Table of Contents

IH: Wheels, Brakes & Tires 1
Brake System 1
Drum Braking System 1
Front 1
Rear 1
Sub-Documents 1
Disc Braking System 1
Brake Fluid / Bleeding the System 1
Inspection 1
Master Cylinders 2
Front 2
Sub-Documents 2
Rear 3
Sub-Documents 3
Calipers 4
Front 4
Sub-Documents 4
Rear 5
Sub-Documents 5
Brake Disc and Pads 6
Rear Brake Clevis Rod 7
Rear Brake Pedal Stop 8

Go To Technical Menu

IH: Wheels, Brakes & Tires

Brake System

Drum Braking System

Front

Rear

Sub-Documents

* . . . Rear Drum Fitting Issues with a Rigid Frame

Disc Braking System

Brake Fluid / Bleeding the System

Refer to these sections of the Sportsterpedia for recommendations, change intervals and bleeding advice:

- Brake Fluid
- Bleeding the Brake Lines

Inspection

- Inspect the master cylinder and linkage for damage or leakage, failure to return fully when released, or sponginess when applying pressure.
    - Any problem with the master cylinder requires rebuilding or replacement.

- Brake Fluid Leakage:
  - Any fluid leakage in the brake system should be a signal for replacement of the particular component causing leakage.
  - On an older systems, pay special attention to hoses, looking for cracked or cut surfaces which could develop leakage.
- Check the brake fluid for contamination and proper level.
  - The fluid change level should be 1/8” from top (with reservoir level).
- Perform a stationary test:
  - Squeeze the lever or depress the pedal as hard as possible to make sure the system will not leak or fail.
    Make sure the system releases and the wheel turns freely.
- Linkage inspection: Check for damage and wear especially with non-stock parts.
- Some amount of freeplay must exist in most brake systems.

Master Cylinders

Front

Sub-Documents

* . . . Front Master Cylinder Identification

- 1981 and earlier front master cylinders should have some free play.
- 1982 and later do not. The internals are held in place by a seal ring.

Front Master Cylinder part numbers and bore sizes. [1]								
Master Cylinder Assembly	Year	Model	Bore	Rebuild Kit(s)	Fluid	Brake Line Fitting / Threads	Single / Dual Discs	Caliper Pistons \ Area
45010-73	1973-1977	XLH XLCH	3/4“ [2]	**45063-72**	Aug 1976 ← Dot 3 Sept 1976 → Dot 5	1/4”x27 NPT straight fitting	Single	1 Banana 1 Clebrake 1.75“ [3]
43306-78	1978-E1979	XLH XLCH	3/4”	45063-72	Dot 5	90° fitting 1/8“-27 NPT to 3/16” Inverted Flare	Dual	2 Small Kelsey Hayes
45011-77	L1979	XL XLCH XLS	3/4“	45063-72	Dot 5	90° fitting 1/8”-27 NPT to 3/16“ Inverted Flare	Dual	2 Small Kelsey Hayes

45013-72	1980-1981	XL XLS	3/4”	45063-72	Dot 5	90° fitting 1/8“-27 NPT to 3/16” Inverted Flare	Dual	2 Small Kelsey Hayes
45013-82 (black)	1982-E1984	XL XLS XLX	3/4“	45063-82	Dot 5	Banjo Bolt 3/8” x 24	Dual	2 Small Kelsey Hayes 1-3/8“ ea. [4)]
	45013-82A is retro for 1982-1983 Models							
45019-84	1984-E1985	XL XLS XLX	5/8”	45069-84 45072-87	Dot 5	Banjo Bolt 7/16“ x 24 [5)]	Single	1 Semi Torque Free
45019-85	L1985-1986	All Models	5/8”	45069-84 45072-87	DOT 5	Banjo Bolt 3/8“x24	Single	1 Semi Torque Free
	Note: OEM on 1986 and 1987 HDI models with a 3/8”x24 banjo fitting, 1989-1991 domestic models with a 7/16“x24 banjo fitting. Replacement master for '87-'88 Sportsters. Rebuild kit 45069-84 includes body, kit 45072-87 comes without body.							
45019-85A	1992	All Models	5/8”	45072-87	DOT 5	7/16“x24	Single	1 Kelsey Hayes
	This version is retro for 1984-1991 Models							

Rear

Sub-Documents

* . . . Rear Master Cylinder Identification
* . . . Rear Hydraulic Brake Assembly Pics

Rear Master Cylinder part numbers and bore sizes. [6)]							
Master Cylinder Assembly	Year	Model	Bore	Rebuild Kit(s)	Fluid	Brake Line Fitting / Threads	Caliper Pistons \ Area

