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# 1981 Sportster

## Model Production Numbers

- XLH 1000 8,442
- XLS 1000 Roadster 1,660
- Milwaukee Edition 804 <sup>1)</sup>

## Colors <sup>2)</sup>

- XLH: Vivid Black, Metallic Blue, Candy Red, Candy Root Beer. <sup>3)</sup>
  - Large fuel tank (Lg) w/decals: Metallic Blue, Candy Red. <sup>4)</sup>
  - Additionally, a Saddle Brown fuel tank is shown on page 508, 10-82 sheet.
- XLS: 2-Tone Silver, Black w/Red Pinstripe. <sup>5)</sup>
- Milwaukee Edition: Orange/Black. <sup>6)</sup>

# Vehicle Identification

## Frame VIN Numbers

The only numbers used for the purpose of identification are on the right neck and frame downtube.

- The frame is stamped with a Vehicle Identification Number (VIN) identification.
- There are still other stampings on the different parts of the frame combined with certain features that can be used to date the frame.  
But the only numbers used to identify the entire bike for ownership purposes is the VIN number stamped in the right side neck.
- In addition to the neck VIN, an identification label is located on the frame giving the VIN and date of manufacture.  
This label was required by law for identification. <sup>7)</sup>

In 1981, the full VIN was expanded to include country of origin, maker, bike weight, engine displacement, introduction date, a check digit and which factory made it <sup>8)</sup>.

- This new nationwide system is designed to provide improved theft protection and more specific vehicle information to HD and government agencies.
- In addition to the neck VIN, an identification label is located on the frame giving the VIN and date of manufacture.  
This label was required by law for identification. <sup>9)</sup>

[Click Here](#) to view Ironhead Frame Identification in the Sportsterpedia for more information.

[Click Here](#) for more information on serial numbers and VINs in the Sportsterpedia.

17 Digit VIN for 1981 Sportsters									
Origin	Make	Weight Class	Model	Engine Size	Intro Date / Special Models	VIN Check Digit	Model Year	Assembly Plant	Serial Number
1 = Made in USA	HD = Harley Davidson	1 = 1000cc	CA = XLH CB = XLS	H = 1000cc	1 = Regular 2 = Mid Year	Can be 0 - 9 or X	B = 1981	Y = York, PA	6 Digits (varies)
<b>Example:</b> (1HD1CAH16BY112016) designates a 1981 XLH 1000, stamped on the steering head with a sticker VIN on the right front frame downtube. The abbreviated VIN appears on engine right case (CAHB 112016) <sup>10)</sup>									
Example VIN on Frame Reads									
1	HD	1	CA	H	1	6	B	Y	112016
Example Abbreviated VIN on Case Reads									
			CA	H			B		112016

## Engine Serial Numbers

The engine numbers changed and are no longer stamped the same as the frame. This change is part of the new 17 digit VIN system.

The serial number is stamped on the case, right side, between the cylinders but is not used for identification purpose of ownership.

- An abbreviated version of the 17 digit VIN is stamped into the engine case. It's the exact same as the frame numbers but certain designations were left out. (including country of origin, maker, bike weight, intro date, check digit and plant of origin)

## Related Manuals and Documentation

Below are some suggestions for manuals for your ride.

You should have, at minimum, a Factory Service Manual (FSM) and a Factory Parts Catalog for your year model.

### Factory Service Manuals (FSM);

The FSM will have the most accurate information, procedures and specs.

Clymer and Haynes make service manuals also for Sportsters but some of the information is in error to the factory FSMs.

And some of the information in the aftermarket manuals is vague in information or procedures but they may have more pictures.

So it is generally said you can get use from both an aftermarket manual and the factory service manuals but get the factory manual first.

[Click Here](#) to view the Factory Service Manual page in the Sportsterpedia.

## Parts Catalogs;

The Parts Catalog has part numbers of course but it also has exploded parts views.

