



AMF

Harley-Davidson

1975 Owner's Manual

**FL/FLH-1200
FX/FXE-1200**

NOTICE

Harley-Davidson products are manufactured under one or more of the following patents: U.S. Patents – D-199,479, 2510222, 2574739, 2770869, 2783927, 2788676, 2872660, 2986162, 2987934, 2998809, 3116089, 3144631, 3144860, 3226994, 3229792, 3434887, 3559773, 3673359, 3709317. Des. 225, 626. Canadian Patents – 487981, 490652.

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AMF HARLEY-DAVIDSON MOTOR CO., INC.

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. The instructions in this book have been prepared to provide a simple and understandable guide for your motorcycle's operation and care. Follow the instructions carefully for its maximum performance and your personal motorcycling pleasure.

Your owner's manual contains instructions for owner care and maintenance of a minor nature. Information covering repair of major units such as engine, transmission, etc. is provided in the Harley-Davidson Service Manual. Work of this kind requires the attention of a skilled mechanic 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.

Harley-Davidson Motor Co., Inc.

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MOTORCYCLE SAFETY

Harley-Davidson motorcycles are designed and built according to our own rigid safety standards and all applicable Federal Motor Vehicle Safety Standards.

Because of its acceleration, maneuverability and ease of handling, the motorcycle is inherently one of the safest vehicles designed for use on the highway. However, any vehicle can only be as safe as the person who operates it and depends primarily upon skill and judgement.

It must be remembered — especially by those not familiar with motorcycle operation — that being a two-wheeled vehicle, it requires different skills and operating procedures from those needed to safely operate a four-wheeled vehicle.

We urge that you consult your Harley-Davidson dealer who can advise you about the motorcycle traffic laws in your area, who has the necessary clothing, helmet, etc. best suited to your riding requirements, and who can provide literature or training in the safe operation of your motorcycle.

RULES OF SAFETY

Before operating your new motorcycle it is your responsibility to read and follow operating and maintenance instructions in this manual, and obey these primary rules:

- Gasoline is extremely flammable and highly explosive under certain conditions. Always stop engine, and do not smoke or allow open flame or sparks when refueling or servicing the fuel system, or when using gasoline as a cleaning solvent.
- Do not operate motorcycle especially at high speeds, until you have become thoroughly familiar with its operation and handling characteristics under all conditions. (See "CONTROLS" and "RIDING.")
- Before starting engine, check for proper operation of brake, clutch, shifting, throttle controls, and correct fuel mixture. (See "CONTROLS" and "RIDING.")
- Know your motorcycle and skill as the operator.
- When leaving motorcycle unattended, lock steerhead, remove ignition key from switch and activate the Harley-Davidson Security System to prevent unauthorized use or theft.
- Never permit anyone to operate your motorcycle without proper instruction in motorcycle safety, without knowledge of laws covering its operation, and without ability to operate safely.



HARLEY-DAVIDSON OWNER'S "WARRANTY AND MAINTENANCE"

In addition to this Owner's Manual, a Warranty and Maintenance booklet is provided each new Harley-Davidson owner. The booklet contains your new motorcycle Warranty, a Warranty Registration card, and a number of tear-out service coupons.

IMPORTANT: The Warranty Registration card must be completed and returned to Harley-Davidson Motor Co. within 10 days, to establish your motorcycle warranty.

The approved service and maintenance procedures on each coupon and the mileage intervals have been worked out by Harley-Davidson service personnel, and cover items which are the owner's responsibility to have taken care of.

Bring the coupon booklet along when you visit your dealer at the specified mileages to have your motorcycle inspected and serviced. Have your dealer sign the service coupon stubs for required proof of service during the warranty period.

Dealer charges for the recommended Service Procedures are nominal — you will be repaid with long, trouble-free service and will protect your investment in a quality Harley-Davidson product.

NOTE

Tools for owner use, as recommended in this handbook for service and minor repairs, are supplied in a tool kit which can be purchased from your Harley-Davidson dealer.

SPECIFICATIONS

DIMENSIONS

	FL/FLH	FX/FXE
Wheel Base	61.5 in.	62.7 in.
Overall Length	89.0 in.	92.0 in.
Overall Width	38.5 in.	33.0 in.

CAPACITIES

Fuel Tank	
FL/FLH . . . Total	5 or 3.5 Gallons (U.S.)
Reserve	1.2 or 1 Gallons (U.S.)
FX/FXE . . . Total	3.6 Gallons (U.S.)
Reserve	1.0 Gallons (U.S.)
Oil Tank	4 Quarts (U.S.) 3.75
Transmission	1-1/2 Pints (U.S.) 0.72

ENGINE

Model Designation Letters	FL/FLH
Number of Cylinders	2
Type	45 Degree V Type
Horsepower . . . FLH	66.0 HP at 5200 RPM
FL	57.0 HP at 5200 RPM
Taxable Horsepower	9.44
Bore	3-7/16 in. (87.3mm)

Stroke	3-31/32 in. (100.8mm)
Piston Displacement	73.66 cu. in. (1207 cc)
Torque . . . FLH	70 lb-ft at 4000 RPM
FL	64 lb-ft at 3600 RPM
Compression Ratio . . . FLH	8 to 1
FL	7.25 to 1

NOTE

The serial (VIN) numbers of your Harley-Davidson are stamped on the right side of the engine crankcase and frame steering head. Always give these numbers when ordering parts or making any inquiry about your motorcycle.

IGNITION SYSTEM

Circuit Breaker Point	Gap018 in.
Dwell140° at 2000 RPM	
Spark Plugs	Size	14 mm x 3/4 Reach
	Gap025 to .030 in.
	Heat range for average use	No. 5-6
Spark Timing	Retard 5° B.T.C.	
	(Automatic Advance) 35° B.T.C.	

TRANSMISSION

Type	Constant Mesh	
	4 Forward	3 Forward
Internal Ratios —	_____	1 Reverse
1st	2.45	2.71
2nd	1.82	1.50
3rd	1.23	1.00
4th or reverse	1.00	2.66
Engine Sprocket Teeth	24, 23, 22	
Clutch Sprocket Teeth	37	
Transmission Sprocket Teeth	FL/FLH	22
	FX/FXE	23
Rear Wheel Sprocket Teeth	51	

GEAR RATIOS

	Engine Sprocket Teeth							
	24 4-Speed		23 4-Speed		22 4-Speed		22 3-Speed	19 3-Speed
	FLH	FX	FLH	FX	FLH	FX	FLH/FL	FLH/FL
First (Low)	10.74	9.48	11.19	9.91	11.69	10.33	10.57	12.20
Second	6.50	6.24	6.79	6.51	7.09	6.80	5.84	6.75
Third	4.39	4.21	4.59	4.40	4.79	4.60	3.90	4.50
Fourth (High) or re- verse	3.57	3.42	3.73	3.57	3.90	3.73	10.37	11.97

The following tire inflation pressures are based on rider and passenger weights of approximately 150 lbs. each. For each 50 lbs. extra weight, increase pressure of rear tire 2 lbs., front tire 1 lb., and sidecar tire 1 lb.

TIRE DATA

		Tire Pressure — PSI		
		Front	Rear	Sidecar
Solo rider	FL/FLH	20	24	
	FX/FXE	24	24	
Rider and one passenger	FL/FLH	20	26	
	FX/FXE	24	26	
Rider and one sidecar passenger or 150 lbs.		22	26	20

(Tire data continued on page 12)

- | | |
|--|------------------------------------|
| 1. Tail/Stop/Direction
Signal Lamps | 8. Ignition Circuit Breaker Cover |
| 2. Oil Filter | 9. Oil Pump and Pressure
Switch |
| 3. Carburetor Air Cleaner | 10. Starter Motor and Relay |
| 4. Hydraulic Fork | 11. Transmission Oil Filler Plug |
| 5. Safety Guard | 12. Battery |
| 6. Brake Master Cylinder | 13. Hydraulic Shock Absorber |
| 7. Engine Serial Number | 14. Security System (Accessory) |

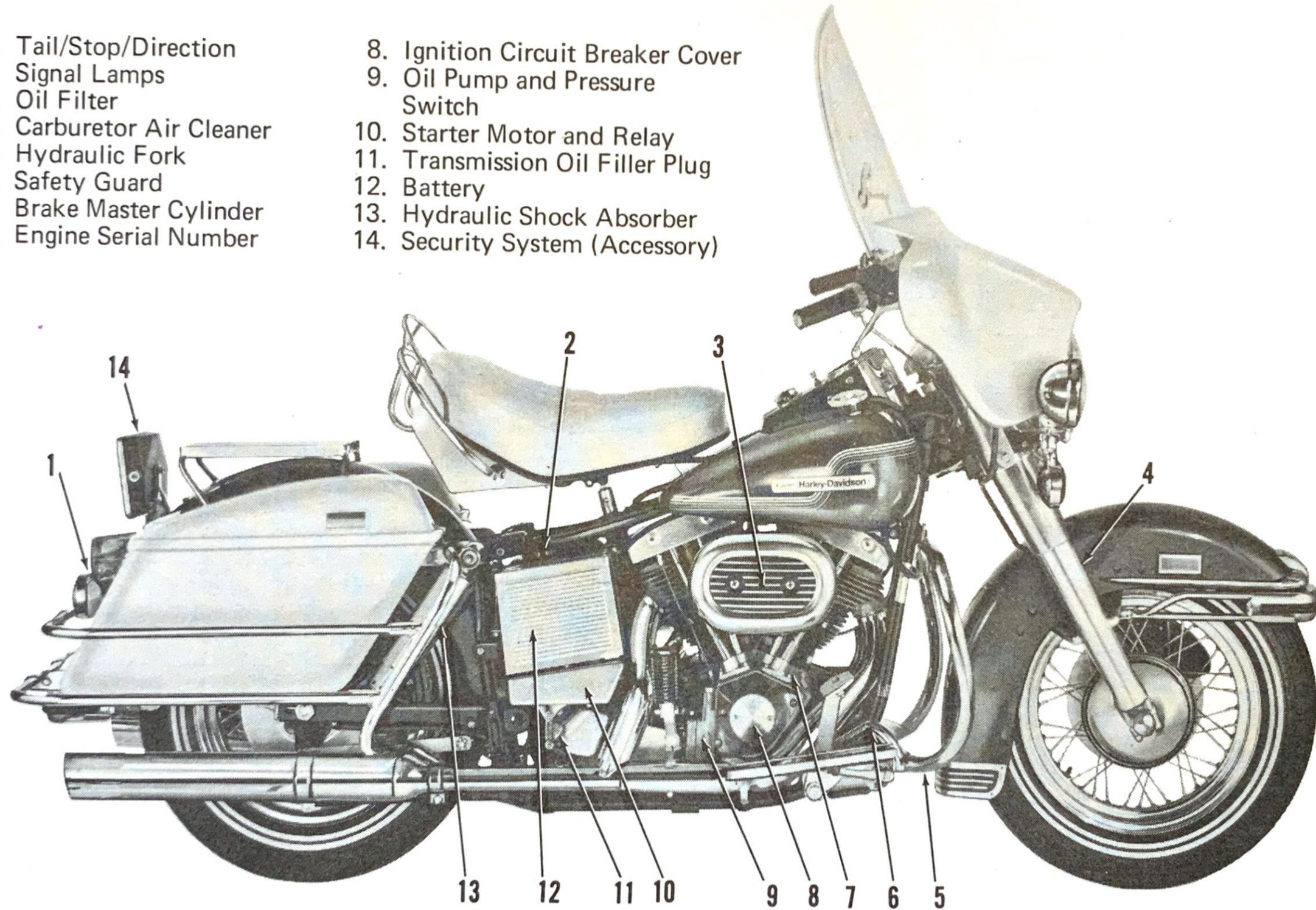
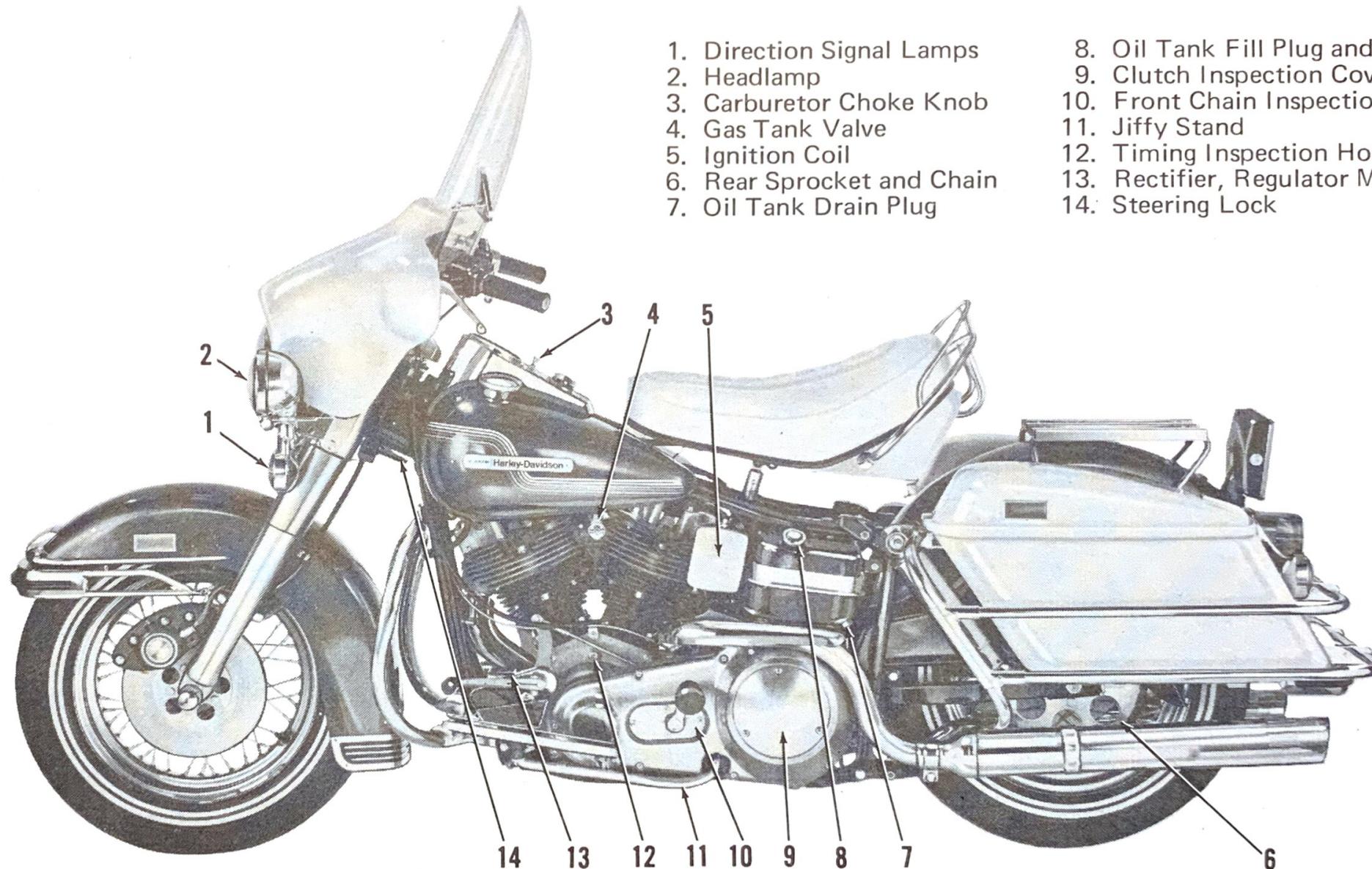


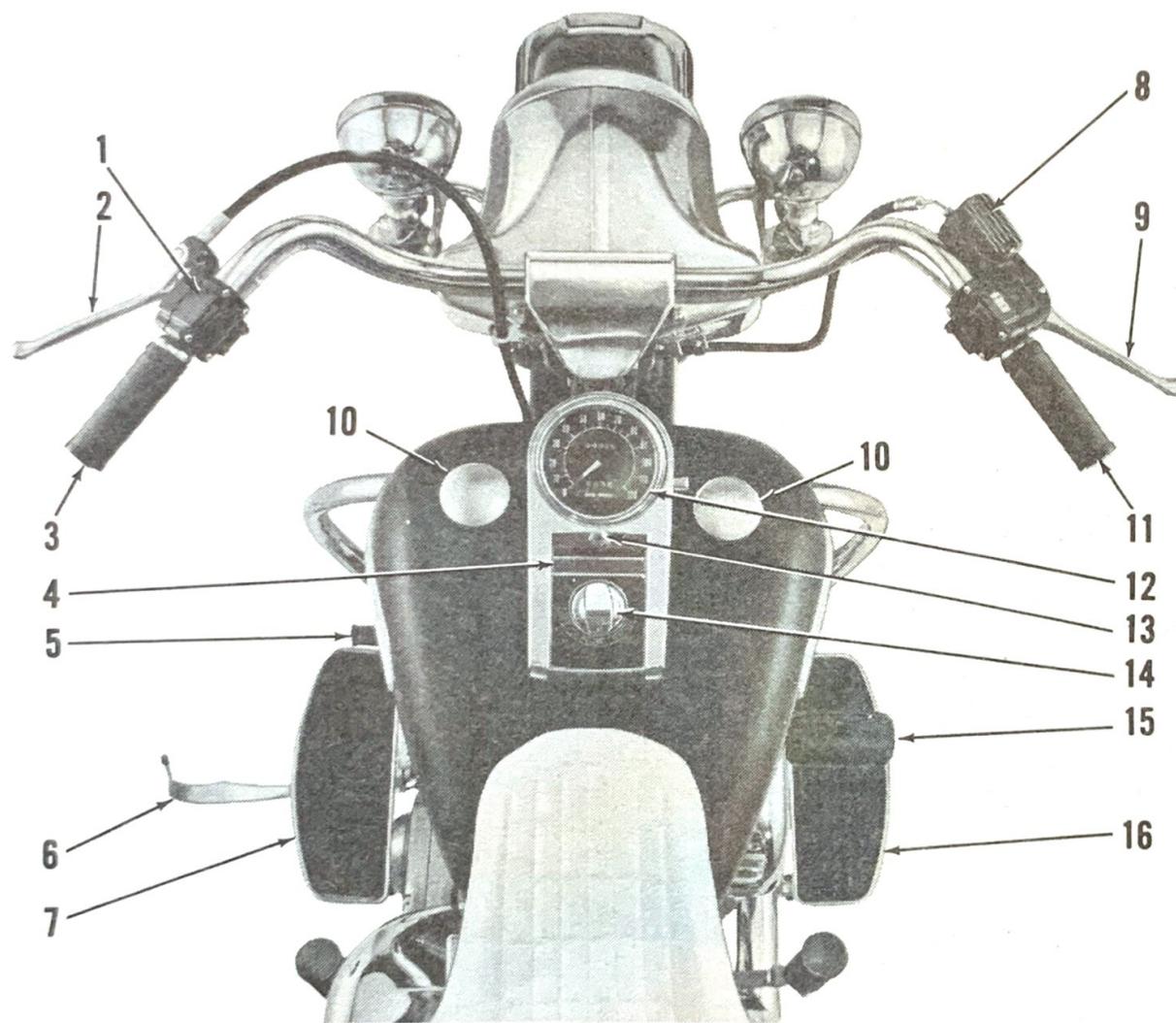
FIGURE 1. RIGHT SIDE VIEW – FL/FLH-1200



- 1. Direction Signal Lamps
- 2. Headlamp
- 3. Carburetor Choke Knob
- 4. Gas Tank Valve
- 5. Ignition Coil
- 6. Rear Sprocket and Chain
- 7. Oil Tank Drain Plug

- 8. Oil Tank Fill Plug and Dipstick
- 9. Clutch Inspection Cover
- 10. Front Chain Inspection Cover
- 11. Jiffy Stand
- 12. Timing Inspection Hole Plug
- 13. Rectifier, Regulator Module
- 14. Steering Lock

FIGURE 2. LEFT SIDE VIEW – FL/FLH-1200



1. Left Handlebar Switch
2. Clutch Hand Lever
3. Grip
4. Instrument Panel Signal Lights
5. Foot Gear Shift Lever
6. Jiffy Stand
7. Left Footrest
8. Front Brake Master Cylinder
9. Front Brake Hand Lever
10. Gas Tank Cap (2)
11. Throttle Control Grip
12. Speedometer
13. Carburetor Choke Knob
14. Ignition-Light Switch
15. Rear Brake Foot Pedal
16. Right Footrest

FIGURE 3. TOP VIEW – FL/FLH-1200

- | | |
|---|-----------------------------------|
| 1. Tail Lamp | 8. Ignition Circuit Breaker Cover |
| 2. Oil Filter (Under Seat) | 9. Oil Pump and Pressure Switch |
| 3. Carburetor Air Cleaner | 10. Kick Starter |
| 4. Hydraulic Fork | 11. Transmission Oil Filler Plug |
| 5. Safety Guard
(Optional Equipment) | 12. Battery |
| 6. Brake Master Cylinder | 13. Hydraulic Shock Absorber |
| 7. Engine Serial Number | 14. Security System (Accessory) |
| | 15. Direction Signal Lamp |