42415-79	1979-1981	XL, XLCH, XLS	3/4”	42374-77 42374-77A 42374-77B	Dot 5	43307-78 90° Fitting	1 Large Kelsey Hayes
42454-80 42454-80A	1980-1981	XL	3/4“		Dot 5	Pre-made flared steel lines with no other fittings	1 Large Kelsey Hayes
42453-80 42453-80A	1980-1981	XLS	3/4”		Dot 5		1 Large Kelsey Hayes
42454-82 (black)	1982	XLS	5/8“	42374-82 42374-82A 42374-82B	Dot 5		1 Lucas Girling
42453-82 42453-82A (polished)	1982-1985 1983-1985 1986-E1987	XL XLS, XLX All	5/8”		Dot 5		1 Lucas Girling

Calipers

Front

Sub-Documents

* . . . 1973 Front Banana Caliper Pics
* . . . 1974-1977 Front Pie Slice Caliper Pics

Caliper ID and Applications

Front Caliper

- Banana
  - 1973 XL, FX Models
  - 1972-1984 FL Models
- Clebrake
  - 1974-1977 XL, FX (single disc)
- Large Kelsey Hayes
  - 1980-1983 FLT, FLHT
- Small Kelsey-Hayes
  - 1977-1979 FXS
  - 1978-1983 FX, XL
- Semi Torque Free Kelsey Hayes
  - 1983-1985 XR1000

- 1984-up All models except FLH
- 1985 All models

Front Brake Calipers								
Caliper Assembly	Year	Model	Position	Bore	Rebuild Kit(s)	Fluid	Brake Line Fitting / Threads	Bleeder Threads
44104-72A	1973	XLH, XLCH	Left		45063-72	Aug 1976 ← DOT 3 Sept 1976 → DOT 5	Caliper- - Fitting- Inverted Flare Fitting	1/4“-28
44089-74	1974-1977	XLH, XLCH	Left	1.75”	Caliper Parts Sold Separately	DOT 5	Caliper- AN3 Inverted Flare Threads [7)]	1/4“-28
44117-77	1978-	XLH, XLCH	Left			DOT 5	Caliper- 3/8”-24 Inverted Flare	3/8“-24
44116-77	1978-	XLH, XLCH	Right			DOT 5	Caliper- 3/8”-24 Inverted Flare	3/8“-24

Rear

Sub-Documents

Rear Calipers:

* . . . 1982-E1987 Rear Lucas Girling Caliper Pics

Caliper ID and Applications

Rear Caliper

- Banana
  - 1973-1982 FX
  - 1973-1983 FXE
  - 1973-1980 FL
- Large Kelsey Hayes
  - 1977-1978 XLCR
  - 1979-1981 XL
- Dual Piston Kelsey Hayes
  - 1981-1984 FL
  - 1980-1985 FLT, FLHT
- Single Piston Kelsey Hayes
  - 86-up FLT, FLHT, 87 1/2-up all BT models
- Lucas Girling

- 1982-E1987 XL,FXR
- 1983-1986 FXWG
- 1984-1985 FXE, FXSB
- 1984-E1987 FXST
- 1983-1984 and 1987 FLHS

Brake Disc and Pads

From HD Teschnical Service Bulletin M-712 dated June 16, 1977:

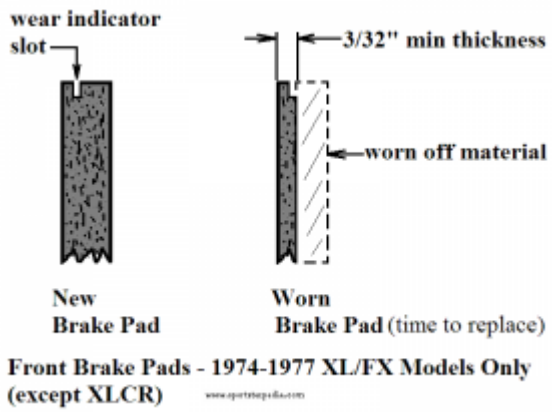
Disc brake friction material can be classified as organic, semi-metallic, or metallic.
Organic material will outwear an equal section of metallic material under normal operating conditions.
An organic pad will also reduce heat transfer between the brake disc and brake fluid in the caliper.
It is also less harsh on the disc and usually leaves the disc with a polished look.
This material has two disadvantages:

1. *The organic material will fade when high pad temperatures are developed.*
2. *Wet stopping power is very poor when the material is thoroughly wet.*

Metallic friction material increases it's efficiency as temperatures increase, and water has little effect on stopping performance.
Metallic linings, in normal service, have a shorter wear life than organic.
Semi-metallic have characteristics in between the organic and metallic.