However, IT IS NOT INTENDED TO BE AN ASSEMBLY MANUAL.

And some of the exploded views are confusing or not related to each other on the same pages.

But, all in all, the exploded views do help finding what goes where.

Most of the fasteners listed in the relevant parts catalog individual pages have thread sizes and lengths also in case you need those.

### **Note: ALL 1980-1985 PARTS CATALOGS LIST PARTS FOR PREVIOUS YEARS.**

Below is a simple list of original and "latest edition parts catalogs. The in-between year books may show different part numbers for the same year model bike.

[Click Here](#) to see the Factory Parts Catalog page in the Sportsterpedia for parts catalog uses and a full list of parts catalog numbers from 1957 to present.

(complete list of other parts catalogs and supplement catalogs that pertain to each year model on the bottom of that page)

Some often acquire several year model parts catalogs and that page will help you decide which ones are right for you.

## Suggested Manuals:

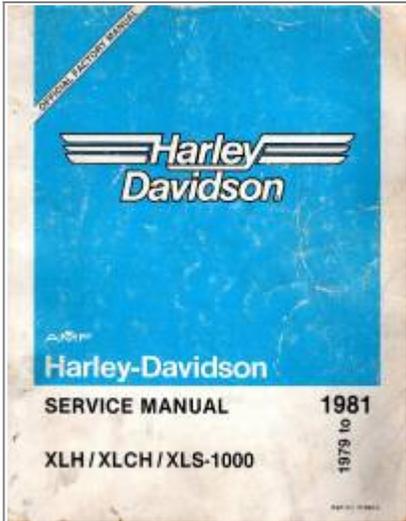
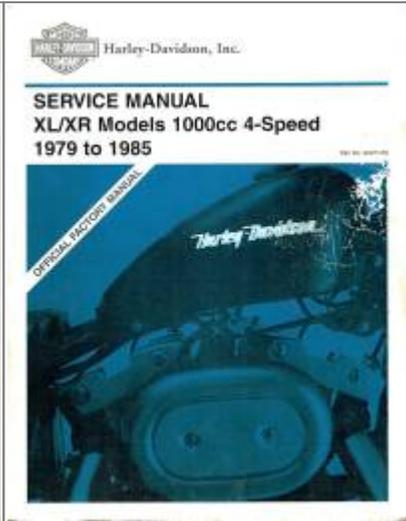
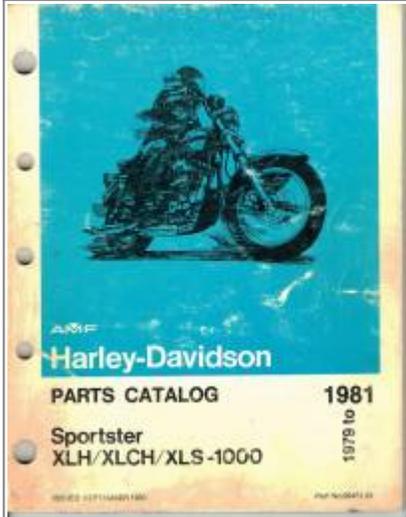
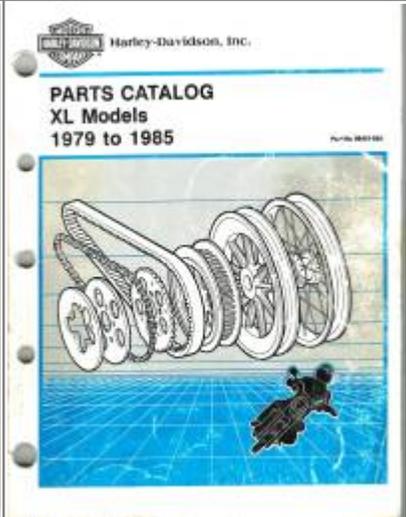
- **Factory Service Manual (FSM):**
  - **Original:** 1979-1981 XLH/XLCH/XLS-1000 Service Manual (99484-81)
  - **Latest Edition:** 1979-1985 XL/XR Models 1000cc 4-Speed Service Manual (99484-85)
- **Factory Parts Catalogs:**
  - **Original:** 1979-1981 Sportster XLH/XLCH/XLS-1000 Parts Catalog (99451-81)
    - Written in 1980 and should have the closest list of original parts for 1981 models.
  - **Latest Edition:** 1979-1985 XL Models Parts Catalog (99451-85A)
    - Written in 1990 and lists parts available in 1990 for 1979-1985 models.
- **Factory Owners Manual:**
  - 1981 XLH-1000/XLS-1000 Owners Manual (99466-81)

