

HARLEY DAVIDSON WLA "LIBERATOR"

QUICK START GUIDE



Presented by **RTH inc.**

Version 1.0

Release Date: 11/23/2025

Contents

CONTENTS	2
INTRODUCTION	3
WARMING UP THE ENGINE	3
STARTING THE ENGINE	3
BREAKING IN A NEW ENGINE	4
OPERATING THE VEHICLE	5
PROPER HANDLING	5
BRAKING SAFELY	5
AVOIDING ENGINE STRAIN	5
SHIFTING AND GEAR CONTROL	5
HOW TO CHANGE GEARS	5
HIGH-SPEED RIDING	6
STOPPING THE MOTORCYCLE	6
PARKING	7
SPECS	8
CONTROLS	9
ACCESSORIES	13
TOOLS	14

Introduction

This quick start guide serves to guide the user on the operation, care, and troubleshooting of the Harley-Davidson WLA motorcycle.

For any further information, please call (395) 455-6839 or visit our website at HeritageFoundation.com/LiberatorKnowledgeBase.

Warming Up the Engine

Carefully follow the instructions below to avoid unnecessary wear on the engine.

NOTICE: *Users of all skill levels should practice correct engine starting techniques until they are second nature.*

1. Mount the motorcycle.
2. Grip the handle bars firmly.
3. Place the gear shifter lever in the neutral (N) position.
4. Open the gasoline shut-off valve.
5. Engage the clutch.
6. Turn the left spark control grip all the way inward.
7. Kick the foot starter vigorously using a full swing of your right leg and hip.
 - The foot starter can move halfway down before the engine begins to start.

Starting the Engine

1. **Set the choke.** (*Lever on the left side of the fuel tank*)
 - Start with the choke partially closed ($\frac{1}{4}$ – $\frac{1}{2}$).
 - If it's very cold, you can start fully closed, but open it gradually as soon as the engine catches.
2. **Adjust the throttle.** (*Right handle bar grip*)
 - Keep the throttle slightly open before starting.
 - If the engine is hot, start with the throttle closed, and only open it if it doesn't start after a few kicks.
3. **Prime the starter if needed.** (*Right foot pedal*)
 - For a cold or unused engine, kick the starter once or twice before turning the ignition on to draw fuel into the cylinders.
4. **Turn the ignition switch on.** (*Switch in the center of the fuel tank*)
 - Switch to the first (right) position.

5. **Kick to start.**

- Give the foot starter strong, steady kicks until the engine starts.
- If it struggles to start:
 - Flooded (too much fuel)? Open the throttle wide while kicking, then close it quickly when it fires.
 - Still not catching? Re-check your choke and throttle positions.

6. **Warm it up.**

- Let the engine idle moderately until it runs smoothly.
- Gradually open the choke all the way as the engine warms.
- Avoid racing or letting it idle too long once it's hot.

Breaking In a New Engine

You must properly “break in” a new motorcycle engine for the first 1,000 miles of use. The engine can be damaged if not done properly.

See recommendations for service milestones below:

- Every 250 Miles: Check front and rear drive chains to ensure they are lubricated properly.
- Every 500 Miles: Drain and refill the oil tank; inspect the front and rear drive chains.
- Every 1,000 Miles: Thoroughly check for any loose screws and nuts, especially the mounting bolts and socket screws on the engine and the transmission.

It is important to pay attention to your speed during the break-in period. Refer to the table below.

Break-In Distance	Maximum Speed
First 100 miles	Up to 30 mph
Next 200 miles	Up to 35 mph
Next 400 miles	Up to 40 mph
Next 500 miles	Up to 50 mph

CAUTION: Avoid using low gears whenever possible during the break-in period.

Operating the Vehicle

Proper Handling

The Liberator is a 2-cylinder solo motorcycle is powered by a V-type, air-cooled gasoline engine. It runs on conventional 4-stroke, 4-cycle principles. Air-cooled engines rely on movement of air over cylinder and head radiating fins, as well as circulation of oil for heat dissipation.

CAUTION: Do not operate the motorcycle for more than 1 minute when it is not in motion.

Braking Safely

Apply the rear brake smoothly and evenly. A medium-hard press should be enough to lock the rear wheel if needed.

- Use the front brake gently, especially on wet, muddy, or slippery roads.
- After riding through water, apply brakes lightly while riding a short distance to help dry them out.

