

UNOFFICIAL
FLAT RATE MANUAL
FOR
HARLEY DAVIDSON MOTORCYCLES

Covering All XL and FL Models

by JOHN BOLENDER
THE SERVICE DEPARTMENT COMPANY

NOT A HARLEY DAVIDSON PUBLICATION

Unofficial Flat Rate Manual for Harley Davidson Motorcycles

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Introductory Comments

The time required for each job is shown in hours and tenths of hours. A tenth equals six minutes, or any part thereof. If a job takes one to six minutes, it is billed as one tenth. If a job takes seven to twelve minutes, it is billed as two tenths.

This book and these times are applicable to stock and mild custom motorcycles. Extra accessories, custom changes, non-standard fasteners, or caked-on grime and rust are likely to change some times listed. Feel free to add times for items we have not covered, and to change times we have which are at variance with your experience.

Every job listed has been done by the author. The use of the correct special tools should allow you to match these times. In addition, we assume you are working in a clean and properly lighted workshop.

We would be interested in your experiences as to the times listed. We welcome your comments and suggestions.

M. Arman Publishing produces technical manuals dealing with Harley Davidson (and some other) motorcycles. They are listed on the last two pages of this manual. Please inquire for current pricing and dealer discounts.

Due to copyright restrictions, flat rate manuals for later model Harley Davidson motorcycles are available only from the factory and through authorized dealers. We are unable to supply these items.

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XL CHASSIS

DRIVE

Adjust front chain	Early	.3
	Late	.1
Adjust rear chain		.3
Replace rear chain		.5
Replace front chain		1.2
Remove chain link (shorten rear chain)		.5
Replace rear chain sprockets:		
Countershaft sprocket and oil seal		.8
Rear wheel sprocket	Early	1.0
Rear wheel sprocket	Late	.3
Redrill removed brake shell, install new sprockets		.7
Replace motor sprocket		1.2
Replace motor sprocket seal (sprocket off)		.1

WHEELS

Replace tire and tube	Front	.5
	Rear	.8
Rebuild removed wheel (new rim and spokes)		2.0
Tighten spokes and true wheel		.4
Balance wheel		.4
Service one wheel hub (wheel off)		.3
Replace wheel (includes changing tire)		1.0
Remove and install wheel	Front	.3
	Rear	.5

HANDLEBARS

Replace one piece handlebar		.8
Replace two piece handlebar	Left	1.0
	Right	.8
Replace throttle or spark control wire	Internal	.5
	External	.3
Replace hand lever (brake or clutch)		.2
Replace hand lever (brake or clutch) bracket		.3
Replace handlebar grip		.2
Replace both rubber handlebar mounts		.5

FRAME

Replace head cups, cones and bearings	2.0
Replace frame - includes:	
R & R all motorcycle components & all accessories	10.0
Remove and replace footrests	.2

REAR FORK

Replace or repack rear fork bearings	2.0
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REAR SHOCK ABSORBER

Replace rear shock mount rubber	one side	.3
	both sides	.5
Replace shock absorber assembly	one side	.2
	both sides	.3
Replace shock absorber hydraulic unit (transfer original spring and cover)		.8

FRONT FORK

Adjust head cup bearings	.4
Change fork oil	.5
Replace front fork assembly complete	2.2
Replace lower fork bracket and stem	1.0
Replace upper fork bracket	.5
Replace one fork slide and/or seal	.6
Service one fork slide - includes:	
disassemble, clean, inspect, replace parts as needed, reassemble	1.0
Replace fork tube	1.0
Replace one complete fork leg	1.0

BRAKES

Adjust front brake cable	Early	.1
Replace front brake control wire	Early	.3
Replace lined front brake shoes		
(includes removing and installing wheel)	Early	.6
Replace lined rear brake shoes		
(includes removing and installing wheel)		.7