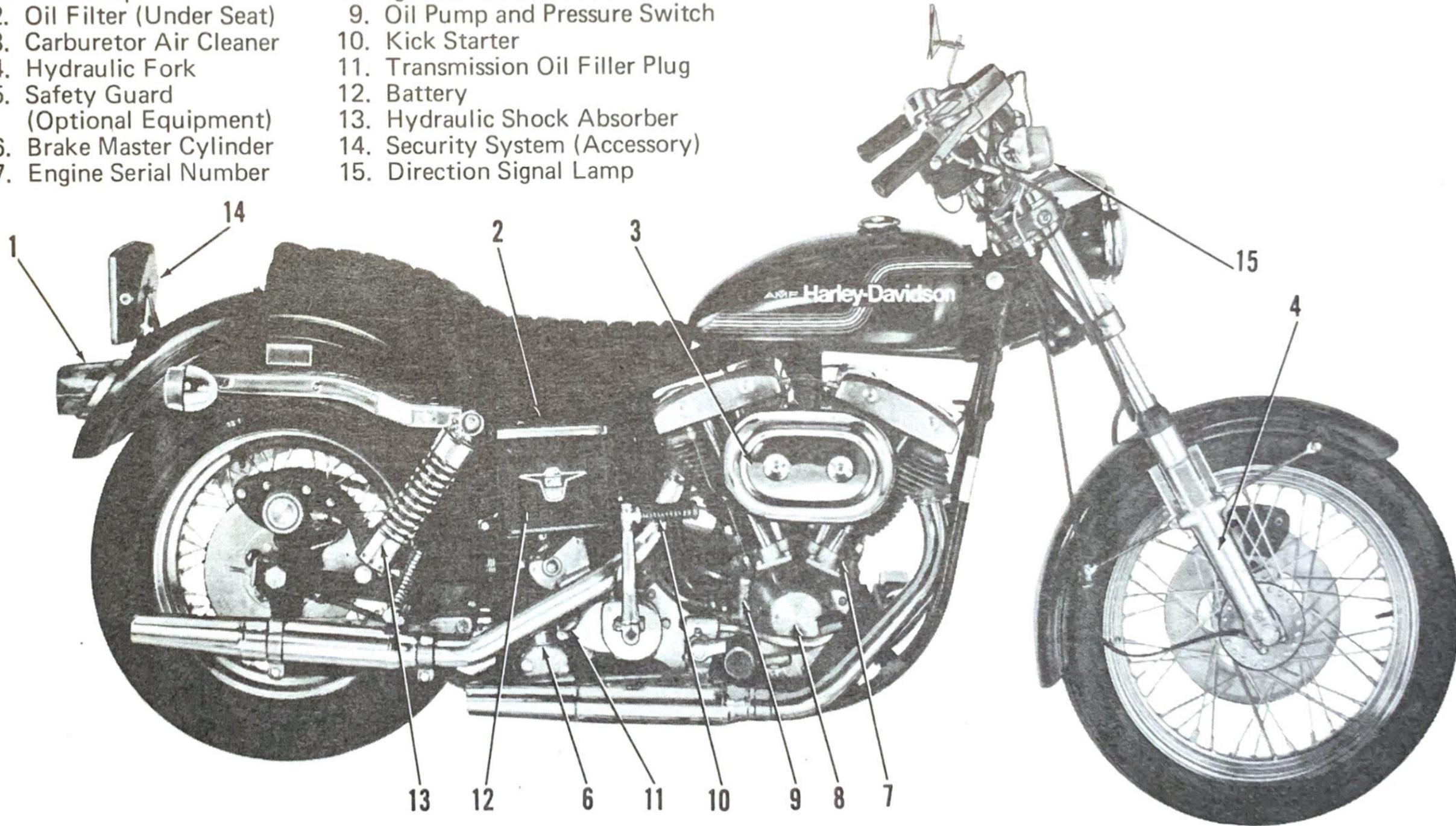
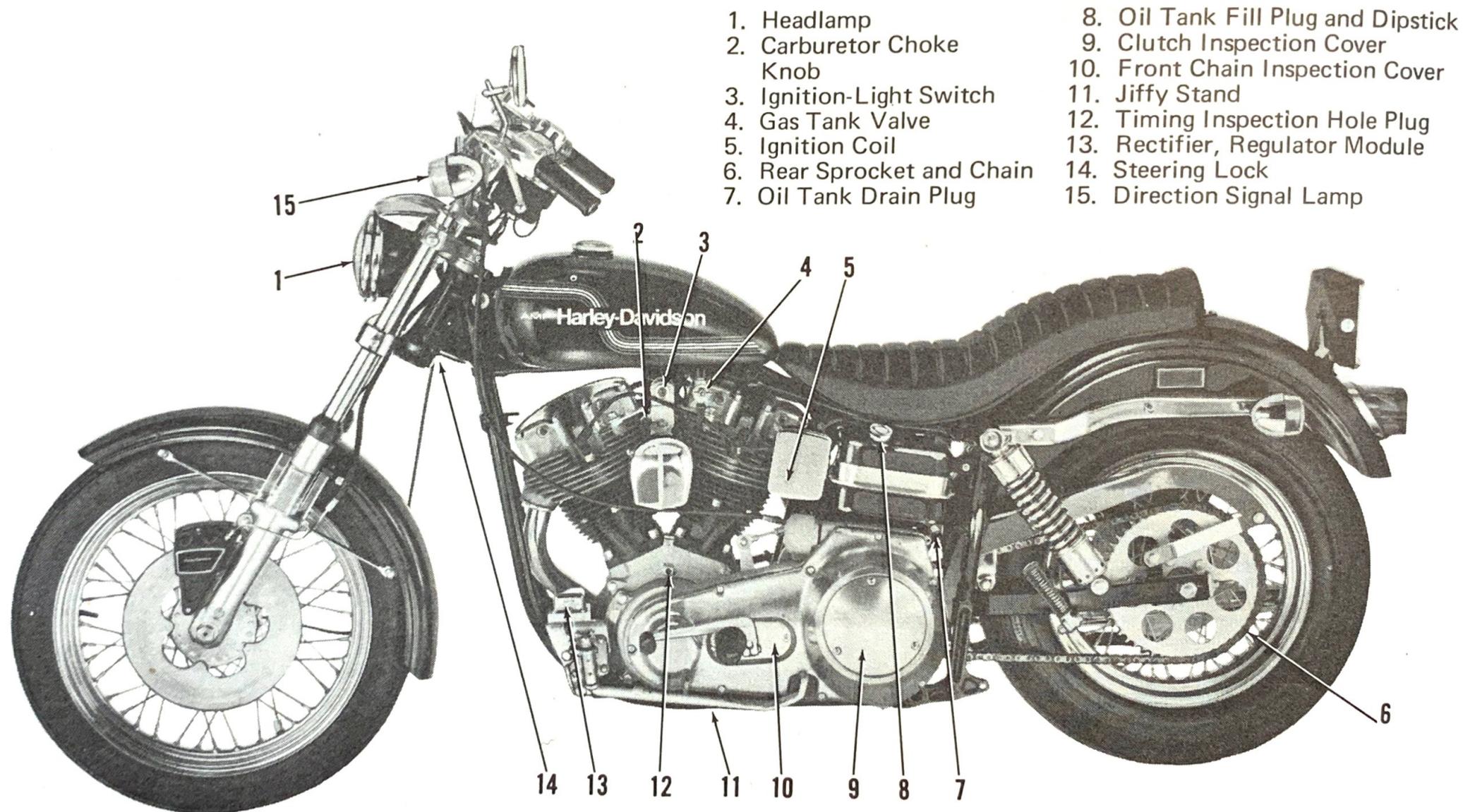
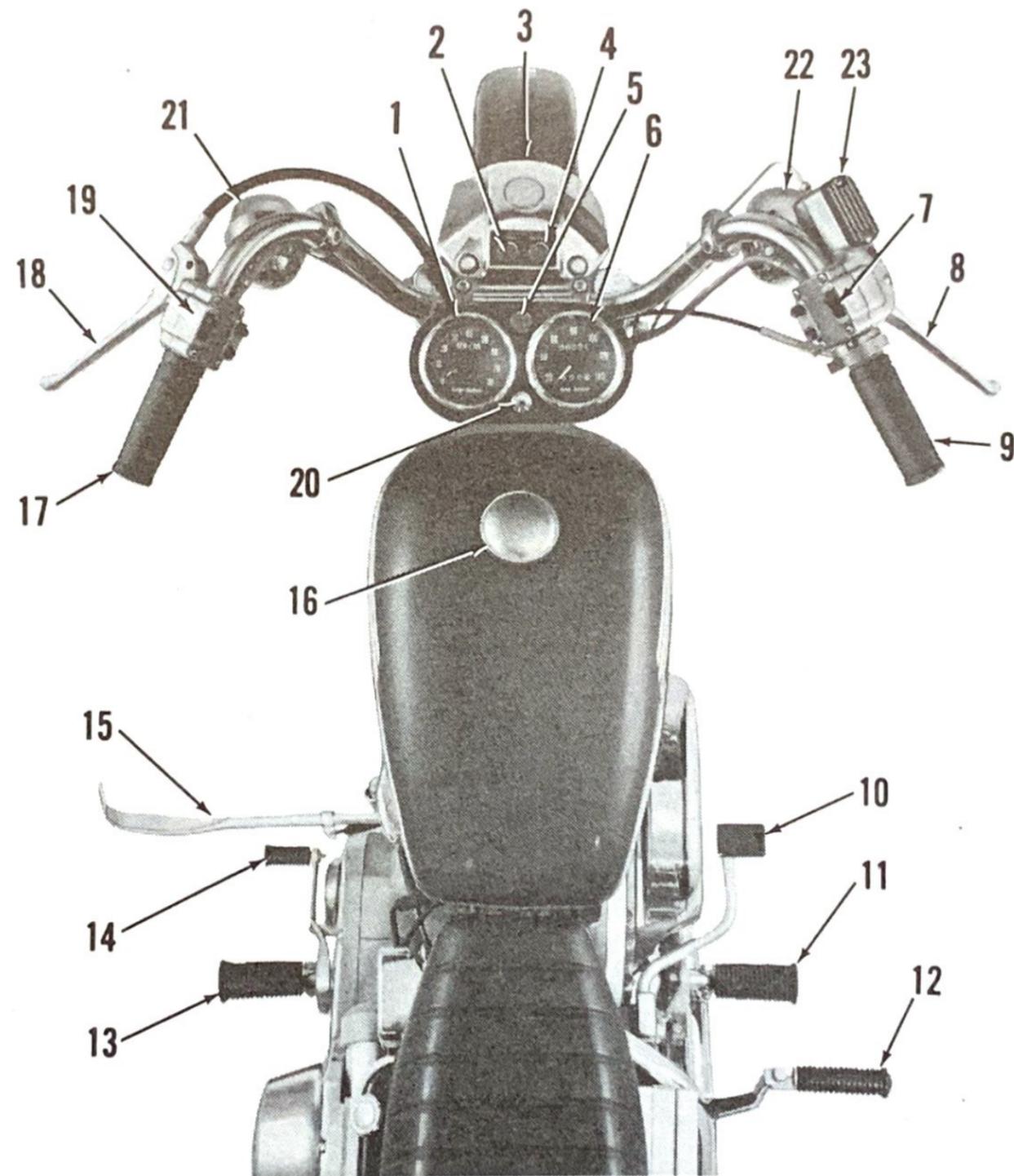


FIGURE 4. RIGHT SIDE VIEW – FX/FXE-1200



- | | |
|----------------------------|------------------------------------|
| 1. Headlamp | 8. Oil Tank Fill Plug and Dipstick |
| 2. Carburetor Choke Knob | 9. Clutch Inspection Cover |
| 3. Ignition-Light Switch | 10. Front Chain Inspection Cover |
| 4. Gas Tank Valve | 11. Jiffy Stand |
| 5. Ignition Coil | 12. Timing Inspection Hole Plug |
| 6. Rear Sprocket and Chain | 13. Rectifier, Regulator Module |
| 7. Oil Tank Drain Plug | 14. Steering Lock |
| | 15. Direction Signal Lamp |

FIGURE 5. LEFT SIDE VIEW – FX/FXE-1200



1. Tachometer (Accessory)
2. Generator Signal Light
3. Headlamp
4. Oil Pressure Light
5. High Beam Indicator Light
6. Speedometer
7. Right Handlebar Switch
8. Front Brake Hand Lever
9. Throttle Control Grip
10. Rear Brake Foot Pedal
11. Right Side Foot Rest
12. Starter Crank Pedal
13. Left Side Foot Rest
14. Gear Shifter Pedal
15. Jiffy Stand
16. Gas Tank Cap
17. Left Handlebar Grip
18. Clutch Hand Lever
19. Left Handlebar Switch
20. Trip Odometer Reset Knob
21. Left Front Direction Signal Lamp
22. Right Front Direction Signal Lamp
23. Front Brake Master Cylinder

FIGURE 6. TOP VIEW — FX/FXE-1200

IMPORTANT

Tires supplied as original equipment are identified on the tire sidewall. These tires were designed especially for your Harley-Davidson motorcycle to provide maximum roadability, and should be used exclusively for replacement.

FL/FLH Front and Rear Wheel
FX/FXE Rear Wheel

Tire 5.10 x 16
Tube 5.10/5.00 x 16

FX/FXE Front Wheel

Tire . . . Goodyear MM-90 (3.75 x 19) Sport Rib
 Yokohama Y-980 (3.75-19T) High Speed
Tube 3.25 x 18, 3.25 x 19

IMPORTANT

3.75 x 19 tire must be used on taper base rim.

CONTROLS

Gasoline Supply Valve

The gasoline supply valve is located under the gas tank. Gasoline to carburetor is shut off when handle is in horizontal position. Turning the handle down to vertical position turns on main gasoline supply; turning handle up to vertical position turns on reserve supply. Valve should always be closed when engine is not running. Use "Premium Grade" (Ethyl) or other anti-knock gasoline.

Ignition-Light Key Switch

Model FL/FLH

The ignition-light switch (upper figure 8) is located on the instrument panel. Lift lock cover and use switch key to lock or unlock. It is not necessary to keep the key inserted in the lock to operate this switch after it has been unlocked. The center position of the switch is the off position for both lights and ignition. The right (counterclockwise) of center position is for accessories only. There are two positions to the left (clockwise) of center

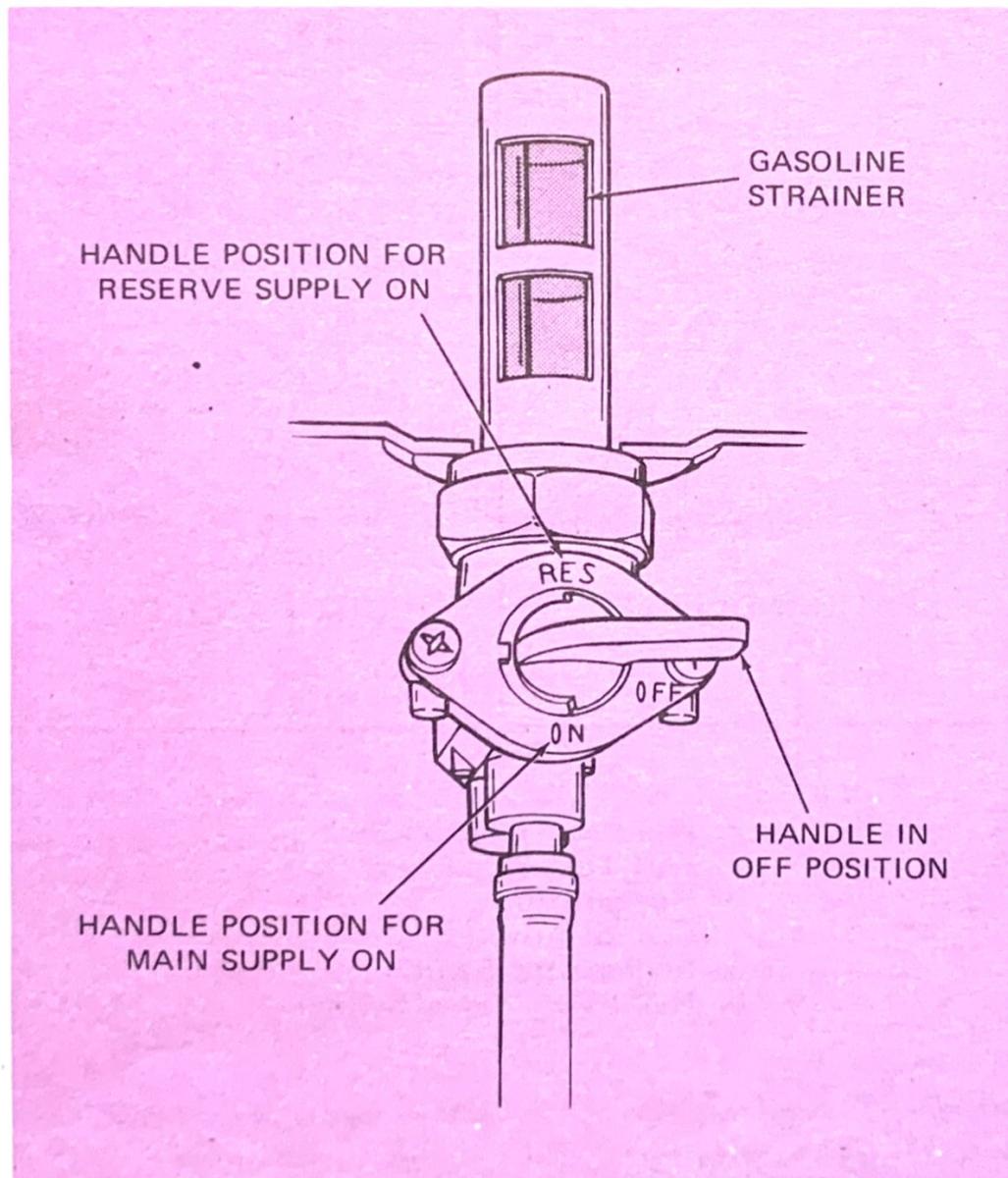


FIGURE 7. GASOLINE SUPPLY VALVE

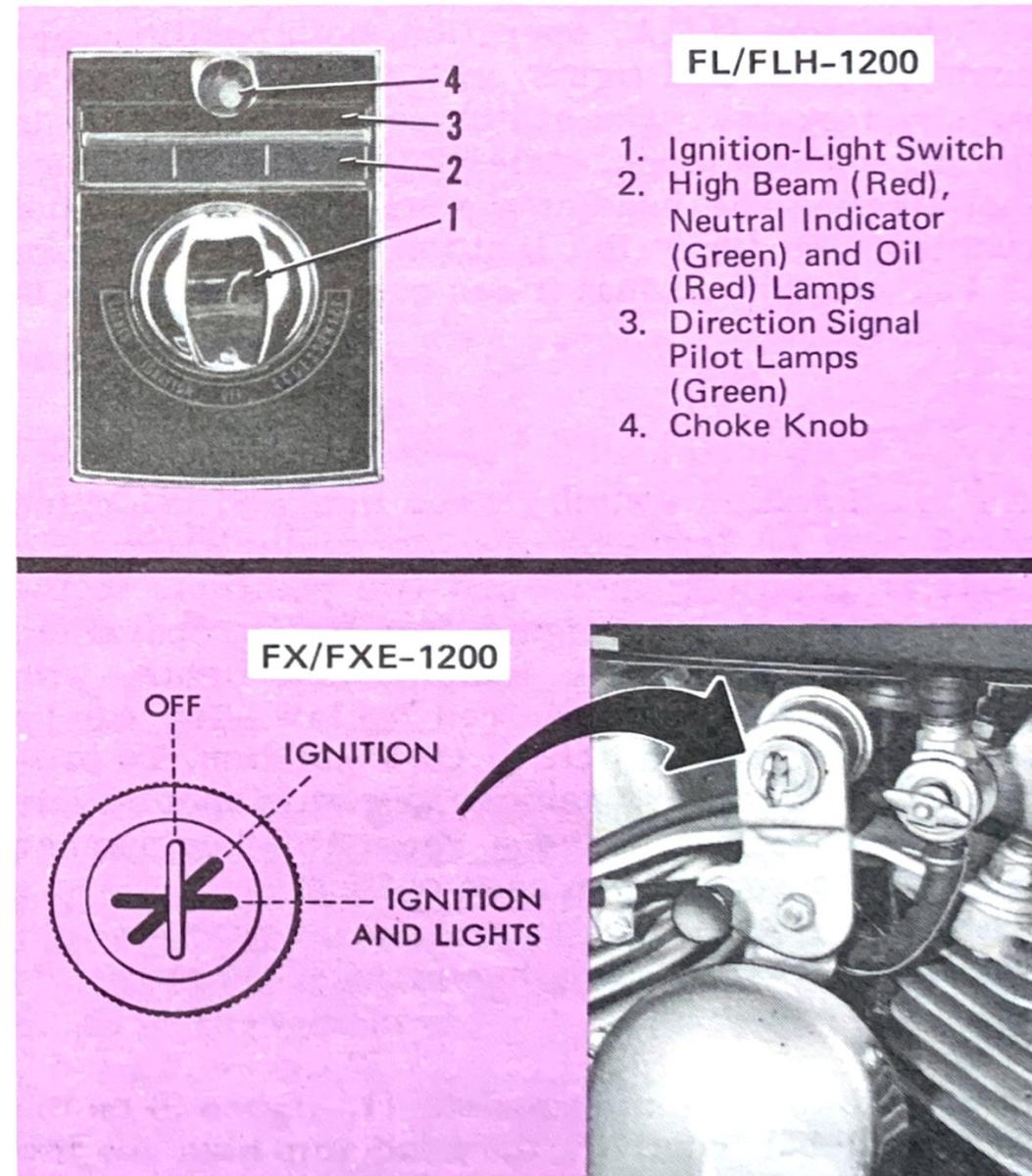


FIGURE 8. IGNITION-LIGHT SWITCH

position. For U.S.A. operation, both positions operate ignition and lights, with standard wiring, as required by law. The switch can be locked only in the off and the accessories positions. Remember that lighting the headlamp when the engine is not running also turns the ignition on. Make a record of key number so that it can easily be replaced in case of loss.

Model FX/FXE

The ignition light switch (lower figure 8) is located below seat on left side of motorcycle. From OFF vertical position, there are two positions to the right for ignition and lights. For U.S.A. operation, both positions operate ignition and lights, with standard wiring, as required by law. Key can be removed to lock switch in OFF position. To protect yourself, always remove key when motorcycle is left unattended. Make a record of key number so it can be replaced in case of loss.

Headlamp Dimmer Switch and High Beam Indicator Light

The headlamp dimmer switch (1, figure 9) on the left handlebar controls the headlamp high and low beams. High beam indicator light remains lit when high beam is on.

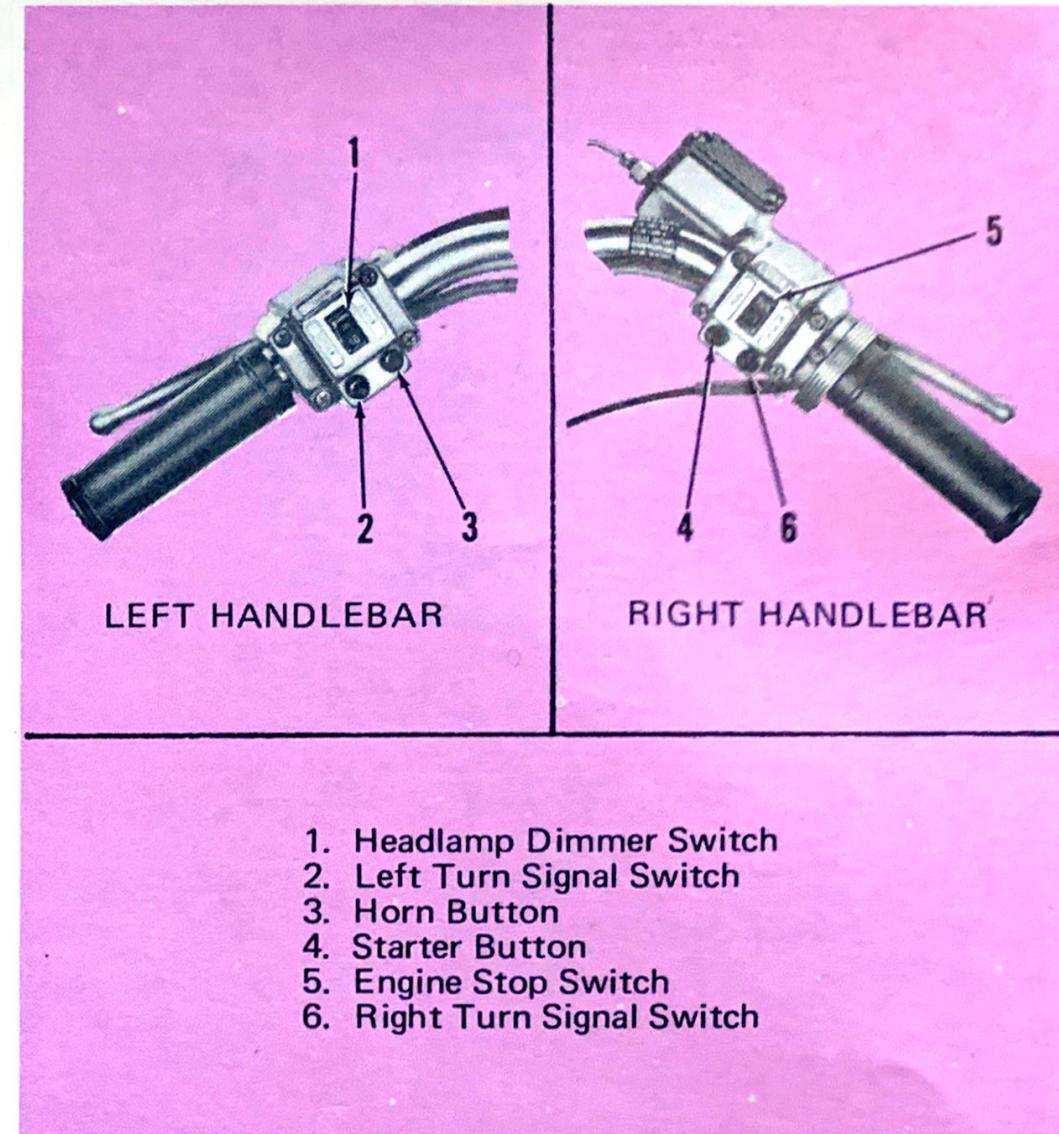


FIGURE 8. HANDLEBAR SWITCHES

Turn Signal Switches

Right turn switch button (6, figure 9) on right handlebar operates the right front and right rear flashing lamps. Left turn switch button (2, figure 9) on left handlebar operates the left front and left rear flashing lamps.

