brackets.

WARNING

The saddlebag handles are not intended to serve as "grab handles" for the passenger. DO NOT allow them to be used as "grab handles".

SADDLEBAGS MAINTENANCE

1. Vacuum or blow dust off.

CAUTION

- **Do not use bleach or detergents containing bleach on the saddlebags.**

- **Do not allow soap and water to come in contact with the leather. It could dry or remove the oils from the leather.**

2. Use mild soap and warm water for more difficult stains on the cloth. Always allow cloth to dry completely before using saddlebags.
3. Periodically treat the leather with a good quality liquid silicone.

FXRS-CON WINDSHIELD REMOVAL/INSTALLATION

CAUTION

When removing or installing the windshield, protect the headlamp housing and bracket and front turn signals with rags to prevent scratches.

NOTE

The socket head bolts (1) on the windshield brackets (2) permit minor windshield adjustments.

REMOVAL

See Figure 25. The windshield brackets have a hinge and toggle design for quick removal.

1. Loosen the toggles' socket head (toggle) bolts (3) enough to easily slip the toggle stops (4) out of their notches. Use the allen wrench provided.
2. Carefully support the windshield and unhinge the hinges (5) from the slider tubes. The toggle stops and bolts remain with the hinges.
3. Remove windshield assembly from the motorcycle.

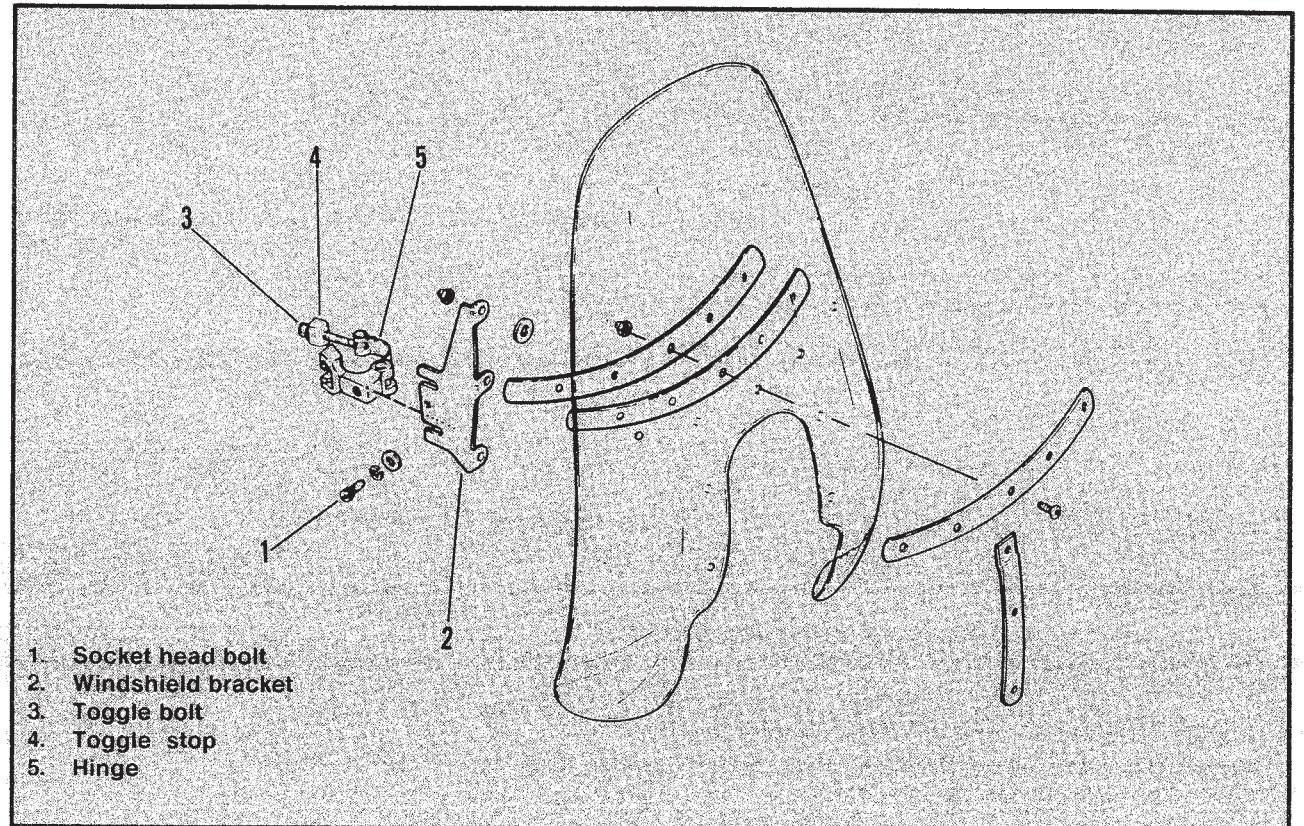


FIGURE 25. FXRS-CON Windshield Details

WINDSHIELD INSTALLATION

NOTE

With practice, you will be able to install the windshield with the hinges in place. However, initially you may find it easier to install by removing the left side hinge assemblies from the bracket (2), then installing them once the right side hinges are in place.

1. Place the windshield on the motorcycle's front fork and move the hinges (5) into position on the slider tube.

CAUTION

- **Be sure the the lower part of the windshield is positioned BEHIND the front turn signals.**
- **Do not bend or damage front brake line.**

2. Close the hinges on the slider tubes.

NOTE

The hinges will not close properly if you close them around a wiring harness or the clutch cable. Be sure they are closing only on the slider tubes.

3. Slide the toggle stops (4) into their notches in the hinges, with the lip facing outward. As each hinge is fastened, tighten the toggle bolts (3) finger tight, to hold the windshield in position.
4. Check the position of the windshield. Carefully position the windshield so no part of the windshield touches any part of the motorcycle.

CAUTION

Tighten the toggle bolts with the supplied "key-ring" allen wrench. DO NOT use a long handled allen wrench or over-tighten. Over-tightening could cause the toggle bolts to work loose. The hinges are designed to produce their maximum clamp load when the toggle bolts are snug.

5. Tighten the toggle bolts and socket head bolts.

WINDSHIELD MAINTENANCE

CAUTION

DO NOT use benzine, paint thinner, gasoline or any other types of harsh cleaner. They will damage the surface.

1. Use mild soap and warm water to wash the windshield. Wipe dry with a soft, clean towel.

NOTE

Covering the windshield with a clean, wet cloth for approximately 15-20 minutes before washing will make dried bug removal much easier.