Rivet new linings to removed brake shoes		.5
Replace each brake drum		.7
Adjust brake shoes		.2
Replace hydraulic brake line	Front	.6
	Rear	.4
Replace disc brake pads	Front, per caliper	.2
	Rear	.3
Replace brake disc	Front	.3
	Rear	.4
Bleed brake (includes adding brake fluid)		.2
Overhaul either brake caliper		.4
Replace master cylinder assembly	Front	.4
	Rear	.3
Rebuild removed master cylinder	Front	.5
	Rear	.4
Replace rear brake cable	1977-78	.5

SEAT - FENDERS - TANK

Replace fender	Front	.3
	Rear	.8
Replace rear fender support	One	.4
	Both	.7
Replace fuel tank		.2
Replace fuel tank valve or replace hose		.2
Replace oil tank		.7
Replace oil tank lines	Feed line	.5
	Return line	.8
	Vent line	.9
Replace seat		.2

CHAIN GUARD - EXHAUST SYSTEM

Replace rear chain guard		.2
Replace complete exhaust system - single or dual		.5
Replace muffler	One	.2
	Both	.3

INSTRUMENTS

Replace speedometer head	.3
Replace speedometer cable or core	.2
Replace speedometer drive	.3
Replace tachometer head	.2
Replace tachometer cable or core	.2
Replace tachometer drive	.2

ACCESSORIES (original equipment only)

Set of Saddlebags and carrier	.6
Windshield complete	.4
Replace windshield window	Upper .4
	Lower .5
Front safety guard	.2
Rear safety guard	.5
Sissy bar	.4
Sissy bar pad or pouch	.2
Oil filter or element	.1
Jiffy stand leg	.1
Replace mirror, complete with fittings	.1
Battery cover	.1
Exhaust pipe covers	.1
Custom air cleaner	.2

XL ENGINE

GENERAL (Service)

Engine Tune-up - includes:

Service air cleaner, clean fuel screens, adjust carburetor, clean and regap or replace spark plugs, service ignition points and timing, adjust tappets, adjust chains, change oil and filter, adjust controls, check transmission oil level, road test 2.5

Remove and Replace engine assembly 5.0

Complete engine overhaul after removal - includes:

Complete upper end overhaul (see cylinder/piston section): Disassemble & reassemble engine incl. crankcase & flywheel assembly, recondition flywheel assembly, service gear case, including flywheel shaft, bearings, camshaft bearings, gear case, cover bushings, tappets, oil pump, carburetor, generator, service transmission, incl. bearings, seals, clutch, shifter mechanism & forks as necessary. 21.0

CYLINDER HEAD

Recondition cylinder head - includes:

Remove and install cylinder heads, remove carbon, replace valve guides, grind valves and seats, test springs, adjust tappets, road test

	Front head	3.1
	Rear head	3.3
	Both heads	5.6
Replace cylinder head assembly	Front	1.5
	Rear	1.6
	Both	2.5
Replace head gasket only	Front	1.1
	Rear	1.3
	Both	1.8
Replace valves (either cyl.)	One Valve	1.6
	Both Valves	1.8
Replace valve guides (either cyl.)	One guide	1.8
	Both Guides	2.2
Replace valve springs (either cyl.)	One valve	1.5
	Two valves	1.6
Recondition rocker cover assembly	Front	.9
	Rear	1.8
	Both	2.6
Replace rocker arm cover gasket	Front	.5
	Rear	1.4
Replace rocker arm shaft		.3
Replace each rocker arm shaft O-ring		.2

CYLINDER

Replace cylinder base gasket	Front	2.0
	Rear	2.2
	Both	2.7
Replace piston rings, hone cylinder	Front	2.3
	Rear	2.5
	Both	3.3

Replace cylinder & piston assembly	Front	2.4
	Rear	2.6
	Both	3.6
Replace one rod bushing (top end apart)		.5
Replace piston and piston rings - includes:		
Removal and installation of cylinder, head, piston, rings, resize cylinder		
	Front	3.5
	Rear	3.7
	Both	5.7
Complete top end overhaul - includes:		
Removal and installation of cylinders, heads, pistons, remove carbon, grind valves and seats, test valve springs, replace piston rings, recondition cylinders, recondition rocker arms and covers, service tappets, clean carburetor bowl and strainers, drain oil and refill with fresh oil and filter, service air cleaner, clean and regap or replace spark plugs, check ignition timing, check circuit breaker points, road test		
		7.5