Horn

The horn is operated by the horn button (3, figure 9) on the left handlebar.

Electric Starter

The starter button (4, figure 9) is located on the right handlebar. With ignition on, engine stop switch (5, figure 9) in run position and transmission in neutral, push button to operate starting motor.

Kick Starter

The starter crank pedal (12, figure 6) is located on the right side and has a spring return. When starting the engine, push the pedal down with full, vigorous strokes to turn the engine over.

Engine Stop Switch

Rocker switch (6, figure 9) on right handlebar turns ignition on or off and should be used to stop the engine in an emergency. To stop engine, push switch to position marked "OFF."

Throttle Control Grip

Turn the throttle control grip (11, figure 3 or 9, figure 6) outward (clockwise) to close throttle; turn inward (counterclockwise) to open throttle. Throttle is self-closing and should return to idle position when hand is released.

Clutch Hand Lever

The clutch hand lever (2, figure 3 or 18, figure 6) is located on the left handlebar where it may be easily 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.

CAUTION

Always fully release clutch when starting engine or shift transmission to neutral gear.

Choke

Carburetor choke knob (4, figure 8 or 2, figure 5). Pull knob out to close choke. Push knob inward to open choke.

Clutch Foot Pedal (FL/FLH Option)

The clutch foot pedal is located on the left side where it may be conveniently operated by the left foot. The clutch is engaged when the toe is down and released when the heel is down.

Hand Gear Shift Lever (FL/FLH Option)

The hand gear shift lever (figure 10) is located on the left side and the various positions are plainly marked on shifter gate. This lever must be at neutral (N) and the clutch engaged when starting the engine. **FULLY RELEASE THE CLUTCH BEFORE SHIFTING.** To shift gears, move upper end of lever forward or rearward. This moves lower portion of lever in opposite direction against stops in gate where gear positions are marked.

Gear Shift Foot Lever

The gear shift lever (figure 11) is located on the left side where it may be conveniently operated by the left foot.

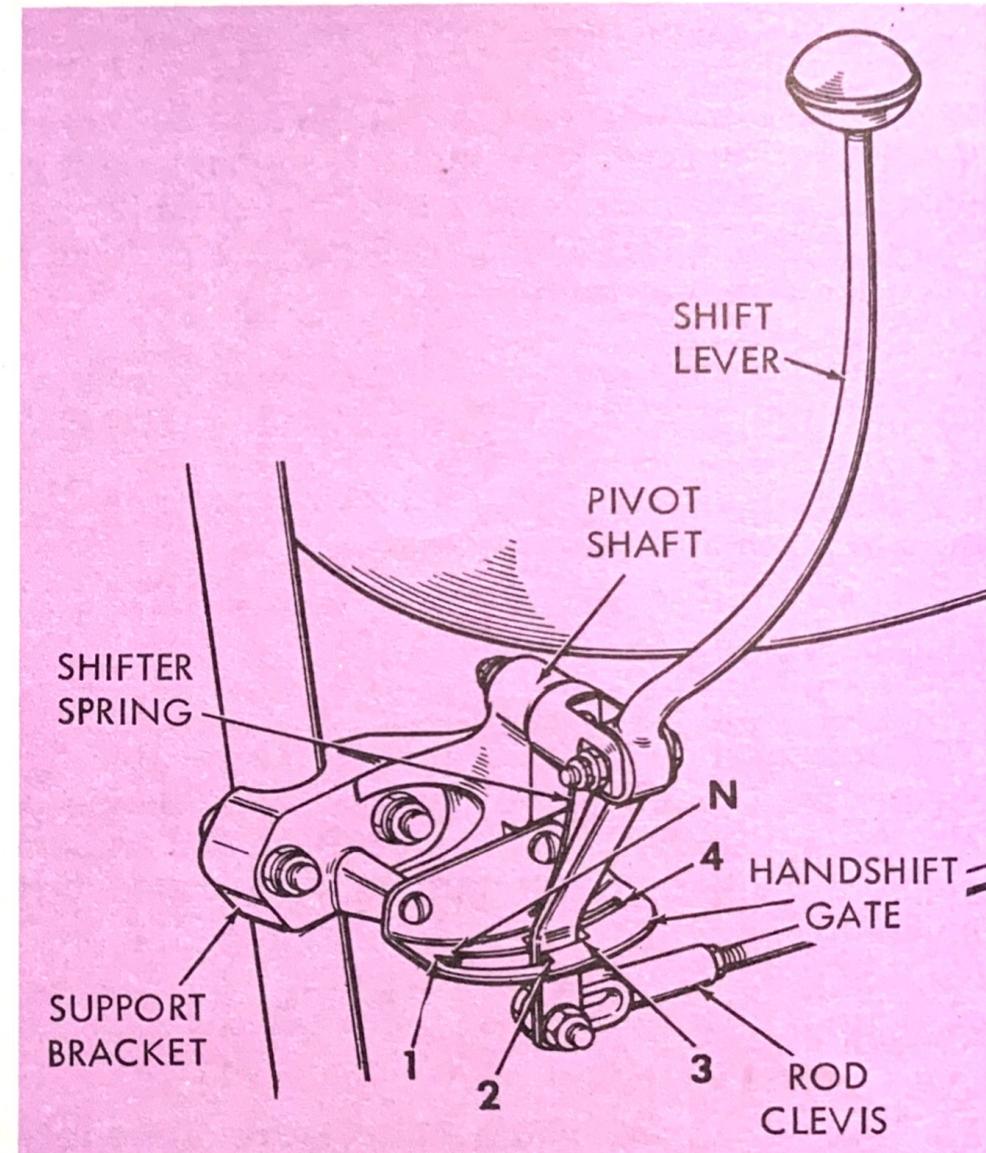


FIGURE 10. HAND SHIFT

Moving the foot lever all the way down (full stroke) shifts the transmission into the next lower gear. Moving the foot lever all the way up (full stroke) shifts transmission into the next higher gear.

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

Neutral position is between first (low) and second gears, and is indicated by the indicator light on the instrument panel when ignition-light switch is turned on. To shift from first gear to neutral, move foot lever one-half of its full stroke from low or second gear.

With the motorcycle standing still and the engine not running, it usually will be necessary to move the motorcycle backward or 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, clutch disengaged and the motorcycle standing still, it may be difficult to shift gears because transmission gears are not turning and shifting parts are not lined up to permit engagement. When this happens, do not under any circumstances force the shift by "roughing" the foot lever; the results of such abuse will be a

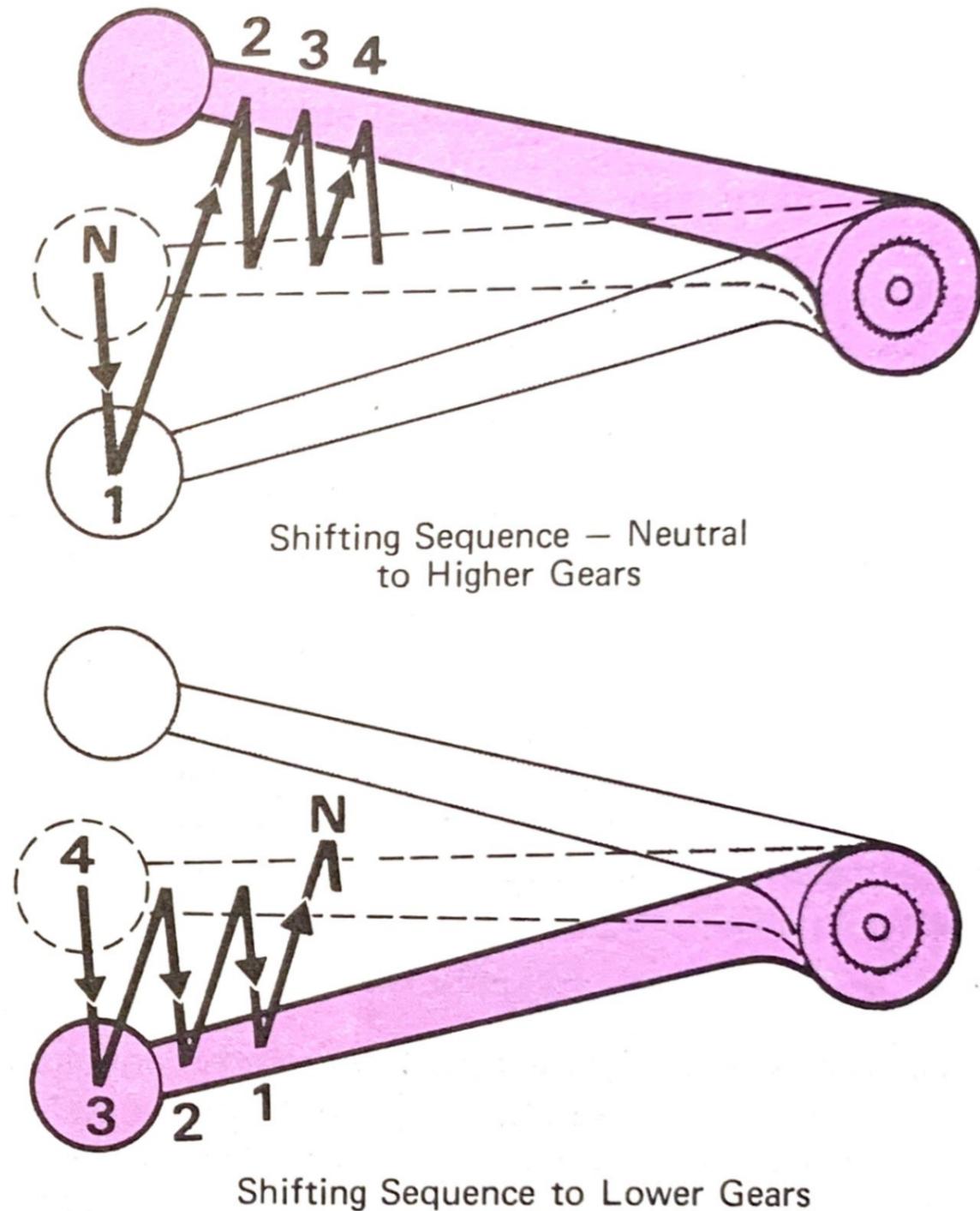


FIGURE 11. FOOT SHIFT

damaged or broken shift mechanism. Either roll the motorcycle as indicated above or, if the engine is running, engage the clutch very slightly and at the same time apply light pressure to the foot lever to make the shift. Both these procedures set the transmission gears in motion and permit the shift to be made easily. See also "Operation", page 24.

Brakes

The brake foot pedal (15, figure 3 or 10, figure 6) on the right hand side operates the rear wheel brake while a convenient hand lever (9, figure 3 or 8, figure 6) operates the front wheel brake.

Brakes should be applied uniformly and gradually without locking wheels. Apply only rear brake if slight or moderate braking is required. Apply front brake to supplement rear brake if more braking force is required.

CAUTION

Do not apply either brake strongly enough to lock the wheel because this may cause the wheel to skid with possible loss of control of the motorcycle. For this reason exercise caution especially when applying the front disc brake because of its effectiveness.

Steering Lock

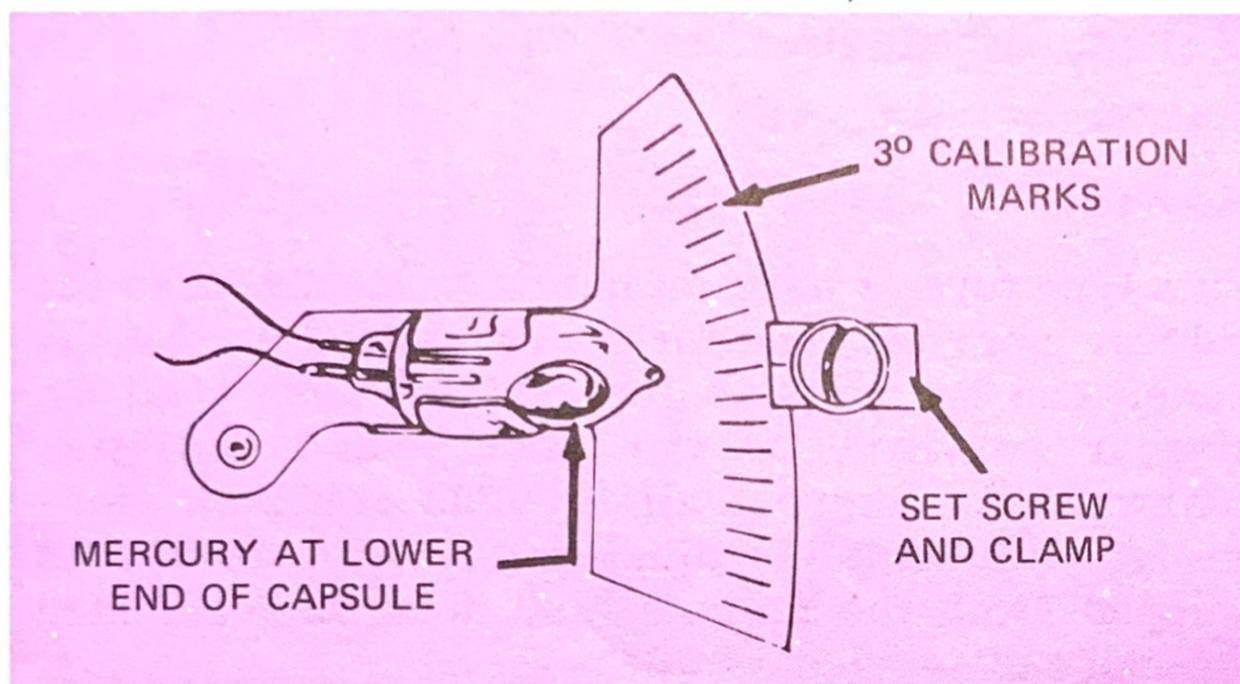
The steering lock (14, figures 2 and 5) is located on the lower front fork bracket. Turning fork to the left aligns hole in bracket with hole in steering head. A high strength padlock, available under part No. 45737-72 from your dealer, should be used to lock the fork in this position to discourage unauthorized use or theft.

Security System (Accessory)

The Harley-Davidson Security System (14, figures 1 and 4) is a self-powered electronic device, mounted on the license plate bracket, which protects the motorcycle against theft and vandalism.

The alarm is activated by means of a key switch located on the side of the alarm case. A brief alarm will be heard when the key is turned on, indicating that the alarm is in working order.

The sensitivity has been adjusted at the factory but you may want to increase or decrease the unit's sensitivity. Test the factory setting by moving the cycle and/or bumping it to trigger the device. If you desire more sensitivity, slip a small piece of paper between the copper contacts which are next to the battery compartment to inactivate the cover switch. Loosen both set screws on the mercury switch clamps and rotate them downward



so the mercury is at the outer end of the glass capsule, as shown.

Turn Security System key to vertical and slowly rotate either switch clamp until the unit triggers, then back the clamp off 1-1/2 calibration marks and tighten the set screw. Repeat the same procedure for the other switch. Test the sensitivity by attempting to move the cycle and/or bumping it — it should trigger. Try parking on different slopes which you may encounter — if the unit triggers you may have to make it less sensitive, usually on the lower side by backing off another 1/2 calibration mark. Each mark represents 3° of cycle parking angle. Remove paper and replace cover.

The Security System is powered by alkaline 9 volt batteries which should be replaced annually. Use Mallory MN 1604 batteries for maximum protection or if the unit is to be used where the temperature is at freezing or below. Batteries will operate at temperatures as low as 35° below zero. Other makes may not operate below freezing.

Always make sure the Security System is turned on and key removed when the motorcycle is left unattended.

Steering Damper (FL/FLH Special Equipment for Sidecar Use)

Steering damper is located directly over steering head. Turn steering damper adjusting knob clockwise to apply dampening action and counterclockwise to reduce dampening action. For sidecar use only, apply steering damper when operating under conditions where some degree of dampening stabilizes steering.

CAUTION

Steering damper must not be applied for solo riding because steering friction could cause poor handling with possible hazard to rider.

Oil Pressure Signal Light

The oil pressure signal light is located on the instrument panel (figure 6 or 8) and is marked OIL. Light will go on when the ignition-light switch is turned on before starting the engine. After the engine has started, light should go off except it may flicker on and off at very slow idling speeds.

If the oil signal light fails to go off at speeds above idling, it is usually due to an empty oil tank or a diluted oil supply. In freezing weather the oil feed pipe may clog with ice and sludge, thus preventing circulation of the oil. A grounded oil signal switch wire, faulty signal switch, or trouble with the oil pump will also cause the light to stay on. If the oil signal light fails to go off, always check the oil supply first. Then, if oil supply is normal and the light still does not go out, look inside the oil tank and see if the oil returns to the tank from the outlet of the oil return pipe when the engine is running. If it is returning to the tank there is some circulation, and you may drive slowly to the nearest Harley-Davidson dealer to have the oiling system checked and serviced, as needed. If no oil returns to the tank, stop the engine at once and do not drive farther until the trouble is located and the necessary repairs are made.

FL/FLH Adjustable Trail Front Fork (Special Equipment)

This type fork is used on motorcycles intended for sidecar service. The forks are pivoted so that the wheel can be adjusted forward for less trail (in sidecar service), or the wheel can be adjusted rearward for more trail (in solo service). Normally, this fork is adjusted for solo service as shipped from the factory, and must be readjusted for sidecar service as follows:

1. Raise front end of motorcycle so front wheel is free. Underneath fork head lower bracket is a large bolt with castellated nut locked with a cotter pin. This bolt fastens lower fork bracket to fork stem bracket which has a slotted hole for the bolt. Remove cotter pin from nut and back off nut far enough so that lock plates underneath bolt head and bolt nut can be disengaged from slots in each side of fork bracket. Now grasp front wheel and pull fork sides forward as far as elongated holes in bracket will permit. Re-engage lock plates in elongated holes with plate engaging to the front. Securely tighten nut and insert cotter pin.

2. Re-aim headlamp after fork is readjusted. (See page 62.)
3. For solo service, when sidecar is removed, move fork back by reversing above procedure.

Rear Shock Absorber Spring Adjustment

The rear shock absorber springs can be adjusted to three positions for the weight the motorcycle is to carry. The average weight solo rider would use the extended spring position (off cam). A

heavy solo rider might require the position with springs slightly compressed (first cam step); buddy seat riders require the fully compressed spring position (second cam step).

To adjust the rear shock absorber springs, turn cushion spring adjusting cam (figure 12) to desired position with spanner wrench. Both cushion spring adjusting cams must be adjusted to the same position. 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.

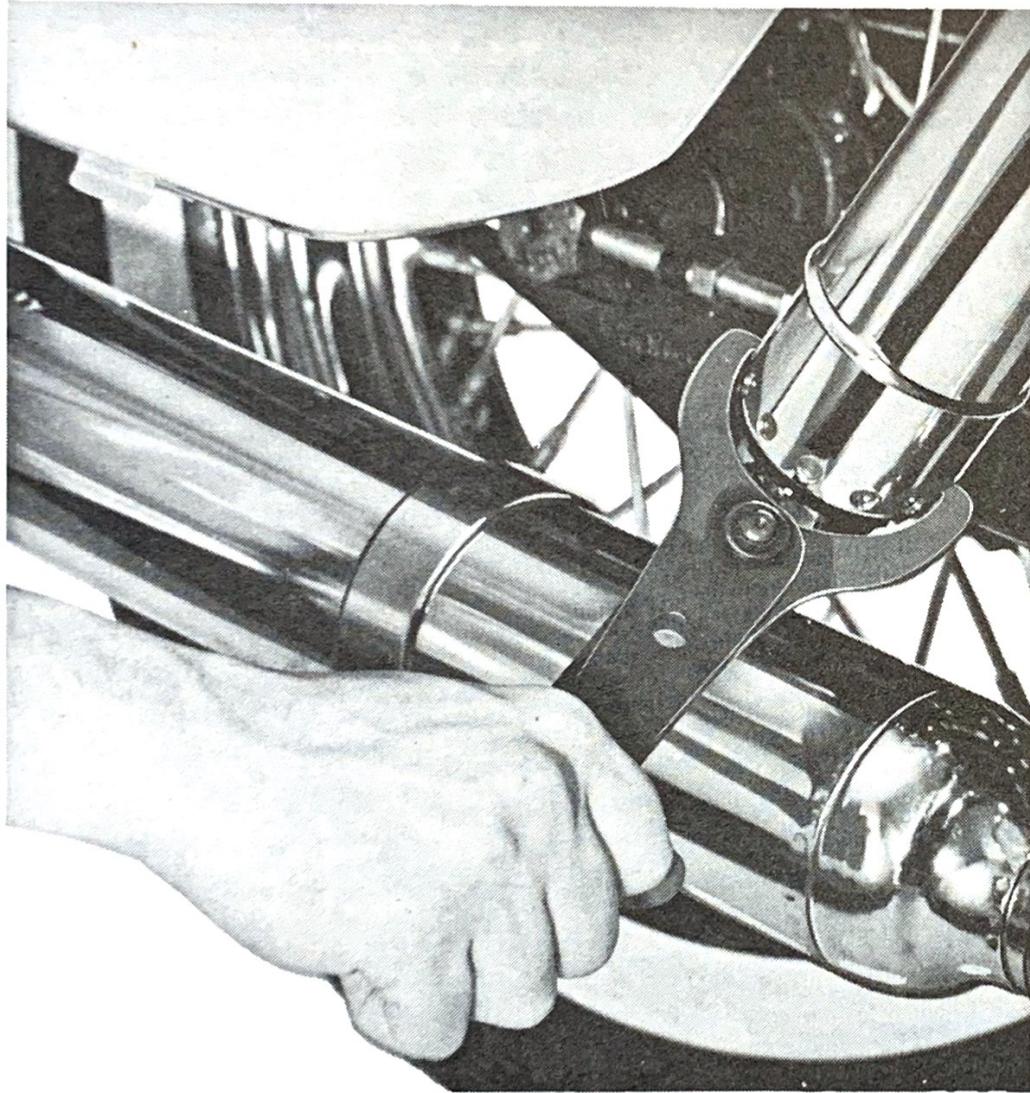


FIGURE 12. REAR SHOCK ABSORBER
SPRING ADJUSTMENT

RIDING

IMPORTANT

If you are not familiar with operating the motorcycle, read paragraphs on "SAFETY" (page 2) and "CONTROLS" (page 12) before riding this motorcycle.

Pre-Riding Check List

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

1. Check amount of fuel in tank and add gasoline if required.
2. Check controls to make sure they are operating properly: operate the front and rear brakes, throttle, clutch and shifter.

3. Check steering for smoothness by turning the handlebars through the full operating range.
4. Check tire pressure. Incorrect pressure will result in poor riding characteristics and can affect handling and stability. See "Tire Data," page 5, for correct inflation pressures to use.
5. Check all electrical equipment and switches including the stoplamp, headlamp, direction signals and horn for proper operation.

The First 500 Miles

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

1. During the first 50 miles, keep the speed below 45 miles per hour.
2. Up to 500 miles, vary the speed, avoiding any steady speed for long distances. Any speed up

to the maximum legal limit is permissible for short distances.

3. Avoid fast starts at wide open throttle and over-speeding engine in lower gears. Drive slowly until engine warms up.

Starting and Stopping Instructions

IMPORTANT

Use recommended oil in relation to predominating temperatures. See engine lubrication, page 33).

When starting the engine determine that the motorcycle is in neutral and that the clutch is fully engaged.

The carburetor choke control knob is located on the instrument panel (FL/FLH) or below gas tank on left side (FX/FXE). To start a cold engine, pull the knob outward to the fully closed (choke) position; with throttle 1/8 to 1/4 open, turn ignition switch on and operate the electric starter.

IMPORTANT — Engine stop switch on right handlebar must be in "RUN" (ignition on) position.