DANGER: Sudden braking on slick surfaces can cause a skid. Always apply pressure gradually.

Avoiding Engine Strain

- Ride in the highest gear possible for your speed and road conditions.
- Prolonged use of low gear can overheat the engine and reduce performance.

Shifting and Gear Control

Smooth shifting comes with practice. Use the right gear for your speed and avoid making the engine strain or “labor.”

When shifting gears:

- Keep your eyes on the road — never look down at the shifter.
- Disengage the clutch fully before shifting to prevent gear damage.
- Don’t ride the clutch. Only rest your foot on the pedal when operating it.
- Shift up as your speed increases; shift down before the engine struggles.

NOTICE: Many transmissions wear out early because riders fail to fully disengage the clutch when shifting.

How to Change Gears

1. Press the clutch pedal with your heel to disengage.
2. Shift into 1st gear.

3. Ease out the clutch with your toe while slowly opening the throttle.
4. Accelerate to about 12–15 mph.
5. Close the throttle, disengage clutch, and shift into 2nd gear.
6. Reengage clutch and accelerate to about 25 mph.
7. Repeat the process to shift into 3rd (high) gear and continue accelerating smoothly.

High-Speed Riding

Only attempt high-speed riding once you're experienced and comfortable with your motorcycle's handling.

- Snap the throttle shut briefly from time to time at high speeds — it pulls in extra lubrication and cools the engine.
- In cool weather, let the engine warm up fully before riding fast to avoid internal damage.
- If you have a windshield or leg shields, monitor for overheating during extended high-speed runs.
- Adjust the steering damper for best control based on speed and road surface.

WARNING: Long-distance high-speed riding requires closer attention to engine temperature and lubrication.

Stopping the Motorcycle

Following these directions when you stop the motorcycle will allow you to restart it easier and quicker.

1. Close the throttle.
2. Disengage the clutch.
3. Apply the brake (or brakes) to slow the motorcycle without sliding the rear tire.
4. As you come to a complete stop, shift into "N" (neutral) position and engage the clutch.

NOTICE: If you are immediately restarting the motorcycle, shift into "1" (low) gear and allow the clutch foot pedal to remain in the disengaged position. (You will be mounted on the motorcycle with engine running).

5. Continue applying the brake and come to a complete stop.
6. Place your left foot on the ground to maintain balance until your right foot can be removed from brake operating pedal.

The motorcycle can no longer be balanced by steering.

CAUTION: Do not operate the motorcycle for more than 1 minute when it is not in motion.

7. Stop the engine by turning the ignition switch off.

NOTICE: To prevent damage to the battery, only stop the engine by turning ignition and light switch to off position.

Parking

1. Lean the motorcycle on its kick stand.
2. Shift into “1” (low) gear.
3. Engage the clutch so the motorcycle cannot roll.
4. Shut off the gasoline supply by turning the valve (to right) finger-tight against its seat.

Specs

Vehicle Specifications

Type of engine	2-cylinder, V-type L-head, air-cooled
----------------	---------------------------------------

Cylinder bore	2¾ in.
---------------	--------

Stroke	313/16 in.
--------	------------

Engine number (serial) left side engine base, below front cylinder.	
---	--

Wheelbase	4 ft 11½ in.
-----------	--------------

Length over-all	7 ft 4 in.
-----------------	------------

Width over-all (handle bars)	3 ft 5 in.
------------------------------	------------

Wheel size	18 in.
------------	--------

Tire size	4.00 × 18 in.
-----------	---------------

Tire type	Drop center
-----------	-------------

Weight of vehicle (without rider or armament)	540 lb.
---	---------

Ground clearance (skid plate)	4 in.
-------------------------------	-------

Kind and grade of fuel	Gasoline: 72 octane or higher
------------------------	-------------------------------

High gear ratio	4.59:1
-----------------	--------

Engine sprocket	31-tooth
-----------------	----------

Countershaft sprocket	17-tooth
-----------------------	----------

Rear wheel sprocket	41-tooth
---------------------	----------

Performance.

Maximum allowable speed	65 mph
-------------------------	--------

Miles per gallon (hard surface)	35
---------------------------------	----

Cruising range (without refill)	100 miles
---------------------------------	-----------

Fording depth (carburetor)	18 in.
----------------------------	--------

Capacities.