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
Acceleration (Upshift)	
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)
Deceleration (Downshift)	
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

WARNING

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.

CAUTION

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

9. Check tightness of all fasteners except engine head bolts.

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 enrichener in the full out position for a period longer than 30 seconds is not recommended.

NOTE

Engine stop switch on the right handlebar control group 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.

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 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°

BE SURE THROTTLE IS CLOSED. Pull enrichener 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 5 minutes or 3 miles with enrichener knob in full out position.
2. After 5 minutes or 3 miles, push the enrichener knob in to the $^1/_2$ way position. Ride 2 minutes or 2 miles.
3. After 2 minutes or 2 miles, push the enrichener knob fully in.

COOL ENGINE

Outside Temperature Warmer than 50°

BE SURE THROTTLE IS CLOSED. Pull enrichener 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 enrichener knob in full out position.
2. After 3 minutes or 2 miles, push the enrichener knob in to the $^1/_2$ way position. Ride 2 minutes or 2 miles.
3. After 2 minutes or 2 miles, push the enrichener knob fully in.

WARM OR HOT ENGINE

Open throttle $^1/_8$ - $^1/_4$. Turn on ignition switch and operate electric starter. DO NOT USE ENRICHENER.

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, push enrichener knob in all the way, turn ignition on and operate starter with throttle wide open. DO NOT "pump" the throttle while turning over the engine.

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 26. 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
Acceleration (Upshift)	
First to Second	15 mph (25 km/h)
Second to Third	25 mph (40 km/h)
Third to Fourth	40 mph (65 km/h)
Deceleration (Downshift)	
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

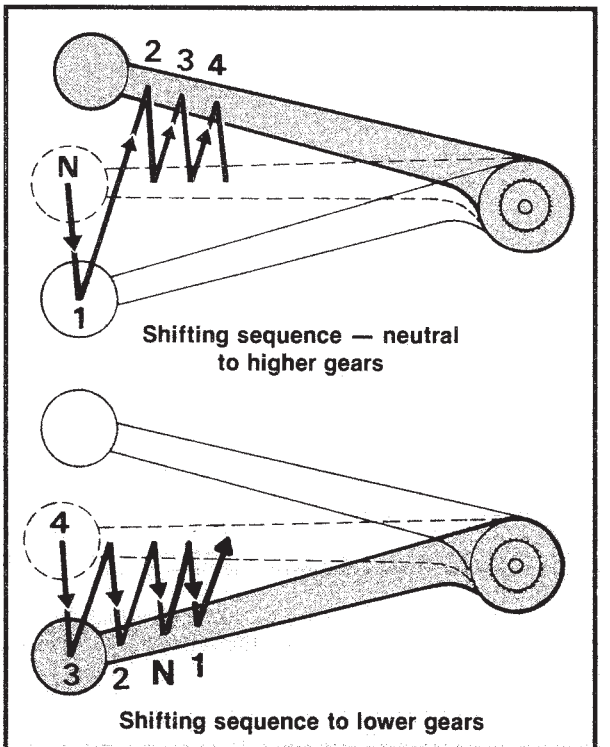


Figure 26. Shifting sequence - 4-Speed

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 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 shift 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 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, 27 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
Acceleration (Upshift)	
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)
Deceleration (Downshift)	
Fifth to Fourth	40 mph (64 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 downshifting to neutral from second gear. Neutral can only be be engaged from first gear.

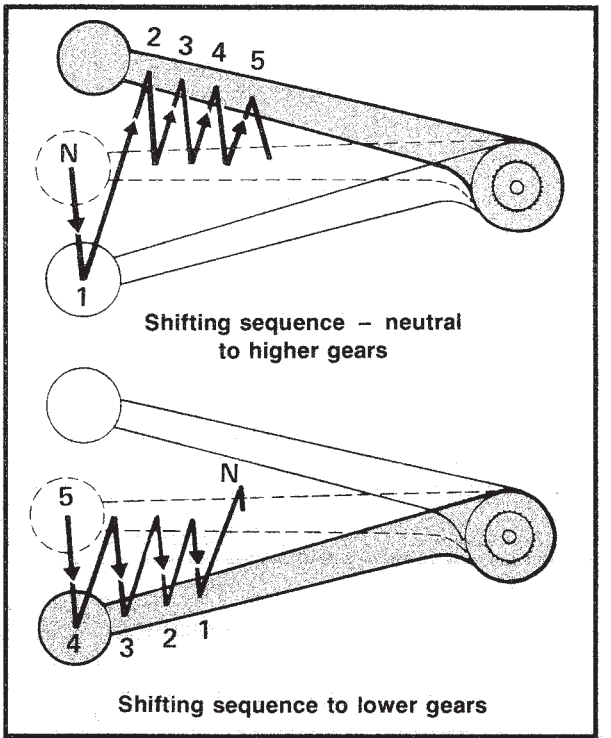


Figure 27. Shifting Sequence - 5-Speed

NOTES

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 clutch adjustment.
8. Check rear brake pedal height adjustment.
9. Inspect brake pad linings and discs for wear.
10. Check brake fluid level and condition.
11. Inspect oil lines and brake system for leaks.
12. Lubricate the following: front brake handlever, throttle control cables, clutch control cable and handlever.
13. Check operation of throttle and choke controls.
14. Check engine low and high idle speed adjustment.

CAUTION

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

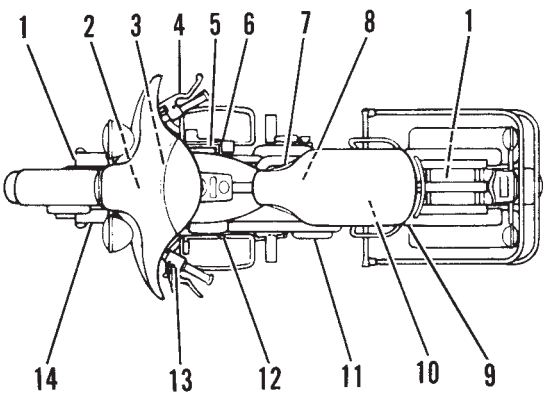
15. Check battery electrolyte level; check and clean connections.
16. Check operation of all electrical equipment and switches.
17. Check cruise control disengage switch and other components.*
18. Check tightness of all fasteners, except engine head bolts.
19. Check vehicle alignment.
20. Check stabilizer links* and engine mounts.
21. Check tire pressure and inspect tread.
22. Check wheel spoke tightness.*
23. Check rear fork pivot nut tightness.*
24. Check and adjust rear drive belt or chain.