VALVE LIFTER MECHANISM

Check and adjust four tappets		.4
Replace tappet guide, tappet or tappet guide O-ring		.8
Recondition one removed tappet roller assembly		.4
Replace push rod, push rod cover or cork gasket		
	Intake	.3
	Exhaust	.2

GEAR CASE

Replace gear case cover or gasket		1.3
Replace ignition timer oil seal (Late) and reset timing		.6
Install all new cam gears and re-shim		2.2
Replace oil pump	1976 & earlier	6.0
	1977 & later	1.0
Replace crankcase breather valve	1977 & later	1.0
Replace oil pump check valve	Late	.9

CRANKCASE

Replace crankcases	13.5
Replace flywheel assembly	10.0
Replace connecting rods	11.0
True removed flywheels	.5

FUEL SYSTEM

Check and adjust carburetor	.3
Inspect and service air breather	.2
Install new carburetor and adjust	.6
Replace manifold rubber O-rings	.8
Replace float and valve	.4
Replace accelerator pump	.4
Overhaul carburetor	1.2

XL TRANSMISSION

CLUTCH

Adjust clutch externally		.2
Replace clutch cable		.7
Remove and replace clutch hand lever		.1
Replace clutch release worm	Early	.5
Adjust clutch springs	Early	.5
Replace front chain cover or gasket		.5
Service and adjust clutch - includes: Disassemble and assemble, clean, inspect and install new parts, new lock washer, oil seal and O-rings (early models), adjust clutch and road test		1.6

KICK STARTER

Replace starter crank spring	.2
Replace starter crankshaft	2.0
Replace starter arm and/or pedal	.2
Replace kick start ratchet plate (clutch hub off)	.8
Replace starter ratchet gears	1.2

GEAR BOX

Overhaul transmission - includes:

Remove and reinstall, disassembly and assembly of gears, inspect and replace parts as needed		3.5
Replace transmission accessories		1.7
Replace shift lever cross shaft	1976 & earlier	.6
Replace shift shaft only		1.4

XL ELECTRICAL

GENERAL (Diagnosis)

Check and diagnose electrical system		.3
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WIRING

Replace main wiring harness		2.0
Replace one handlebar wiring harness		.7
Replace rear fender wiring harness		.8
Replace battery cable		.2
Replace magneto cutout wire	Early	.2
Replace any one single wire		.2
Rewire complete motorcycle		4.5

SWITCHES

Replace pushbutton switch (turn signal, horn or starter)		.3
Replace ignition switch		.3
Replace rocker switch (hi-low, kill switch)		.3
Replace stoplight switch	Front	.3
	Rear	.4
Replace circuit breakers or fuse link wire		.3
Replace starter relay		.6
Replace oil pressure switch		.2

LAMPS

Replace headlamp sealed beam		.2
Replace instrument panel bulbs		.2
Replace tail lamp bulb or lens		.1
Replace turn signal assembly	Front	.3
	Rear	.5

GENERATOR

Replace generator	.2
Replace generator brushes	.3
Overhaul generator - includes:	
Removal and disassembly, clean, inspect and repair, assemble and install, check generator output	1.3

IGNITION COIL

Replace ignition coil	.2
Replace ignition wires	.1

REGULATOR

Replace voltage regulator, check output	.2
Test and check regulator output	.2

IGNITION SYSTEM

Check and adjust electronic timing	.2
Clean and adjust breaker points	.3
Replace condenser	.1
Replace breaker points, check and reset timing	.4
Replace electronic ignition module, check/reset timing	.6
Replace automatic advance mechanism	.6