Fuel capacity (left tank)	33/8 U.S. gal
---------------------------	---------------

Oil tank capacity (right tank)	11/8 U.S. gal
--------------------------------	---------------

Transmission capacity	¾ pt
-----------------------	------

Controls

Know your bike's control set-up before attempting to ride it.

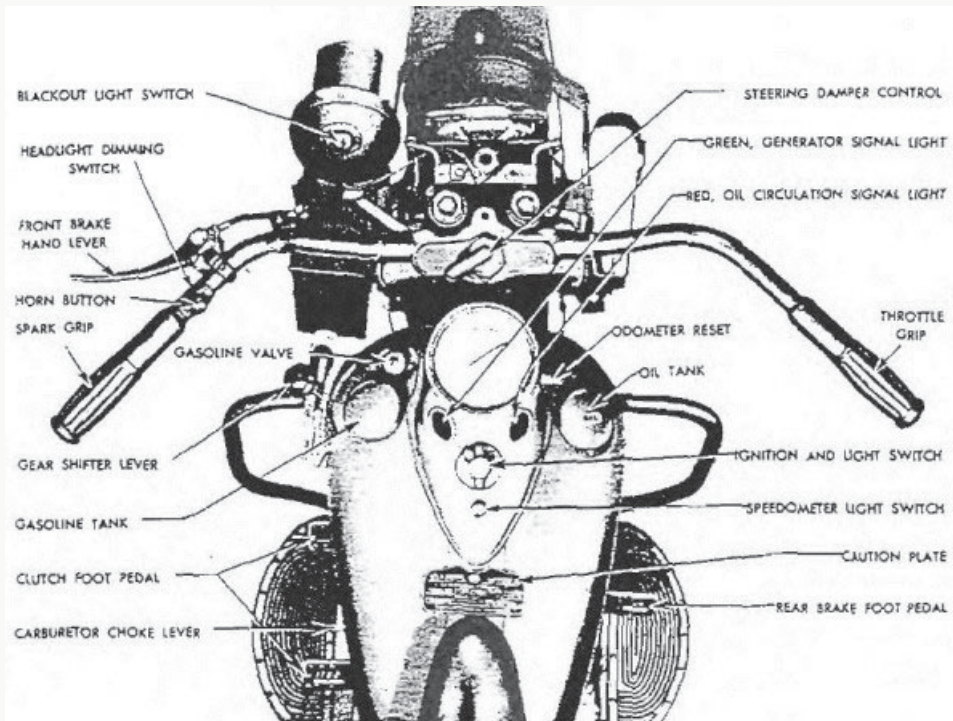


Figure 4—Controls

1. **Gasoline Valve.** The fuel valve is on the front left side of the fuel tank.

- To close the valve: Turn it right (clockwise) until it's finger-tight.
- To open the valve: Turn it left (counterclockwise). This is the normal operating position, with the valve head pointing down.
- To access the reserve fuel supply (about 3 quarts): Lift the valve head up.