## Pics of Manual Covers.

Below are pics of used manual covers (original and latest editions) related to 1981 model Sportsters. See the full list of pertinent catalogs in the link above.

Click on any pic below to enlarge:

1979-1981 FSM (99484-81)	1979-1985 FSM (99484-85) (latest)	1981 Owners Manual (99466-81)
--------------------------	--------------------------------------	-------------------------------

		
<p>1979-1981 Parts Catalog (99451-81)</p>	<p>1979-1985 Parts Catalog (99451-85A)</p>	
		

## The Ironhead Multi-Year Parts Catalog Curse

Below is a summary of an article on the Sportsterpedia Parts Catalogs page regarding parts book errors. You can also read the full article from this link: [The Ironhead Multi-Year Parts Catalog Curse](#).

Due to all of the errors and non corrected editions, it's always a good idea to acquire several year parts catalogs surrounding your year model.

Which year catalogs you'll need will depend on many factors but the main Parts Catalog page in the Sportsterpedia will help you decide which ones you need.

[Click Here](#) to see the Parts Catalog page. A full chart of all the parts catalogs made for Ironheads is at the bottom of the page.

- Not all multi-year catalogs will list factory installed parts on your bike.
- You may need several year catalogs to determine factory installed parts for your year model.
- Some parts first appeared or only appeared in Parts Supplements, Service Bulletins or other literature
- Later catalogs may show parts for older models that were never factory installed on them.
- Some catalogs have missing parts and/or missing models in some parts listings.

- Some illustrations do not have a part number listed.
- Drawings may or may not look like your part number.
- Some exploded parts diagrams show the assembly in the wrong order or missing pieces.
- There may be misleading information about parts that fit your year model.
- Fastener lengths and thread pitch may change depending on catalog used.
- The MoCo knew about and tried to correct at least some of the parts catalog mistakes.

## Search the Sportsterpedia

See the Navigation menu on the upper left of this page.

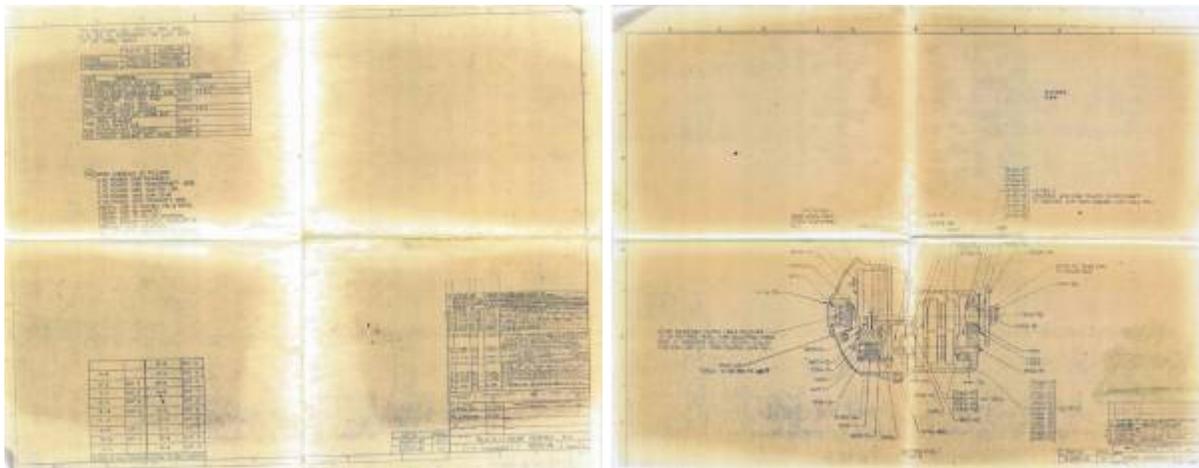
From there you can go to the main Ironhead section menu, the Reference section for general and in-depth procedures, and the Misc Resources for documentation.

