



1999 Model HCX

EXCELSIOR - HENDERSON MOTORCYCLE COMPANY

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#### **EXCELSIOR-HENDERSON MOTORCYCLE MANUFACTURING COMPANY**

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Features of the Super X motorcycle are covered by U.S. Patent No. D.406,088 with additional patents pending.





**1999 Super X™**

10369



1931 Super X

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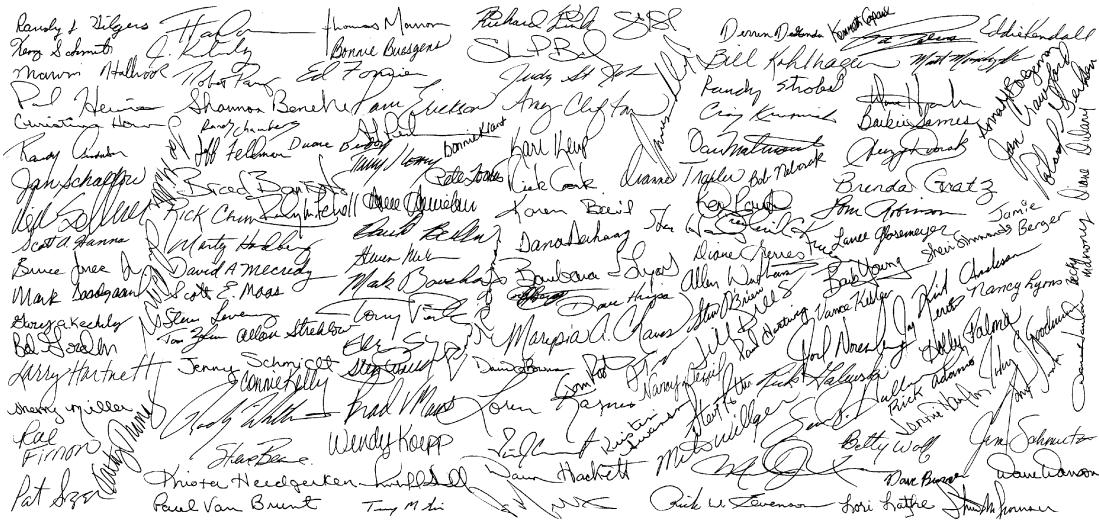


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# Forward

## Thank You!

The people of Excelsior-Henderson thank you for purchasing your new Super X™ motorcycle. We appreciate your enthusiasm and faith in our products and in us. Your new Super X is an American-made, premium-quality, heavyweight cruiser. It combines advanced technologies with a style reminiscent of its ancestors. We have designed, built, and will support your Super X in the tradition of The Excelsior-Henderson Motorcycle Manufacturing Company.



## There's More to The Rider's Handbook

The *Super X Rider's Handbook*™ contains information you need to operate your Excelsior-Henderson Super X safely, responsibly, and with maximum enjoyment. It also explains the routine maintenance, cleaning, and storage that will help keep your Super X running and looking great for years to come.

To make the most of your Super X *EXperience*, this *Handbook* also includes stories, photographs, and illustrations from throughout Excelsior-Henderson's history. In the section "The Tradition of the State of the Art" the *Rider's Handbook* introduces you to the heritage that is an essential part of the Excelsior-Henderson *EXperience* and reestablishes our place in the history of American motorcycling.

You, the Super X, and the Excelsior-Henderson Motorcycle Manufacturing Company each have a place in the continuing history of American motorcycling.

- As a Super X owner, you make your own contribution to the Excelsior-Henderson heritage that began over a century ago and continues with today's Excelsior-Henderson Motorcycle Manufacturing Company.
- The 1999 Super X bears the rich heritage of the original Super X and its manufacturer's history and tradition.
- The Excelsior-Henderson Motorcycle Manufacturing Company is the first American manufacturer to successfully revive an original American motorcycle brand.

“It’s not so much the destination that matters, but the journey” — motorcyclists may understand this better than anyone. When you twist the throttle of your Super X along an open stretch of highway or through a deep curve, you will discover the roar of the X-twin™ engine as the road disappears behind you. With the images and stories of Excelsior-Henderson’s present and past in mind, you will EXperience the spectacular vision of the journey before you. Enjoy the ride!

## From the Hanlon Family

On behalf of the entire Excelsior-Henderson Road Crew™, we welcome you to our family. When you own an Excelsior-Henderson Super X, you own much more than just a motorcycle, you own an enduring legacy of quality and performance. You are part of the American dream...and you are part of our dream. Together we will make motorcycling history as we bring back the most legendary brand of the past — Excelsior-Henderson.

The Excelsior-Henderson team members are proud you selected the Super X, as we have designed and manufactured the Super X to the highest standards. This Rider’s Handbook has been specially prepared and detailed to show you our commitment to ensure motorcycling fun.

We wish you a safe and pleasurable ride as together we carry forward a proud tradition that dates back to 1876. So, get ready to throw a leg over your Super X and join us on the highways of this great country, the United States of America.



Dan Hanlon



Jennie Hanlon



Dave Hanlon



EXCELSIOR-HENDERSON  
GP

EXCELSIOR-HENDERSON

A PROUD AMERICAN MOTORCYCLE COMPANY

FORK THIS END

HANDLE WITH CARE

EXCELSIOR-HENDERSON

HANDLE WITH CARE  
NO FORKS  
FORK OTHER END



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# Introduction

## Read the Rider's Handbook

The *Rider's Handbook* contains information that is essential to safe riding and proper maintenance of your Super X motorcycle. Read it thoroughly before you ride. Understand and follow the procedures in the *Rider's Handbook* to keep your Super X in top condition on the road or in storage. Failure to follow operation and maintenance procedures may result in injury to you, your passenger, or damage to your Super X. We want you to enjoy motorcycling. Following the safety and maintenance procedures will add to your enjoyment, and keep you riding.

## Hazard Symbol and Terms in the Rider's Handbook



The hazard symbol indicates a potential hazard to you, others, or your motorcycle. Pay special attention to information in the *Rider's Handbook* that begins with this symbol.

The following terms have special meaning in the *Rider's Handbook*. Be certain you understand the meaning of each term, as the terms communicate important information about the Super X and its operation and maintenance.

### **⚠ WARNING**

Indicates a potential hazard that could injure you or others.

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### **⚠ Caution**

Indicates a potential hazard that could damage the motorcycle.

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### **Notice**

Emphasizes important information that might otherwise be overlooked.

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## Notes:



# Safety Information

This section contains information to help you operate your Super X motorcycle safely and enjoyably while minimizing risk to you, your passenger, and others. Your ability to safely operate the Super X depends on your judgment and use of safe riding techniques. Motorcycling has inherent risks. You can minimize those risks, but you can't eliminate them completely.

We want to keep you riding. Take the time to read and understand the following information to help minimize risk and maximize pleasure when operating the Super X. Even if you are an experienced rider, read this section and the rest of the *Rider's Handbook* before riding the Super X.

- Read, understand, and use the information contained in this section. This section contains safety information specific to the Super X, as well as information about general motorcycle safety.
- Read and understand the entire *Rider's Handbook* before operating the Super X; the *Handbook* contains safety information throughout. Also pay attention to the maintenance requirements in this *Handbook*. For professional technical service specified in the *Rider's Handbook* or required by mechanical circumstances, see the *Super X Service Handbook* or your authorized Excelsior-Henderson Dealer.
- Read, understand, and use the information in the booklet you received with your Super X, *You and Your Motorcycle — Riding Tips* (Excelsior-Henderson

document part no. 6999-0008). The booklet contains general information about safe motorcycle operation and tips for developing safe riding habits.

- Take a rider education course from the Motorcycle Safety Foundation (MSF) or another qualified instructor. The course will help you develop or refresh your expertise in safe riding habits through instruction and riding. For information on MSF rider education courses, see the pamphlet you received with your Super X, *Rider Course* (Excelsior-Henderson document part no. 6999-0066).
- Until you are thoroughly familiar with the Super X and all of its controls, practice riding where there is little or no traffic. Practice riding at moderate speed on varying road surfaces and under varying weather conditions.

## **Safe Riding**

### **Super X Design Characteristics**

The following Super X design characteristics affect how you should ride the motorcycle:

- The Super X is designed for on-road use with one rider and one passenger. Do not exceed the gross vehicle weight rating (see *Specifications* or the certification label on the steering head). Riding off-road, riding with more than one passenger, or carrying weight exceeding the maximum weight rating can make handling difficult, which could cause you to lose control of the motorcycle.

- In the first 500 miles, operate the Super X according to the break-in procedures described in “Operating During Break-In Period (First 500 Miles),” page 78. Operating the Super X without following break-in procedures can result in serious engine damage.
- The Super X is designed not to “dive” when the front brake is applied. “Diving” is the tendency for the front suspension to compress rapidly when the front brake is applied. The anti-dive design of the Super X makes braking more positive and stable than on motorcycles without an anti-dive design. If you have ridden motorcycles without an anti-dive design, the Super X may initially feel different when you apply the front brake.