*If applicable.

25. Change transmission lubricant and clean magnetic drain plug.*
26. Inspect fuel valve, lines and fittings for leaks.
27. Clean fuel tank filter screen.
28. Check front fork bearing adjustment.
29. Check and adjust air suspension system.*
30. Road test.

*If applicable.

LUBRICATION SUMMARY



CAUTION

DO NOT lubricate enrichener cable on C.V. carburetor.

Lubrication Intervals

Regular Lubrication Intervals / Service Operation	Preride	500	5000	10000
1. Wheel bearings				^
2. Steering head bearings				^
3. Speedometer cable		^	^	
4. Throttle grip sleeve, throttle control cables, front brake handlever		^	^	
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 handlever		^	^	
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.

CAUTION

Remember; the regular maintenance intervals given in this manual are intended to be guidelines.

If you operate your motorcycle under adverse conditions, (severe cold, extreme heat, very dusty environment, very bad roads, through standing water, etc.) you should perform the regular maintenance intervals more frequently to ensure the safe operation of your motorcycle.

REGULAR MAINTENANCE INTERVALS

ODOMETER READING (miles) SERVICE OPERATIONS (see chart code below)	Preride	500	2500	5000	7500	10000	12500	15000	17500	20000	22500	25000	27500	30000	32500	35000	37500	40000	42500	45000	47500	50000
Engine Oil*	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R
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**		I		I		I		I		I		I		I		I		I		I		I
Rear belt**	I	A		IA		IA		IA		IA		IA		IA		IA		IA		IA		IA
Rear chain** (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
Primary chain		I		I		I		I		I		I		I		I		I		I		I
Clutch adjustment		A		A		A		A		A		A		A		A		A		A		A
Primary chaincase lubricant		R		R		R		R		R		R		R		R		R		R		R
Transmission lubricant*		R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R	I	R
Brake fluid level and condition*		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
Condition of rear brake caliper mounting pins and boots				IL		IL		IL		IL		IL		IL		IL		IL		IL		IL
Grease fittings (2), shift and brake lever pivots**, rear brake linkage**				IL		IL		IL		IL		IL		IL		IL		IL		IL		IL
Front brake hand lever, throttle control cables, clutch control cable and hand lever		L		L		L		L		L		L		L		L		L		L		L
Throttle control grip sleeve, speedometer cable		L		L		L		L		L		L		L		L		L		L		L
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
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

*Also perform prior to storage, or annually.
**If applicable.

Chart Code:
I - Inspect, & 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)	Preride	500	2500	5000	7500	10000	12500	15000	17500	20000	22500	25000	27500	30000	32500	35000	37500	40000	42500	45000	47500	50000
Operation of throttle and enrichener controls	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
Battery fluid level, connections*		I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
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
Ignition timing and vacuum operated electric switch (V.O.E.S.)		I		I		I		I		I		I		I		I		I		I		I
Spark plugs				I		R		I		R		I		R		I		R		I		R
Cruise control throttle disengage switch & other components**		I		I		I		I		I		I		I		I		I		I		I
Air suspension components**		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
Rear fork pivot nut**		I		I		I		I		I		I		I		I		I		I		
Rear fork bearings**		I		I		IL		L		IL		I		IL		L		IL		I		IL
Front fork oil*						R				R				R				R				R
Front fork bearing adjustment		I		I		IL		I		IL		I		IL		I		IL		I		IL
Wheel bearings*						IL				IL				IL				IL				IL
Springer rocker bearings**						A				A				A				A				A
Wheel spoke tightness**		I		I		I		I		I		I		I		I		I		I		I
Tire pressure and inspect tire for wear/damage	I	I	I	I	I	L	I	I	I	I	I	I	L	I	I	I	I	I	I	I	I	I
Engine mounts**		I		I		I		I		I		I		I		I		I		I		
Stabilizer links**		I				I				I				I				I				I
All fasteners except engine head bolts		T		T		T		T		T		T		T		T		T		T		T
Road test		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

*Also perform prior to storage, or annually.
**If applicable.

Chart Code:
I - Inspect, & 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 28, 29 & 30, Table 11)

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. See Table 11.

See Figure 30 and Table 11. Hold all motorcycles except FXR models upright and level. 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 29. For FLST/C/F, FXST/C and FXSTS add only to bottom of dipstick plug.

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.