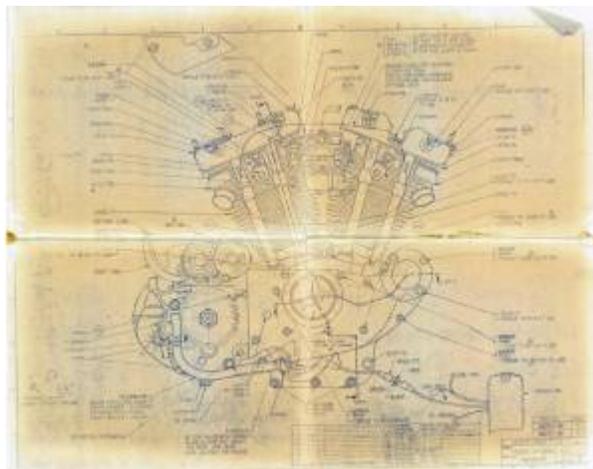
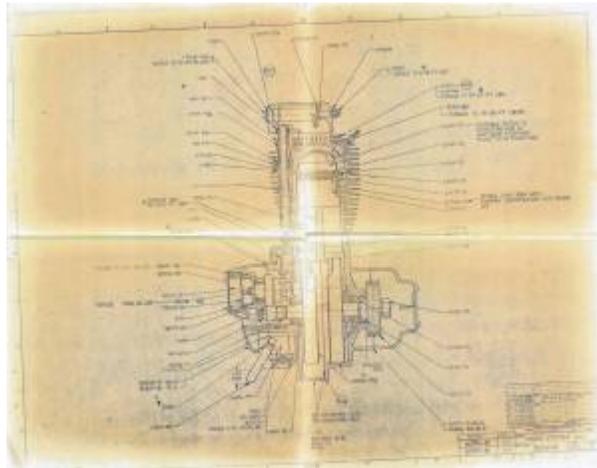
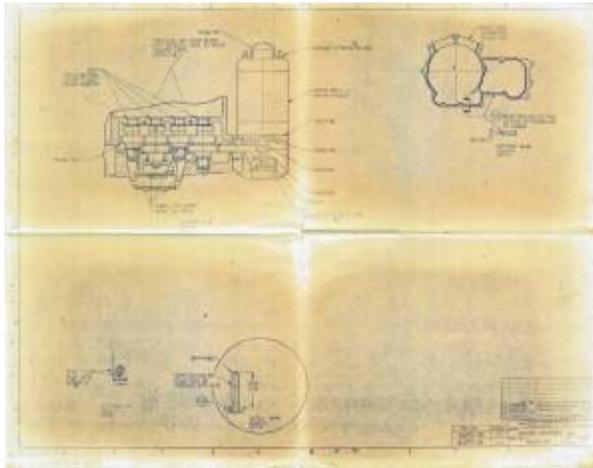
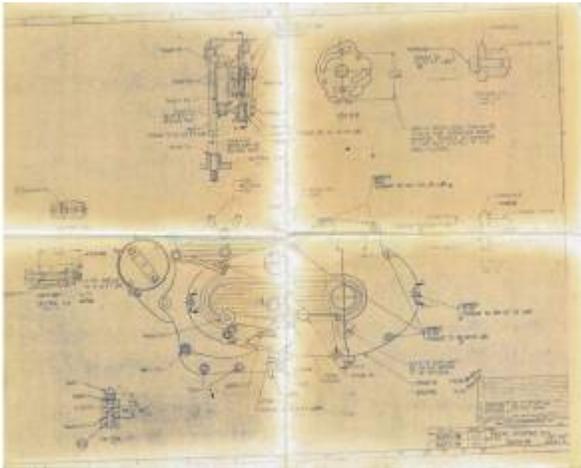
## Illustrations