## Safe Riding Practices

Follow these general safe riding practices:

- Before you ride, make sure you can operate the Super X safely and properly by following the recommendations given at the beginning of the *Safety Information* section.
- Before you ride each time, make the checks described in the *Pre-Operation Check* section. Operating the Super X without making the pre-operation checks can cause damage to the motorcycle or result in an accident.
- Know your skills and limits, and ride within them.
- Allow only licensed, experienced operators to ride your Super X, and then only after they have become familiar with its controls and operation.

- Do not ride when you are fatigued or under the influence of alcohol, prescription drugs, over-the-counter drugs, or any other drugs. Fatigue, alcohol, and drugs can cause drowsiness, loss of coordination, loss of balance, and can affect your awareness and judgment.
- If your Super X operates abnormally, correct the problem immediately (see the *Super X Service Handbook* or contact your authorized Excelsior-Henderson Dealer). If you continue to operate the Super X in this condition, you are likely to aggravate the initial problem, increase the cost of repairs, and threaten your safety.
- The most common cause of accidents involving a motorcycle and an automobile is the automobile driver's failure to see the motorcycle. Ride defensively, as if you are invisible to other motorists, even in broad daylight. Ride where you are visible to other motorists and observe their behavior carefully, as they may not see or be aware of you.
- Be especially cautious at an intersection, as this is the most likely place for an accident. Remember that you are more vulnerable to injury on a motorcycle than in an enclosed vehicle.
- To prevent loss of control while operating the motorcycle, keep your hands on the handlebars and your feet on the footrests.
- Obey the speed limit and adjust your speed and riding technique based on road, weather, and traffic conditions. As you travel faster, the influence of all other

conditions increases, which can lessen the motorcycle's stability and increase the possibility of your losing control of the motorcycle.

- Do not move or operate the motorcycle with the forks locked, as steering is severely restricted and you could drop or lose control of the motorcycle.
- If in doubt, reduce your speed when:
  - The road has potholes or is otherwise rough or uneven.
  - The road has sand, dirt, gravel or other loose substances on it.
  - The road is wet, icy, or oily.
  - The road contains painted surfaces, manhole covers, metal grating, railway crossings, or other slippery surfaces.
  - The weather is windy, raining, or otherwise causing slippery or rapidly changing conditions.
  - The traffic is heavy, congested, not allowing sufficient space between vehicles, or otherwise not flowing smoothly.
  - You are being passed in either direction by a large vehicle that produces a wind blast in its wake.
- To maximize braking effectiveness, use the front and rear brakes together. Be aware of the following braking facts and practices:
  - The rear brake provides 40% of the motorcycle's stopping power, at most.

- Consider road conditions before applying the brakes; when the road is wet, rough, or contains loose or other slippery substances, apply the brakes gradually.
- Bring the motorcycle to upright position before applying the brakes, and avoid applying the brakes in a corner if at all possible. When the motorcycle is leaned, the amount of tire surface contacting the road is reduced, decreasing tire traction and increasing the possibility of the tires skidding when you apply the brakes.
- Improper braking may cause you to lose control of the motorcycle or may not slow you in time to avoid a collision.
- As you approach a curve, choose a speed and a lean angle that allow you to pass through the curve in your own lane without applying the brakes. Excessive speed, improper lean angle, or braking in a curve can cause you to lose control of the motorcycle.
- Ground clearance is reduced when you lean the motorcycle. Do not allow components to contact the road surface when leaning the motorcycle in a curve, as this could cause you to lose control of the motorcycle.
- Retract the sidestand fully before riding. If the stand is not fully retracted while you are riding, it could contact the road surface and cause you to lose control of the motorcycle.
- Do not tow a trailer. Towing a trailer can make the motorcycle hard to handle and cause you to lose control of the motorcycle.

## Carrying a Passenger

To carry a passenger safely, do the following:

- Direct the passenger to hold onto you, or the saddle strap, with both hands and to keep both feet on the passenger footrests. Do not carry a passenger who cannot place both feet firmly on the passenger footrests. A passenger who is not holding on properly or who cannot reach the passenger footrests can shift erratically, which can make the motorcycle hard to handle and cause you to lose control of the motorcycle.
- If necessary, adjust the rear shock absorber preload and damping rate according to the instructions in “Changing Preload Adjustment,” page 54, and “Changing Damping Rate Adjustment,” page 57. Improper preload or damping rate adjustment can make your motorcycle hard to handle and cause you to lose control of the motorcycle.
- Before you ride, be sure your passenger knows safe riding procedures. Discuss any safety information unfamiliar to your passenger. A passenger who is unaware of safe riding procedures may distract you or make movements that make the motorcycle hard to handle and cause you to lose control of the motorcycle.
- Adjust your riding style to compensate for the differences in handling, acceleration, and braking caused by the additional weight of the passenger. Failure to do so can cause you to lose control of the motorcycle.

## Transporting the Super X

If you must transport the Super X, do the following:

- Use a truck or trailer. Do not tow the Super X with another vehicle, as the motorcycle's steering and handling will be impaired by towing, which can cause you to lose control of the motorcycle.
- Position and restrain the Super X so it is kept upright on the truck or trailer, as gasoline may leak out of the fuel tank if the motorcycle leans over. Leaked gasoline is a fire hazard and can also damage the finish and components of the Super X.

## Protective Apparel

We respect your right to make your own choices. However, we recommend that you wear an approved helmet and eye protection. Some state laws require that you wear an approved helmet, eye protection, or both. In accidents involving motorcycles, head injuries are the leading cause of motorcyclist fatalities, and statistics prove that an approved helmet is the most effective protection in preventing or reducing head injuries. Eye protection reduces the chance that your vision could be impaired by wind or by airborne particles and objects.

You and your passenger should wear bright or light colored and/or reflective clothing to improve your visibility to other motorists. A motorist's failure to see or recognize a motorcycle is the leading cause of automobile/motorcycle accidents.

Wear gloves, heavy boots and pants, and a jacket to prevent or reduce abrasions, lacerations, or burns that you can suffer if you fall. Wear boots with low heels because boots with high heels can catch on pedals or footrests. The combination of your boots and pants should completely cover your legs, ankles, and feet, protecting you from engine and exhaust system heat. The engine and exhaust system get hot soon after the engine is started, and stay hot for about half an hour after the engine is turned off.

Do not wear loose, flowing clothing or long boot laces, as they can catch on components like handlebars, levers, or footrests, or get caught in the wheels, causing you to lose control of the motorcycle.

## **Product Modifications**

Modifying the Super X by removing any equipment or adding equipment not approved by Excelsior-Henderson may void your warranty. Such modifications may also make the motorcycle unsafe to ride and could severely injure you or others or damage the motorcycle. Some modifications may be illegal in some states. If in doubt, contact your authorized Excelsior-Henderson Dealer.

## Gross Vehicle Weight Rating

Gross vehicle weight is the total weight of the motorcycle, the rider, and the passenger.

- The weight of the motorcycle includes: the motorcycle and all its fluids; any accessories and their contents; and any additional cargo on the motorcycle.
- The weight of the rider or passenger includes: body weight, all apparel, and objects in or on apparel.

### **WARNING**

Do not exceed the motorcycle's gross vehicle weight rating. Exceeding the weight rating can lessen stability and handling and could cause you to lose control of the motorcycle.

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The gross vehicle weight rating of the Super X is 1140 lb. The total weight of the Super X is approximately 700 lb with a full capacity of all fluids, and without any accessories or cargo. The combined weight of the rider, passenger, accessories, and cargo cannot exceed 440 lb. The following two examples show how to stay within the gross vehicle weight rating.

**Example 1: Super X with no accessories or cargo**

Item	Weight
Super X with full capacity of all fluids	700 lb
Rider - dressed and ready to ride	260 lb
Passenger - dressed and ready to ride	180 lb
Total gross vehicle weight	1140 lb

**Example 2: Super X with all accessories and cargo**

Item	Weight
Super X with full capacity of all fluids	700 lb
Excelsior-Henderson accessories	80 lb
Attached cargo	35 lb
Rider - dressed and ready to ride	205 lb
Passenger - dressed and ready to ride	120 lb
Total gross vehicle weight	1140 lb

## Loading

**⚠ WARNING**

Adding additional weight to the Super X can affect its stability, handling characteristics, and safe operating speed.

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Use the following guidelines when attaching cargo or accessories to the Super X. Where applicable, these guidelines refer to accessories *and* their contents.

- Keep cargo and accessory weight to a minimum, and keep it as close to the motorcycle as possible, to minimize a change in the motorcycle's center of gravity. Changing the center of gravity can lessen stability and handling and could cause you to lose control of the motorcycle.
- Distribute weight evenly on both sides of the motorcycle. Maintain even weight distribution by checking accessories and cargo to make sure they are securely attached to the Super X before riding and whenever you take a break while riding. Uneven weight distribution, or accessories or cargo that shift suddenly while you are riding, can make the motorcycle hard to handle and cause you to lose control of the motorcycle.
- Do not attach large or heavy cargo such as sleeping bags, duffle bags, or tents to the handlebars, front fork area, or front fender. If you add accessories to the handlebars or the front fork area, they must be as small and as lightweight as possible. Cargo or accessories placed in any of these areas can cause instability due to improper weight distribution or aerodynamic changes, and can cause you to lose control of the motorcycle. Such items can also block air flow to the engine and could cause overheating that can damage the engine.
- Do not exceed the maximum cargo weight limit of any accessory (see accessory instructions and labels), and do not attach cargo to an accessory not designed

for that purpose, as either of these could result in an accessory failure that could cause you to lose control of the motorcycle.