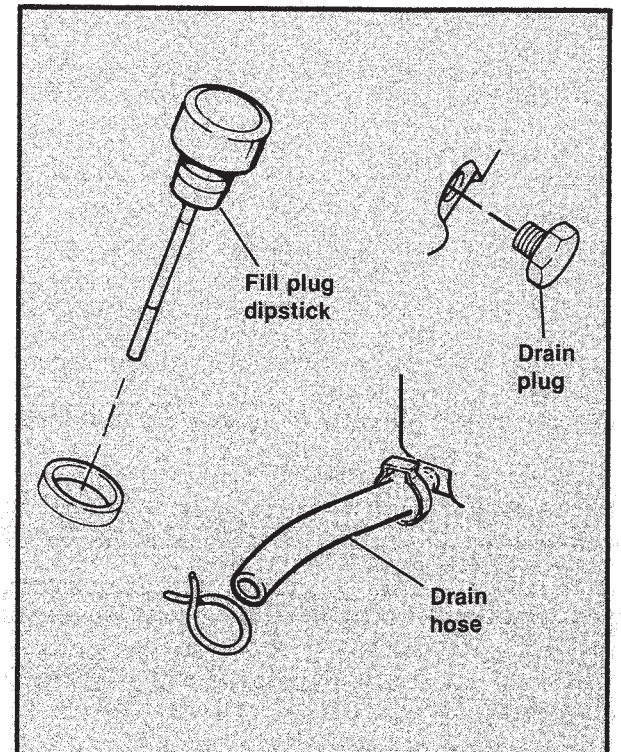


Figure 28. Fill Plug Dipstick & Oil Tank Drains

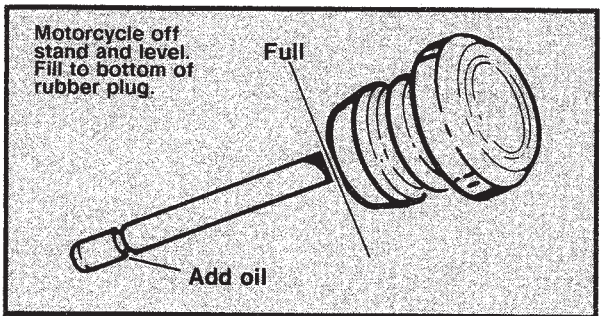


Figure 29. Engine Oil Level - Softail Models

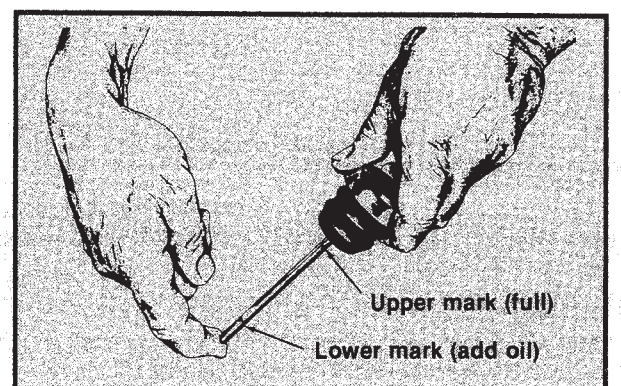


Figure 30. Oil Level Dipstick - All Other Models

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 the facilities to quick flush and clean the oil tank. The oil filter should be replaced every time the oil is changed.

Table 11. Checking Oil Level

MODEL	DRAIN	FILL	DIPSTICK	VEHICLE POSITION
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.
Softail 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 31. 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.

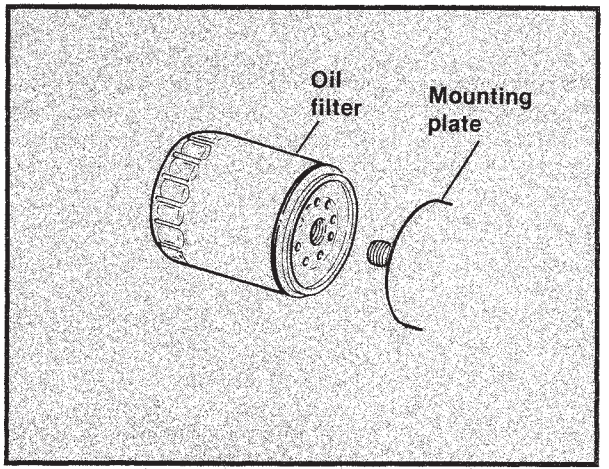


Figure 31. Oil Filter

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 32) (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.

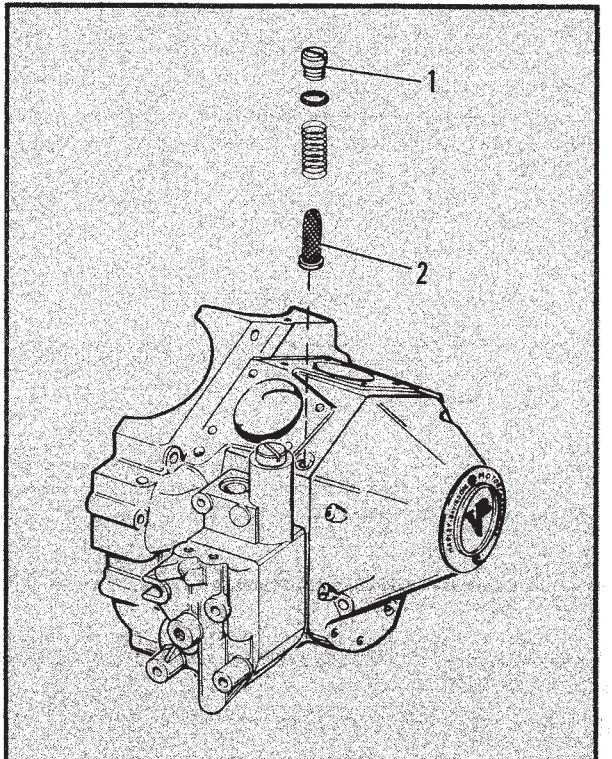


Figure 32. Tappet Filter Screen

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 33. 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.

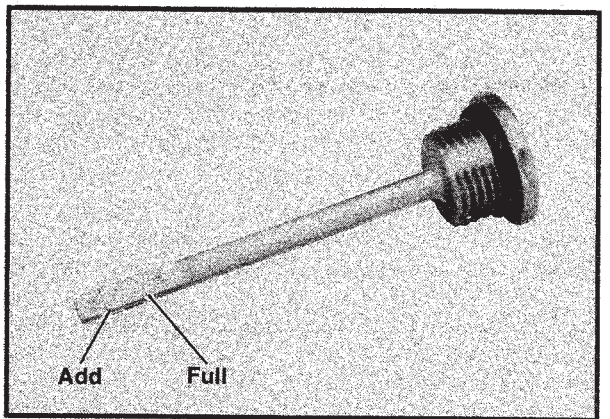


Figure 33.Transmission Lubricant Dipstick-1340cc

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 34. 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.