MAGNETO

Adjust magneto points, check/reset timing	.4
Overhaul removed magneto	1.5
Remove and install tachometer drive	.2
Replace magneto	.6
Replace magneto points	.5
Replace condenser	.3
Replace magneto cover or cover gasket	.3
Replace magneto housing O-ring	.4

SPARK PLUGS

Replace and adjust gap on spark plugs	.2
---------------------------------------	----

BATTERY

Check electrolyte level	.3
Remove and install battery	.3

HORN

Remove and install horn	.3
Adjust horn	.2

STARTER MOTOR

Replace starter motor	.6
Replace starter motor brushes	.7
Replace armature	.9
Replace field coils	1.0
Replace starter drive	1.8
Replace starter motor and/or gasket	1.0
Replace starter solenoid	.6
Overhaul starter - includes:	
Remove and install, clean and inspect, replace parts as needed, check operation	1.4

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FL CHASSIS

DRIVE

Adjust front chain		.2
Adjust rear chain		.3
Replace front chain		.9
Replace rear chain		.4
Remove chain link (shorten rear chain)		.5
Replace chain sprockets	Transmission	1.5
	Rear Wheel	.6
	Both	2.1
Redrill removed brake shell and install sprocket		.7
Replace motor sprocket		1.0
Replace motor sprocket seal		1.2

WHEELS

Replace tire and tube (wheel off)	Front	.5
	Rear	.8
Rebuild removed wheel with new rim and spokes		2.0
Tighten spokes and true wheel		.4
Balance wheel		.4
Service one wheel hub (wheel off)		.3
Replace wheel - includes changing tire		1.0
Replace wheel complete	Front	.5
	Rear	.8
Transpose wheels		1.0

HANDLEBARS

Replace one piece handlebar		.8
Replace two piece handlebar	Right	1.0
	Left	1.0
Replace throttle or spark control wire		
	Early, inside handlebar	.8
	Late, outside handlebar	.4
Replace hand lever (brake or clutch)		.2
Replace handlebar grip		.2
Replace both handlebar rubber mounts		1.2

FRAME

Replace head cups, cones and bearings

Replace frame - includes:

Removal and installation of all components and all accessories

	FL	15.0
	FX	12.0
Remove and replace footrests		.2
Remove and replace footboards		.3

REAR FORK

Replace or repack rear fork bearings		1.5
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REAR SHOCK ABSORBER

Replace rear shock mount rubbers	Each side	.3
Replace shock absorber assembly	Each side	.3
Replace shock absorber hydraulic unit (transfer original spring and cover)		.8

FRONT FORK

Adjust head cup bearings		.5
Change fork oil		.8
Replace front fork assembly complete	FL	3.3
	FX	2.2
Replace lower fork stem bracket	FL	3.0
	FX	1.5
Replace upper fork bracket	FL	1.0
	FX	.6
Replace one fork slide and/or seal		.7
Service one fork slide - includes: Disassembly, assembly, clean, inspect, replace req'd. parts		1.3
Replace fork tube	FL	1.4
	FX	.6
Replace complete fork leg	FL	1.7
	FX	1.3

BRAKES

Adjust front brake cable	Early	.2
Replace front brake cable	Early	.7
Replace lined brake shoes	Early	
includes remove and replace wheel	Front	.7
	Rear	.8
Rivet new linings to removed brake shoes		.5
Replace either brake drum		.5
Adjust brake shoes		.2
Replace hydraulic brake line	Front	.4
	Rear	.4
Replace disc brake pads, per caliper	Front	.2
	Rear	.2
Replace brake disc	Front	.3
	Rear	.4
Bleed one brake - incl. add brake fluid		.2
Overhaul brake caliper - front or rear		.4
Replace master cylinder		.4
Replace drum brake wheel cylinder		1.0
Rebuild removed master cylinder		.4
Rebuild removed master cylinder		.4