As soon as the engine starts, open choke and throttle just far enough to keep it running while warming up or until ready to set the motorcycle in motion. As the engine warms up and misfires, because of the over-rich mixture, gradually open choke by moving choke knob inward. After the engine has thoroughly warmed up, choke knob should be all the way in.

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

NOTE

When the engine does not start after a few revolutions 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, open choke all the way, turn ignition on and operate starter with choke and throttle wide open.

Kick Starter

Move the choke control knob outward to the fully closed (choke) position, open throttle, and with ignition switch off, kick the starter down once or twice to prime the cylinders. Then move choke knob in half way in warm weather, or keep choke knob out (fully closed choke) in cold weather. With the throttle nearly closed, turn ignition on and start engine with vigorous strokes of the starter pedal.

IMPORTANT — Engine stop switch on right handlebar must be in "RUN" (ignition on) position.

As soon as the engine starts, open choke and throttle just far enough to keep it running while warming up or until ready to set the motorcycle in motion. As the engine warms up and misfires, because of the over-rich mixture, gradually open the choke by moving choke knob inward. After the engine has thoroughly warmed up, choke knob should be all the way in.

To start a warm or hot engine, set throttle 1/4 open, turn on the ignition switch and start engine with a vigorous stroke of the starter pedal. (DO NOT CHOKE.)

NOTE

When the engine does not start within 2 or 3 starting kicks, 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, turn off the ignition and crank the engine over 3 or 4 times with choke and throttle wide open. This will clear the engine. Then follow correct starting technique as previously described for cold, warm or hot engine.

IMPORTANT

Flooding can be caused by opening and closing the throttle too much, because throttle is interconnected to the accelerating pump which injects extra gas into the engine each time the throttle is opened.

Operation

With motorcycle standing (engine stopped) proceed as follows to get under way. Determine that transmission is in neutral and clutch is fully engaged. Start the engine, fully release the clutch, shift into first and slowly engage the clutch. After

desired speed is attained in first, fully disengage the clutch, shift into second and again engage clutch. Shift in like manner for third and fourth gears.

DO NOT SHIFT GEARS WITHOUT FULLY DISENGAGING THE CLUTCH.

CAUTION

When the motorcycle is in motion and it is desired to shift to lower gears, do not shift from "third" to "second" until speed is reduced to 20 mph or less; do not shift from "second" to "first" until speed is reduced to below 10 mph. Shifting to lower gears when speeds are too high may result in damage to the transmission.

Disengage clutch when stopping motorcycle to prevent stalling engine.

Stopping the Engine

Stop the engine by turning off the ignition key switch or engine (emergency) stop switch on right handlebar. If the engine should be stalled or stopped in any other way than with the switch, turn off the switch at once to prevent battery discharge through the circuit breaker points.

Operating Tips

Do not idle engine unnecessarily with motorcycle standing. In cold weather run engine slowly until it is thoroughly warmed up to avoid possible damage to pistons, rings, and other parts before oil is warm enough to circulate freely.

An engine which has run long distances at high speed, particularly in sidecar service, must be given closer than ordinary attention to avoid overheating and possible consequent damage. Have the engine checked regularly and keep it well tuned.

Valve seating and good compression are particularly important. Use correct heat range spark plugs to suit type of service. This applies particularly to a motorcycle equipped with windshield, fairing splash shields, lap apron, etc.

The spark plugs originally installed in the engine are of the proper heat range for most normal operating conditions. However, more severe than average service or very light service may call for a spark plug of a different heat range to prevent overheating, in the case of very severe service or fouling, and in the case of very light service.

When plugs need to be replaced, get them from your Harley-Davidson dealer. He can supply you

with the type of plug best suited to your requirements. Experimenting with plugs of unproven quality and suitability is inviting trouble.

Locating Operating Troubles

The following check list of operating troubles and their probable causes will be helpful in keeping your motorcycle in good operating condition. Remember that more than one of these conditions may be causing the trouble and all should be carefully checked.

✓ If engine starts hard or runs unevenly or misses:

1. Spark plugs in bad condition or have improper gap.
2. Circuit breaker points out of adjustment or in need of cleaning.
3. Condenser connection loose.
4. Battery nearly discharged.
5. Loose wire connection at one of battery terminals or at ignition switch or circuit breaker.
6. Water or dirt in fuel system and carburetor.
7. Gasoline tank cap vent plugged or carburetor fuel line closed off restricting fuel flow.
8. Carburetor not adjusted correctly.
9. Engine and transmission oil too heavy (winter operation).

✓ If cranking motor does not operate:

1. Ignition key switch or handlebar stop switch is not on.
2. Starter button or relay defective.
3. Discharged battery, or loose or corroded cable connections (solenoid chatters).
4. Starter control circuit wiring defective.

✓ If engine turns over but does not start:

1. Ignition key switch or handlebar stop switch is not on.
2. Gasoline tank empty, valve shut off or gasoline line clogged.
3. Fouled spark plugs or shorted spark plug wires.
4. Circuit breaker points badly out of adjustment.
5. Loose wire connection at coil or circuit breaker.
6. Sticking valves or tappets set too tight.
7. Engine flooded as a result of overchoking.

✓ If a spark plug fouls repeatedly:

1. Too cold a plug for the kind of service.
2. Piston rings badly worn or in bad condition.

✓ If engine pre-ignites:

1. Excessive carbon on piston head or in combustion chamber.

2. Too hot a spark plug for the kind of service.
3. Defective spark plugs.

✓ If engine overheats:

1. Insufficient oil supply or oil not circulating.
2. Carburetor high speed adjustment too lean.
3. Ignition timing incorrect.

✓ If engine detonates:

1. Unsuitable fuel (octane rating too low).
2. Heavy deposit of carbon on piston and in combustion chamber.
3. Defective spark plug or of wrong heat range.
4. Ignition timing incorrect.

✓ If oil does not return to oil tank:

1. Oil tank empty.
2. Oil pump not functioning.

✓ If engine uses too much oil:

1. Piston rings badly worn or in bad condition.
2. One or more push rod cover cork washers in bad condition or a push rod cover not seating properly against its washer.
3. Rear chain oiler set for excessive amount of oil.

✓ If vibration is excessive:

1. Cylinder bracket loose or broken.
2. Engine mounting bolts loose.
3. Transmission and/or transmission submounting plate loose.
4. Tires or wheels defective.

✓ If alternator does not charge or charging rate is below normal:

1. Defective regulator-rectifier module.
2. Loose, broken, or shorted wires in alternator to module circuit; or module to battery circuit.
3. Defective alternator stator or rotor.

✓ If carburetor floods:

1. Inlet valve and/or valve seat worn or damaged.
2. Dirt between float valve and its seat.
3. Excessive "pumping" of hand throttle grip.

✓ If transmission shifts hard:

1. Bent shifter rod.
2. Clutch dragging slightly.
3. Transmission oil too heavy (winter operation).

✓ If transmission jumps out of gear:

1. Shifter rod improperly adjusted.
2. Shifter clutch dogs and/or dogs on its mating gear badly worn.

✓ If clutch slips:

1. Clutch controls improperly adjusted.
2. Insufficient clutch spring tension.
3. Friction discs oily.

✓ If clutch drags or does not release:

1. Clutch controls improperly adjusted.
2. Clutch spring tension too tight.
3. Friction discs gummy or oily.

✓ If brakes do not hold normally:

1. Brake improperly adjusted.
2. Brake controls binding as result of improper lubrication or damage.
3. Brake linings badly worn or glazed.
4. Hydraulic system contains air or master cylinder reservoir low on hydraulic brake fluid.
5. Leak in hydraulic system.
6. Brake retractor mechanism not functioning properly.

RULES OF THE ROAD

1. Keep on the right side of the road when meeting other vehicles coming in the opposite direction.
2. Always sound your horn 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.
3. 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.
4. Always signal when preparing to stop, start, or turn.
5. 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.
6. Never "crash" a light. When a change is indicated from "Go" to "Stop" (or vice versa) in the traffic control systems at intersections, await the change.
7. When intending to turn to the left, give signal at least 100 feet before reaching the turning point. Move over to the center line of the street (unless local rules require otherwise), slow down passing the intersection of the street and then turn carefully to the left.
8. In turning either right or left, watch for pedestrians as well as vehicles.
9. Do not leave the curb or parking area without signaling and seeing that your way is clear to drive into moving traffic. A moving line of traffic has the right-of-way.
10. See that your license tags are installed in the position specified by law and that they are clearly visible under all conditions. Keep them clean.
11. Ride at a safe speed - a speed consistent with the type of highway you are on, and always note whether the road is dry or wet. Each varying condition on the highway means adjusting your speed accordingly.

SERVICING

New Motorcycle Initial Service

The performance of new motorcycle initial service is required to keep your new motorcycle warranty in force.

After a new motorcycle has been driven its first 500 miles and again at approximately 1000 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 when convenient to do so.

CHECK AT FIRST 500 MILES

1. Drain oil tank through drain plug, flush tank and refill with fresh oil.
2. Clean oil filter, crankcase screen for overhead and tappet oil supply and magnetic plug in chain housing.
3. Drain transmission through drain plug and refill to level of filler opening with fresh oil. Use same grade oil used in engine.

4. Lubricate all points indicated for 2000 mile attention in the SERVICE AND MAINTENANCE CHART.
5. Aim headlight.
6. Check front fork bearing adjustment.
7. Clean carburetor gas strainer.
8. Clean chain housing magnetic drain plug.
9. Inspect and clean spark plugs.
10. Check ignition timing and circuit breaker point gap.
11. Oil all control joints and parts indicated for 2000 mile attention.
12. Inspect and service air cleaner if needed.
13. Check adjustment of chains and readjust if necessary.
14. Check lubrication of chains.
15. Check all nuts, bolts and screws, and tighten any found loose.
16. Check wheel mounting bolts and tighten if needed. These bolts must be kept very tight.
17. Check and tighten wheel spokes.
18. Check level of solution in battery and add distilled water if needed. See that terminals are clean and connections tight.
19. Check tightness of all cylinder head bolts and all cylinder base nuts, and tighten where necessary.
20. Check brake adjustment and hydraulic fluid level.

21. Check clutch adjustment.
22. Check tire pressure and inspect tread.
23. Road test.
24. Model FX/FXE only: Drain and refill front fork.

CHECK AT FIRST 1000 MILES

1. Drain oil tank and refill with fresh oil.
2. Clean oil filter.
3. Check level of oil in transmission and add oil if needed. Use same grade of oil used in engine.
4. Service air cleaner.
5. Check circuit breaker point gap.
6. Check adjustment of chains and adjust if necessary.
7. Check lubrication of chains.
8. Check level of solution in battery, and add distilled water if needed. See that terminals are clean and connections tight.
9. Check brake adjustment and hydraulic fluid level.
10. Check clutch adjustment.
11. Check tire pressure and inspect tread.
12. Road test.

Regular Service Intervals

Regular motorcycle lubrication and maintenance will help you keep your new Harley-Davidson operating at peak performance, and will give you lower operating costs, longer motorcycle life, and greater riding pleasure. Your Harley-Davidson dealer knows best how to service your motorcycle with factory approved methods and equipment assuring you of thorough and competent workmanship for every job.

The performance of regular service interval operations is required to keep your new motorcycle warranty in force. The use of other than Harley-Davidson approved parts and service procedures will void the warranty.

The chart on the next page shows the regular intervals at which specified service operations should be performed. For more detailed description of the service and maintenance procedures specified, refer to information following after chart.

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

SERVICE AND MAINTENANCE CHART

Regular Service Interval	Engine Oil	Transmission Oil	Grease	Oil	Service
Every 300 Miles	Check				
Every 1000 Miles	Check	Check		Rear Chain	Air Cleaner Battery Rear Chain Adjustment Hydraulic Brake Fluid
Every 2000 Miles	Change		Rear Fork Pivot Bearing Fitting Seat Post Saddle Bar Bearing Rear Brake Pedal Bearing Foot Shift Lever Bearing Foot Clutch Pedal Bearing Speedometer Drive	Clutch Hand Lever Brake Hand Lever Front Brake Cable Throttle Control Cable Foot Clutch Lever Rod Clevis Shifter Control Joints	Oil Filter Overhead and Tappet Oil Screen Chain Housing Magnetic Drain Plug Front Chain Adjustment Rear Chain Oiler Brake Adjustment Circuit Breaker Clutch Adjustment
Every 5000 Miles or 1 Year (Whichever comes first)		Change	Speedometer and Tachometer Cables Throttle Control		Replace Spark Plugs and Oil Filter FX/FXE Only: Change Fork Oil Time Ignition Switch Tires Check Front and Rear Fork Bearing Adjustment
Every 10,000 Miles			Repack Wheel Bearings		
Weekly					Check Tires Check Battery
Spring and Fall	Change	Change			

STORAGE

If your 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 and preserve the battery.

1. Run engine until it reaches operating temperature.
2. Remove fuel supply hose at tank and drain gas tank, including reserve supply — replace hose.
3. Mix about 4 ounces of 2-cycle oil in one quart of gasoline and put in gas tank.
4. Run engine with gas-oil mix for several minutes until exhaust smokes.
5. Remove spark plugs, inject a few squirts of 2-cycle oil into each cylinder and crank engine 5 or 6 revolutions. Clean and replace plugs.
6. Drain oil tank.
7. See that rear chain is clean and well lubricated.
8. Wax chrome plated surfaces and apply some oil to exposed unpainted surfaces.
9. Store battery above freezing temperature, trickle charge at least once a month, and keep water level above plates. If battery is removed from motorcycle it must not be placed directly on ground or concrete.

ENGINE

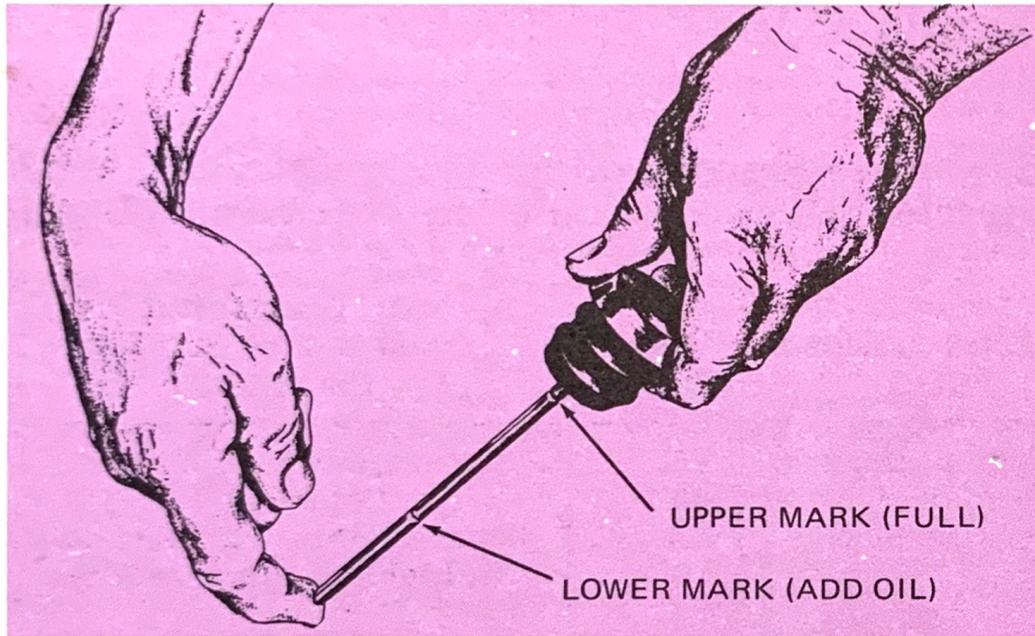
Lubrication

Use proper grade of oil for the lowest temperature expected before next oil change period as follows:

Use Harley-Davidson Oil	Use Grade	Air Temperature (Cold Engine Starting Conditions)
Medium Heavy	75	Above 40 ^o F.
Special Light	58	Below 40 ^o F.
Regular Heavy	105	Severe operating conditions at high air temperatures

Your Harley-Davidson dealer has the proper grade oil to suit your requirements. Do not switch brands indiscriminately — some oils tend to interact chemically when mixed.

The oil tank capacity is 4 quarts and is considered full when the oil level is at upper mark on the dipstick. Tighten the cap securely to prevent leakage. The oil signal light on the instrument panel indicates oil circulation. Oil mileage normally varies from 250 to 500 miles per quart depending on the nature of service, solo or sidecar, fast or moderate driving, and how well the engine is kept tuned. If mileage is not within this range, see your dealer.



Remove tank cap and CHECK OIL SUPPLY NOT MORE THAN 300 MILES AFTER EACH COMPLETE REFILL. Check while motorcycle is on jiffy stand. If oil level is at lower mark on dipstick, two quarts can be added.

CAUTION

Do not allow oil level to go below the lower mark on gauge rod.

Oil will run cooler and mileage will be somewhat higher with oil level well up in tank. Furthermore,

unless oil tank is kept well filled, frequent checking of oil level will be necessary to avoid any chance of running dry.

Oil should be changed after the first 500 miles and 1000 miles for a new engine, and thereafter at about 2000 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 or in competition, drain and refill at shorter intervals. Draining should be done after a run while oil is hot. It is not necessary to drain the crankcase as it does not accumulate used oil. At the time of the first 500 mile oil change, and along with at least every second oil change thereafter, thoroughly flush and clean out tank with kerosene to remove any sediment and sludge that may have accumulated. Your dealer has facilities for quick flushing and cleaning of oil tank.

Oil Filter

Oil filter is located at the top of the oil tank. To service the filter, unscrew wing nut and remove filter cup from oil tank, remove retaining spring

from top of filter and disassemble. Thoroughly wash the filter element in non-flammable petroleum solvent at least once every 2000 miles when the engine oil is changed. Renew filter element every 5000 miles.

Oil Filter Screen and Magnetic Drain Plug

Overhead and tappet oil filter screen (3, figure 14) is located in crankcase above oil pump. Unscrew slotted plug, remove and clean or replace screen. The chain housing magnetic drain plug (11, figure 18) is located at bottom rear of chain housing. Unscrew plug and remove foreign material from end of plug. This should be done when engine oil is changed initially at 500 miles and every 2000 miles thereafter.

Winter Lubrication

Combustion in any engine generates water vapor. When starting and warming up in cold weather, much of the vapor condenses to water on relatively cool metal surfaces. If engine is driven enough to get the crankcase thoroughly warmed up, frequently, most of this water is again va-

porized and blown out through the breather. However, a moderately driven engine, making only short runs now and then and seldom being thoroughly warmed up, is likely to accumulate an increasing amount of water in the oil tank. This water will, in freezing weather, become slush or ice and if allowed to accumulate too long, will block oil lines and damage the engine. Also, 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, particularly in commercial service, must have oil changed frequently along with a thorough tank flush-out to remove any water and sludge, before new oil is put in tank. The farther below freezing the temperature drops, the shorter the oil change interval should be.

Air Cleaner

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

Remove air cleaner cover and inspect filter element at least every 1000 miles, or oftener under

dusty service conditions. The need for servicing is indicated by the appearance of the outside surface of the filter. Filter should be cleaned and re-oiled if a film of dirt has built up covering the surface pores, or if light spots show on the surface which means that dust is drying out the oil. A dirty, dark appearance is normal, as long as pores in the filter remain open and covered with an oil film.

To clean filter, remove it from screen and wash it in a non-flammable petroleum solvent or detergent and water. Allow to dry thoroughly and saturate with same weight oil as recommended for engine crankcase. Apply oil to element liberally working in with hands and fingers until element is uniform in color indicating uniform saturation. After excess oil has drained off, replace element on screen so that 3 grooves are toward screen, and reinstall in engine.

Gasoline Strainer

The gasoline strainer is located on top of the gasoline supply valve inside the gasoline tank (see figure 7). If the supply of gasoline is impeded, as indicated by irregular carburetion, remove the gasoline supply valve from the tank and thoroughly clean the gasoline strainer. Be sure to drain the tank before removing the gasoline supply valve.

TRANSMISSION AND CHAINS

Transmission

Use same grade of oil used in engine.

Remove transmission oil filler plug (11, figure 1 or 4) and check oil level every month or every 1000 miles, whichever comes first. Add oil if necessary and fill to the level of the filler opening. The motorcycle should be standing STRAIGHT UP, not leaning on jiffy stand, when adding oil to the transmission. Drain transmission and refill to correct level with fresh, clean oil after the first 500 miles, and thereafter seasonally or every 5000 miles, whichever comes first. If transmission should become submerged in water, drain it immediately and refill to proper level.

Chains

Front Chain

A fixed amount of oil is supplied through an oil line from a metering orifice in the oil pump. Oil drops on front chain from oiler outlet tube (10, figure 18). Excess oil collects at rear of chain compartment and is drawn back into engine gear case breather.