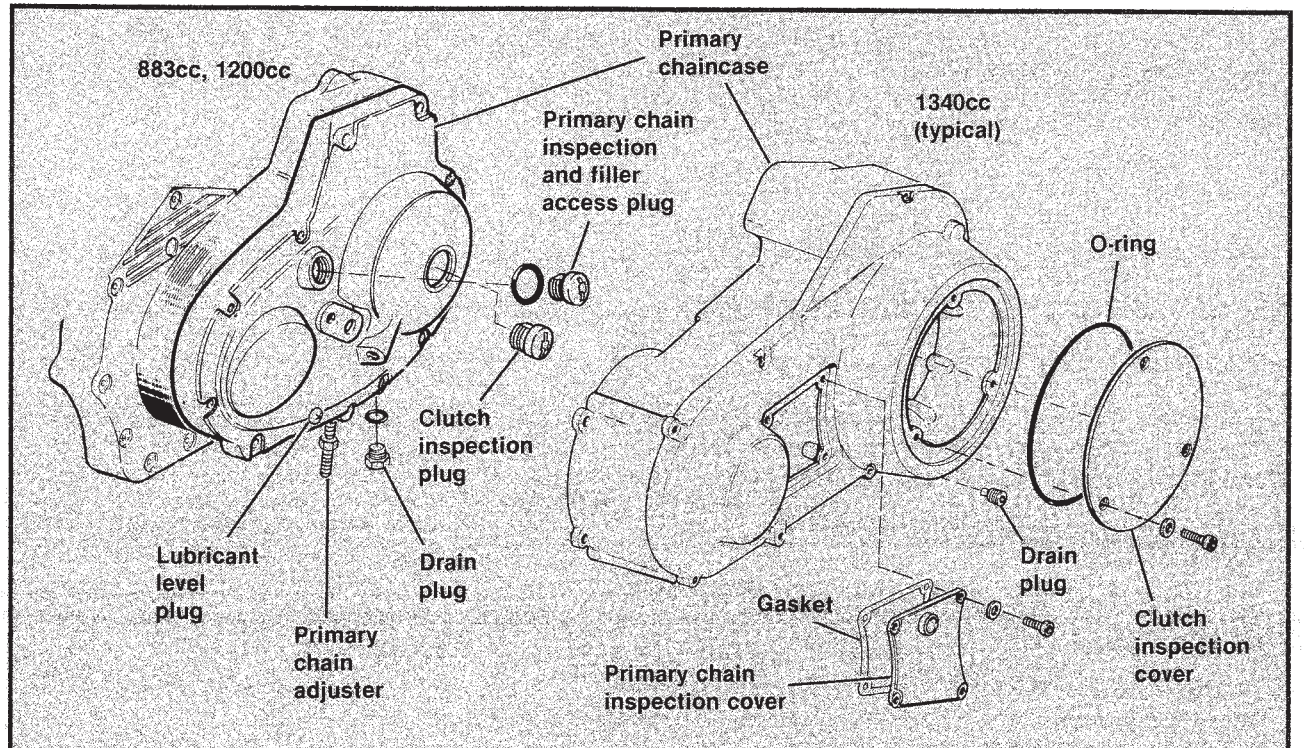


Figure 34. Primary Chaincase

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 34. 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 35. 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.

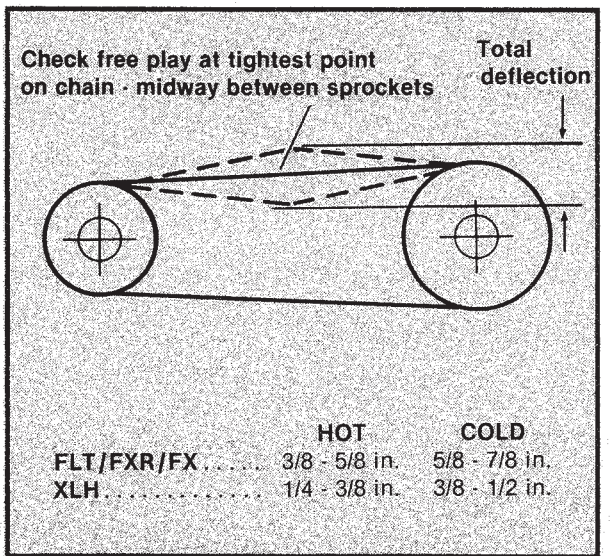


Figure 35. Primary Chain Adjustment

REAR DRIVE CHAIN/BELT

Rear Drive Chain Lubrication - XLH

Brush dirt off rear drive 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 36. 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.

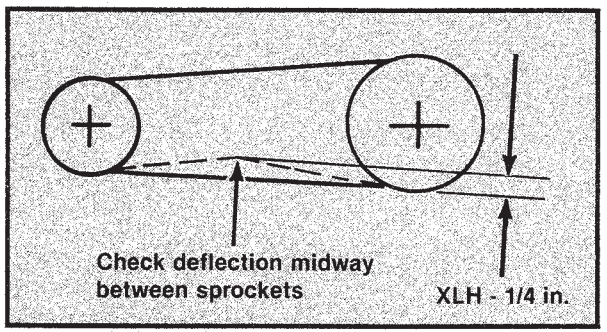


Figure 36. Rear Chain Adjustment

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.

See Figure 37. 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.

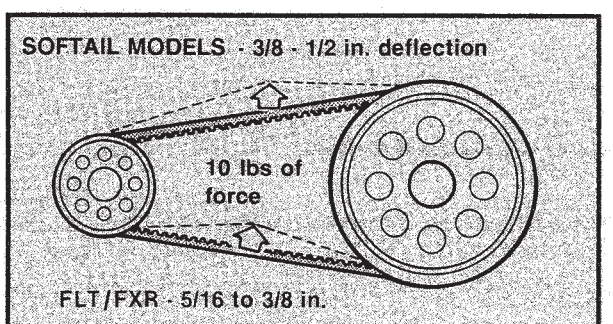


Figure 37. Belt Adjustment

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 models, 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 INTERVALS 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, enrichener and low idle speed adjusting screw. 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 38)

The 1340cc carburetor air cleaner is equipped with a plastic foam air filter element which is oil saturated.

The XLH carburetor air cleaner is equipped with a paper/wire mesh air filter element which is NOT 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. The foam air 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 foam air filter, remove it from screen and wash it in a non-flammable petroleum solvent or detergent and water. Allow to dry thoroughly.
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.

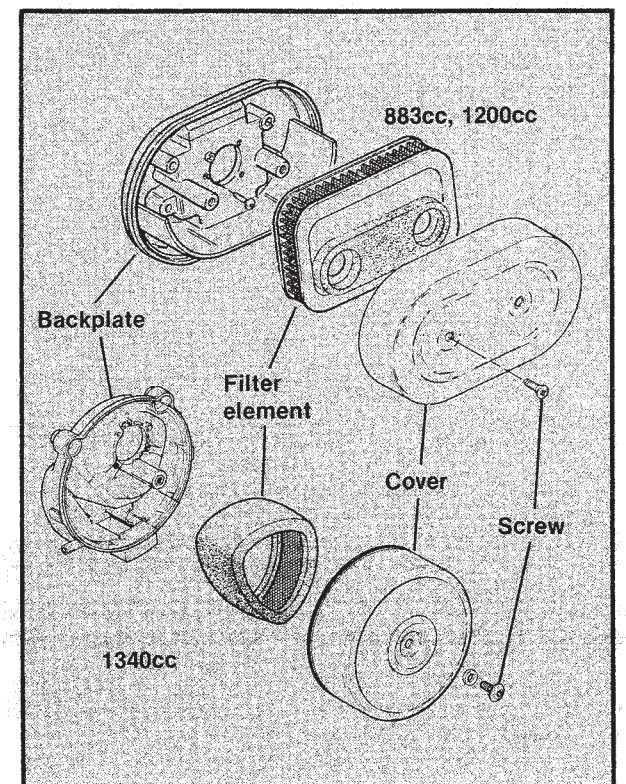


Figure 38. Air Cleaner

3. Replace element on screen so the grooves are toward screen, and install on engine.

WARNING

Low pressure air can blow debris into your face and eyes. Always wear eye protection or a face shield when using pressurized air.