SEAT - FENDERS - TANK

Replace seat		.2
Replace seat post		.5
Replace seat box or bushings		.7
Replace front fender	FL	.5
	FX	.4
Replace rear fender	FL	1.0
	FX	.7
Replace rear fender support	One	.4
	Both	.6
Replace fuel tank	FX	.2
	FL, R or L	.4
Replace fuel tank valve or hose		.2

Replace oil tank		.7
Replace oil tank lines (any one)		.5

CHAIN GUARD - EXHAUST

Replace rear chain guard		.3
Replace primary cover or gasket		.3
Replace inner primary cover or mainshaft bearing		1.5
Replace complete exhaust system		.5
Replace muffler	One	.2
	Both	.3
Replace exhaust pipe gaskets		.4

INSTRUMENTS

Replace speedometer		.4
Replace speedometer drive cable		.6
Replace speedometer drive unit	FL	.5
	FX	.2
Replace tachometer	FX	.3

ACCESSORIES (original equipment only)

Install and remove saddlebags & carrier		1.0
Install and remove windshield		.4
Chrome exhaust covers		.6
Front fender tip		.4
Rear fender tip		.4
Front bumper		.7
Rear bumper		.6
Front crash guard		.5
Rear crash guard	Both sides	.6
Luggage carrier		.5
Sissy bar		.4
Sissy bar pad or pouch		.2
Oil filter element		.1
Jiffy stand		.3
Center stand		.8

FL ENGINE

GENERAL (service)

Engine tune up - includes:

Service air cleaner, clean fuel screens, adjust carburetor, clean & regap or replace spark plugs, service ignition points & timing, adjust or check tappets, adjust chains, change oil & filter, adjust controls, check transmission oil level, road test 2.5

Remove and replace engine assembly 3.8

Complete engine overhaul after removal - includes:

Complete upper end overhaul (see cylinder and piston section), disassemble engine including crankcase and flywheel assembly, recondition flywheel assembly, service gear case, including flywheel shaft bearings, camshaft bearings, gear case cover bushings, tappets, oil pump, carburetor and generator or alternator 20.0

CYLINDER HEAD

Recondition cylinder head - includes:

Remove and install head, remove carbon, replace valve guides, grind valve and seats, test springs, adjust tappets, road test

	Front	3.5
	Rear	3.9
	Both	5.4
Replace cylinder head assembly	Front	2.8
	Rear	3.9
	Both	4.5
Replace cylinder head gasket only	Front	2.2
	Rear	2.4
	Both	3.0
Replace a valve, either cylinder		3.0
	Two valves	3.4
Replace a guide, either cylinder		3.2
	Two guides	3.3
Replace a valve spring, either cylinder		3.3
Recondition rocker cover	One cylinder	2.9
	Both cylinders	4.0
Replace rocker cover gasket	One cylinder	2.4
	Both cylinders	3.0

Replace rocker arm shaft	Intake	.8
	Exhaust	.4
Replace rocker arm shaft O-ring	Each	.2

CYLINDERS

Replace one cylinder base gasket		2.8
	Both cylinders	3.2
Replace one cylinder and piston assembly		2.8
	Both cylinders	3.4
Replace one rod bushing (engine apart)		.5
Replace piston and piston rings - includes: Removal and installation of cylinder and head, removal and fitting of new piston and rings, resizing cylinder	One cylinder	4.0
	Both cylinders	5.0

Complete upper end overhaul - includes:

Removal and installation of heads, cylinders, pistons, remove carbon, grind valves and seats, test valve springs, replace piston rings, recondition cylinders, recondition rocker arms and covers, service tappets and hydraulic lifters, clean carburetor bowl and strainer, drain oil and refill with fresh oil and filters, service air cleaner, clean and regap or replace spark plugs, check ignition timing, check circuit breaker points, road test

10.0

VALVE LIFTER MECHANISM

Check and adjust four tappets	1.2
Replace tappet guide and tappet	.6
Recondition a removed tappet roller assy.	.4
Replace push rod, push rod cover or corks	.3