When the front chain adjustment is checked at 2000 mile intervals (see page 51), also check to see that oil comes out of oiler tube when engine is running, when viewing through cover inspection hole (1, figure 13). If oil does not come from oiler, supply orifice at pump is probably blocked due to accumulation of dirt, and requires cleaning. To do

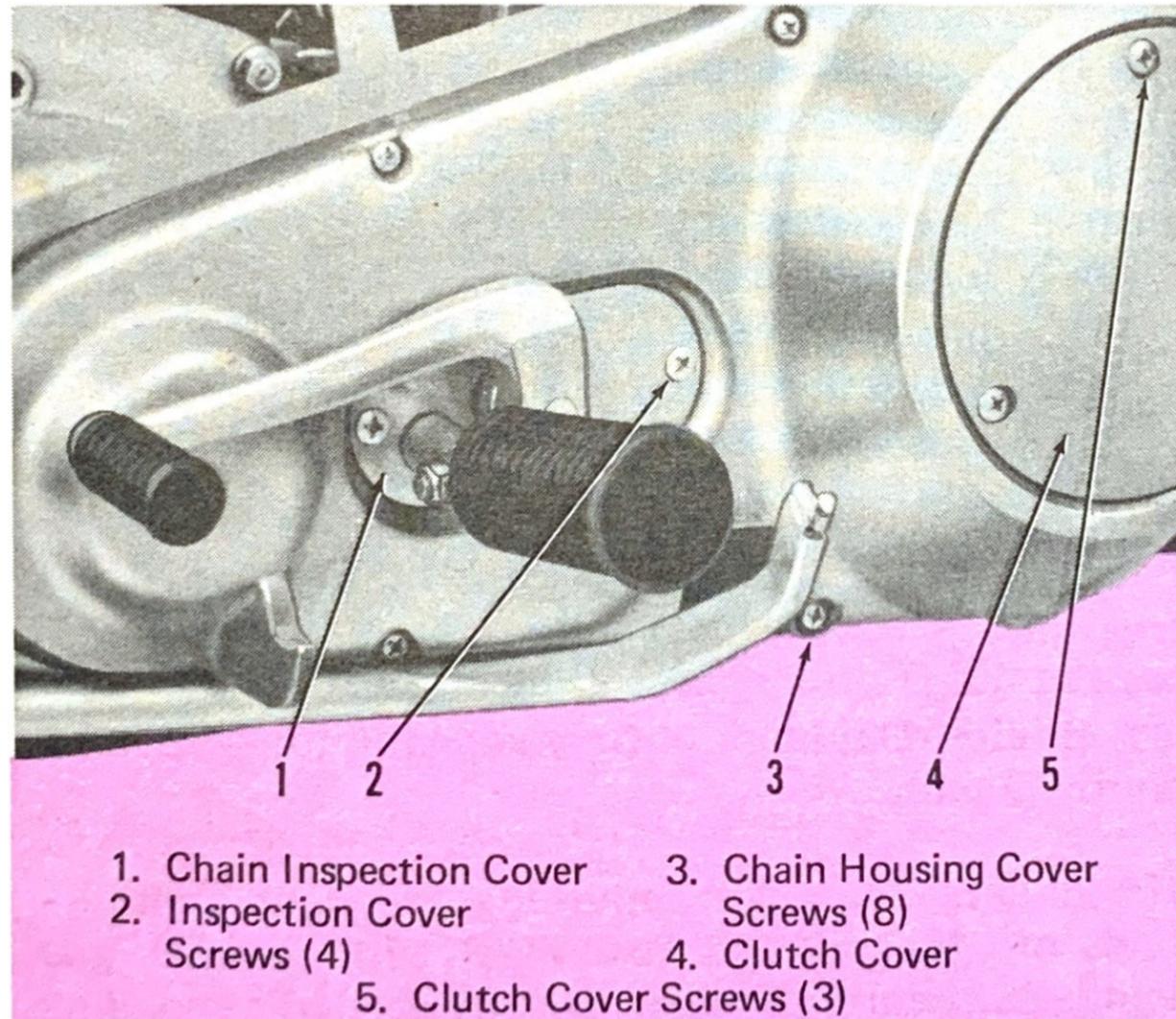


FIGURE 13. CHAIN INSPECTION COVER FL/FLH

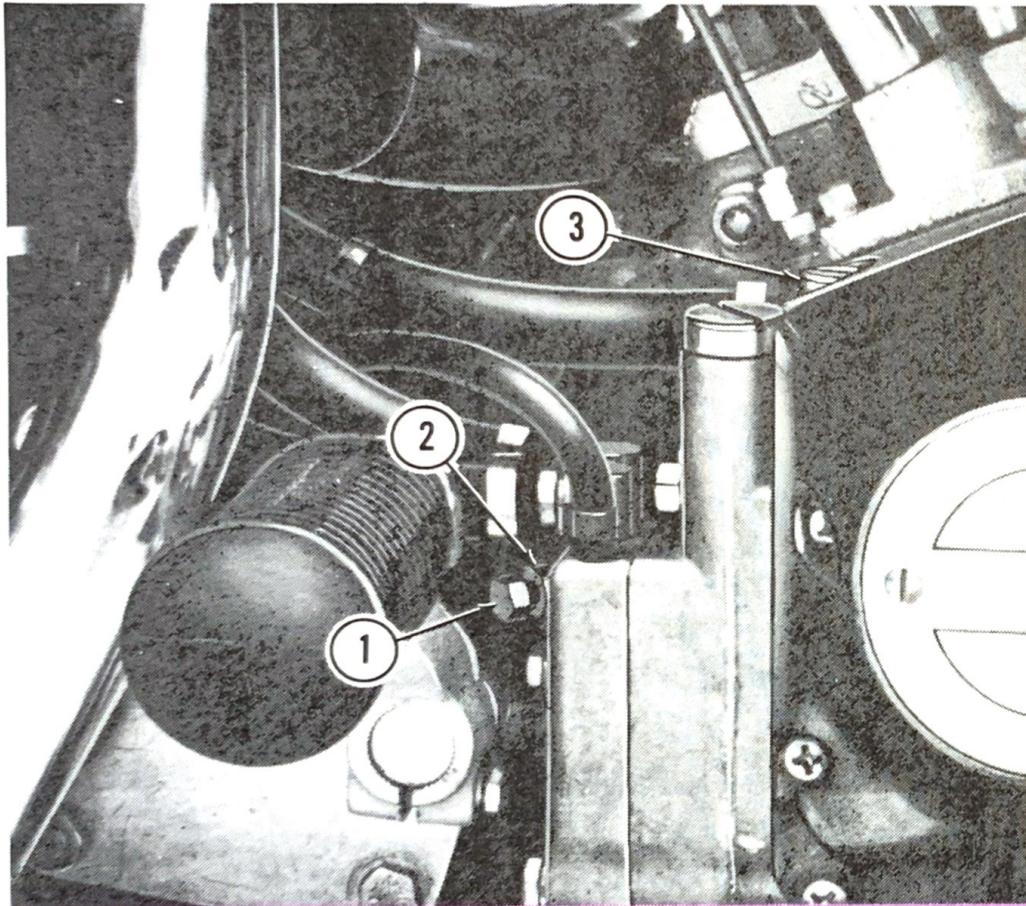
this, blow out passage to chain compartment with compressed air through chain oiler outlet tube.

Rear Chain

Motorcycle is equipped with a rear chain oiler. At regular 2000 mile intervals, make a close inspection of rear chain. If rear chain does not appear to be getting sufficient lubrication, or if there is evidence of an over-supply of oil, re-adjustment should be made with rear chain oiler adjusting screw. The rear chain oiler is located on the oil pump as shown in figure 14. Normal setting is 1/4 turn open which provides 2 or 3 drops per minute. If oiler should become blocked, remove screw and clean orifice.

If chain oiler is not being used, brush dirt off chain and lubricate at 1000 mile intervals with Harley-Davidson "Chain Saver," "Chain Spray" or "Chain Grease" if available; if not available, use engine oil.

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. Under these conditions, proceed as follows:



1. Rear Chain Oiler Adjusting Screw
2. Rear Chain Oiler Adjusting Screw Locknut
3. Cover Plug for Tappet and Overhead Oil Supply Line

FIGURE 14. REAR CHAIN OILER

Remove chain from motorcycle. Soak and wash it thoroughly in a pan of kerosene. Remove chain from kerosene and hang it up for a time to allow kerosene to drain off.

Lubricate chain with Harley-Davidson "Chain Saver," "Chain Spray" or "Chain Lube" and work into bearings while warm. Wipe all surplus lubricant from chain surface. Install chain on motorcycle. Inspect connecting link and spring clip closely for bad condition. Replace if at all questionable. Be sure spring clip is properly and securely locked on pin ends.

CHASSIS

Greasing

Use Harley-Davidson "Grease All" for greasing requirements.

All chassis bearings requiring frequent applications of grease are provided with grease gun fittings. Locations and recommended greasing intervals are listed in the SERVICE AND MAINTENANCE CHART (page 32).

Use a hand grease gun to avoid overgreasing. Excess grease can damage oil seals and produces a messy condition.

Remove and grease handlebar throttle grip with fresh grease every 5000 miles, or when operation indicates lubrication is necessary.

Remove and grease speedometer and tachometer drive cables every 5000 miles.

When greasing fitting of rear fork pivot bearing housing, apply a very small quantity of grease (one stroke of grease gun) to fitting at 2000 mile intervals with hand grease gun.

CAUTION

Do not over-grease.

Pack the steering head bearings with fresh grease at 50,000 miles.

Oil Applications

All control connections and parts as indicated in the SERVICE AND MAINTENANCE CHART (page 32) should be oiled regularly, particularly after washing motorcycle or driving in wet weather.

Front Fork

The front fork requires very little maintenance or attention. It requires no greasing. If fork does not appear to be working properly, or an appreciable amount of oil leakage should develop, attention should be given by an authorized Harley-Davidson dealer.

Incorrect recoil action will result if there is insufficient oil in either side of the fork. To check the amount, completely drain the oil and then pour back into each side 7 ounces (FL/FLH) or 5 ounces (FX/FXE) of Harley-Davidson Type B Fork Oil.

The oil specified for your motorcycle is available at your Harley-Davidson Dealer.

If fork should at any time become submerged in water, drain and refill immediately.

In an emergency, when Harley-Davidson Hydraulic Fork Oil is not available, use the lightest automobile engine oil obtainable. Do not use shock-absorber fluid. If engine oil is used, however, drain and replace with Hydraulic Fork Oil as soon as possible. The consistency of engine oil varies

with temperature changes, and stiff recoil action and a rough ride will result at lower temperatures. Temperature changes have little effect on the recommended oil.

To drain and refill fork, remove headlamp and headlamp housing, then remove the hex head cap screw at the top of each fork side. Remove the drain plug at the lower end of each slider and drain the oil into a clean container. Add oil to container, if necessary, to make up the required amount. Replace the drain plugs and add the required amount of oil through the hole in the upper end of each fork tube. Then install the top cap screw and tighten securely.

Filling the fork using only a funnel is a rather slow job because the filler openings in the fork are small and the filler channel tends to become air locked. It is recommended that you see your Harley-Davidson dealer when this service is required, as he has the necessary equipment to do the job cleanly and quickly.

The Adjustable Trail Fork (special equipment for sidecar service) does not have a hex head cap screw at the top of each fork side, but has oil

filler plugs at the rear of each fork side which can be removed with a large screwdriver.

Hydraulic Brakes

Every 1000 miles, check fluid level in master cylinders. Use only HYDRAULIC BRAKE FLUID, which is approved for use in hydraulic brake systems. Rear brake master cylinder (6, figure 1 or 4) is located near rear brake foot pedal. When removing filler plug, be sure that all dirt is removed from around filler plug to prevent entrance into reservoir. Level should be 1/4 inch from top of cover.

The front brake master cylinder (8, figure 3 or 23, figure 6) is located on the right handlebar. To check fluid level, turn handlebars to left so that cover is level. Remove cover screws, cover and sealing gasket. Level should be up to gasket surface.

Battery

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

Solution

Inspect level of battery solution at least once a week during motorcycle operation, adding distilled or other approved 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 solution level before placing in service.

Remove battery cover and take out 6 screw end filler plugs. With a hydrometer or syringe, add water to each cell to raise level of solution up to correct level. FL/FLH — triangle or circle at base of filler hole. FX/FXE — upper level line on side of battery case.

NOTE

If battery is filled to a higher level, some of the solution will be forced out through the vent holes when battery is charging. This will not only weaken the solution but also may damage parts near the battery. Avoid getting battery acid on clothing or other fabrics. Keep battery clean and terminal connections tight.

Charging

Check solution in each cell with a battery hydrometer. If hydrometer reading is below 1.200, remove battery and charge it from an outside source. The charging current should be 12 volt direct current and charging rate should not be allowed to go over 4 amperes.

A higher battery charge rate may heat and damage the battery. For this reason, do not allow the motorcycle battery to be charged in the same line with auto batteries. Hydrometer reading of fully charged battery in good condition will be from 1.265 to 1.300.

Allowing battery to remain in a discharged condition for any length of time shortens its life. It is especially important that the battery be kept well charged in below freezing weather. A low or discharged battery is very likely to be frozen and ruined.

Keep the Motorcycle Clean

Keeping the motorcycle clean on the outside as well as on the inside not only is a sign of good maintenance, it is good maintenance. To aid you

in keeping your motorcycle clean see your Harley-Davidson dealer for the following:

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.

IMPORTANT

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" or mild soap and water to clean these materials.

Harley-Davidson "Chrome Cleaner"

Use Harley-Davidson "Chrome Cleaner" to make the chrome parts of your motorcycle glitter and sparkle.

Harley-Davidson "Polish and Cleaner"

Harley-Davidson "Polish and Cleaner" is made to clean and polish the enamel parts to maintain or restore these parts as close as possible to their original luster.

Harley-Davidson "Plastic Cleaner"

Harley-Davidson "Plastic Cleaner," Part No. 98680-64 is recommended for cleaning of vinyl plastic seats. Cleaner comes in 15 oz. spray can. To use, spray on and allow to set for a few seconds. Then wipe clean with a damp cloth or sponge. Full instructions appear on the can.

To Clean Windshield

Use mild soap or detergent with water to clean plastic windshield. Flush with water first to soften dirt — then wipe clean with sponge or soft cloth using plenty of water. Do not wipe windshield when dry or with dry towel because dirt particles may scratch surface.

MAINTENANCE

To obtain the longest possible life and the best possible performance from your motorcycle it is necessary not only to keep it adequately serviced, but also correctly adjusted to the tolerances to which it was manufactured. The following are the adjustments and general maintenance facts pertaining to your motorcycle.

ENGINE

Spark Plugs

Keep plugs clean and the gap between the electrodes adjusted to .025 inch to .030 inch. Clean with a sand blast cleaner.

Be sure your motorcycle is operating with the correct heat range plug best suited to your type of riding. If in doubt see your Harley-Davidson dealer. It is recommended that new plugs are installed every 5000 miles.

Carburetor (See figure 15)

The carburetor, once properly adjusted, requires little if any readjustment. We suggest having carburetor adjustments made by your Harley-Davidson dealer.

Before attempting to correct faulty engine performance through carburetor adjustment, check over "Locating Operating Troubles." In addition, be sure air cleaner element is clean, and check carburetor and manifold connections to be sure they are tight and not leaking air.

The low speed needle (1, figure 15) should be turned clockwise, or in, to make leaner mixture, and counterclockwise, or out, to make mixture richer. Needle is held to whatever position set by a spring.

Carburetor should be adjusted as follows:

Make sure carburetor control is adjusted so that throttle lever (3) fully opens and closes with handlebar grip movement.

Turn low speed mixture needle (1) all the way in (clockwise) until seated (do not overtighten). Back

out the low speed needle 1-1/2 turns. (With needle in this position, the engine will start but the mixture will be too rich.)

Adjust throttle lever stop screw (2) to make engine idle at desired speed with throttle fully closed. Turning screw clockwise makes engine idle faster. Never set idle adjustment to slowest possible speed. An extremely slow idle causes bearing wear, oil consumption and slow speed accelerating difficulties.

Make final readjustment on low speed needle after engine is warm. First in, and then out, to see if engine picks up speed or runs more smoothly. Starting and all around carburetion will be better with low speed mixture adjustment set slightly rich rather than lean. If necessary, make further adjustment on idle stop screw to obtain desired idling engine speed. Recommended idle speed is 700 to 900 RPM.

During high speed operation, fuel is metered by a fixed jet which has no adjustment.

Operating conditions, such as high altitudes or hard service, may require other than the standard size main fuel fixed jet.

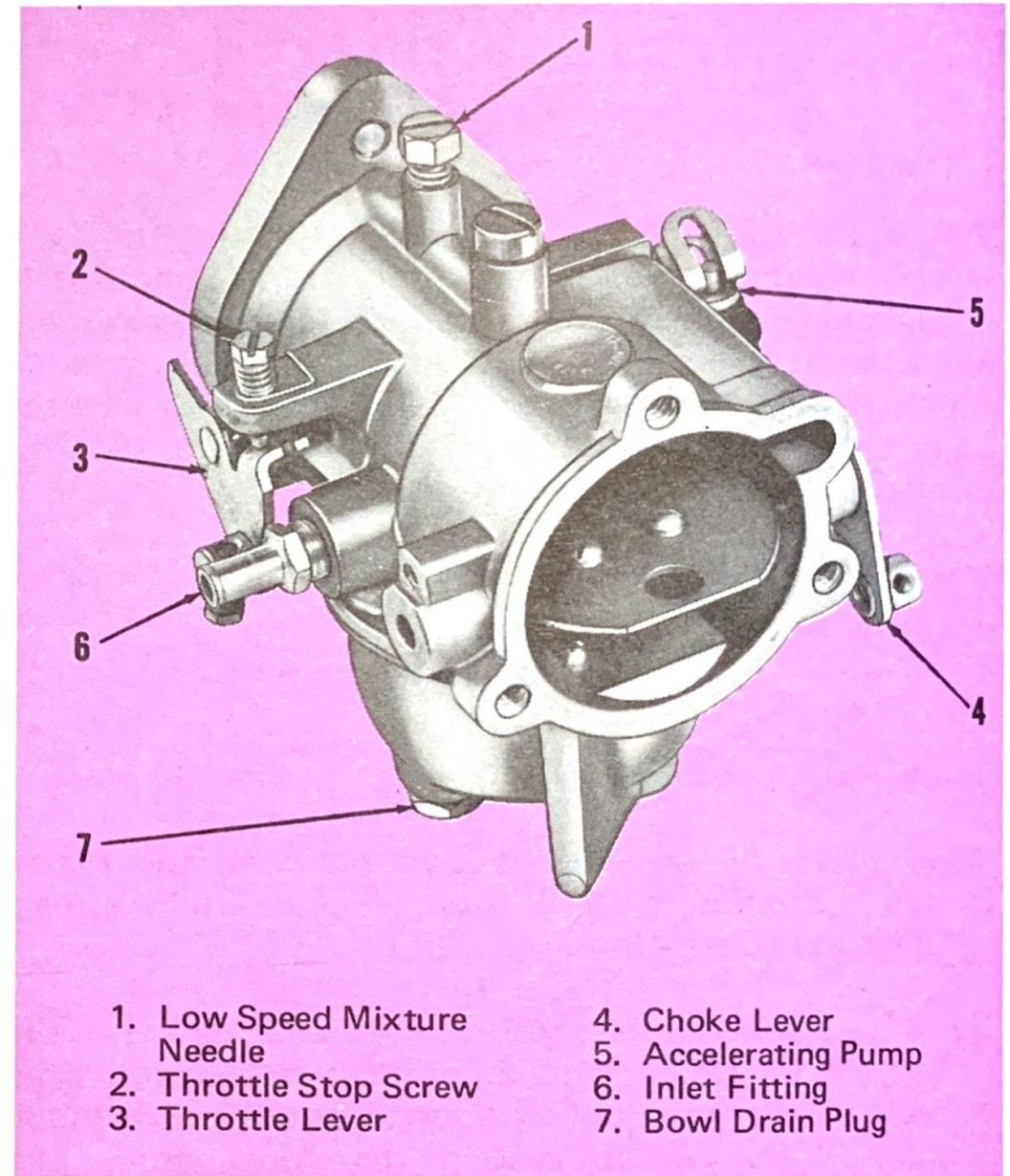


FIGURE 15. CARBURETOR

Circuit Breaker (See figure 16)

Circuit breaker points should be checked for gap and contact surface condition initially at 500 and 1000 miles, and thereafter every 2000 miles. Remove spark plugs to permit engine to turn easily and rotate flywheels so that cam follower (4) is on the highest point of wide cam lobe (5). Check the gap between the contacts (10) with a .018 inch gage (wire preferred). If it is not exactly .018 inch when the cam follower (4) is on the highest point of cam, adjustment is necessary. Incorrect point gap spacing affects ignition timing. To adjust the points, loosen the lock screw (3) and move stationary contact plate, using screwdriver in adjusting notch (1) to provide correct contact point gap. Retighten the lock screw (3) and again check the gap to make sure it remains correct. Points in pitted or worn condition should be replaced.

Ignition Timing (See figure 16)

Ignition timing is controlled by the circuit breaker. Correct ignition timing and correct setting of the circuit breaker contact point gap is absolutely necessary for proper engine operation and performance.

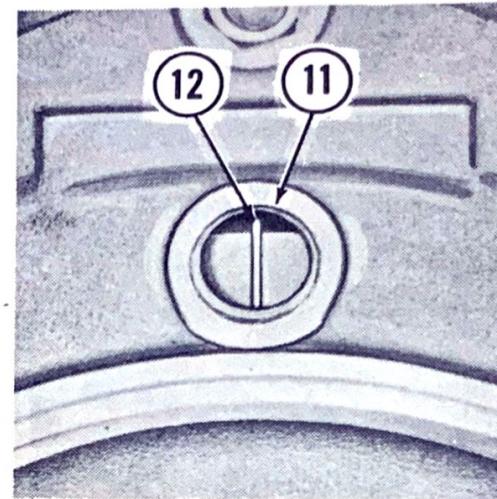
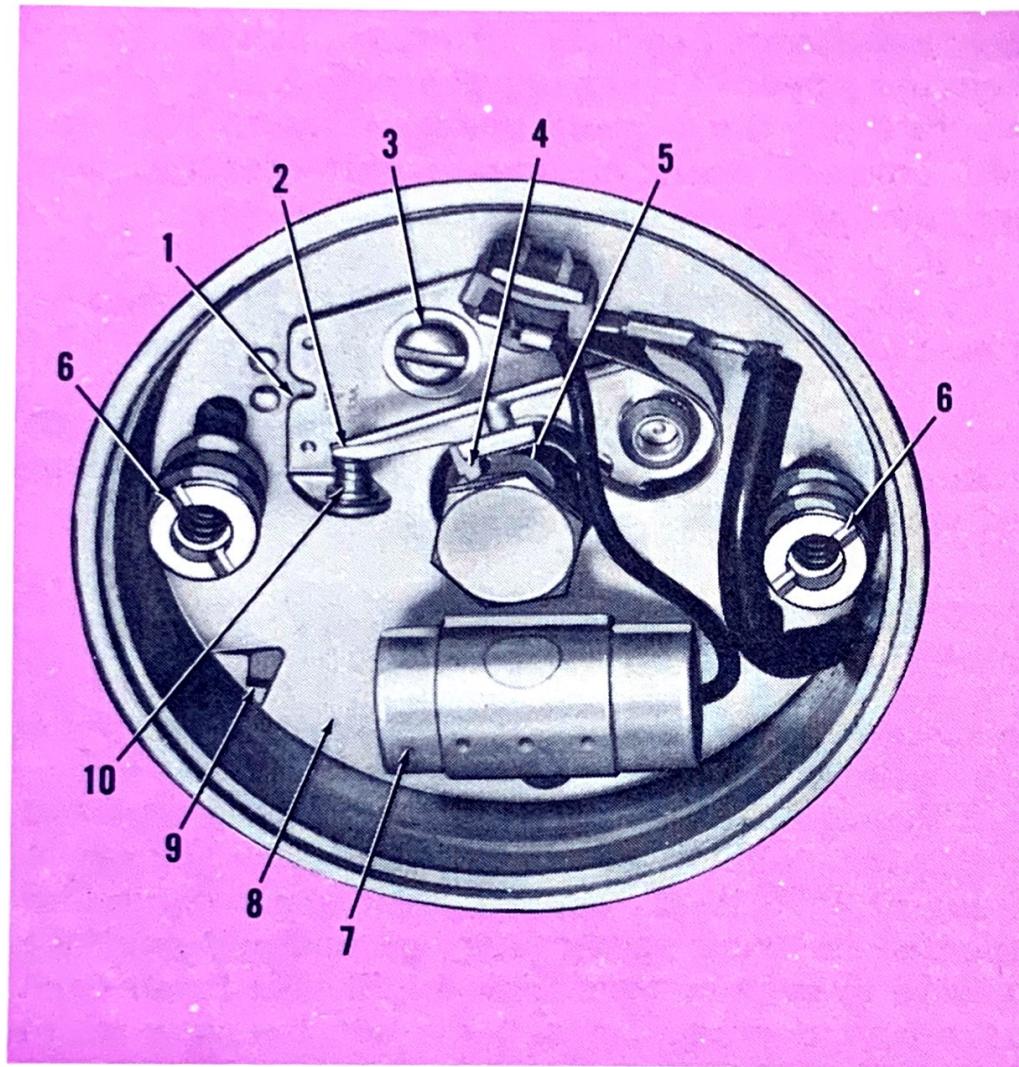
The spark timing cam is advanced automatically as engine speed increases through action of the flyweights in the circuit breaker base. This insures correct spark timing to suit starting, low speed and high speed requirements.

To check or reset ignition timing proceed as follows:

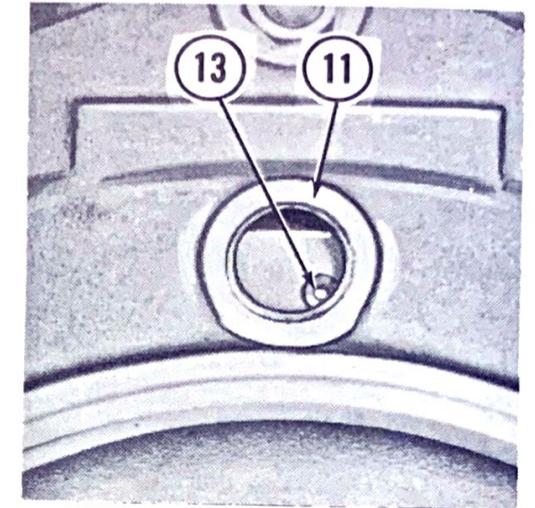
Remove circuit breaker cover and set circuit breaker contact gap at exactly .018 inch as outlined under CIRCUIT BREAKER.