Replace pads when the thickness of the friction material has worn down to 1/16” or less on all models except those specified in the paragraph below.

We suggest that you use only the recommended Harley-Davidson pads.
1974 thru 1977 XL, XLCH, XLT, FX, FXE, FXS models have a wear indicator slot in the front brake pad friction material.
Replace pads when the friction material has worn down to 3/32“ thickness as shown in the illustration.



Front Brake Pads - 1974-1977 XL/FX Models Only (except XLCR)

8)

Motorcycle brakes operate under high temperatures and can absorb far more horsepower than the

engine produces. [9)]
The discs do not need a polished appearance to maintain efficiency.
A disc with a slight amount of grooving similar to a phonograph record is normal with metallic brake pads and is acceptable if the surface is smooth.
The newer stainless brake discs may appear grooved, but if you run your fingernail over the surface you find there are no grooves.
Disc runout, on the motorcycle, should not exceed .015”. If the disc becomes warped or dished beyond this specification it should be replaced.
Brake pedal travel is increased with the wave washer type of piston retraction. Caution must be used when adjusting brake pedal travel.
If the required freeplay in the plunger is adjusted away, the expanding brake fluid cannot return to the reservoir and gradual energization of the brake may occur.
If there is any doubt concerning this freeplay or other proper operation of the master cylinder;
The master cylinder cap should be removed and the pedal depressed several times. A squirt of fluid each time will verify proper operation.

Disc and pad sets:

Disc, Material	Pad
-73, mild steel	organic
-78, hard stainless	semi-iron, black
-79, very hard stainless	semi-iron, copper
-84, very hard stainless 11/12“ rotor	semi-iron, copper
-84A, 30 hole, anti symmetrical	semi-iron, copper
-94, softer stainless	semi-iron, gray

Rear Brake Clevis Rod

1980 and up:

- If the motorcycle should fall on it's right side or the muffler and bracket should hit the curb, the brake stop bracket could be inadvertently bent. This could then allow the brake pedal to travel past it's stop and could result in the distorting or bending of the clevis rod end (42445-80). Although the bend in the clevis rod end will not adversely affect the brake function, it could allow increased brake pedal free play. This condition would cause the brake pedal to travel further when applying the brake. [10)]
    - Inspection:
        - Inspect brake stop bracket (welded to muffler) for the correct bend periodically.
        - The bracket should form a 90° angle out from the muffler. If it is bent in either direction, tap it with a ball peen hammer to straighten it.
        - Check the rear brake pedal adjustment. Work the rear brake pedal back and forth by hand to determine the amount of free play before the pushrod contacts the piston in the master cylinder. Free play measured at the pushrod should be app. 1/16”.
    - Correction:
        - If free play is excessive, inspect the clevis rod end (42445-80) for signs of distortion. If

it is bent at the end, replace it.
    - If free play is incorrect, loosen the jamnut and turn the adjusting screw in (clockwise) to increase free play, or out (counterclockwise) to decrease free play.
  - When proper free play is achieved , apply Harley Davidson Lock 'N Seal (99625-77) to the threads and then tighten the jamnut to 12-15 ft-lbs. while holding the screw in position.
  - When properly adjusted, the brake pedal should be parallel to the ground when bottomed against brake pedal stop.

Rear Brake Pedal Stop

* . . . Fabricating a Brake Pedal Stop

Go To Technical Menu

1)
1976-up Sportster Parts Catalogs
2)
doodah man of the XLFORUM
https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/167848-front-master-cylinder-rebuild-kit?t=1802284
3)
sagebrush of the XLFORUM
https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/178649-what-size-mastercylinder-plunger?t=1919910
4)
BigMek of the XLFORUM
https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/200609-front-brakes-question-dual-disc#post4433009
5)
https://www.denniskirk.com/v-twin-manufacturing/chrome-12mm-banjo-bolt-kit-23-0614.p276271.prd/276271.sku
6)
1979-up Sportster Parts Catalogs
7)
4th of July of the XLFORUM
https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-era-specific-and-model-specific/ironhead-sportster-motorcycle-talk-1957-1985/179040-brake-caliper-threads-stripped-76-sporty/page2?t=1923879&page=2
8)
drawing by Hippysmack

9)

HD Technical Service Bulletin M-712 dated June 16, 1977

10)

HD Service Bulletin #M-779 dated May 23, 1980