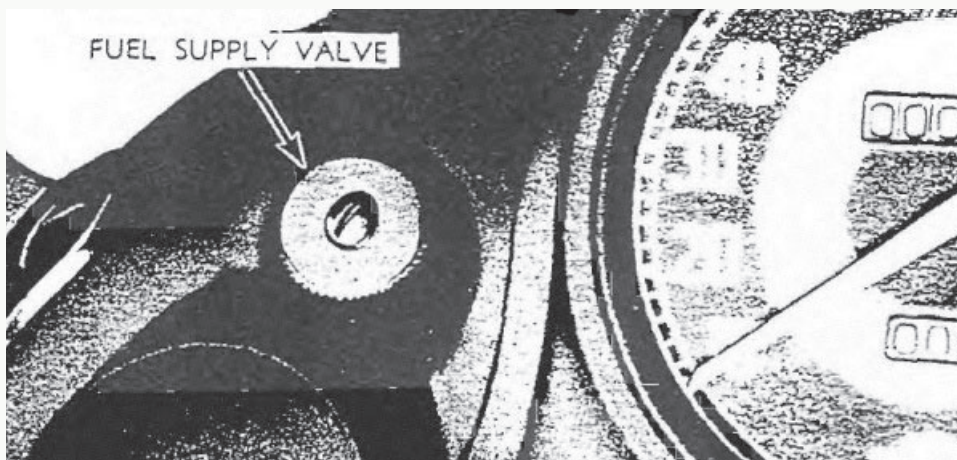


Figure 5—Fuel Supply Valve

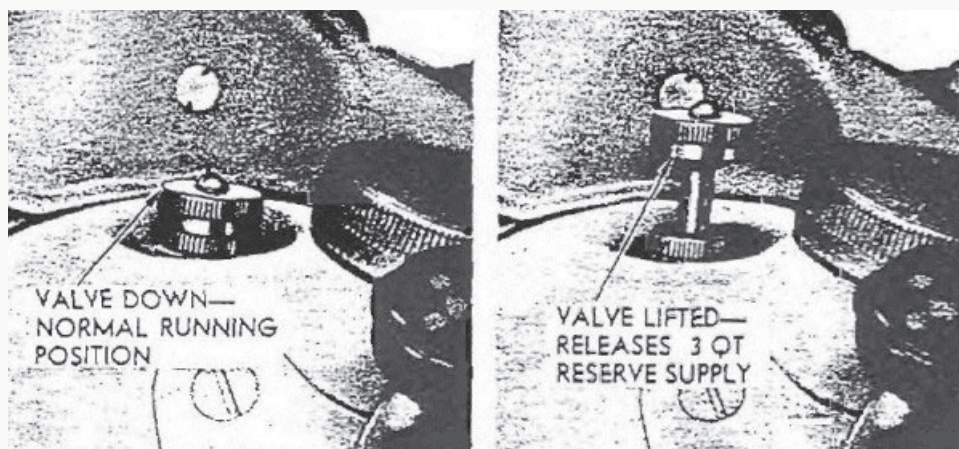


Figure 6—Fuel Supply Valve Positions

2. **Throttle.** The throttle is located on the right handlebar grip.
 - To open (increase speed): Twist grip toward you.
 - To close (decrease speed): Twist grip away from you.
3. **Spark.** The spark is located on the left handlebar grip.
 - To advance spark: Twist grip toward you.
 - To retard spark: Twist grip away from you.
4. **Clutch.** The clutch is located on the left foot rocker pedal, above the footboard.
 - To engage clutch: Press forward/down with toe.
 - To disengage clutch: Press rear/down with heel.

TIP: Pedal has a friction device to hold either position.

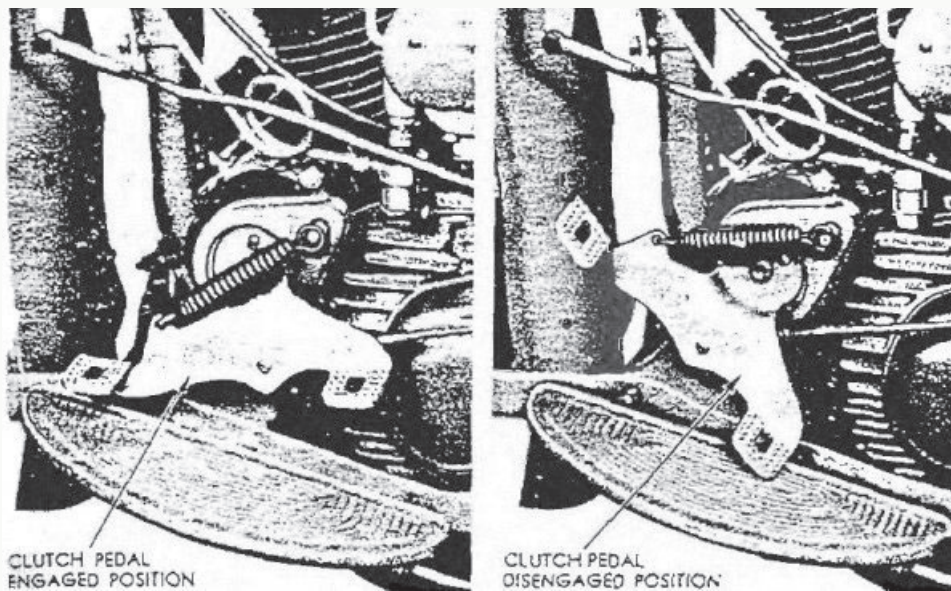


Figure 7—Clutch Pedal Positions

5. **Service Brake (Rear Wheel).** The service brake pedal is located on the front-right side of motorcycle at the end of the footboard.
6. **Auxiliary Brake (Front Wheel).** The auxiliary brake is operated by the lever on the left handlebar.
 - Works with the rear brake, as an emergency brake, or to hold the bike on a hill while starting.