## Selecting and Installing Accessories

### **WARNING**

Adding accessories to the Super X can affect its stability, handling characteristics, and safe operating speed.

---

Because Excelsior-Henderson cannot test and make specific recommendations concerning every accessory or combination of accessories sold, you are responsible for determining that your Super X can be safely operated with accessories you install or additional weight you carry. Use the following guidelines when choosing and mounting accessories:

- Do not install accessories that impair the stability, handling, or operability of the Super X. Before installing an accessory, be sure that it does not:
  - Reduce ground clearance when the motorcycle is either leaned or in a vertical position.
  - Limit suspension or steering travel or your ability to operate controls.
  - Displace you from your normal riding position.
  - Obscure lights or reflectors.

Bulky or large accessories can make the Super X unstable due to the lifting or buffeting effects of wind and can cause you to lose control of the motorcycle.

- Do not install electrical accessories that exceed the capacity of the Super X's electrical system. An electrical failure could result and cause hazardous loss of engine power or lights, or damage to the electrical system.
- If you want to add a windshield, backrest, or luggage rack, choose one designed and approved by Excelsior-Henderson specifically for the Super X, and follow the instructions for proper installation and use. An improperly designed or installed windshield, backrest, or luggage rack can reduce stability, causing you to lose control of the motorcycle.

## **Gasoline and Exhaust Gases**

For fueling procedures, see "Fueling and Fuel Fill Height," page 79.

Gasoline is highly flammable and can be explosive in certain conditions. Observe the following precautions when you refuel or service the fuel system:

- Turn off the engine.
- Use a well-ventilated area.
- Remove the fuel cap slowly.

- Do not spill gasoline on the engine or the exhaust system. Immediately wipe, or rinse with water, gasoline spilled on any part of the Super X or the surrounding area.
- Do not smoke while fueling.
- Do not fuel in an area where there are sparks or open flame.

Gasoline and gasoline vapors are poisonous and can cause severe injury. Do not swallow gasoline, inhale gasoline vapors, or spill gasoline on yourself or your clothes. If you swallow gasoline, inhale more than a few breaths of gasoline vapor, or get gasoline in your eyes, see a physician immediately. If you spill gasoline on your skin, wash it off immediately with soap and water. If you spill gasoline on your clothes, change your clothes immediately.

Exhaust gases contain carbon monoxide, a colorless, odorless gas that can cause unconsciousness or severe injury. Observe the following precautions to avoid the effects of exhaust gases:

- Do not breathe exhaust gases.
- Do not start or run the engine in a closed area.

## **Parking**

For complete parking procedures, see “Parking,” page 91.

When leaving the Super X unattended, turn the engine off, lock the main switch and the fork lock, and take the main switch key with you.

The engine and exhaust system are very hot after the engine has been running. Therefore, park the Super X where people are not likely to touch the engine or exhaust system or place combustible materials in close proximity to these hot areas.

Do not park near a flammable source such as a kerosene heater or an open flame, as the Super X could catch fire.

Park on a level, firm surface if possible. Sloped or soft surfaces may not support the Super X adequately when it is parked, and it may fall over. If you must park on a sloped or soft surface, reduce the likelihood of the Super X falling over by following the procedures described in “Parking,” page 91.

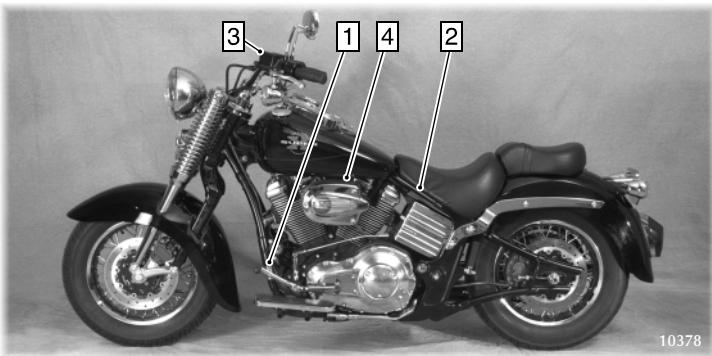
## Maintenance

Maintain the Super X according to the following requirements:

- Before you ride each time, make the checks described in the *Pre-Operation Check* section. Operating the Super X without making the pre-operation checks can cause damage to the motorcycle or result in an accident.
- Perform periodic maintenance according to the intervals specified in “Periodic Maintenance Intervals,” beginning on page 96. Operating the Super X without performing periodic maintenance can damage the motorcycle or injure you.

- Maintain proper tire inflation pressure and tread condition, and proper wheel and tire balance. Inspect tires regularly and replace them if they are worn or damaged. Use only an approved replacement tire and see the *Super X Service Handbook* or your authorized Excelsior-Henderson Dealer for tire replacement. Operating the Super X with improper tire pressure or tread condition, or improper wheel or tire balance, can make the motorcycle hard to handle and cause you to lose control of the motorcycle.
- Check proper steering head bearing adjustment. Regularly inspect the rear shock absorber and the front forks. Check for leaks. Operating the Super X with a loose, worn, or damaged steering system or front or rear suspension system can make the motorcycle hard to handle and cause you to lose control of the motorcycle. To repair steering or suspension system wear or damage, see the *Super X Service Handbook* or contact your authorized Excelsior-Henderson Dealer.
- Keep equipment required by federal, state, and local laws in place and in good working condition. Your license plate must be clean, clearly visible in all conditions, and installed in a position specified by law.
- Each fastener used in the Super X meets our quality specifications for strength, finish, and type. If you need a replacement fastener, use only a genuine Excelsior-Henderson fastener, tightened to the proper torque. A fastener that does not meet original specifications could fail and damage the motorcycle or injure you.

## Safety and Vehicle Information Labels



Super X — left side view (all models)

1 VEHICLE EMISSION CONTROL INFORMATION

 EXCELSIOR-HENDERSON MOTORCYCLE  
MANUFACTURING COMPANY

Engine Displacement: 1386CC  
Engine Family: XEMCC01.4001  
Engine Exhaust Emission Control: SMFI  
Engine Tune Up Specifications  
Idle Speed: 900 - 950 RPM  
Ignition Timing: Fixed  
Fuel: Unleaded Gasoline only, 92 pump octane or higher.  
Oil: See Rider's Handbook

This vehicle conforms to USEPA Regulations applicable to 1999 Model Year new motorcycles.

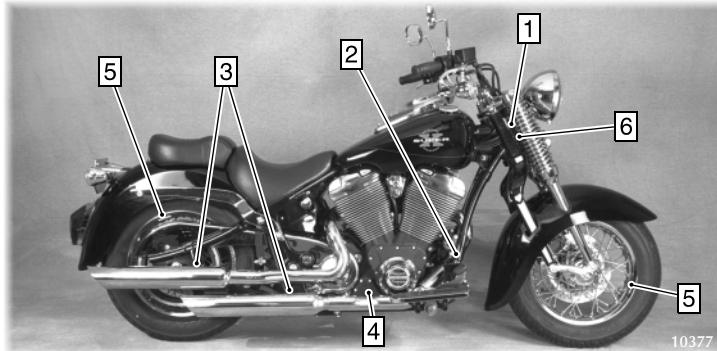
2  **WARNING:** The rear shock absorber contains nitrogen gas under high pressure. To prevent injury, do not disassemble, rebuild, puncture, or apply heat to the shock absorber. See Rider's Handbook.

(Under seat)

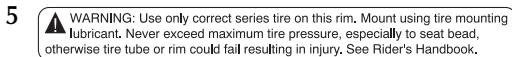
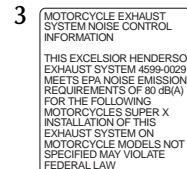
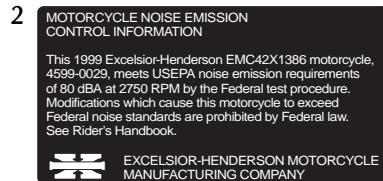
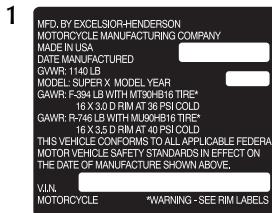
3  **WARNING**  
USE ONLY DOTS BRAKE FLUID  
FROM A SEALED CONTAINER.  
CLEAN FILLER CAP BEFORE  
REMOVING.

Also on rear  
brake and clutch  
reservoirs.  
(Not shown.)

4  **WARNING:** Read Rider's Handbook before riding, repairing or adding accessories to this motorcycle. Failure to follow all safety precautions and warnings, especially those in the Rider's Handbook, may result in injury and/or damage to the motorcycle. The Rider's Handbook is available from your dealer or Excelsior-Henderson Motorcycle Manufacturing Company, 805 Hanlon Drive, Belle Plaine, MN 56011.