- The paper/wire mesh air filter element should be washed in luke warm water with a mild detergent. Allow filter to either air dry or blow it dry, from the inside, with low pressure air. DO NOT OIL.

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 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 39)

The clutch control cable must be oiled and adjusted every 5000 miles to compensate for lining wear. The need for attention to clutch and controls will be indicated by the clutch slipping under load, or dragging when released. In this situation, the control cable adjustment should be the first thing to be checked. 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.

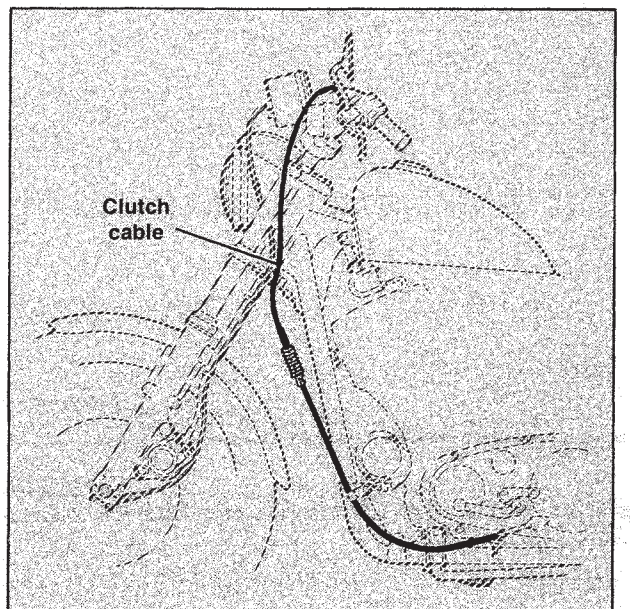


Figure 39. Clutch Control Cable (Typical)

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 40. 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.

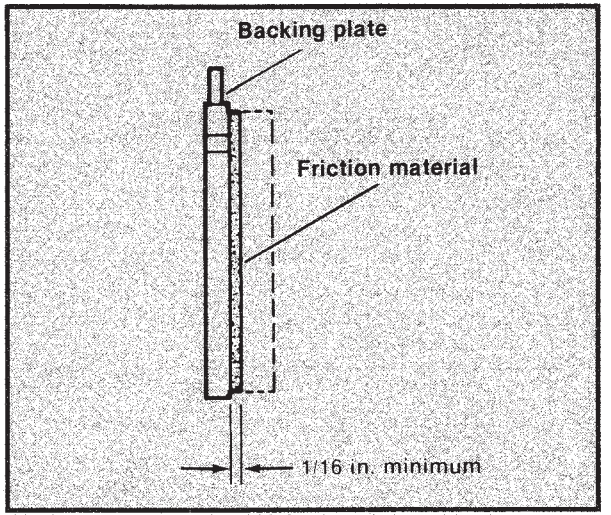


Figure 40. Brake Pad - Side View

See Figure 41. 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 42. The outer surface of the brake pad backing plate should measure $^1/_4$ in. or more away 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.

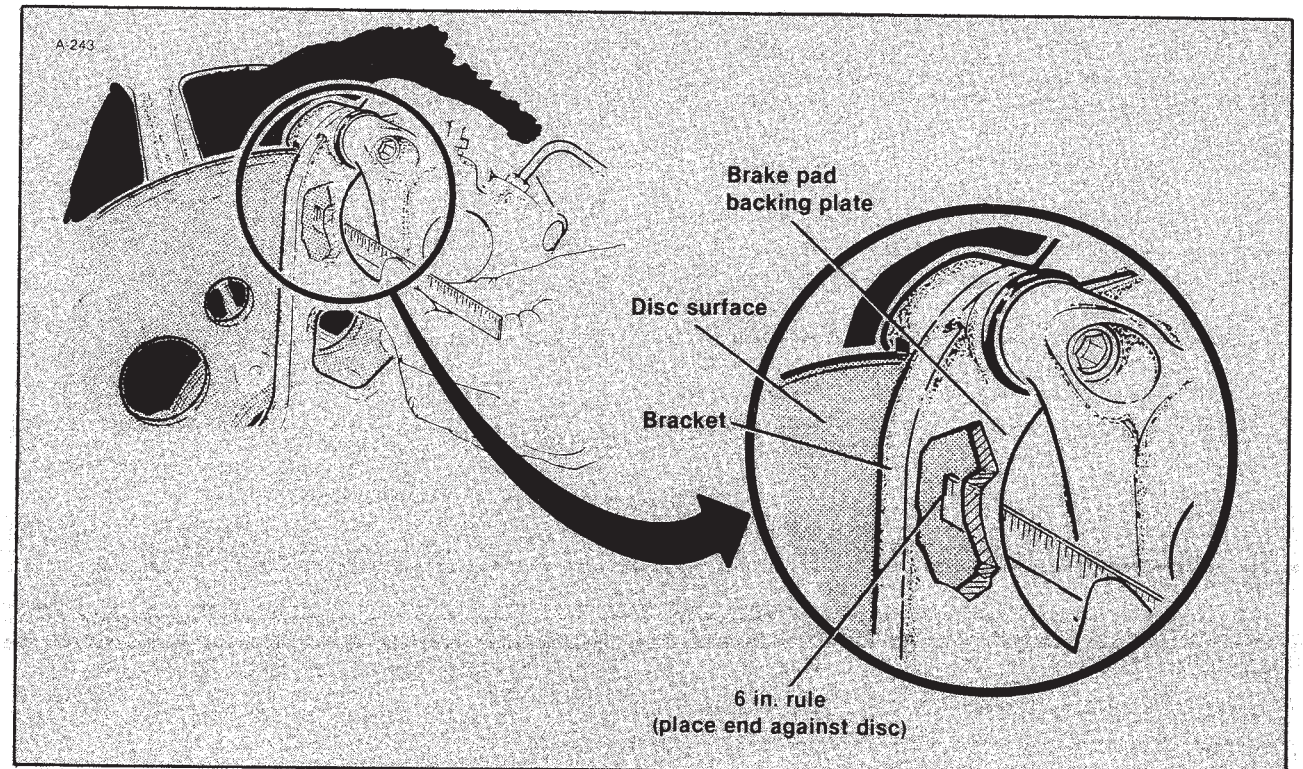


Figure 41. Measuring Rear Brake Outer Pad (Typical)