CAUTION: Apply lightly and carefully on wet or slippery surfaces.

7. **Gear Shifter.** Shifter lever is located on the front-left side of the fuel tank.
 - It moves within a notched guide to select gears:
 - 1 - Low gear
 - N - Neutral
 - 2 - Second gear
 - 3 - High gear

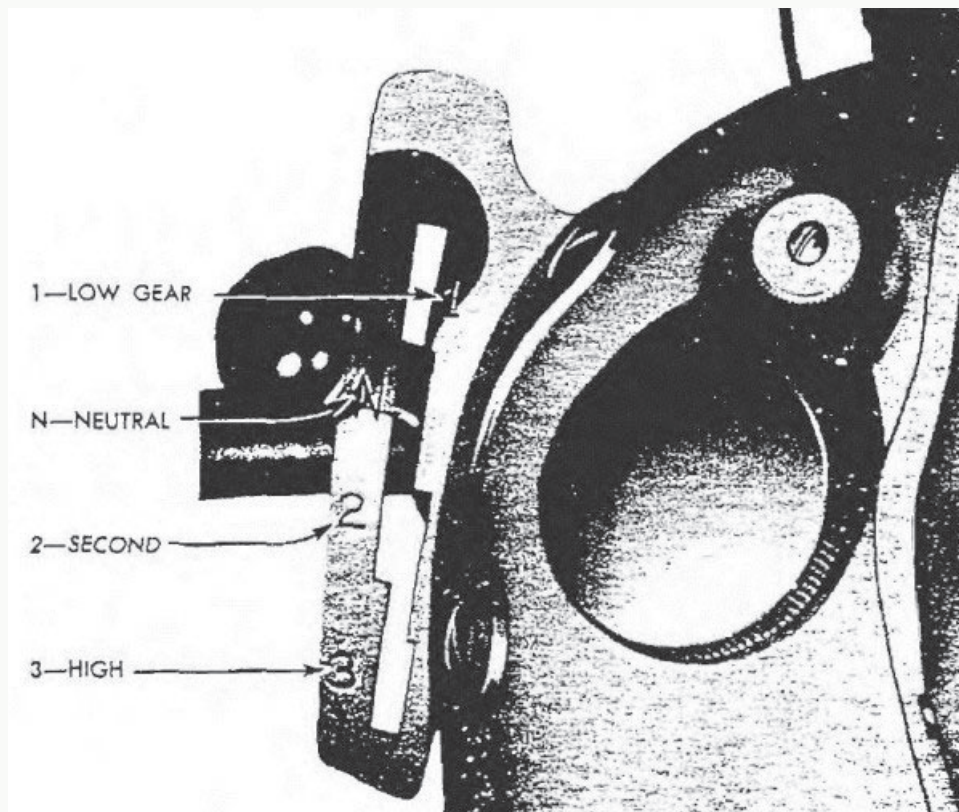


Figure 8—Gear Shifter Lever Positions

8. **Steering Damper.** Located at the top of the steering column, at the center of the handlebars.
 - Reduces fork movement, steadies front wheel, prevents wobble at high speeds or on rough terrain.
 - Adjustment: Turn handle right to increase friction.
9. **Foot Starter Crank.** The pedal is located on the right side of the motorcycle.
 - Before using, ensure gear is in neutral and clutch is engaged (forward/heel position).
 - To start the engine: straddle the bike, place right foot on crank, and push down forcefully.
 - Crank rests upward when not in use.
10. **Ignition and Light Switch.** Located on top of the fuel tank, at the base of the steering column.
 - Switch positions:
 - **Straight forward:** OFF
 - **First right:** Engine ignition only
 - **Second right:** Ignition + blackout lights
 - **Third right (press button):** Vehicle service lights
11. **Indicator Lights.**

- **Green Light (left side):** Generator charging; off when generator is charging normally.
- **Red Light (right side):** Engine oil pressure; off when oil is circulating normally.