GEAR CASE

Replace gear case cover or gasket	.8
Replace cam, includes spacing	1.3
Replace pinion gear or oil pump drive gear	1.5
Replace crankcase breather valve	.8
Replace cam oil seal	.8
Replace oil pump cover or gasket	.6
Replace oil pump body gasket	2.0
Replace oil pump assembly	2.5

CRANKCASE

Replace crankcases	8.0
Replace flywheel assembly	7.8
Replace connecting rods	8.6
True flywheels after removal	.5

FUEL SYSTEM

Check and adjust carburetor	.3
Service air cleaner	.2
Install new carburetor and adjust	.8
Replace manifold rubber O-rings	.6
Replace or adjust float	.4
Replace accelerator pump	.3
Overhaul carb	1.0

FL TRANSMISSION

CLUTCH

Service and adjust clutch - includes:	
Removal and installation, clean and inspect, install new parts, adjust and test	1.0
Adjust clutch (hand)	
Adjust spring tension	
Adjust cable and controls	.4
Adjust clutch (foot)	
Adjust spring tension	
Adjust controls and rod	
Adjust clutch booster	.5
Replace clutch cable and coil assembly	.4
Replace clutch push rod	.8
Replace clutch release bearing	.8
Service clutch booster (foot shift)	.7

KICK STARTER

Replace starter crank spring	.2
Replace starter crankshaft	1.0
Replace starter mainshaft gear	1.0

Service starter pedal	.3
Service starter cover - includes:	
Replace bushings and seals	1.6

GEAR BOX

Adjust foot shift linkage	.3
Adjust hand shift linkage	.3
Service foot shifter mechanism transmission top	4.0
Replace main gear or mainshaft oil seal	2.3
Replace mainshaft ball bearing	2.0
Remove and install shifter forks only	3.7
Replace transmission	3.5
Overhaul transmission complete - includes:	
Remove and disassemble, clean and inspect, replace parts as needed, assemble, install and adjust, road test	6.0
Overhaul removed transmission	3.5

FL ELECTRICAL

GENERAL (diagnosis)

Check and diagnose electrical system	.4
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WIRING

Replace main wiring harness	4.5
Rewire complete motorcycle	5.0
Replace one handlebar wiring harness	.8
Replace rear fender wiring harness	1.0
Replace battery cable	.2
Replace any single wire	.2

SWITCHES

Replace push button switch (turn signal, horn)	.3
Replace ignition switch	.3
Replace rocker switch (Hi-Lo-Run-Off)	.3
Replace stoplight switch	.4
Replace circuit breaker or fuse link wire	.3
Replace starter relay	.4

Replace neutral switch	.4
Replace oil pressure switch	.3

LAMPS

Replace headlamp sealed beam	.2
Replace instrument panel bulbs	.1
Replace tail light bulb or lens	.1
Replace turn signal assembly	Front .3
	Rear .5

GENERATOR

Replace generator	.2
Replace generator brushes	.3
Overhaul generator - includes:	
Removal and disassembly, clean, inspect and repair, assemble and install, check generator output	1.3

ALTERNATOR

Replace alternator rotor	1.5
Replace alternator stator	1.7

IGNITION COIL

Replace ignition coil	.3
Replace ignition wires	.2

REGULATOR

Replace voltage regulator, check output	.2
Test and check regulator output	.2

IGNITION SYSTEM

Check electronic ignition, adjust timing	.2
Clean and adjust breaker points	.3
Replace condenser	.1
Replace breaker points	.4
Replace automatic advance mechanism	.6
Replace electronic ignition module	.6

SPARK PLUGS

Clean and adjust or replace spark plugs .2

BATTERY

Check level of water solution .2

Remove and install replacement .3

HORN

Remove and install horn .4

Adjust horn .3

STARTER MOTOR

Replace starter .4

Replace starter motor brushes .7

Replace starter armature .8

Replace starter field coils .8

Replace starter drive 1.0

Replace housing and/or gasket 1.2

Replace starter solenoid .8

Overhaul starter - includes:

Remove and install, clean and inspect, replace parts as needed, check operation 1.4