The following illustrations are displayed for historic and period specific parts identification only. Refer to the original OEM documents for additional information. <sup>11)</sup>

Click on any illustration below to enlarge.

Engine assembly drawing in sections for 1981 XLH (16057-81) and XLS (16055-81) engines. Click on any pic to enlarge: <sup>12)</sup>





## Specifications

[Click Here](#) for the main technical menu in the Sportsterpedia.

Also see the "Misc Resources" section on the bottom of that page for technical docs and information.

## Model Designations

- Model Designations: XLH-1000, XLS-1000

The 57-69 service manuals and other literature from HD cover multiple years.

And the 1957-1959 "XL" is included with the information in these manuals up through 1969.

However, the 1970-1978 FSM also includes an "XL" model in the specs but does not refer to the 57-59 XL motorcycle.

Starting in 1977, there were also XLT and XLCR models (these are both included in the "XL" verbiage).

The "XL" noted in 1970 and future literature simply refers to a street legal "Sportster" model motorcycle.

The last XLCH was made in 1979 but both "XL" and "XLH" verbiage was used in manuals and literature up through the 2003 manuals.

(referring to the same bikes).

"XLH" became the mantra for the base 883cc model but the manuals also refer to XLH1100 and XLH1200 Sportsters.

1979-1985 service manual is titled for XL/XR models and the specs in are listed for XLH, XLCH and XLS models.

2004-up manuals dropped the "H" altogether. So 2003 is the last year the MoCo referred to a Sportster as an XLH.

## Dimensions

- Wheelbase: <sup>13)</sup>
  - XLH, 58.5 in / 148.59 cm
  - XLS, 59.6 in / 151.38 cm
- Overall Length:
  - XLH, 88 in / 223.52 cm
  - XLS, 89.6 in / 227.58 cm
- Overall Width:
  - XLH, 33.8 in / 85.85 cm
  - XLS, 29.2 in / 74.16 cm
- Overall Height:
  - XLH, 46.5 in / 118.11 cm
  - XLS, 42.5 in / 107.95 cm
- Saddle Height:
  - XLH, 29.7 in / 75.43 cm
  - XLS, 29.7 in / 75.43 cm
- Road Clearance:
  - XLH, 6.9 in / 17.52 cm
  - XLS, 6.8 in / 17.27 cm

## Engine

- Engine type: 4 cycle Overhead Valves, 45 degree V2
- Hemi-spherical style heads

- Displacement: 60.9 ci / 997.5 cc (1,000 cc advertised)
- Compression Ratio: 9:1
- Bore: 3.188 in / 81 mm
- Stroke: 3.8125 in / 96.8 mm
- 4 Cams
- [Gerotor type oil pump](#).
  - Oil pump pressure (gauge mounted in place of oil pressure switch):
    - Minimum: 4-7 psi (idle)
    - Maximum: 10-20 psi (3500 rpm)
    - Normal riding conditions: 4-15 psi
- [Ignition](#): Magnavox Electronic Ignition System
  - Timer Air Gap (not adjustable)
- Ignition Timing
  - Retarded: 8° BTDC
  - Idle Advance (600-800 RPM): 26° BTDC
  - Full Advance (above 1600 RPM): 40° BTDC
- Spark Plugs (2):
  - #4-5 or #4R5 (14mm)
  - Gap: .038"-.043"
- [Fuel System](#): Keihin (non-cv) Butterfly carburetor.
- [Electric Start](#) only (Nippon Denso): This starter has a five sided solenoid <sup>14)</sup>. Not compatible with 67-80 Sportsters.
  - No kicker available. <sup>15)</sup>