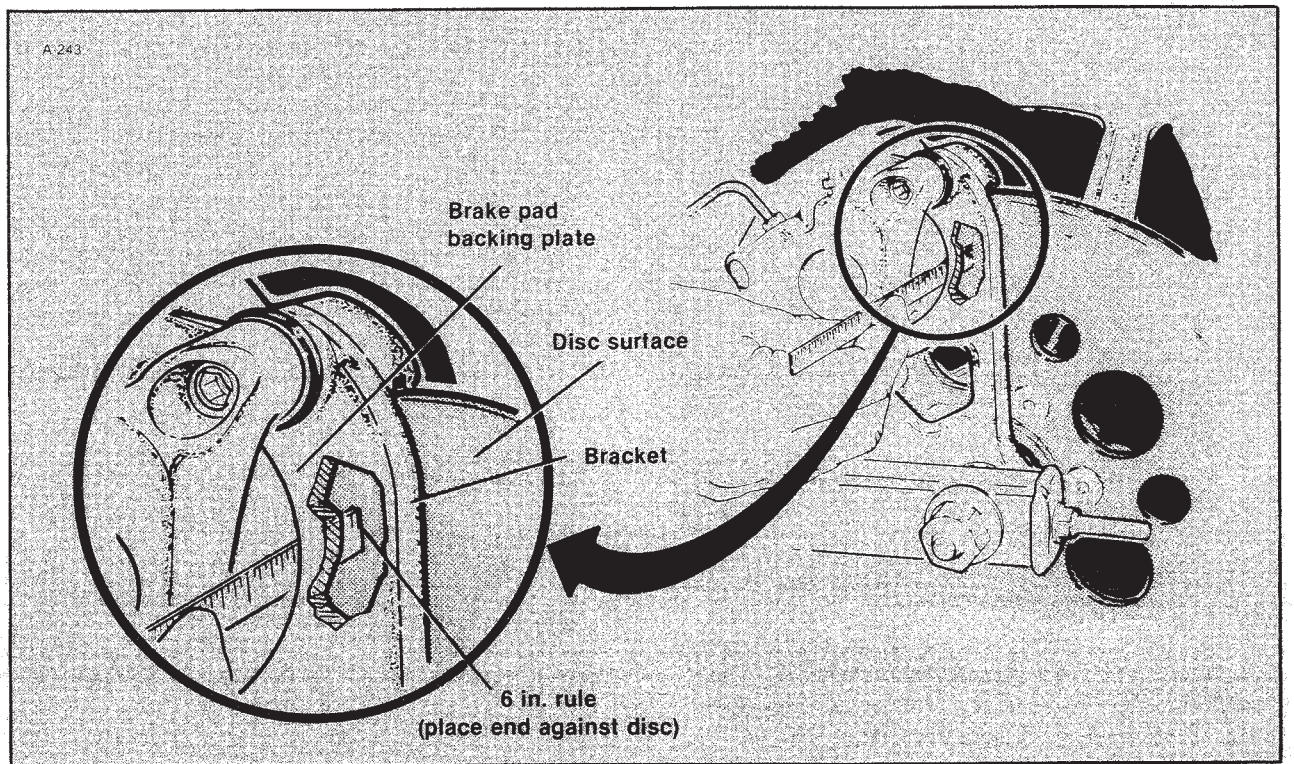


Figure 42. Measuring Rear Brake Outer Pad - XLH Models

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.**
- **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.**
- **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.**
- **A tire can be severely damaged and not show the damage externally. If you strike an object, such as a curb, at speed, internal damage may result which is not visible from the outside. Always remove and carefully inspect the inside as well as the outside of the tire for damage. A damaged tire can fail, causing personal injury.**

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 shaft nut(s) 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; then 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 43)

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.

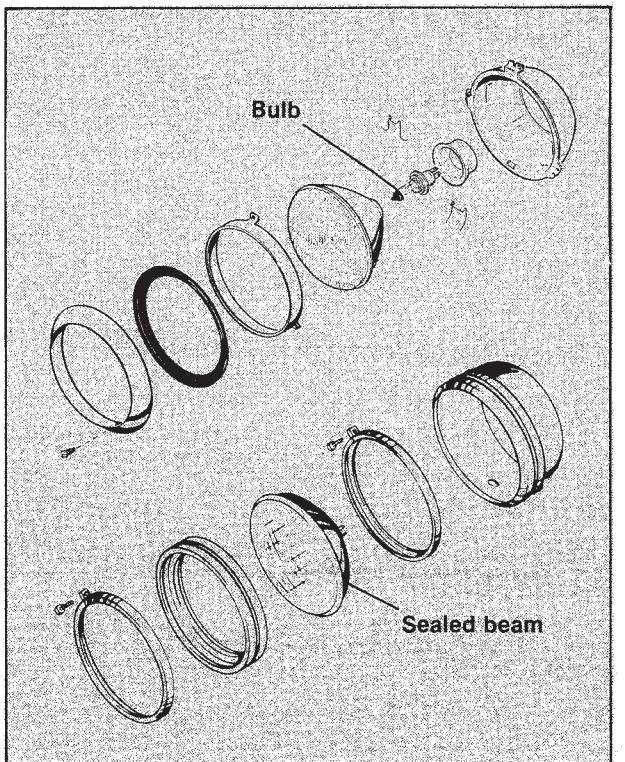


Figure 43. Headlamp

ALTERNATOR CHARGING RATE AND RECTIFIER/REGULATOR

See Figure 44. 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.

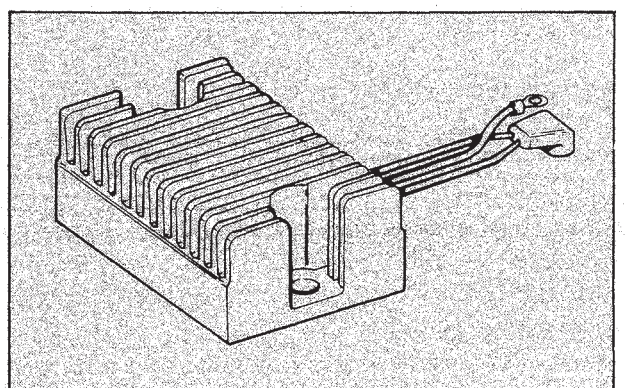


Figure 44. Rectifier/Regulator

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
Softail 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 45. 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.