Checking Advanced Timing with Strobe Timing Light

Use a strobe flash timing light (timing gun) to view front cylinder advanced timing mark (12) on flywheel through accessory plastic view plug screwed into timing inspection hole (11) while engine is running at 2000 RPM. Timing light leads should be connected to front spark plug, ground and positive red wire to battery terminal. Light will flash each time spark occurs. Loosen circuit breaker plate screws (6) just enough so circuit breaker plate (8) can be shifted using a screwdriver in notch (9) as light aimed into inspection hole (11) stops timing mark (12) in center of hole. Timing will retard 30° automatically when engine is stopped.



ADVANCE MARK POSITION
FRONT CYLINDER



RETARD MARK POSITION
FRONT CYLINDER

- | | |
|--|---|
| 1. Contact Point Adjusting Notch | 8. Circuit Breaker Plate |
| 2. Moving Contact Point | 9. Circuit Breaker Plate Adjusting Notch |
| 3. Stationary Contact Point Lock Screw | 10. Contacts |
| 4. Cam Follower | 11. Timing Inspection Hole |
| 5. Breaker Cam | 12. Advance (35°) Timing Mark on Flywheel |
| 6. Circuit Breaker Plate Screw (2) | 13. Retarded (5° B.T.C.) Position of Piston Top Center Mark on Flywheel |
| 7. Condenser | |

FIGURE 16. CIRCUIT BREAKER AND TIMING MARKS

NOTE

Dot which appears on or near the front cylinder advanced timing mark indicates rear cylinder advanced timing.

Checking Retarded Timing with Circuit Tester (See figure 16)

If a strobe timing light is not available, approximate timing can be obtained in an emergency, by using the following procedure:

Remove screw plug from timing inspection hole (11) in left side of crankcase. Then remove front push rod cover so that opening and closing of valve can be observed.

Turn engine in direction in which it runs until front piston is on compression stroke (just after front intake valve closes), and continue turning engine very slowly (less than 1/2 revolution) until front piston top center timing mark (13) on fly-wheel is aligned in the inspection hole (11) as shown.

The narrow lobe cam is now at the approximate point at which contacts (10) open and front cylinder ignition spark occurs. When the wide cam lobe opens the points, rear cylinder ignition spark occurs. Connect a circuit tester such as a light bulb across the contact points to determine the exact point of contact opening. Loosen circuit breaker plate screws (6) just enough to shift circuit breaker plate (8) using a screwdriver in notch (9), so contacts will open exactly when piston top center timing mark (13) is aligned in inspection hole (11) as shown in figure 16.

(This procedure will result in approximate timing and engine can be operated in an emergency for a short period until advanced position timing can be obtained with a strobe timing light.)

At regular intervals of 5000 miles or at least once a year, have your dealer check ignition timing and, if necessary, readjust circuit breaker setting to compensate for wear on circuit breaker that may have caused a slight change in timing.

Hydraulic Tappets

Tappets are self-adjusting, hydraulic type. They automatically adjust length to compensate for

engine expansion and valve mechanism wear, and thus keep the valve mechanism free of lash when the engine is running. Tappet adjustment is required only in a new engine assembly and when the engine is reassembled after repair. No further readjustment of tappets is required.

When starting an engine which has been shut off even for a few minutes, the valve mechanism may tend to be slightly noisy until the hydraulic units completely refill with oil. If at any time, other than for a short period immediately after engine is started, valve mechanism becomes abnormally noisy, it is an indication that one or more of the hydraulic units may not be functioning properly. Always check the lubricating oil supply in the oil tank first if the valve mechanism is noisy, 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 due to dirt in the oil supply passages leading to the lifter units. Oil tank filter (2, figures 1 and 4) and tappet oil supply filter screen (3, figure 14) may require cleaning. Drive at moderate speed to the nearest Harley-Davidson dealer for further attention.

TRANSMISSION

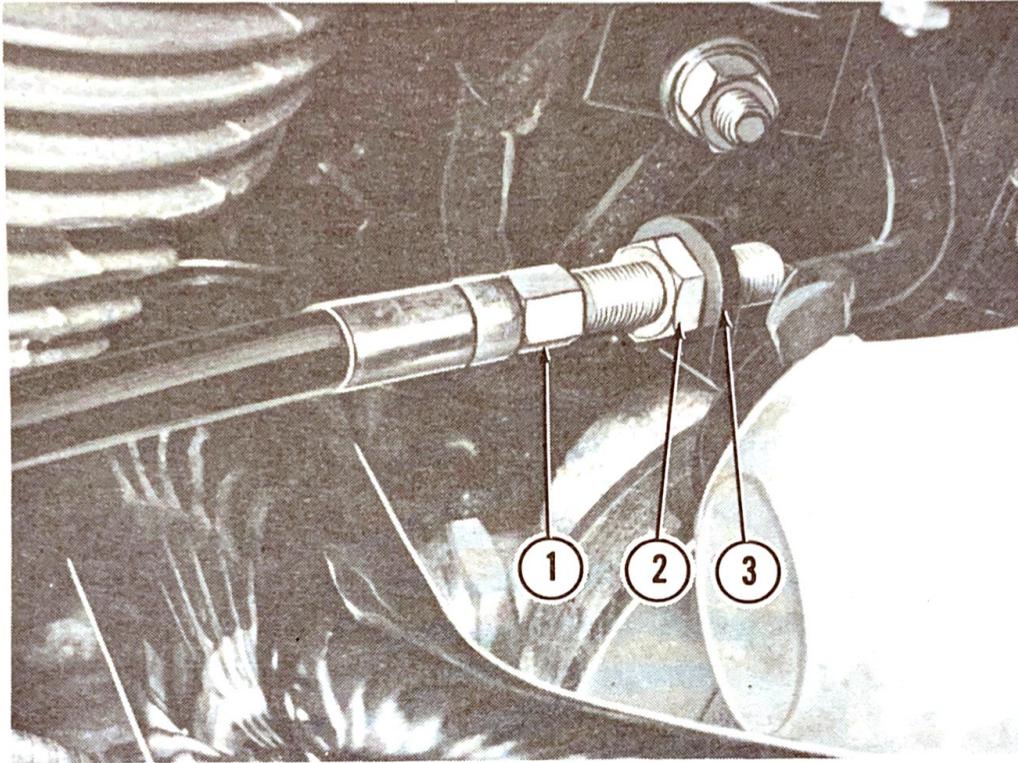
The need of attention to clutch and controls will be indicated by the clutch slipping under load or dragging in released position. In either case, the first thing to be checked is the adjustment of controls.

Clutch Hand Control

Normally the only attention the clutch hand control requires is occasional readjustment of control coil adjusting sleeve (1, figure 17) to maintain approximately 1/4 inch free movement for hand lever on handlebar before clutch starts to disengage.

Should the need of major readjustment be indicated by a slipping clutch, or dragging clutch indicated by excessive gear clash when shifting, or sleeve adjustment is completely taken up, the following adjustments should be made in the order indicated.

1. Move end of lever on transmission forward to a position where it becomes firm indicating



1. Clutch Control Cable Adjusting Sleeve
2. Locknut
3. Bracket
4. Starter Motor
5. Clutch Actuating Lever
6. Clutch Adjusting Screw Locknut
7. Clutch Adjusting Screw
8. Clutch Plate Spring Tension Nuts (3)

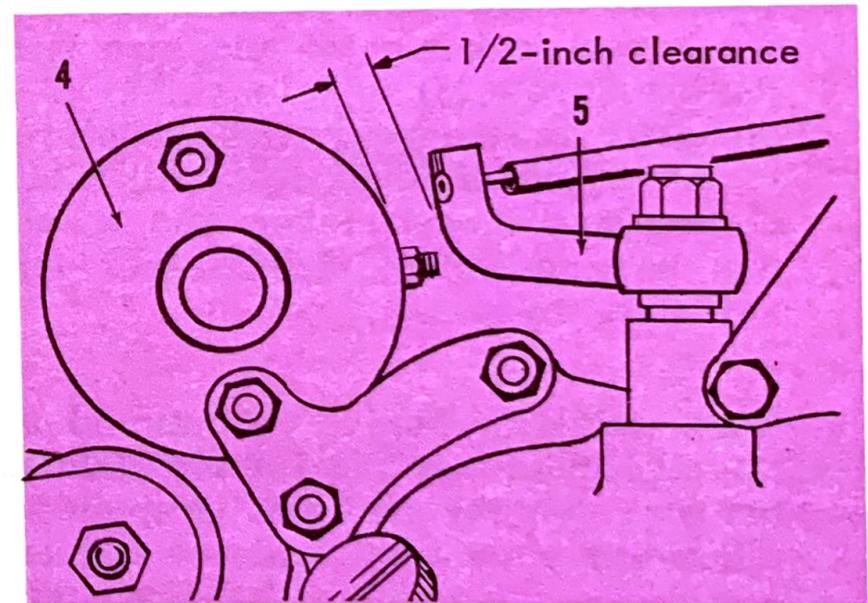
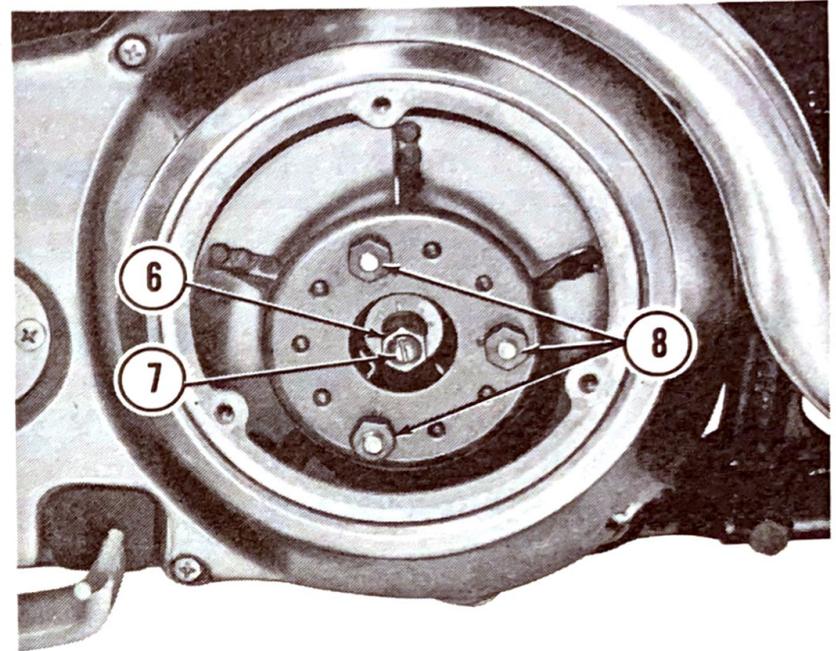


FIGURE 17. CLUTCH CONTROL ADJUSTMENTS

that all slack in the actuating mechanism has been taken up. Measure clearance between starter motor (4) and clutch lever (5) which should be 1/2 inch. If necessary to readjust to obtain this position of lever follow the instructions in the next step.

2. Steps 2, 3 and 4 are required only if clutch actuating lever is not positioned correctly. Loosen control coil adjusting sleeve lock nut (2, figure 17) and turn control coil adjusting sleeve (1, figure 17) all the way into bracket (3).
3. Remove clutch cover, loosen push rod adjusting screw lock nut (6) and turn push rod adjusting screw (7) in (clockwise) to move end of lever to the rear; out (counterclockwise) to move end of lever forward. When 1/2 inch clearance between lever and starter motor has been attained, tighten lock nut (6) and reinstall cover.
4. Turn adjusting sleeve (1) outward until end of clutch hand lever has 1/4 inch free movement before releasing pressure is applied to clutch. When adjustment is attained, tighten lock nut

(2). IMPORTANT — Chain housing must be air tight with cover reinstalled.

Check to determine that foot shift lever positioning mark is aligned with clamping slot of foot lever. Foot pedal can be raised or lowered by adjusting clevis on shifter rod end.

Clutch Foot Control

Proceed as follows to adjust foot control:

1. With the foot pedal in the fully engaged position (toe down) the clutch lever should have 1/4 inch clearance with starter drive housing, and foot pedal rod end should have 1/8 free end clearance in lever slot.
2. To adjust, remove the chain housing cover, set the foot pedal in the fully engaged position (toe down), loosen the lock nut (6, figure 17) and readjust the push rod adjusting screw (7) with a screwdriver so that the end of the lever is about 1/2 inch away from starter housing. Be sure that clutch lever rod end has 1/8 inch free movement in lever slot before clutch disengages. IMPORTANT — Chain housing must be air tight with cover reinstalled.

Clutch

If, after readjusting the clutch controls, the clutch still slips, increase the spring tension by tightening (turn right) the three nuts (8, figure 17). Tighten all three nuts one-half turn at a time until clutch holds. Test after each half turn by cranking the engine. Usually a clutch that holds without noticeable slippage when cranking the engine also holds on the road. Do not increase spring tension any more than is actually required to make clutch hold.

A new clutch is originally assembled and adjusted so that the distance from the inner edge of the shoulder on the spring collar to the outer surface of the outer disc is $1-1/32$ inch. If compressed so that this distance is less than $7/8$ inch, the clutch probably cannot be fully released.

If it is necessary to tighten the spring tension beyond the limit indicated above, it will be necessary to disassemble the clutch for inspection of the clutch discs. Some of the discs may be worn and require replacement or they may be oil soaked and in need of washing and drying.

It is advisable, if the above condition exists, to take your motorcycle to your Harley-Davidson dealer.

Hand Shift (See figure 10)

The hand shift normally requires readjustment only to compensate for wear. To correct hand shift lever position, proceed as follows:

1. Move the shifting lever to third position on four-speed transmission.
2. Disconnect shifter rod from shifter lever; with slight backward and forward movement carefully "feel" the transmission lever into exact position where the shifter spring plunger (inside transmission) seats fully in its retaining notch.
3. Turn the clevis in or out, carefully refit the shifter rod to the shifting lever without disturbing the shifting lever's exact positioning.

CHASSIS

Chains

Inspect the adjustment of the rear chain at 1000 mile intervals and the front chain at 2000 mile intervals and readjust them if necessary. Adjustment of front chain can be checked through

inspection hole (1, figure 13) after removing cover, also, FX/FXE models will require removal of footshift lever from shaft. If chains are allowed to run too loose they will cause the motorcycle to jerk when running at low speed, and both the chains and sprockets will wear excessively.

Adjust both front and rear chains so they have the correct amount of free movement up and down, midway between sprockets. Do not adjust too tight, because running chains too tight is even more harmful than running them too loose. As chains stretch and wear in service, they will run tighter at one point on the sprockets than at another; always check adjustment at the tightest point.

Inspect chains occasionally for links in bad condition. If any are found, replacement of entire chain is recommended. The rear chain can be taken apart and removed after locating and taking out the spring-locked connecting link. See "Rear Chain Repair." The front chain is not provided with such a connecting link. Therefore, it is necessary to remove the engine sprocket, chain adjuster and clutch before the chain can be taken off for replacement.

Front Chain Adjustment (see figure 18)

Front chain can be adjusted through inspection hole (1, figure 13) using special wrench, Part No. 94644-65, or if not available, by removing chain housing cover as follows: Remove rear pivot bolt from left footboard and swing rear end of footboard down, away from chain housing cover. Remove 8 cover attaching screws and remove cover.

Front chain tension is adjusted by means of a shoe (5) which is raised or lowered underneath the chain to tighten or loosen it. The shoe support bracket (8) moves up or down in slotted backplate (9) after loosening center bolt (7) in backplate nut. Adjust shoe support as necessary to obtain specified up and down free movement in upper strand of chain, midway between sprockets and retighten bolt securely.

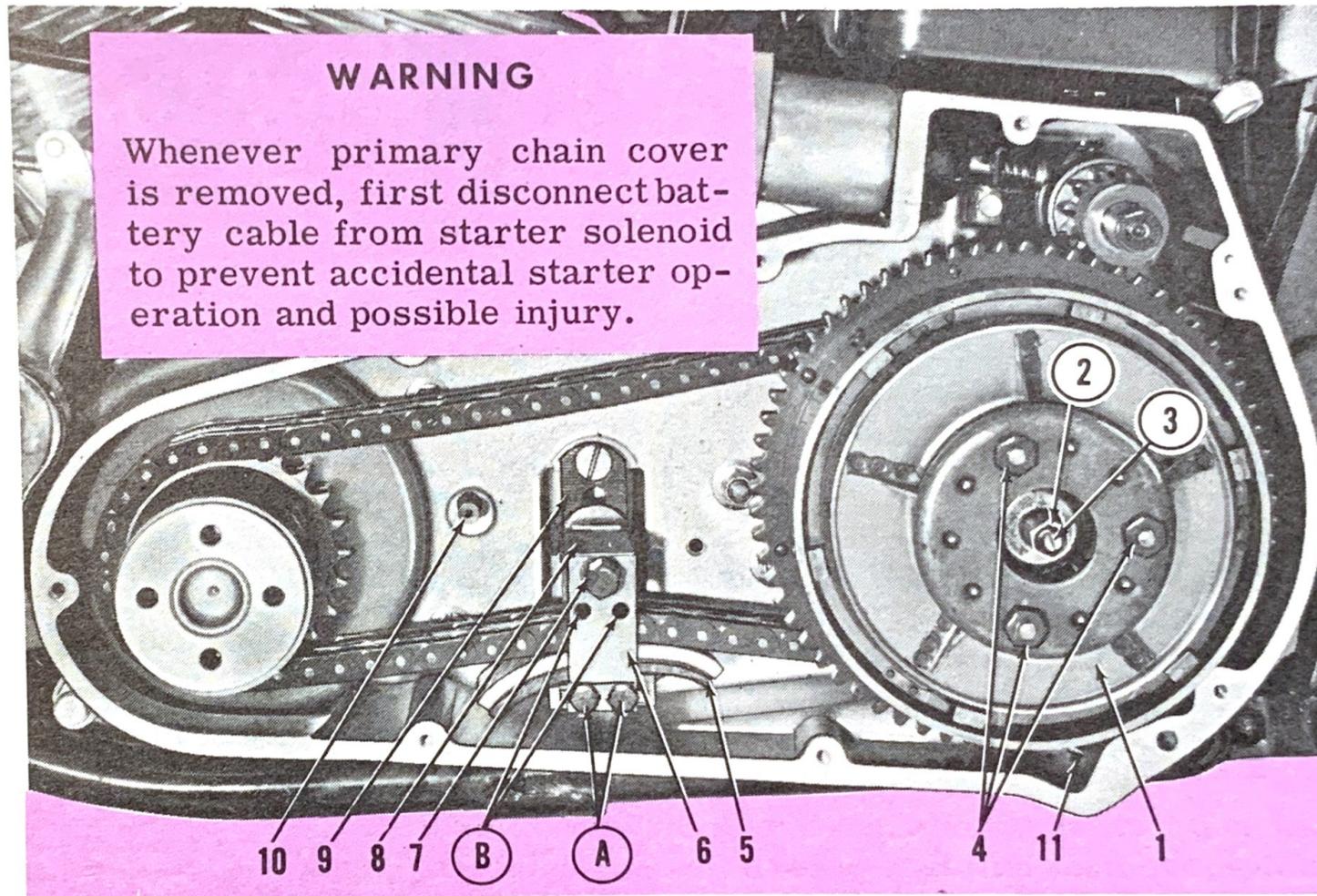
Front Chain Adjustment:

- 5/8 to 7/8 inch chain slack with cold engine
- 3/8 to 5/8 inch chain slack with hot engine

Shoe support bracket (8) and outer plate (6) have two sets of shoe attaching holes (A and B) so that entire assembly can be inverted to accommodate various sprocket sizes or chain lengths.

WARNING

Whenever primary chain cover is removed, first disconnect battery cable from starter solenoid to prevent accidental starter operation and possible injury.



- | | | |
|---|--------------------------------|--|
| 1. Clutch | 5. Front Chain Adjusting Shoe | 10. Front Chain Oiler |
| 2. Push Rod Adjusting Screw
Lock Nut | 6. Outer Plate | 11. Chain Housing Magnetic
Drain Plug |
| 3. Push Rod Adjusting Screw | 7. Support Bracket Center Bolt | A and B. Two Sets of Shoe
Attaching Holes |
| 4. Spring Tension Nuts (3) | 8. Shoe Support Bracket | |
| | 9. Slotted Backplate | |

FIGURE 18. FRONT CHAIN AND CLUTCH ADJUSTMENT

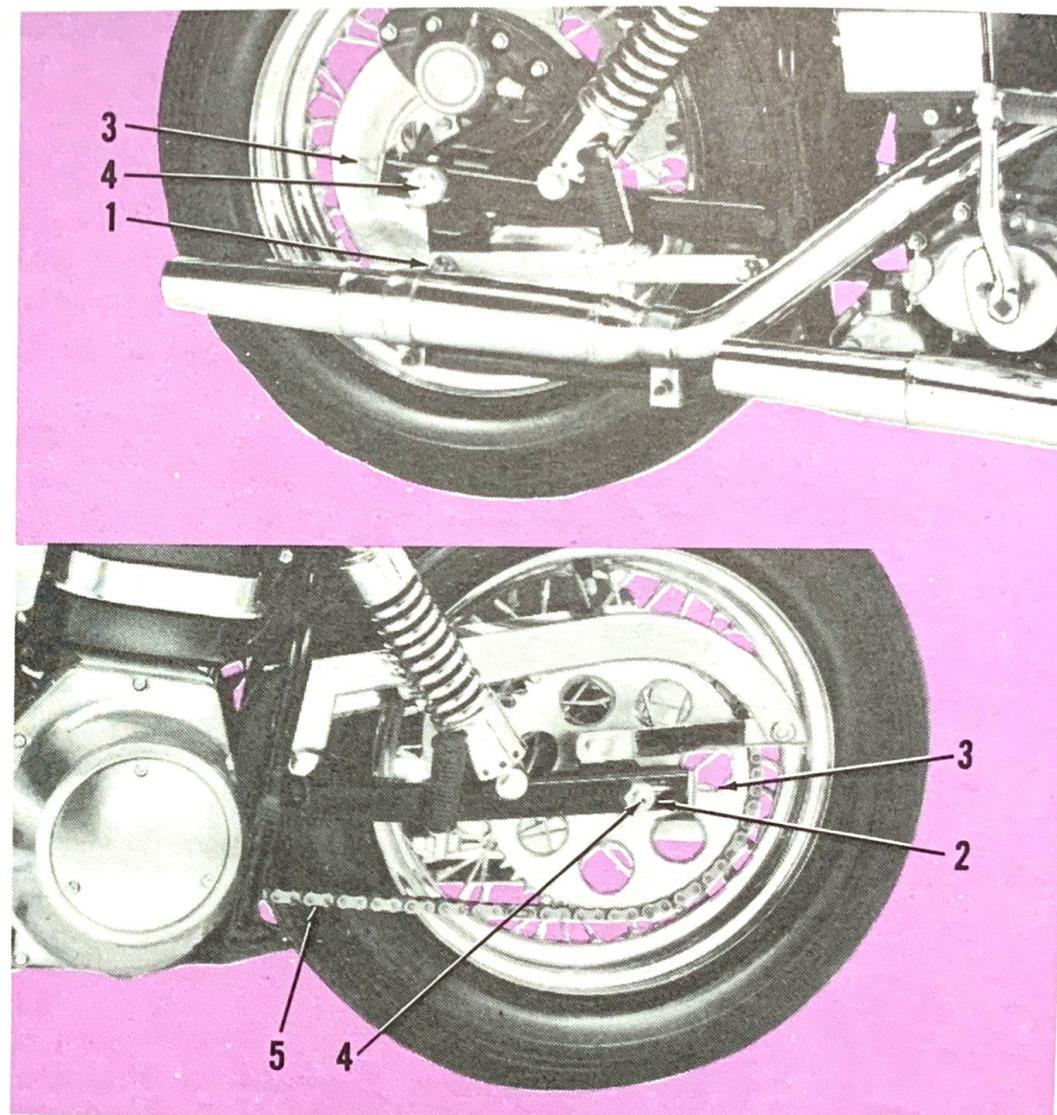
To change over, remove center bolt (7), remove two shoe attaching capscrews from set of holes (A), invert shoe and attach to alternate set of holes (B) with capscrews. Invert support bracket and outer plate and reattach with center bolt engaged in backplate nut.