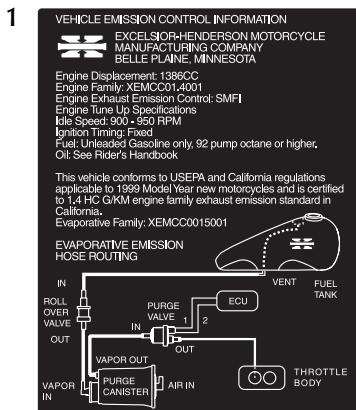


Super X—right side view (all models)





Super X—left side view (California model only)



## Reporting Safety Defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying the Excelsior-Henderson Motorcycle Manufacturing Company.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or the Excelsior-Henderson Motorcycle Manufacturing Company.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in Washington, DC area) or write to: NHTSA, US Department of Transportation, Washington, DC 20590. You can also obtain other information about motor vehicle safety from the Hotline.



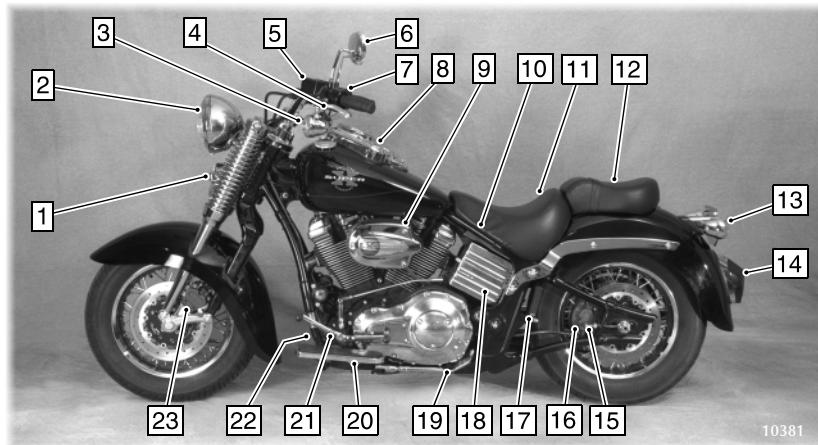
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# Product Description

This section identifies the main Super X motorcycle components and shows their locations. It gives the locations of the Vehicle Identification Number (VIN), explains the VIN code, and tells you where to find the engine identification number and the key identification number.

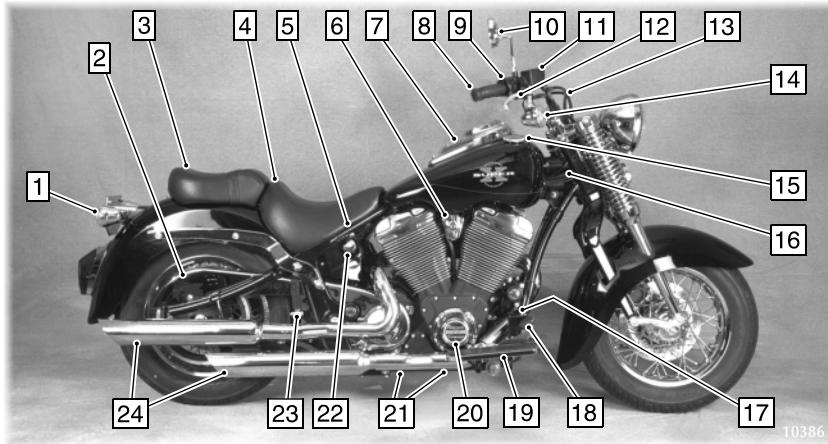
The Super X meets or exceeds applicable US Federal Motor Vehicle Safety Standards and US Environmental Protection Agency regulations.

## Vehicle Components



Super X—left side view

1. Horn	9. Air filter	17. Passenger footrest
2. Headlamp	10. Fuses (under saddle)	18. Battery
3. Front left turn signal/running light	11. Rider's saddle	19. Sidestand
4. Clutch Lever	12. Tandem saddle	20. Rider footrest
5. Clutch fluid reservoir	13. Left rear turn signal	21. Gear shift pedal
6. Left mirror	14. Tail light	22. Evaporative canister (California model only)
7. Left handlebar controls	15. Rear axle adjuster (one each side)	23. Front brake caliper
8. Instrument pod	16. Rear brake caliper	

**Super X—right side view**

1. Right rear turn signal	9. Right handlebar controls	18. Rear brake pedal
2. Drive belt (under guard)	10. Right mirror	19. Rider footrest
3. Tandem saddle	11. Front brake fluid reservoir	20. Engine oil filter cover
4. Rider's saddle	12. Front brake lever	21. Engine oil drain plugs (under engine)
5. Rear shock absorber (under saddle)	13. Throttle cables	22. Engine oil fill cap and dipstick
6. Main switch	14. Front right turn signal/running light	23. Passenger footrest
7. Instrument pod	15. Fuel cap	24. Exhaust mufflers
8. Throttle control grip	16. Fork lock	
	17. Rear brake fluid reservoir	

## Vehicle Identification Number (VIN)

The Vehicle Identification Number (VIN) is a unique 17-character identifier for your Super X. The VIN is stamped on the right side of the steering head and also appears on the certification label on the front of the steering head.

You may need the VIN to title, register, or license the Super X, or to order parts. Record the VIN in the space provided in the *Specifications* section on page 242.

The VIN is decoded as follows:

Motorcycle type:

HC = heavyweight cruiser

Engine type:

X = X-Twin

0 = inaugural

Check digit

Model year:

X = 1999

SAE-assigned World

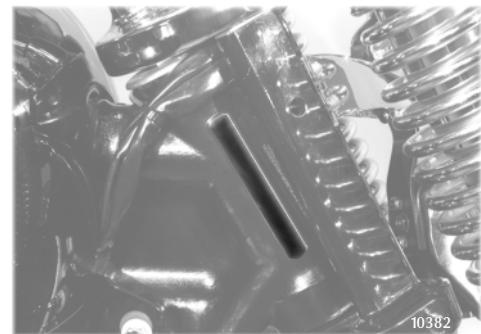
Manufacturing Identifier

Plant location:

B = Belle Plaine

5EH1HCX00XB000001

Serial number



VIN stamped on steering head

## Engine Identification Number

The engine identification number is a unique six-character identifier for your Super X engine, stamped on the left side of the engine.

You may need the engine identification number to title, register, or license the Super X, or to order parts. Record the engine identification number in the space provided in the *Specifications* section on page 242.

The engine identification number is composed of an asterisk (\*), followed by the serial number portion of the Super X VIN, followed by another asterisk. For instance, the engine number is \*000326\* for the Super X with VIN 5EH1HCX06XB000326.



Engine identification number stamped on right side of engine

## Key Identification Number

The key identification number is a seven-character identifier for your Super X main switch and fork lock key. The key identification number is located on a key tag supplied with your Super X.

If you need a replacement key, contact your dealer, and have proof of ownership, your VIN, and your key identification number. Record the key identification number in the space provided in the *Specifications* section on page 242.

EH00001

Sample key identification number

## Notes:

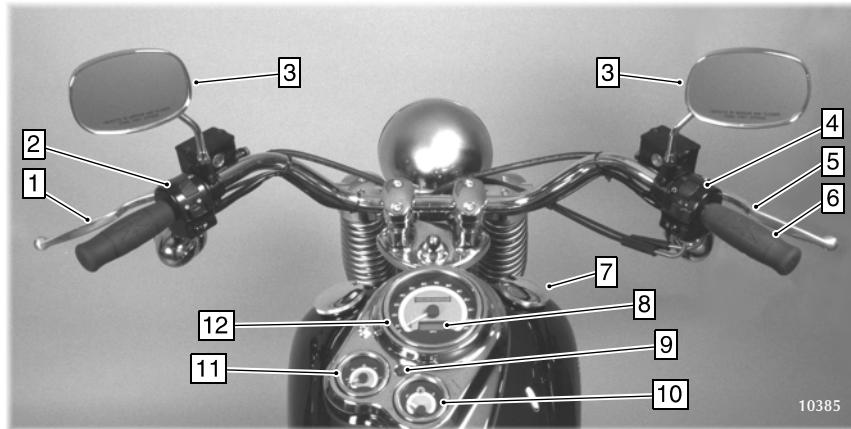


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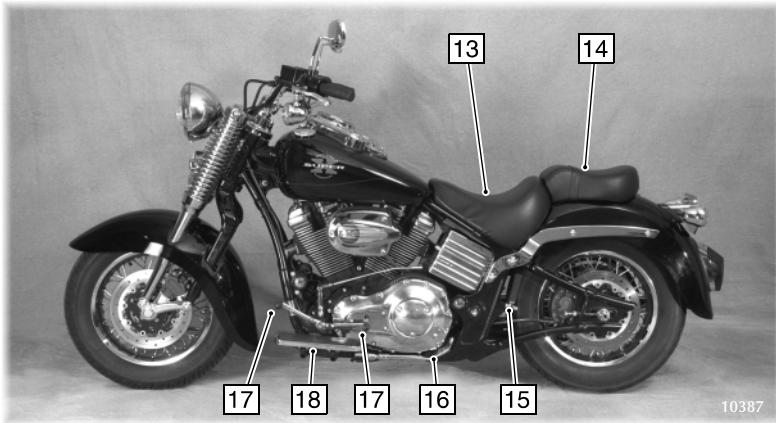
# Instruments and Controls

This section shows you where to find the instruments and controls on the Super X motorcycle and explains their function and use.