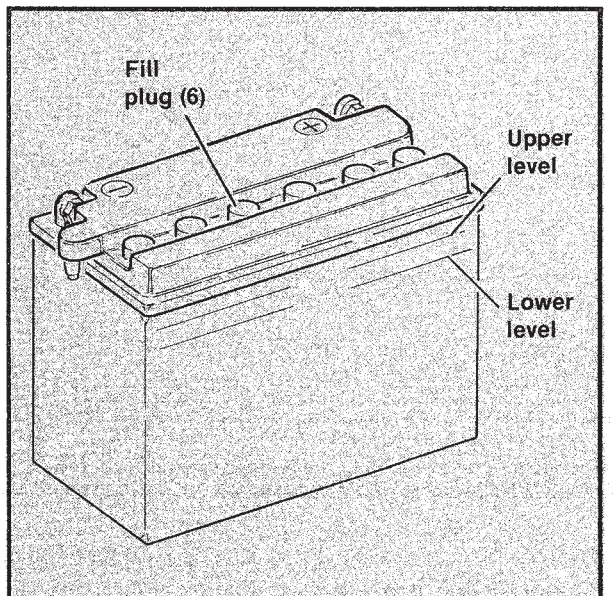


Figure 45. Battery

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.

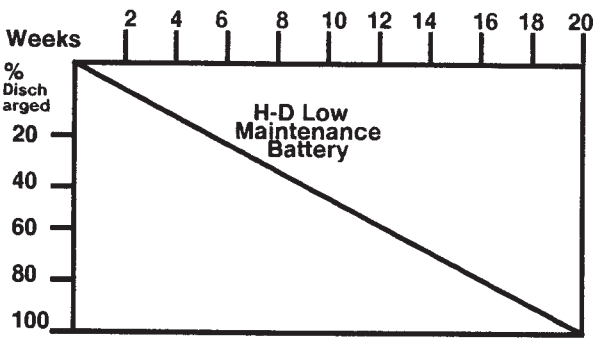
Sulfation occurs when a battery stands in a discharged condition (low specific gravity of electrolyte) over a period of time or when the battery plates are exposed to the air because of low electrolyte level.

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. Battery 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 46. 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.

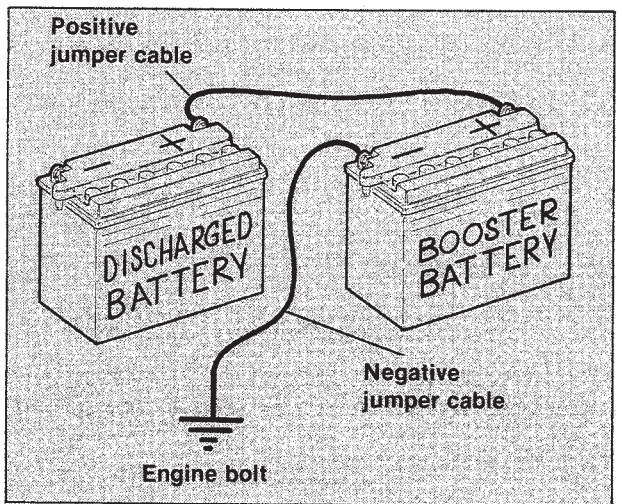


Figure 46. Jump Start Cable Connections

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 fuction.

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 FLHTC/ULTRA FLHS FXRT FXR	FXRS/SP/ CON FXLR	FLST/C/F FXST/C FXSTS	XLH 883 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.

- Make a list of everything you do and fasten it to a handgrip. When you take the motorcycle out of storage, this list will be your reference/check-list to get your motorcycle in operating condition.

1. Warm motorcycle to operating temperature; change oil and turn engine over to circulate the new oil. 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.
2. 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.

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. Fill the battery with distilled water to the proper level. Charge 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. Check amount of oil in the oil tank. 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.

NOTES

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. Incorrect fuel.

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.

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 INDENTIFICATION CARD

See Figure 47. 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.

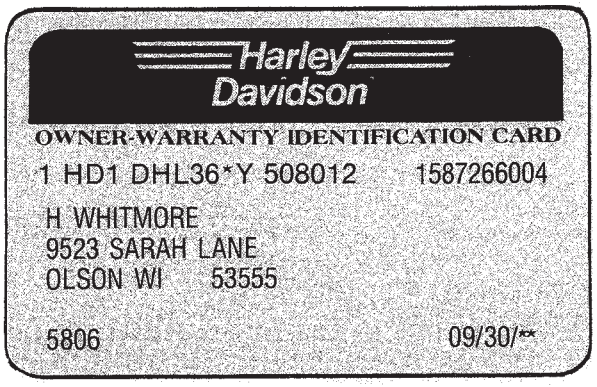


Figure 47. Owner's Warranty Identification Card

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 1990 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.

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 1990 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., • P.O. Box 653 • Milwaukee, Wisconsin 53201. U.S.A.

99919-84

HARLEY-DAVIDSON, INC.

LIMITED WARRANTY TRANSFER FORM

(PLEASE PRINT)

VEHICLE IDENTIFICATION NUMBER

PURCHASER

FIRST INITIAL LAST

NAME

ADDRESS

CITY STATE ZIP

DEALERSHIP

NUMBER

NAME

ADDRESS

CITY STATE ZIP

WARRANTY EXPIRATION DATE WILL BE 12 MONTHS FROM INITAL 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 conditions, listed under Exclusions in the Limited Warranty exist, the Warranty is not transferable.
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.

PURCHASER SIGNATURE **DATE**

DEALER SIGNATURE **DATE**

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

HARLEY-DAVIDSON USE ONLY

TRANSFER FEE RECEIVED:

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

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

*If applicable.

500 MILE MAINTENANCE

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

*If applicable.

5000 MILE MAINTENANCE

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

*If applicable.

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

*If applicable

10,000 MILE MAINTENANCE

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

*If applicable

SERVICE LITERATURE

For more detailed and complete technical and parts information the following publications are available (Fall of 1990) through your Harley-Davidson dealer. Order by part numbers below.

Publication	FLT/FXR Part No.	FX/SOFTAIL Part No.	XLH Part No.
Service Manual	**99483-90**	**99482-90**	**99484-90**
Parts Catalog	**99450-90**	**99450-90**	**99451-90**
Wiring Diagrams Manual	**99948-90**	**99948-90**	**99948-90**

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PATENT NOTICE

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

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

Harley-Davidson Motor Company

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Milwaukee, WI 53201

Part No. 99466-90