12. **Carburetor Choke.** Located on the right side of the engine, near the foot pedal.

- **Full prime (cold start):** Lever all the way up.
- **Normal running:** Lever all the way down.

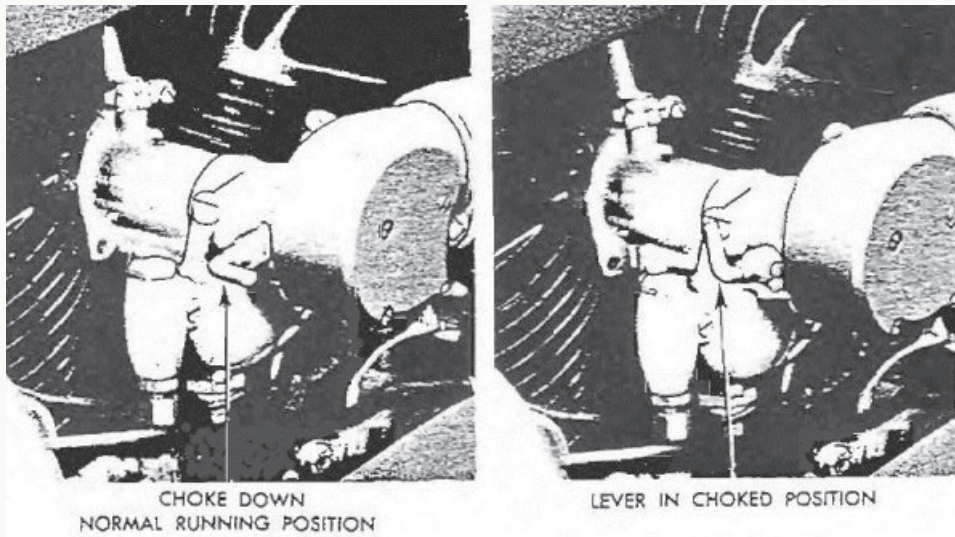


Figure 9—Carburetor Choke Lever Positions

Accessories

The following accessories are directly attached to the motorcycle.

Item	# Carried	Location
Saddlebags	2	On luggage carrier
Mirror, rear view	1	On left handle bar
Box, submachine gun ammunition	1	Front fender, left side
Bracket, submachine gun carrier	1	Front fender, right side
Guard, front safety	1	Attached to frame
Guard, rear safety	1	Attached to frame
Windshield, cpt	1	On handle bar
Leg shields, cpt (right and left)	2	Attached to frame