## Location

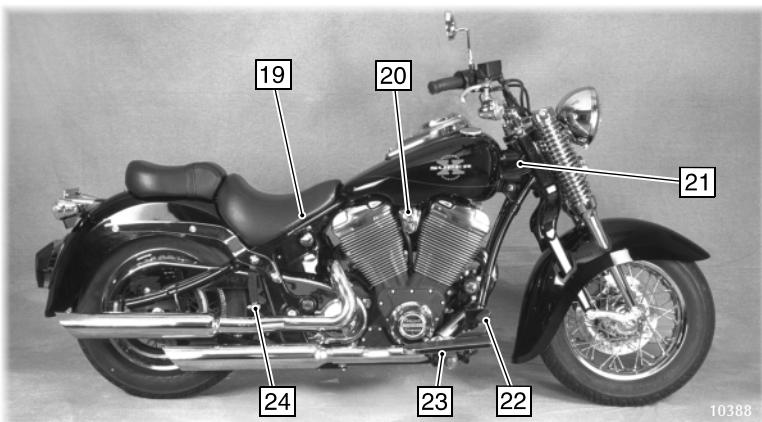


- 1. Clutch lever
- 2. Left handlebar switches
- 3. Mirrors
- 4. Right handlebar switches
- 5. Front brake lever
- 6. Throttle control grip
- 7. Fuel cap
- 8. Odometer/trip meter
- 9. Odometer/trip meter function button
- 10. Fuel gauge
- 11. Tachometer
- 12. Speedometer



- 13. Rider's saddle
- 14. Tandem saddle
- 15. Passenger footrest
- 16. Sidestand
- 17. Gear shift pedal
- 18. Rider footrest

- 19. Rear suspension adjusters (preload and damping rate adjusters) (under saddles)
- 20. Main switch
- 21. Fork Lock
- 22. Rear brake pedal
- 23. Rider footrest
- 24. Passenger footrest



## Key

A single key operates the Super X main switch and fork lock. For your convenience, the Super X comes with a spare key.

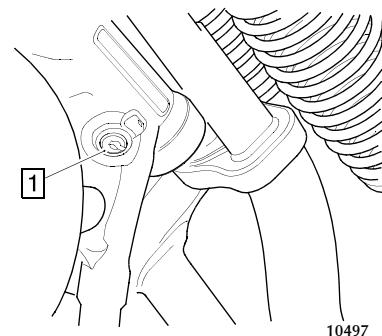
## Fork Lock

The Super X is equipped with a fork lock to deter others from moving or using the motorcycle without your permission while it is parked. The fork lock is on the right side of the steering head.

To lock the fork lock, turn the handlebars fully to the left, insert the key and turn it clockwise. To unlock the fork lock, turn the key counterclockwise. Remove the key after locking or unlocking the forks.

### **⚠ WARNING**

Moving or operating the motorcycle with the forks locked severely restricts steering and can cause you to drop or lose control of the motorcycle.



1. Fork lock

## Main Switch

The main switch energizes the ignition, the lighting systems, and all electrical switches and buttons.

The main switch has a key-operated lock and an indicator you use to select a switch setting: **On**, **Acc**, or **Off**.

To lock or unlock the main switch:

1. Move the indicator to the **Off** position and insert the key into the lock.
2. To lock the switch, turn the key to the vertical position.

To unlock the switch, turn the key to the horizontal position.

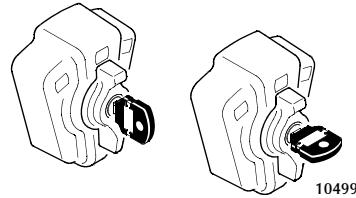
3. After you lock or unlock the main switch, remove the key.

### Notice

To energize electrical systems, you **must** remove the key from the lock after you unlock the switch. When the main switch is locked, you can move the indicator, but the switch does not energize any electrical systems.



1. Lock  
2. Indicator



Locked      Unlocked

## On

When the main switch is unlocked and in the **On** position, all electrical circuits are energized. The headlamp, running lights, tail light, and instrument lights illuminate. With the engine stop/run switch set to the run position (see “Engine Stop/Run Switch,” page 48), you can start the engine. You can also activate the emergency flashers, turn signals, and all other switch- and button-operated controls.

### ⚠ Caution

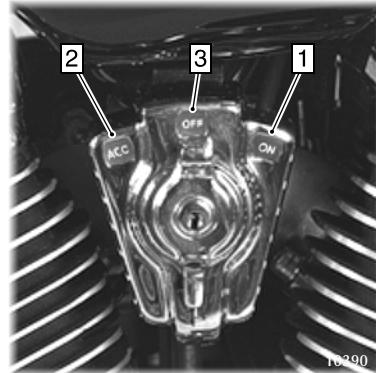
Before starting the engine, read the instructions for starting the motorcycle.

## Acc (Accessories)

When the main switch is unlocked and in the **Acc** position, all lighting systems come on. You can activate all switch- and button-operated controls except the electric starter button (see “Electric Starter Button,” page 49). You cannot start the engine with the switch in the **Acc** position.

## Off

When the main switch is in the **Off** position, all electrical circuits are inactive.



1. On position
2. Accessories position
3. Off position

## Instrument Pod

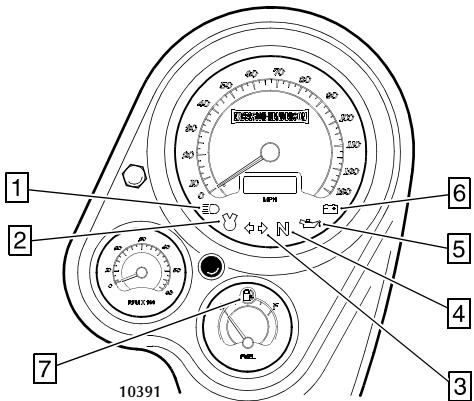
The instrument pod includes the indicator lights, instrument gauges, digital odometer/trip odometer, and the odometer/trip meter function button.

### Indicator Lights

There are seven indicator lights — six on the speedometer face and one on the fuel gauge face.

1. Headlamp high beam indicator
2. Check engine indicator
3. Turn signal indicator
4. Neutral indicator

5. Low oil pressure indicator
6. Low battery voltage indicator
7. Low fuel indicator



### Notice

Instructions for replacing *all* light bulbs are in the *Maintenance* section, beginning on page 95.

## Caution

If an indicator reports a problem, refer to the *Super X Service Manual* or contact your Excelsior-Henderson Dealer as soon as possible.

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### Headlamp High Beam Indicator

 The headlamp high beam indicator illuminates when the headlamp dimmer switch (see “Headlamp Dimmer Switch,” page 46) is set to high beam.

### Check Engine Indicator

 If the check engine indicator illuminates while the engine is running, the Engine Control Module sensors are reporting abnormal sensor or engine operation and a serious engine problem may exist.

The check engine indicator also illuminates when the main switch is in the **On** position, the engine stop/run switch is set to run (see “Engine Stop/Run Switch,” page 48), and the engine is not running. This demonstrates that the indicator bulb is functioning properly.

### Turn Signal Indicator

 The turn signal indicator flashes when either the left or right turn signals are active, or when the emergency flashers are active.

If none of the turn signal bulbs is working, or if there is a short circuit in the turn signal system, the turn signal indicator flashes at twice the normal rate.

## Neutral Indicator

**N** The neutral indicator illuminates when the transmission is in neutral. If the indicator does not illuminate and you are able to roll the motorcycle freely forward and backward with the clutch lever released, the neutral indicator may not be functioning.

## Low Oil Pressure Indicator

 If the low oil pressure indicator illuminates while the engine is running, the oil pressure has dropped below the minimum pressure, which indicates either a low oil level or an oil system malfunction. If this indicator illuminates while the engine is running, turn the engine off immediately and check the oil level. Add oil if necessary. If the oil level is correct and the light remains illuminated when the engine is running, turn the engine off immediately.

The low oil indicator also illuminates when the ignition is on and the engine is not running. This demonstrates that the indicator bulb is functioning properly.

## Low Battery Voltage Indicator

 The low battery voltage indicator illuminates when the battery voltage drops below the minimum level. See “Battery,” page 119.

## Low Fuel Indicator



The low fuel indicator illuminates when approximately 1 gallon of fuel remains.

## Speedometer

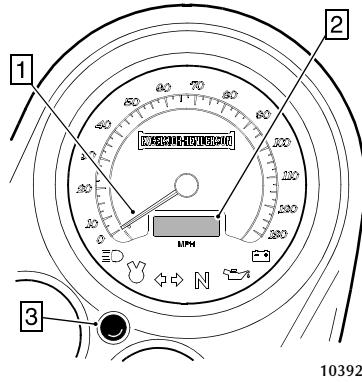
The speedometer indicates riding speed in miles per hour (mph).

## Odometer/Trip Meter

A single, digital display on the speedometer face indicates either the odometer or the trip meter mileage.

The digital odometer indicates total miles traveled. When the odometer reading is displayed, "ODO" appears as part of the display.