## Capacities

- Fuel Capacity:
  - XLH, 2.25 gal / 8.517 l <sup>16)</sup>
    - Reserve: .25 gal / .946 l
  - XLS, 3.6 gal / 13.627 l
    - Reserve: .30 gal / 1.13 l
- Oil Capacity: 4 qts. / 2.83 l (quoted from -85 FSM)
- Transmission Capacity: 1.5 pints / .71 l

## Clutch

- Multi-Disc wet clutch-pack with alternate steel and fiber friction plates. <sup>17)</sup>

## Drivetrain

- Constant Mesh <sup>18)</sup>
- Left Side Shifter
- Speeds - 4 Forward
- Number of Sprocket Teeth (XLH / XLS)
  - Engine: 34

- Clutch: 59
- Transmission: 21
- Rear Wheel: 51
- Gear Ratios (XLH / XLS)
  - 1st: 10.63:1
  - 2nd: 7.70:1
  - 3rd: 5.82:1
  - 4th: 4.22:1

## Tires

Rim size and contour are cast or stamped into the exterior surface of the rim.

- Front:
  - For laced (contour 2.50×19 TLA) or cast (contour 2.15×19 TL) 19" wheels: Goodyear Eagle A/T or Dunlop K181 (MJ90-19).
- Rear:
  - For laced or cast (contour 3.00×16D) 16" wheels: Goodyear Eagle A/T or Dunlop K181 (MT90-16).
- Tire pressure based on overall weight.
  - Up to 300 lb load including rider, passenger and cargo:
    - Front 26 psi / 1.79 bar
    - Rear 30 psi / 2.06 bar
  - Up to GVWR maximum load:
    - Front 26 psi / 1.79 bar
    - Rear 32 psi / 2.20 bar
  - **Caution:** Maximum cold inflated pressure, Front (32psi), Rear (40 psi).

## Brakes

- Low mounted rear master cylinder, <sup>19)</sup>

# Models

## XLH 1000

What is the Current KBB Value? <sup>20)</sup>



1981 XLH 1000 Mods include tank decal, sissy bar, and highway pegs.<sup>21)</sup>

## XLS 1000 Roadster

What is the Current KBB Value? <sup>22)</sup>

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Back to [Sportster History Index](#)

1)

<http://veh-markets.com/motorcycles/harley-davidson/138590-1981-milwaukee-edition-sportster.html>

2)

1981 Painted Parts List

3)

1981 Painted Parts List pg 506

4) 5) 6)

1981 Painted Parts List pg 508, 10-82

7) 9)

HD Service School service bulletin #596 dated September 16, 1969

8)

HD Service Bulletin #M-800

10)

1979-1985 HD Sportster Parts Catalog

11)

illustrations from various academic journals

12)

drawings courtesy of DDDDylan of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/171161-drawings-prints-etc/page2#post4476530>

13)

Harley-Davidson 1979-1985 Service Manual

14) 15) 19)

ryder rick of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-s>

[pecific/ironhead-sportster-motorcycle-talk-1957-1985/187189-engine-vin-decipher?t=1999774&highlight=VIN](#)

16)

Harley-Davidson 1970 - 1978 Service Manual

17)

1979-1985 HD FSM

18)

1979-1985 HD FSM pg 6-3

20)

<http://www.kbb.com/motorcycles/harley-davidson/xlh-sportster-1000/1981-harley-davidson-xlh-sportster-1000/trade-in/>

21)

Photo courtesy of 81Fe of the XLFORUM

22)

<http://www.kbb.com/motorcycles/harley-davidson/xls-roadster-1000/1981-harley-davidson-xls-roadster-1000/trade-in/>

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