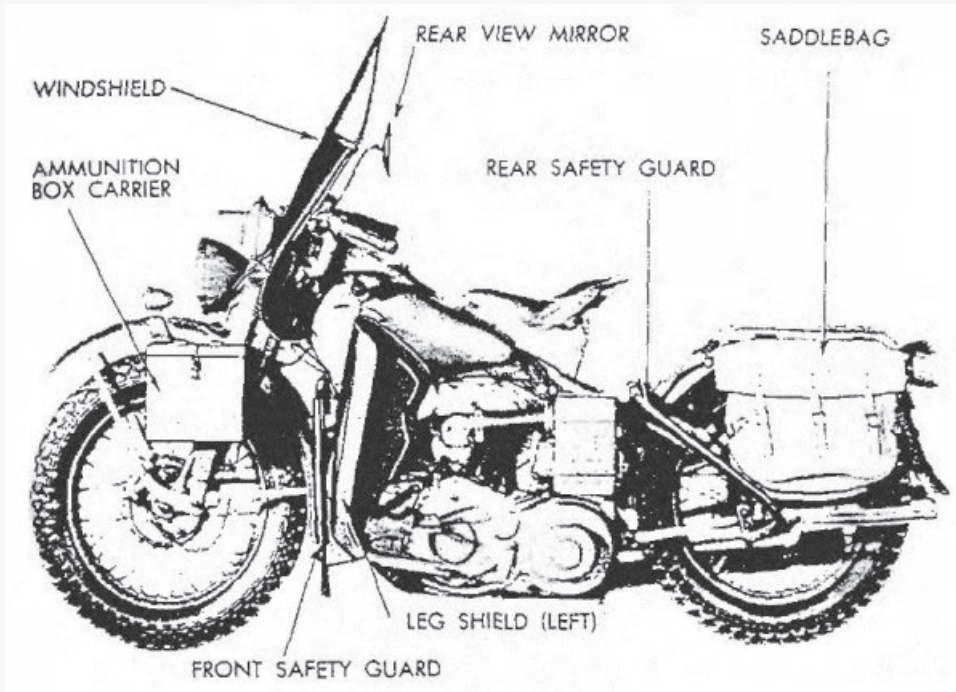


Figure 12—Vehicle Equipment, Left Side

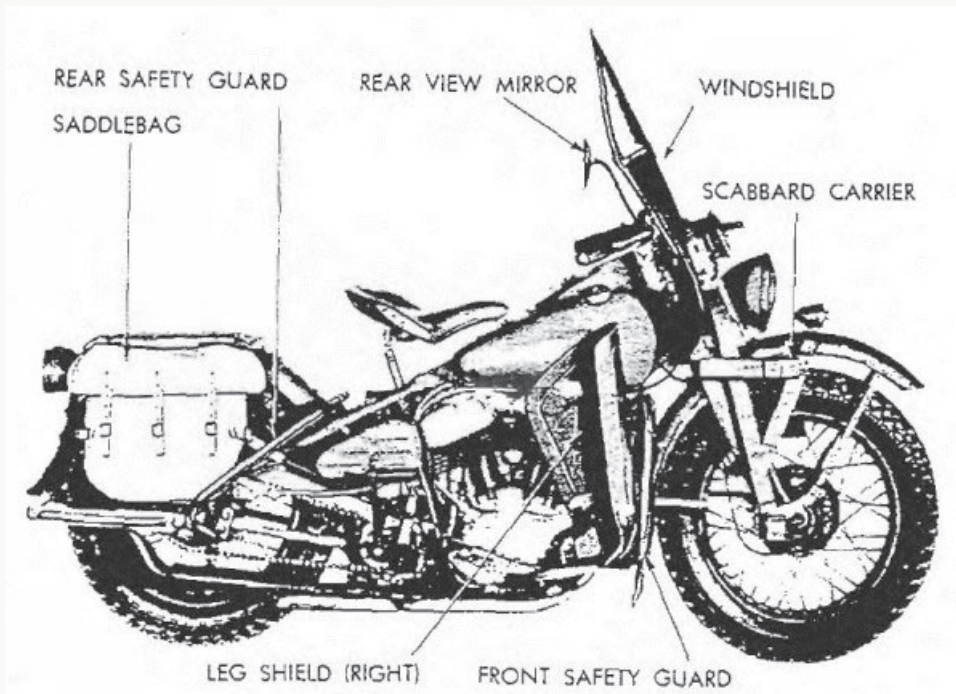


Figure 13—Vehicle Equipment, Right Side

Tools

The tool kit contains the following:

Letter	Tool Name	# of Tools	Location
A	Tool roll	1	In saddle bag
B	Irons, tire	2	In tool roll
C	Handle, chain tool	1	In tool roll
D	Wrench, 5/8-in. by 3/4-in.	1	In tool roll
E	Wrench, 1/2-in. by 9/16-in.	1	In tool roll
F	Wrench, 7/16-in. by 1/2-in.	1	In tool roll
G	Wrench, 5/16-in. by 3/8-in.	1	In tool roll
H	Wrench, 3/8-in. by 7/16-in. (valve tappet)	1	In tool roll
I	Wrench, adjustable	1	In tool roll
J	Wrench, 3/4-in. by 1 3/4-in. (rear axle nut and trans.)	1	In tool roll
K	Gage, tire	1	In tool roll
L	Tool, chain repair	1	In tool roll
M	Washers, 0.002-in. thick (chain oiler adj.)	4	In tool roll
N	Wrench, 7/16-in. by 1 3/8-in. (valve cover)	1	In tool roll
O	Wrench, 7/16-in. by 1 1/8-in. (use with spark plug socket)	1	In tool roll
P	Pliers, adjustable	1	In tool roll
Q	Screwdriver	1	In tool roll
R	Wrench, 9/16-in. socket (cyl. head bolt)	1	In tool roll
S	Wrench, wheel mounting	1	In tool roll
T	Wrench, socket (spark plug; use with O)	1	In tool roll
	Pump, tire	1	On frame, left side
	Grease gun (in case)	1	In saddle bag