The digital trip meter indicates total miles traveled since the trip meter was reset. When the trip meter reading is displayed, "TRIP" appears as part of the display. You can use the trip meter to estimate your miles per gallon and calculate the approximate number of miles you can travel on a tank of fuel.



1. Speedometer
2. Odometer/trip meter
3. Odometer /trip meter function button

## Odometer/Trip Meter Function Button

The odometer/trip meter function toggles the digital display between the odometer and trip meter. It also resets the trip meter.

To toggle the digital display between the odometer and the trip meter, press and release the odometer/trip meter function button.

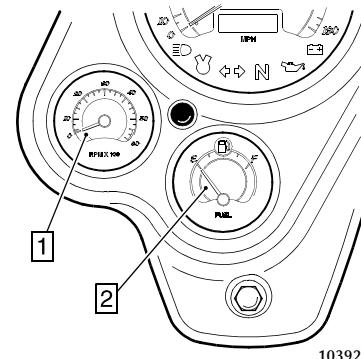
To reset the trip meter, display the trip meter reading. Then press and hold the odometer/trip meter function button for two seconds.

## Tachometer

The tachometer indicates the engine speed in revolutions per minute (rpm). A red line on the gauge indicates the rpm in excess of the safe operating range.

### **⚠ WARNING**

Do not operate the engine at or over 5500 rpm.  
Excessive rpm could cause engine damage or failure  
which could result in you losing control of the  
motorcycle.



1. Tachometer
2. Fuel gauge

## Fuel Gauge

The fuel gauge indicates the amount of fuel in the fuel tank.

# Handlebar Controls

## Left Side Handlebar Controls

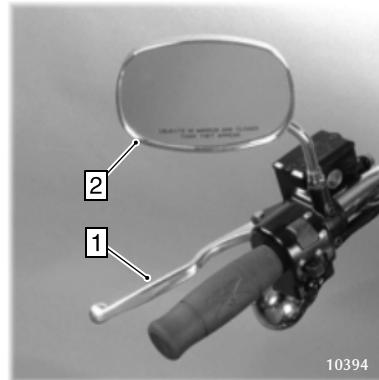
The left side handlebar controls include the clutch lever, the left mirror, the headlamp dimmer switch, the turn signal switch, and the horn button.

### Clutch Lever

To disengage the clutch, pull the clutch lever toward the handlebar. To engage the clutch, gradually release the clutch lever. For smooth clutch operation, pull the lever quickly and release it gradually.

### Left Mirror

The mirror is convex and therefore objects you see in it are actually closer to you than they appear to be in the mirror.



1. Clutch lever
2. Mirror

## Headlamp Dimmer Switch

 The headlamp dimmer switch toggles the headlamp between the low beam  and the high beam. To activate the low beam, press the lower portion of the switch; to activate the high beam, press the upper portion of the switch.

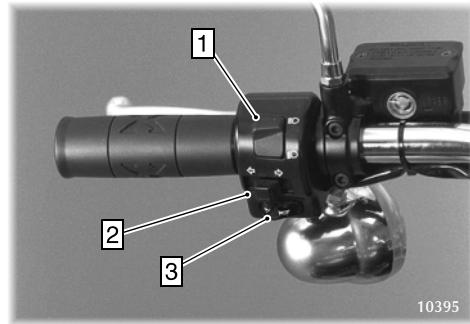
## Turn Signal Switch

 The turn signal switch activates and cancels the turn signals. To activate the left turn signals, push the switch to the left; to activate the right turn signals, push the switch to the right. To cancel the turn signals, push the switch in, toward the handlebar.

The turn signals cancel automatically after you have travelled approximately 1/5 mile.

## Horn Button

 To sound the horn, press the horn button.



1. Headlamp dimmer switch
2. Turn signal switch
3. Horn button

## Right Side Handlebar Controls

The right side handlebar controls include the front brake lever, the throttle control grip, the right mirror, the engine stop/run switch, the emergency flasher switch, and the electric starter button.

### Front Brake Lever

To apply the front brake, pull the front brake lever toward the handlebar.

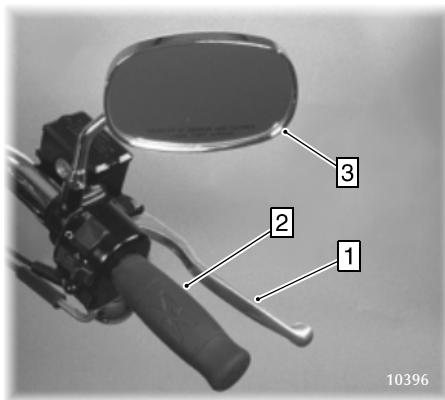
For braking procedures in various riding conditions, see “Braking,” page 89.

### Throttle Control Grip

The throttle control grip controls the engine speed. To increase engine speed, twist the throttle control grip toward you; to decrease engine speed, twist the grip away from you. When you release the grip, it returns to the idle speed position.

### Right Mirror

The mirror is convex and therefore objects you see in it are actually closer to you than they appear to be in the mirror.



1. Front brake lever
2. Throttle control grip
3. Mirror

## Engine Stop/Run Switch



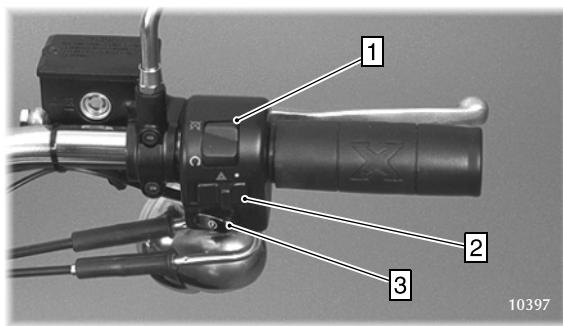
The engine stop/run switch completes or interrupts the ignition and starter circuits. To complete the ignition and starter circuits, allowing the engine to start or run, press the lower portion of the engine stop/run switch. To interrupt the ignition and starter circuits, press the upper portion of the switch; the engine cannot start or run when the switch is in this position.

Use the engine stop/run switch to turn the engine off under normal or emergency conditions.

## Emergency Flasher Switch



The emergency flasher switch activates and cancels the emergency flashers. When the emergency flashers are active, the turn signals flash. To activate the emergency flashers, slide the switch to the left; to cancel the flashers, slide the switch to the right.



1. Engine stop/run switch
2. Emergency flasher switch
3. Electric starter button

## Electric Starter Button

⚡ To start the engine, with the main switch in the **On** position and the engine stop/run switch in the run position, press the right side of the electric starter button.

# Foot Controls

## Gear Shift Pedal

The gear shift pedal is located on the left side of the motorcycle. To shift to a lower gear, press down on the front of the gear shift pedal. To shift to a higher gear, press down on the rear, or lift up on the front, of the gear shift pedal.

For proper gear shifting procedure, see “Shifting Gears,” page 84.

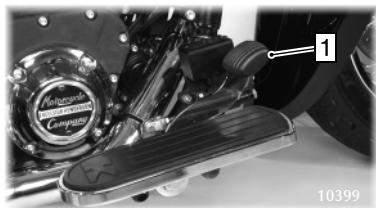


1. Gear shift pedal

## Rear Brake Pedal

The rear brake pedal is on the right side of the motorcycle. To engage the rear brake, press down on the rear brake pedal.

For braking procedures in various riding conditions, see “Braking,” page 89.

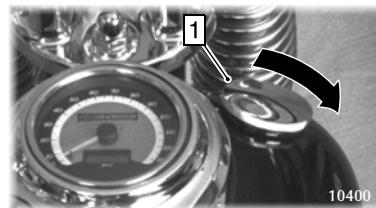


1. Rear brake pedal

## Fuel Cap

The Super X fuel cap is vacuum vented. The fuel cap is right-hand threaded (turn clockwise to tighten). When tightening the fuel cap, continue turning the cap until a clicking sound is heard, indicating proper tightness.

For fueling procedure, see “Fueling and Fuel Fill Height,” page 79.



1. Fuel cap

## Rear Suspension Adjustment

Proper rear suspension adjustment is essential for a safe and comfortable ride. The Super X rear suspension can be adjusted by changing the setting of either the preload adjuster or the damping rate adjuster, both located on the rear shock absorber. This section identifies the location of the rear shock absorber and the two adjusters. It provides the value set at the factory, the range of settings, and instructions for changing each setting. It also explains how the preload and damping rate adjusters affect shock absorber and rear suspension behavior.

### **WARNING**

Insufficient preload or damping rate adjustment can reduce ground clearance, which could allow components to come into contact with the ground, causing you to lose control of the motorcycle.

---

To remove or replace the rear shock absorber, see the *Super X Service Handbook* or contact your authorized Excelsior-Henderson Dealer.

### **WARNING**

The rear shock absorber contains nitrogen gas under high pressure. To prevent injury, do not disassemble, rebuild, puncture, or apply heat to the shock absorber.