IMPORTANT — Chain housing must be airtight with cover reinstalled — use new gasket and gasket sealer.

Rear Chain Adjustment (See figure 19)

Remove cotter pin and loosen brake anchor castle nut (1). Loosen axle nut (2). Turn adjusting nuts (3) as necessary to move axle and correctly re-adjust the chain. Turn each nut an equal number of turns in order to keep wheel in alignment. To move axle (4) forward it will be necessary to tap lightly on ends of studs.

A correctly adjusted rear chain should have 1/2 inch free up and down movement half way between transmission sprocket and rear wheel sprocket with weight of motorcycle and rider on wheels. Check correct alignment of the wheel to see that the tire runs about midway between rear fork and also that the rear sprocket runs centrally in the chain. When readjustment is completed, be sure to securely retighten the axle nut and anchor stud nut.



- | | |
|------------------------------------|------------------------|
| 1. Brake Anchor Nut and Cotter Pin | 3. Axle Adjusting Nuts |
| 2. Axle Nut | 4. Rear Axle |
| | 5. Drive Chain |

FIGURE 19. REAR CHAIN ADJUSTMENT

Rear Chain Repair

To repair rear chain in an emergency, remove the damaged links by pushing out the riveted link pins with a chain repair tool (obtained from dealer). Then fit the necessary repair links.

Brakes

The front and rear wheel hydraulic brake mechanism is self-adjusting. Only the rear brake pedal linkage to the master cylinder may require adjustment because of wear.

Rear Brake Pedal Adjustment

Work brake pedal lever back and forth by hand to determine free play before push rod contacts piston in master cylinder. Free play of push rod should be approximately 1/16 inch to be sure rear brake cylinder hydraulic pressure is relieved. After adjusting free play, check for pressure relief indication by removing master cylinder fill plug and watching for fluid bubble when pedal is released. Readjust if necessary.

Model FL/FLH Rear Brake Pedal Adjustment (See figure 20)

Adjustment is made by loosening master cylinder rear bolt (4) and stop plate bolt (2). Move front

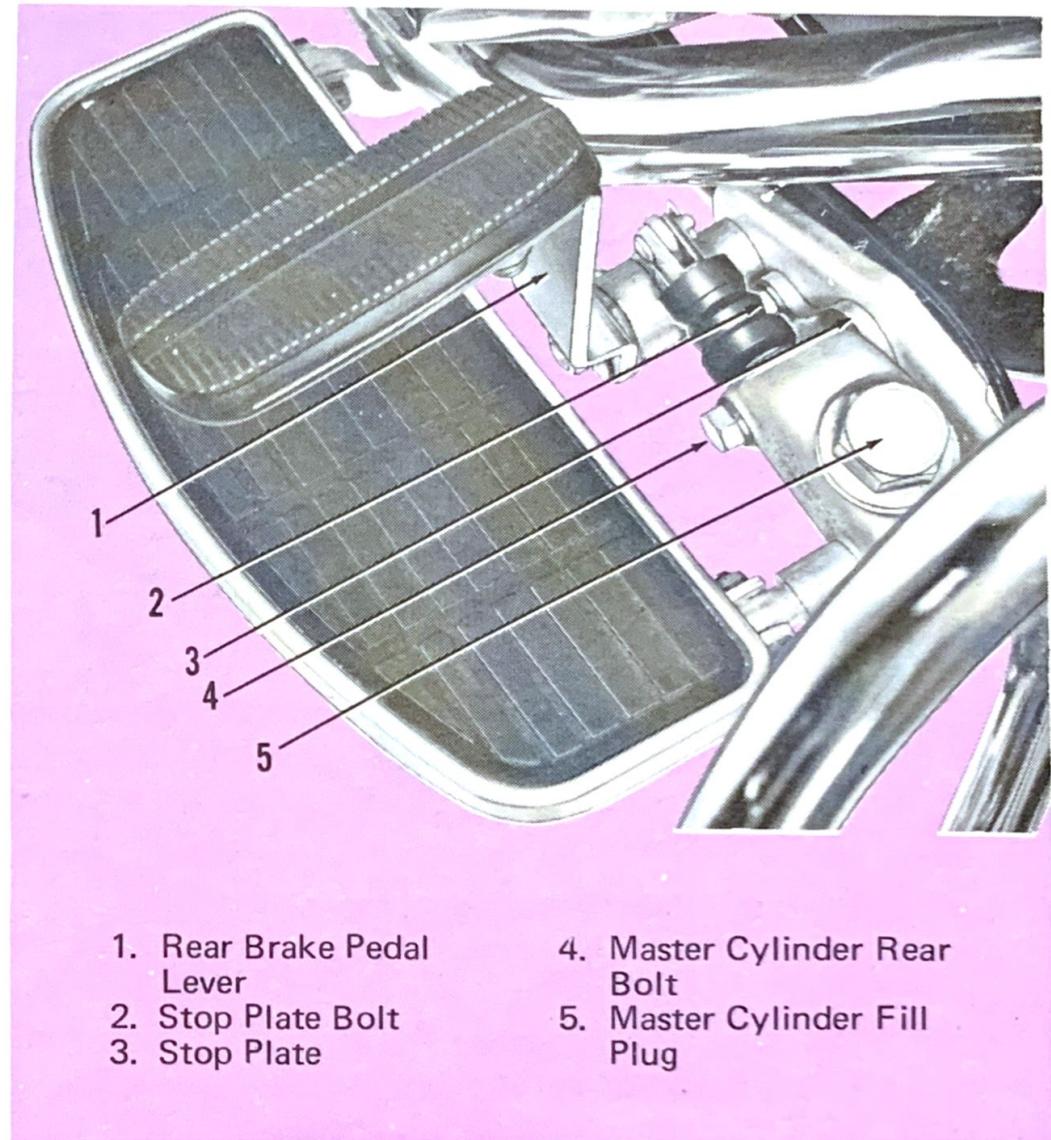


FIGURE 20. REAR BRAKE PEDAL
ADJUSTMENT – FL/FLH

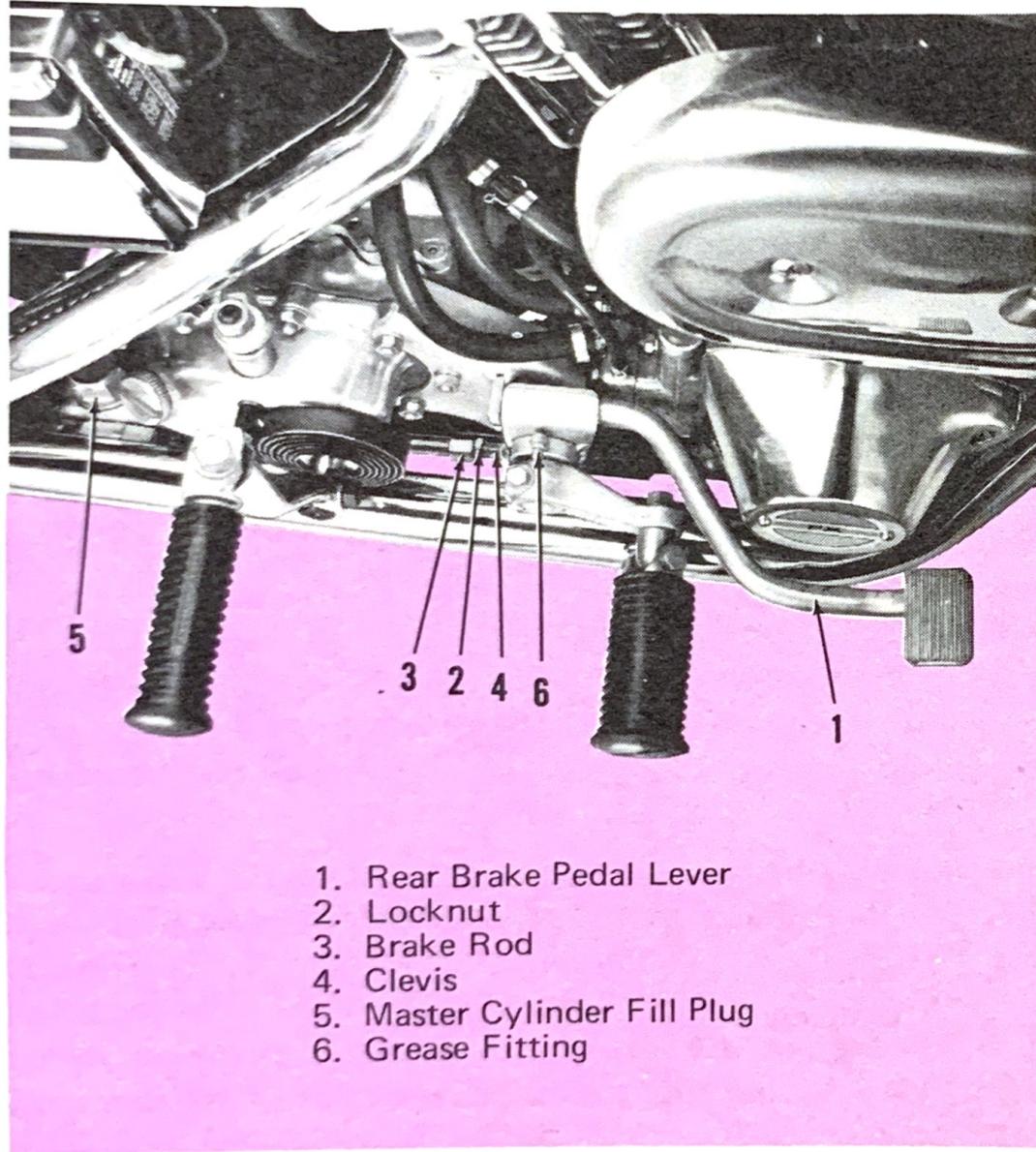


FIGURE 21. REAR BRAKE PEDAL ADJUSTMENT – FX/FXE

end of plate (3) down to decrease free play, or up to increase free play.

Model FX/FXE Rear Brake Pedal Adjustment (See figure 21)

Adjustment is made by loosening locknut (2) and turning brake rod (3) on clevis threads (4) – forward to increase free play or rearward to decrease free play.

Wheels

Front and rear wheels can be detached from brake disc when necessary to remove for wheel or tire service.

Removing Rear Wheel (See figure 22)

Support rear end of motorcycle with rear wheel off the ground. Disconnect rear chain at connecting link (3) by removing spring clip (1) and side plate (2). Remove brake anchor nut and cotter pin (5) and loosen castle nut.

Remove axle nut (6), lock washer (7), axle (8), and spacer (9) which fit between fork side and sprocket side of wheel hub. Axle centering spacer (10) fits into rear fork axle slot. Wheel is then free to come out to rear.

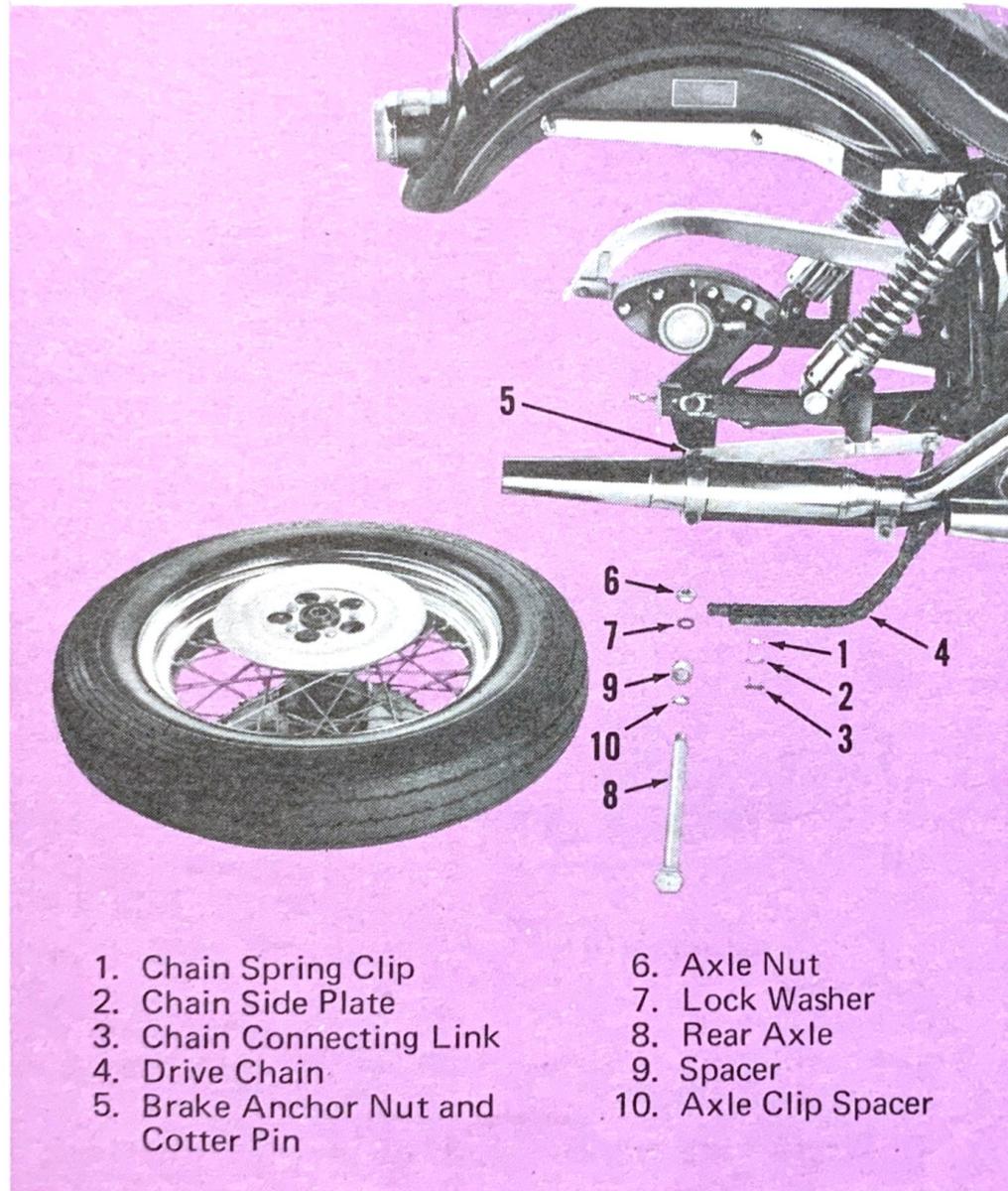


FIGURE 22. REAR WHEEL REMOVAL

When reassembling wheel, reverse the removal procedure. Exercise care not to over-tighten axle nut (6). Adjust rear chain (see "Rear Chain Adjustment," page 54).

Removing Model FL/FLH Front Wheel (See figure 23)

Remove axle nut (1), lock washer (2) and washer (3). Loosen the two slider cap nuts (4) and remove axle (5). The front wheel is now free to come out with spacer (6).

When replacing the wheel, reverse the removal procedure. Align the brake pads while installing the wheel so that brake disc goes between the pads.

Securely tighten axle nut (1), exercising care not to over-tighten, and then tighten the two slider cap nuts (3). This will insure correct alignment of fork sides.

Removing Model FX/FXE Front Wheel (See figure 24)

Support motorcycle underneath frame with front wheel raised. Remove brake caliper mounting bolt (1), washers (2), and lock nut (3). Remove axle nut (4), lock washer (5), and washer (6). Loosen slider cap nuts (7). With a soft hammer tap left end of axle (8) to loosen it and start it out.

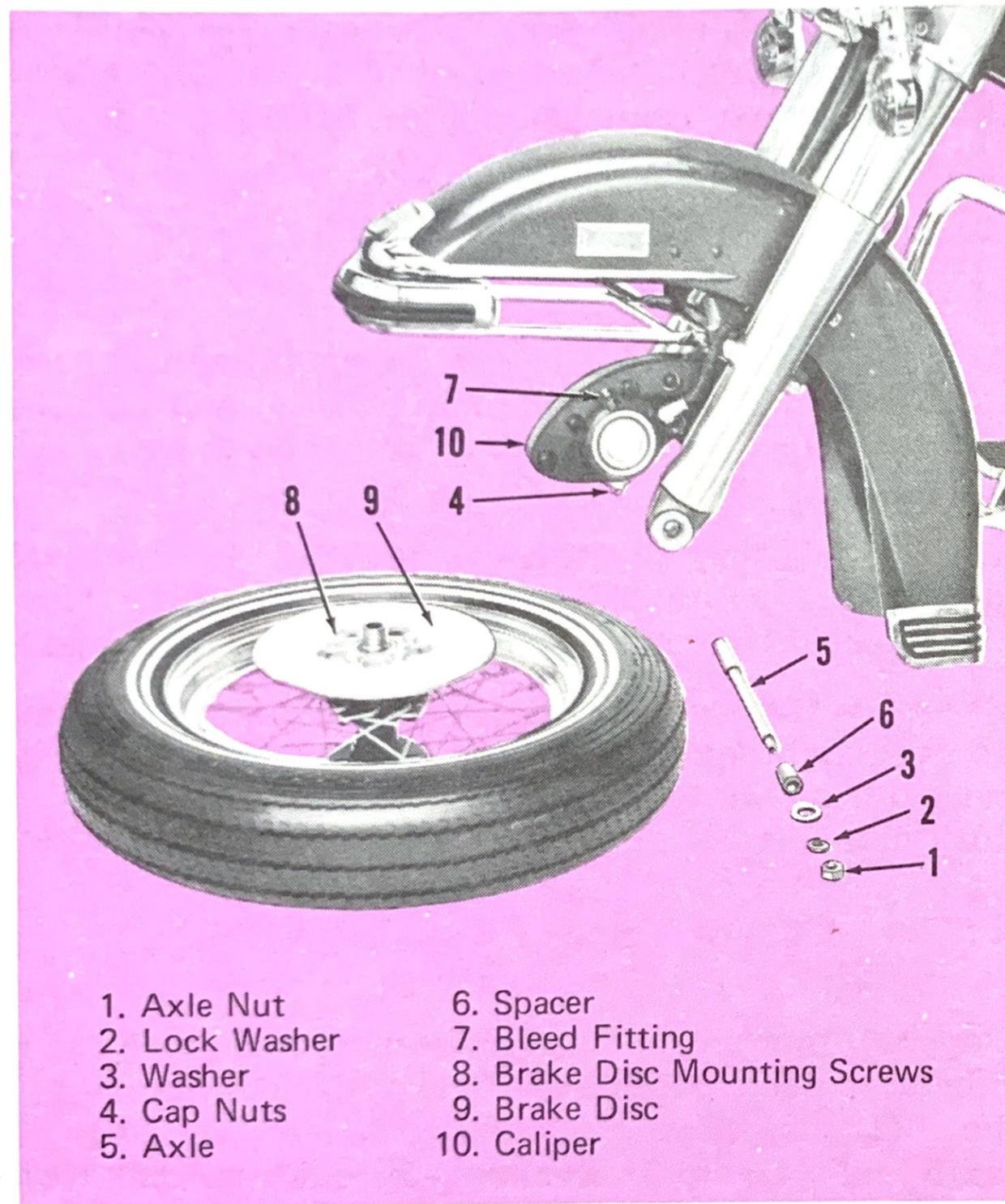


FIGURE 23. FRONT WHEEL REMOVAL – FL/FLH

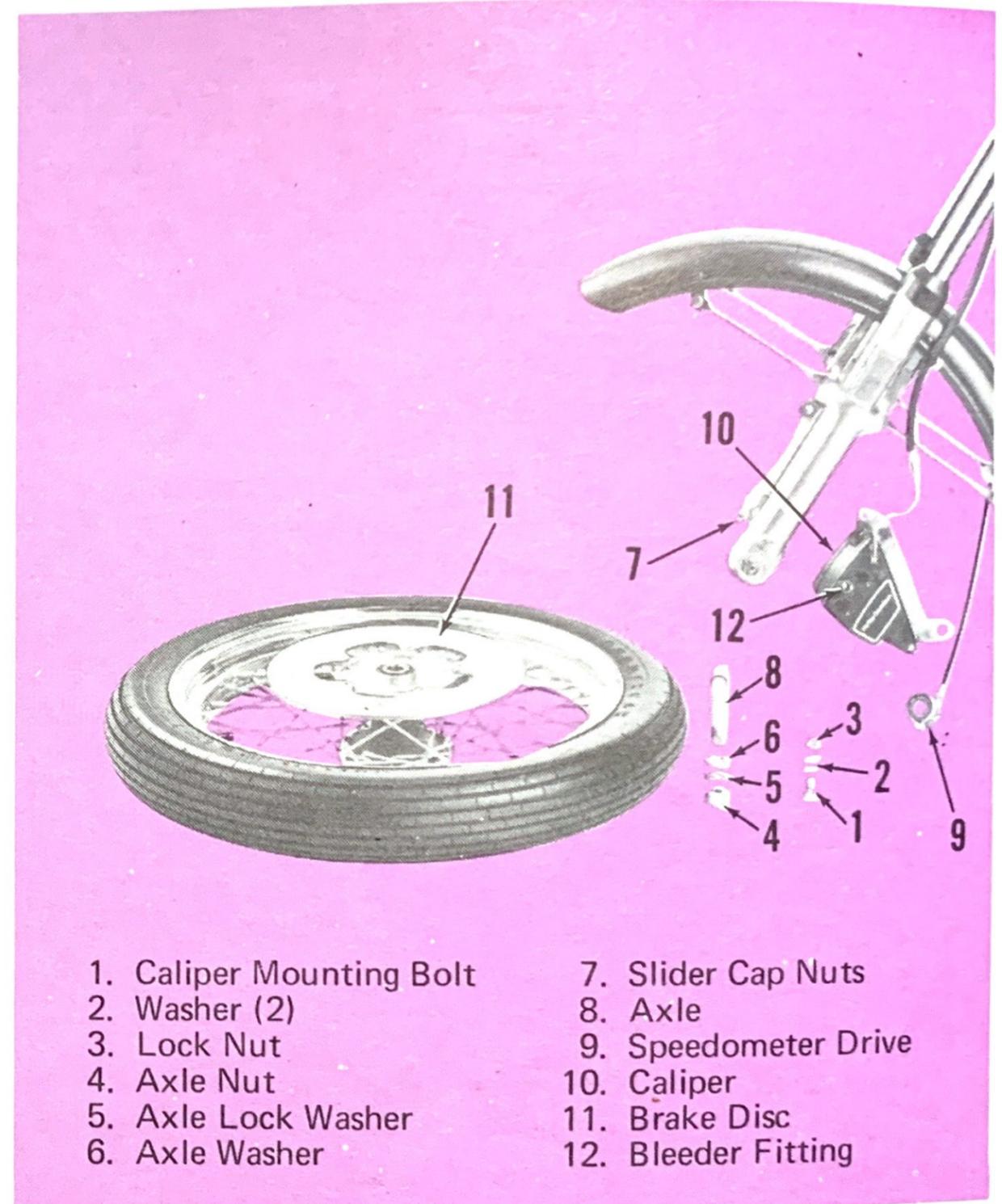


FIGURE 24. FRONT WHEEL REMOVAL – FX/FXE

Pull axle (8) out of fork assembly. Remove front wheel assembly and speedometer drive (9). To reinstall, reverse above procedure. Align the brake pads while installing the wheel so that the brake disc goes between caliper (10) pads. Be sure speedometer drive (9) ear engages hole in wheel hub when installed. Securely tighten axle nut (4), exercising care not to over-tighten, and then tighten the two slider cap nuts (7). This will insure correct alignment of the fork sides.