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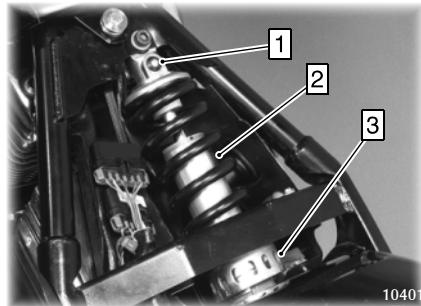
## Location of Adjusters

The rear shock absorber is located under the rider's saddle. The damping rate adjuster is at the top of the shock absorber, and the preload adjuster is at the bottom.

## Factory Adjustment Settings

Preload and damping rate are set at the factory to provide a rider of average weight a comfortable ride under normal conditions, without passenger, cargo, or accessories on the motorcycle.

- The preload is set to setting 2 at the factory.
- The damping rate is set to detent 6 at the factory.



1. Damping rate adjuster
2. Rear shock absorber
3. Preload adjuster

## Adjusters and Their Setting Ranges

The preload adjuster is a cam with seven notches, labeled 1–7. Setting 1 provides the minimum preload; setting 7, the maximum preload.

The damping rate adjuster is a screw head with 14 detents. Each detent is a point of slight resistance that you feel as you turn the damping rate adjusting screw with a screwdriver.

To find detent 1, the minimum damping setting, turn the screw counterclockwise until it stops. Then turn the screw slowly clockwise until you feel it stop at the first detent. Turn the screw approximately 180° to locate the next detent.

## **Changing Adjustment Settings**

Change the preload adjustment setting whenever the current setting is not correct for load you intend to carry (see “Changing Preload Adjustment,” page 54). Adjust the preload before you adjust the damping rate. When you are satisfied that the preload is properly adjusted, change the damping rate setting if necessary (see “Changing Damping Rate Adjustment,” page 57). Changing the damping rate setting is necessary if the rear suspension continues to move up and down after the rear shock absorber has absorbed a shock, or if you are not satisfied with the feel of the rear suspension.

For weight limitations, see “Gross Vehicle Weight Rating,” page 14. For loading considerations, see “Loading,” page 15.

For additional information, see “Effects of Rear Suspension Adjustments,” page 58.

## Changing Preload Adjustment

This procedure involves using the Excelsior-Henderson rear shock adjusting wrench (part no. EH-6999-0029), which is designed specifically for changing the preload adjuster setting.

1. In the following table, find the weight closest to your own, including your riding apparel and all its contents, and identify the rider payload. If your weight is between two of the weights in the table, choose the higher rider payload.

Your weight (in pounds)	Rider payload (in pounds)	Your weight (in pounds)	Rider payload (in pounds)	Your weight (in pounds)	Rider payload (in pounds)
100	70	180	126	260	182
110	77	190	133	270	189
120	84	200	140	280	196
130	91	210	147	290	203
140	98	220	154	300	210
150	105	230	161	310	217
160	112	240	168	320	224
170	119	250	175	330	231

2. Determine the weight of your passenger, and cargo and accessories located rear of the rider's saddle, if any. Accessories located forward of the rider's saddle do not affect preload.

3. Calculate the total rear wheel payload:

**total rear wheel payload** =rider payload + (weight of passenger + cargo + accessories located rear of the rider's saddle)

For example, if you weigh 200 lb, the rider payload is 140 lb. If you carry 30 lb of cargo and have 35 lb of accessories located to the rear of the rider's saddle, you would make the following total rear wheel payload calculation:

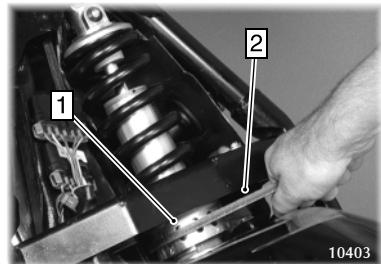
$$140 \text{ lb} + 30 \text{ lb} + 35 \text{ lb} = 205 \text{ lb rear wheel payload}$$

4. In the following table, find the total rear wheel payload closest to the one you calculated and identify the preload setting. If your total rear wheel payload is exactly halfway between two of the payloads in the table, choose the higher preload setting.

Total rear wheel payload (in pounds)	Preload setting	Total rear wheel payload (in pounds)	Preload setting
125	1	230	5
155	2	260	6
175	3	285	7
205	4		

If your total rear wheel payload is *over* 285 lb, choose preload setting 7 and be aware that your load will reduce ground clearance, which could cause you to lose control of the motorcycle.

5. If you have not already done so, remove the tandem and rider's saddles (see "Saddles," page 117).
6. Each notch in the preload adjuster is labelled with a number 1–7, indicating the preload adjustment setting. Using the rear shock adjusting wrench, turn the preload adjuster until the notch you need rests on the adjuster setting tab.
7. Test ride the Super X on a road that is in the poorest condition you expect to encounter, carrying your intended load. After the test ride, make additional preload adjustments if necessary.
8. When you are satisfied that the preload is properly adjusted, if you are going to change the damping rate adjustment, see "Changing Damping Rate Adjustment," page 57. Otherwise, reinstall the rider's and tandem saddles (see "Saddles," page 117).



1. Preload adjuster  
2. Rear shock adjusting wrench

## Changing Damping Rate Adjustment

Adjust the preload setting before you make any adjustment to the damping rate.

1. If you have not already done so, remove the tandem and rider's saddles (see "Saddles," page 117).
2. Using a flat blade screwdriver with the appropriate size blade, turn the damping rate adjustment screw counterclockwise to reduce the damping rate for a softer ride, or clockwise to increase the damping rate for a firmer ride. Each detent is a point of slight resistance that you feel as you turn the damping rate adjusting screw.
3. Reinstall the rider's and tandem saddles (see "Saddles," page 117) and test ride the motorcycle with the load you intend to carry on a road that is in the poorest condition you expect to encounter. During the test ride, if the rear suspension continues to move up and down after the rear shock absorber has absorbed a shock, or if you are not satisfied with feel of the rear suspension, repeat the damping rate adjustment and test riding procedure until you eliminate this condition.

## Effects of Rear Suspension Adjustments

### **WARNING**

Insufficient preload or damping rate adjustment can reduce ground clearance, which could allow components to come into contact with the ground, causing you to lose control of the motorcycle.

---

A properly adjusted rear suspension travels up and down smoothly because the shock absorber compresses and decompresses at a rate and force that does not jar the rear suspension. Taking road conditions into account, when the rear suspension is properly adjusted, the ride is smooth, the motorcycle's ground clearance is adequate, and steering characteristics are normal. Based on your total rear wheel payload (see calculation, page 55), you can adjust the shock absorber preload and damping rate settings to produce a solid-handling ride that suits your comfort preference.

Preload is a measure of how much the shock absorber spring is compressed when the shock absorber itself is uncompressed. The degree of preload affects the amount of rear suspension travel. It affects how much force is necessary to compress the shock absorber, allowing the rear suspension to move up. The degree of preload also affects how much force is applied to decompress the shock absorber, moving the rear suspension down. The smaller the preload, the lower the motorcycle is to the ground. Smaller preload settings decrease the saddle

height, but also bring the exhaust pipes and other components at or near the bottom of the motorcycle closer to the ground.

The proper preload setting ensures that the rear suspension moves up and down under the total rear wheel payload without causing the motorcycle to “bottom out” or “top out,” either of which produces a jarring sensation. The motorcycle bottoms out when the suspension has completely compressed before it has fully absorbed a shock, causing the upward motion of the rear wheel (downward motion of the motorcycle) to stop abruptly. Similarly, the motorcycle tops out when the suspension has completely extended to its full length, causing the downward motion of the rear wheel (upward motion of the motorcycle) to stop abruptly.

The damping rate affects the smoothness of the ride by determining how quickly and to what degree the shock absorber resists compression and rebound. When the rear wheel moves up, the shock absorber compresses; when the wheel moves down, the shock absorber rebounds. The higher the damping rate, the more quickly and strongly the shock absorber resists compression and rebound, resulting in a “firmer” feel to the ride. Too much damping causes a jarring ride. The lower the damping rate, the less the shock absorber resists compression and rebound, producing a “softer” ride. Too little damping allows the rear suspension to continue moving up and down after the rear shock absorber has absorbed a shock, which can cause instability and, in corners, reduce ground clearance. Damping rate also helps prevent bottoming out and topping out.

When the damping rate is properly adjusted:

- The rear suspension does not continue moving up and down after the rear shock absorber has absorbed a shock.
- The motorcycle has a solid feel going through turns, and during and after bumpy stretches.
- When traveling over a series of bumps, handlebar vibration is minimal and the ride is relatively smooth.

The proper damping rate is also somewhat subjective, depending on your preference for the feel of the ride.

## Sidestand

The sidestand is located on the left side of the motorcycle. When the sidestand is extended, it locks into position as long as the motorcycle's weight is on it, preventing it from retracting if the motorcycle moves forward.

### **WARNING**

Do not operate the motorcycle without the sidestand completely retracted. It could come into contact with the ground and cause you to lose control of the motorcycle.

---

To extend the sidestand, swing it out from the end until it is fully extended. Lean the motorcycle toward the sidestand until the sidestand supports the motorcycle. The sidestand is now locked in position.

To retract the sidestand, lean the motorcycle away from the sidestand until the motorcycle is fully upright. The sidestand is released from its locked position. Swing the sidestand back into its retracted position.