Wheel Bearings

Front and rear wheels have tapered roller bearings with lip type seals to prevent entry of dirt and water. Bearings should be repacked at 10,000 mile intervals, or yearly if operated in winter weather. Use Harley-Davidson Grease-All grease and new seals. Excessive looseness or roughness with correct bearing adjustment when wheel is turned, indicates worn bearings and they will require replacement.

Tires

Care should be taken to keep tires properly inflated. See Tire Data, page 5 for correct tire inflation pressures. Do not over-inflate tires.

Check inflation pressure and inspect tread for punctures, cuts, breaks, etc., at least weekly if in

daily use; or before trips, if used occasionally.

The front tire of a solo motorcycle normally wears unevenly and becomes peaked to some extent. On the FL/FLH solo motorcycle, it is recommended that wheels and tires be transposed at intervals of approximately 5000 miles. This will stabilize high speed operation and also equalize wear. Model FX/FXE tires cannot be transposed.

Tire should be mounted on rim with arrow on sidewall pointing in direction of forward wheel rotation. Inner tube valve stem should be located at balance mark on tire sidewall.

Both tires have inner tubes and rim bands. Because tires, tubes and wheels are critical safety items, we recommend your Harley-Davidson dealer for parts and service.

FL/FLH Saddle Spring Post (See figure 25)

The saddle cushion spring assembly (three lower springs) of a standard saddle post is adjusted for the average weight rider to give maximum riding comfort. Adjustment can be changed for lighter or heavier than average rider, and different springs can be obtained, if desired, from your dealer.

To disassemble spring post from motorcycle, raise the saddle, remove saddle post clamp nut

ELECTRICAL

(5), which is located underneath frame at bottom end of post tube. The post assembly can then be pulled out for greasing or servicing. When the post assembly is inserted back into the frame tube see that the flat side, machined on the post rod nut (4), registers in flat side of the hole in the bottom of the tube.

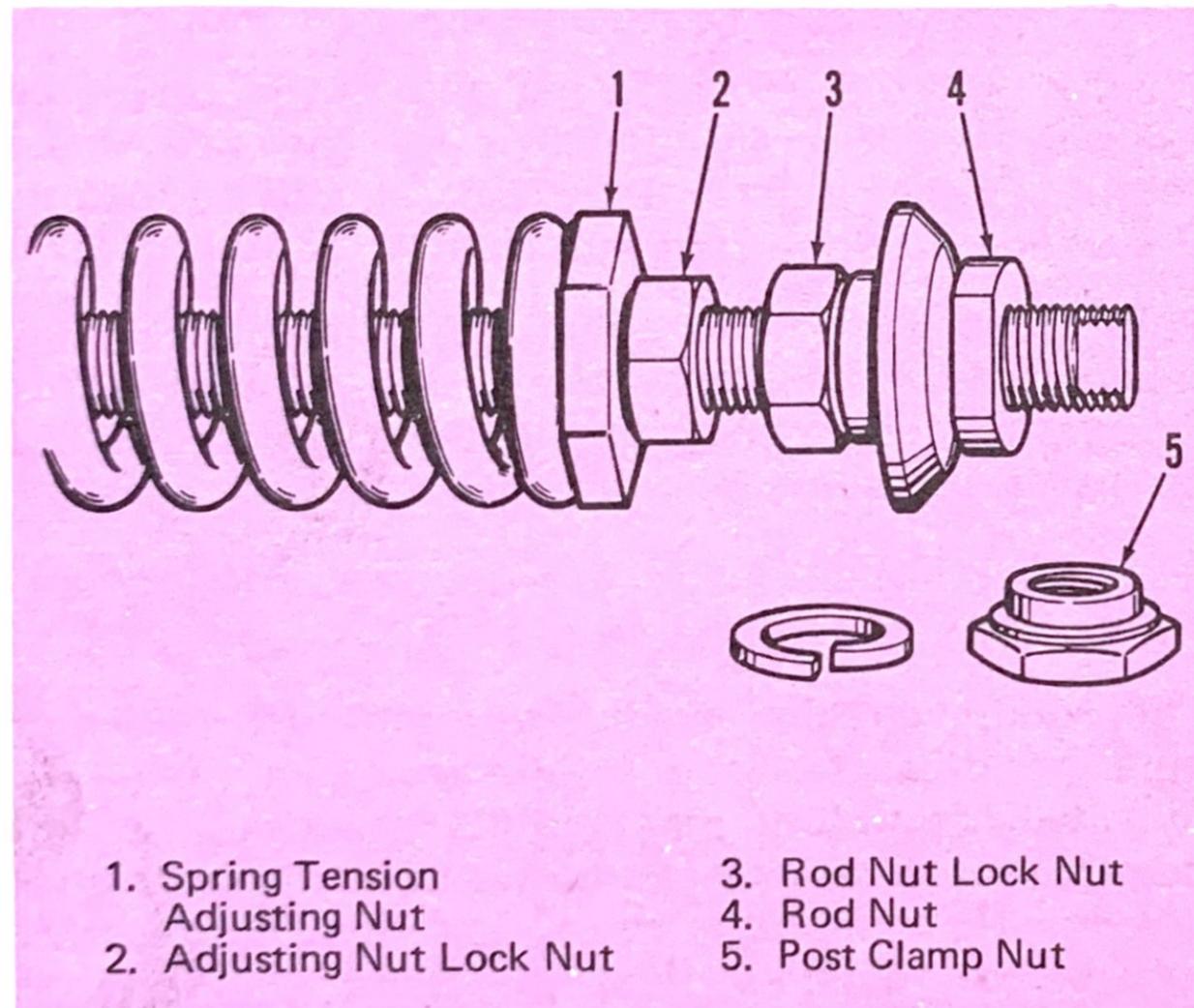


FIGURE 25. SADDLE SPRING POST

Headlamp

The headlamp is of the sealed beam type. When replacement is required use only the prescribed sealed unit available from your Harley-Davidson dealer.

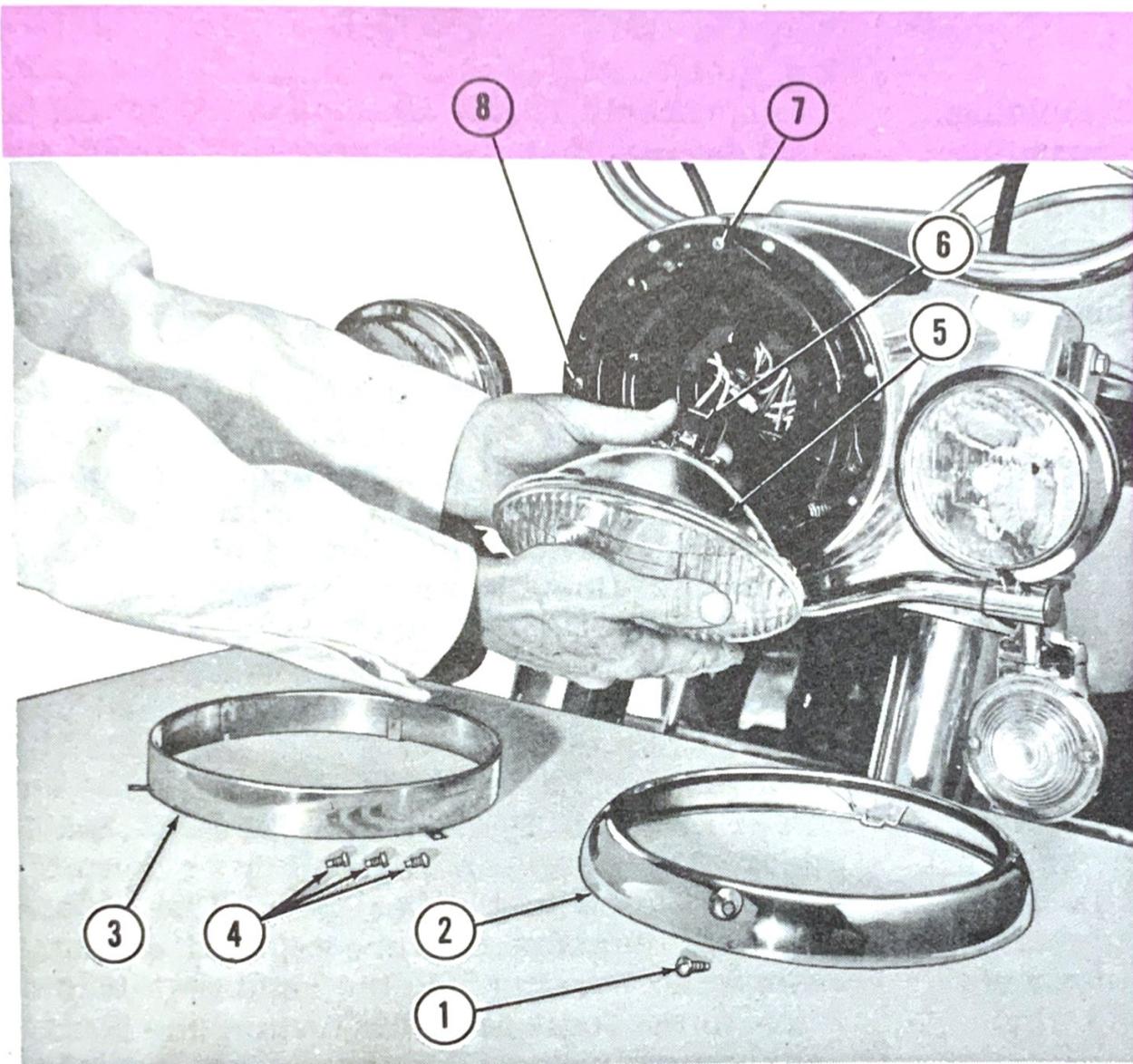
Replacing Headlamp Sealed Beam Unit

If either filament burns out or if the lens breaks, the entire sealed beam unit must be discarded and a new unit installed.

FL/FLH (See figure 26)

To install a new unit loosen door screw (1) enough to remove headlamp door (2). Remove the three retaining ring screws (4) and remove retaining ring (3). The sealed beam unit (5) is now free from the headlamp body, and the connector block (7) can now be removed from the unit by pulling connector block (6) from the unit's prongs.

Install the new unit by reversing above operations. Make sure prongs on unit are clean to assure good contact with connector block.



1. Door Screw
2. Headlamp Door
3. Retaining Ring
4. Retaining Ring Screws
5. Sealed Beam Unit
6. Connector Block
7. Vertical Adjustment Screw
8. Horizontal Adjustment Screw

FIGURE 26. REPLACING MODELS FL/FLH SEALED-BEAM UNIT

Model FX/FXE

Remove outer molding clamp screw and molding to remove sealed-beam unit from rubber mounting ring. Pull connector block from sealed-beam unit prongs.

Install new sealed-beam unit by reversing above operations. Make sure connector block contacts are clean to insure good electrical contact.

Headlamp Adjustment

The headlamp beam must be adjusted for height and direction. To get the greatest efficiency from the headlamp and to meet the requirements of the law make the following adjustment in a darkened room or at night.

1. Have the motorcycle standing on a level surface with tires correctly inflated about 25 feet away from, and headed toward, a wall or screen upon which a horizontal line has been drawn at exactly the same height as the headlamp center. The motorcycle must be resting on both wheels and the front wheel must be in straight alignment.

NOTE

To properly adjust the headlamp it will be necessary to have someone of about the same weight as the rider seated on the motorcycle because the weight of the rider will compress the fork slightly.

2. Turn on light switch, set handlebar toggle switch in high beam position, and check light beam for height and direction. The top of the main beam of light should register on the wall or screen even with, but no higher than, the horizontal line mentioned above.
3. If beam requires adjustment, proceed as follows:

FL/FLH (see figure 26) — remove headlamp door. The lamp can be tilted up or down to aim it in relation to the horizontal line by turning vertical adjustment screw (7) in or out. The lamp can be aimed to the right or left in relation to the front wheel by turning the horizontal adjustment screw (8) in or out.

Model FX/FXE — remove snap plug on top of headlamp housing and loosen the clamp nut behind the lamp bracket. Tilt the lamp up or down to properly aim it in relation to the horizontal line and at the same time turn it right or left to direct the beam of light straight ahead. Tighten the clamp nut after the lamp is properly positioned.

Alternator Charging Rate and Control Module

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

Bulb Chart

The bulb chart, below, gives the location and bulb requirements for your Harley-Davidson motorcycle.

Bulb Chart

Lamp Description	No. of Bulbs Required	Candle Power or Wattage	Harley-Davidson Part Number
Headlamp			
FL/FLH-1200	1	60/50	67717-64
FX/FXE-1200	1	50/40	67717-65
Tail and Stop Lamp	1		68165-64
Tail Lamp		4 C.P.	
Stop Lamp		32 C.P.	
Instrument Panel Lights			
High Beam Indicator	1	2 C.P.	68462-64
Neutral Indicator	1	2 C.P.	68462-64
Generator Signal	1	2 C.P.	68462-64
Oil Pressure Signal	1	2 C.P.	68462-64
Speedometer	1	1.5 C.P.	71090-64
Accessories			
Spot Lamp Sealed Beam Unit	1	30 Watts	68726-64
Spot Lamp Bulb	1	32 C.P.	68715-64
Parking Lamps	-	3 C.P.	68166-64
Turn Indicator Lamps	4	32 C.P.	68572-64A
Turn Indicator Pilot Lamps	2	1.5 C.P.	71090-64

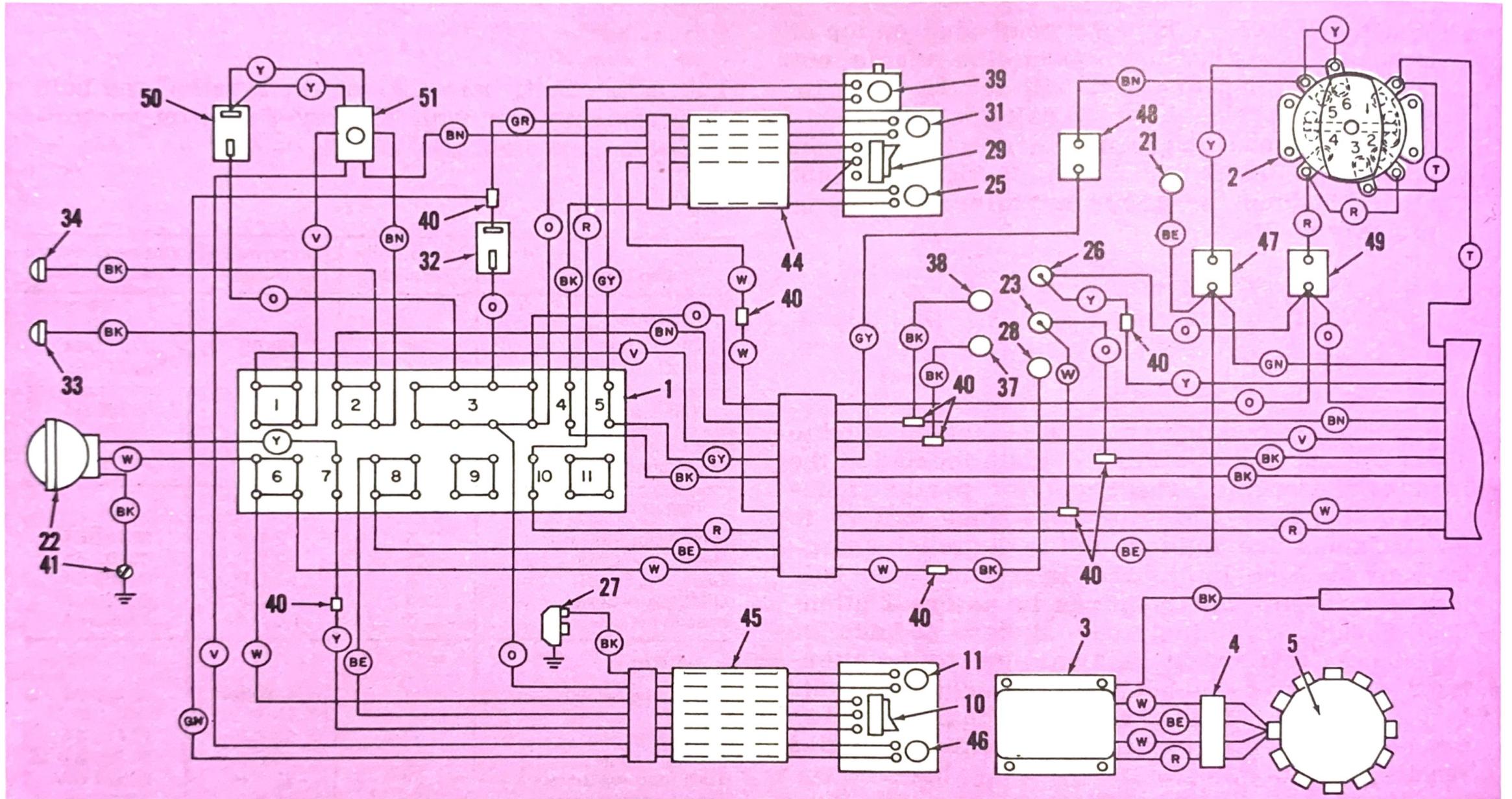


FIGURE 27. FL/FLH WIRING DIAGRAM – PART 1

FL/FLH 1200 WIRING DIAGRAM KEY

1. Front terminal board (terminals 1 to 11)
2. Switch (terminals 1 to 6)
3. Regulator-rectifier module
4. Alternator to module connector plug
5. Alternator stator
6. Tail and stop lamp
7. Battery positive terminal
8. Battery negative terminal
9. Oil pressure signal switch
10. Headlamp beam switch
11. Horn switch
12. Ignition breaker (timer)
13. Stop lamp switch – rear
14. Starter solenoid
15. Starter motor
16. Ignition coil
17. Rear terminal board terminal – top
18. Rear terminal board terminal
19. Rear terminal board terminal
20. Rear terminal board terminal – bottom
21. Speedometer light
22. Headlamp
23. Neutral indicator light
24. Neutral switch
25. Starter button
26. Oil signal light
27. Horn
28. High beam indicator lamp
29. Engine stop switch
30. Starter relay
31. Right direction signal switch
32. Direction signal flasher
33. Left front direction lamp
34. Right front direction lamp
35. Left rear direction lamp
36. Right rear direction lamp
37. Left direction signal pilot lamp
38. Right direction signal pilot lamp
39. Stop lamp switch – front
40. Connector
41. Terminal board mounting screw
42. Transmission stud
43. Frame lug bolt
44. Right handlebar
45. Left handlebar
46. Left direction signal switch
47. Lighting circuit breaker
48. Ignition circuit breaker
49. Accessories circuit breaker
50. Emergency flasher
51. Emergency flasher switch

FX/FXE 1200 WIRING DIAGRAM KEY

1. Headlamp housing
2. Socket-plug combination
3. Socket-plug combination
4. Socket-plug combination
5. Wiring harness
6. Headlamp beam switch
7. Horn switch
8. Ignition breaker (timer)
9. Wire connector
10. Battery positive terminal
11. Battery negative terminal
12. Frame lug bolt
13. Stop lamp switch – rear
14. Switch “L” lights terminal
15. Switch “I” ignition terminal
16. Switch “B” battery terminal
17. Regulator – rectifier module
18. Alternator to module connector plug
19. Alternator stator
20. Horn
21. Headlamp socket
22. Engine stop switch
23. Stop lamp switch – front
24. Ignition coil
25. Rear terminal board terminal – top
26. Rear terminal board terminal
27. Rear terminal board terminal
28. Rear terminal board terminal – bottom
29. Speedometer light
30. Oil pressure signal switch
31. Neutral switch
32. Neutral indicator light
33. Oil signal lamp
34. High beam indicator lamp
35. Tail and stop lamp
36. Tachometer
39. Lighting circuit breaker
40. Ignition circuit breaker
41. Accessories circuit breaker
42. Starter switch
43. Right direction signal switch
44. Left direction signal switch
45. Direction signal flasher
46. Left front direction lamp
47. Right front direction lamp
48. Left rear direction lamp
49. Right rear direction lamp
50. Starter relay (FXE only)
51. Starter solenoid (FXE only)
52. Starter motor (FXE only)

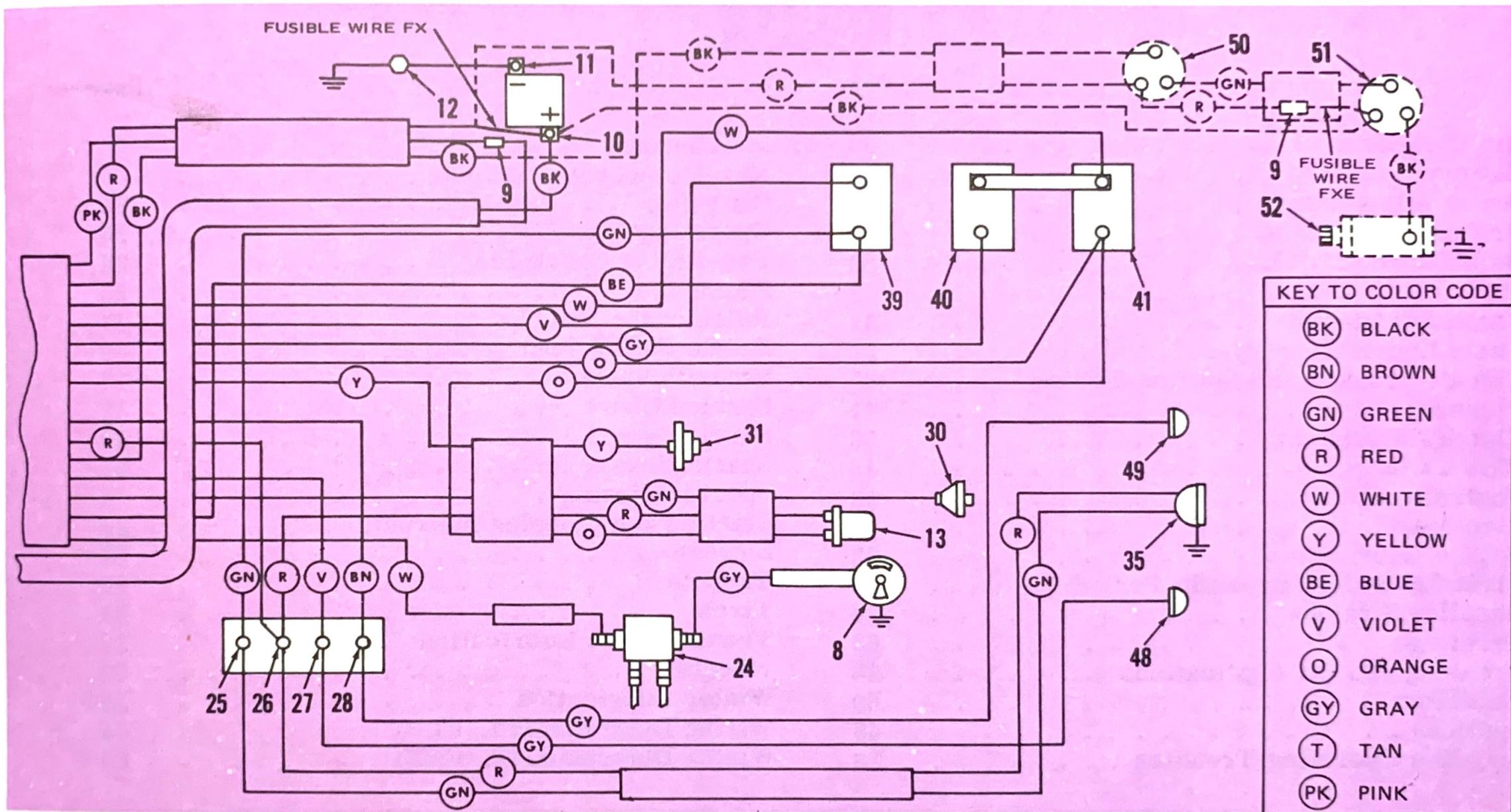


FIGURE 28. FX/FXE WIRING DIAGRAM – PART 2

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