## Saddles

The Super X has a rider's saddle and a tandem saddle. The tandem saddle has a saddle strap for the passenger to hold on to while riding.



# Pre-Operation Check

To keep your Super X motorcycle in good working order, make the checks described in this section before each ride. This is especially important before you make a longer trip or when you remove the Super X from storage. You must be familiar with the Super X instruments and controls to make these checks. You can find additional service information in the *Maintenance* section of the *Rider's Handbook*, in the *Super X Service Handbook*, or from your local authorized Excelsior-Henderson Dealer.

During the pre-operation check you might use products that are potentially hazardous, such as oil. When using any of these products, follow the instructions and warnings on the product packaging.

## **WARNING**

Failure to perform these checks before you ride may result in injury or damage. Adjust components designed for normal wear adjustment, and repair or replace worn or damaged components, as necessary.

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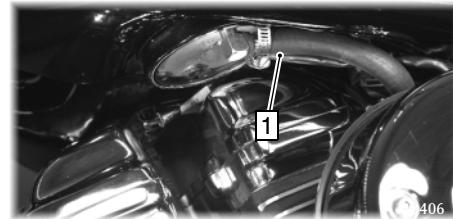
# Fuel

## Fuel Level

1. Mount the Super X on level ground and bring it to a vertical position.
2. Turn the main switch to the **On** position and note the fuel level once the fuel gauge needle stops moving.
3. Estimate your next fuel stop and plan accordingly.

## Fuel Hose, Rail, and Connections

Inspect the fuel hose, and its connection to the fuel pump and to the fuel rail, for dampness or stains from leaking or dried fuel.



1. Fuel hose

## Evaporative Emission Control System (California model only)

Visually inspect all evaporative emission control system hoses and connections. Make sure all connections are tight. Also, inspect the evaporative canister to make sure it has not been damaged.

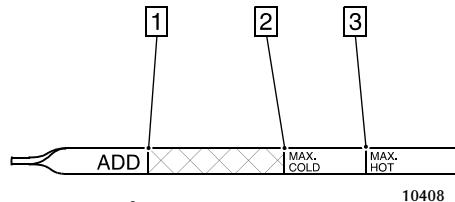
## Engine Oil Level

A dipstick attached to the oil fill cap registers the engine oil level.

1. With the engine at normal operating temperature, mount the motorcycle and bring it to an upright position on level ground.
2. With the transmission in neutral, start and run the engine at 2500 - 3000 rpm for 30 seconds. Shut the engine while the motorcycle is still in the upright position.
3. Rest the motorcycle on the sidestand and on level ground. Remove the oil fill cap and wipe the dipstick clean. Reinstall the dipstick and turn the cap clockwise until it seats.
4. Remove the dipstick again and note the oil level.



1. fill cap and dipstick



1. ADD mark  
2. MAX. COLD mark  
3. MAX. HOT mark

5. If necessary, add or remove oil to bring the level into the area on the dipstick above the ADD mark and below the appropriate MAX. mark (see “Engine Oil Specifications,” page 239). Repeat steps 3–4 each time you adjust the oil level.

**⚠ WARNING**

Do not operate the motorcycle with the oil level above the appropriate MAX. mark or below the ADD mark. Operating the engine with too much or too little oil can cause serious engine damage or engine seizure, resulting in you losing control of the motorcycle.

---

## Tires

### Tire Pressure

Normal riding warms the tires and increases the tire air pressure. For an accurate reading, check the tire pressure before you ride. Adjust tire pressure as required for the total weight of your intended load.

	Up to 200 lb load	200 lb-440 lb load
<b>Front: Dunlop® tires 491 Elite II MT90HB16</b>	36 psi (cold)	36 psi (cold)
<b>Rear: Dunlop® tires 491 Elite II MU90HB16</b>	36 psi (cold)	40 psi (cold)

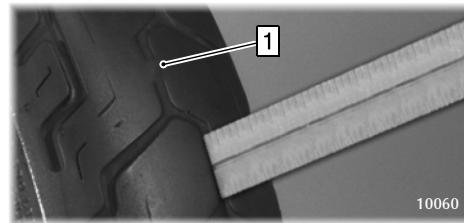
## Tire Condition

Inspect the tire sidewalls, road contact surface, and tread base for cuts, punctures, and cracking. Replace damaged tires immediately (see your Super X Service Handbook or an authorized Excelsior-Henderson Dealer).

## Tread Depth

Raised areas at the base of the tread, known as wear bars, act as easily-visible tread depth indicators. When the road contact surface has worn to the top of the wear bars, replace the tire.

If you have installed tires that do not have wear bars, use an accurate ruler or depth gauge to measure the shallowest tire tread you can find (usually near the center of the tire surface). Replace a tire with a tread depth less than  $1/16$ " (see your Super X Service Handbook or an authorized Excelsior-Henderson Dealer).



1. Wear bar

## **Drive Belt**

Replace the drive belt if it is cracked or has broken teeth or frayed edges (consult your Super X Service Handbook or an authorized Excelsior-Henderson Dealer).

## **Steering**

Mount the motorcycle and bring it to a vertical position. Turn the handlebars from stop to stop. The action should be smooth but not loose or interfered with by wires or control cables.

## **Hydraulic Controls — Clutch and Brakes**

### **Check Hoses and Connections**

Inspect all brake and clutch hoses and connections for dampness or stains from leaking or dried brake fluid.

## Check Front Brake & Clutch Fluid Level

1. To check the front brake or clutch fluid level, mount the motorcycle and bring it to a vertical position. Turn the handlebars until the reservoir is horizontal.
2. View the hydraulic fluid through the sight glass. The fluid should be clear and at a level above the "Lower" marking on the reservoir. Add hydraulic fluid if necessary.



Fluid reservoir with sight glass

## Check Rear Brake Fluid Level

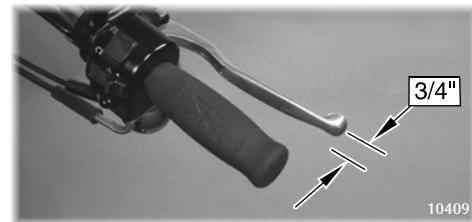
1. To check the rear brake fluid level, bring the motorcycle to a vertical position with an appropriate motorcycle lift or a block of wood or steel placed securely under the frame.
2. View the hydraulic fluid through the sight glass. The fluid should be clear and at a level at or near the top of the sight glass. Add hydraulic fluid if necessary.

## Check Clutch Lever Movement

Squeeze the clutch lever toward the handlebar and release it. It should move freely and smoothly and should return to its rest position quickly when released.

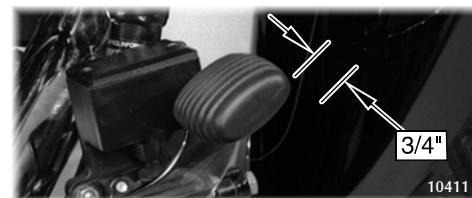
## Check Front Brake Lever Movement

Squeeze the front brake lever toward the handlebar and release it. It should move freely and smoothly and should return to its rest position quickly when released. You should feel a firm resistance in the lever within the first  $3/4$ " of lever travel.



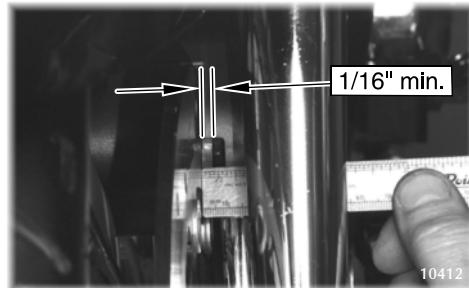
## Check Rear Brake Pedal Movement

Press and release the rear brake pedal. It should move freely and smoothly and should return to its rest position quickly when you release it. You should feel a firm resistance in the pedal within the first  $3/4$ " of pedal travel.



## Check Brake Pads

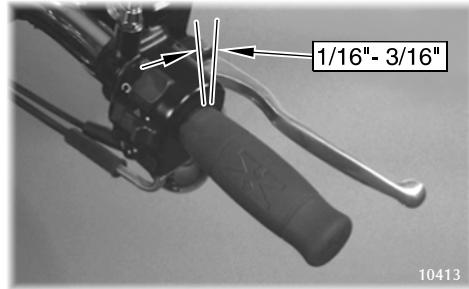
Looking in through the back of the front brake caliper, and down through the top of the rear caliper, you should see at least  $1/16"$  of friction material on the pads. If in doubt, measure remaining friction material. Replace brake pads having less than  $1/16"$  of friction material at their thinnest point. Replace brake pads in pairs.



## Throttle Control Grip and Cables

Rotate the throttle control grip. It should rotate smoothly from its rest position to its completely open position and back again. It should return to its rest position quickly when released.

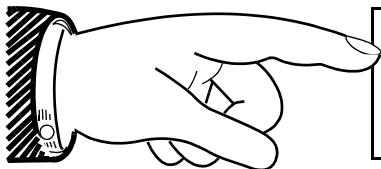
Throttle freeplay — the amount of throttle control grip movement from the rest position to the point of cable resistance — should be between  $1/16"$  and  $3/16"$ .



## Electrical Equipment

### Engine Stop/Run Switch

Be sure the engine stop/run switch stops the engine. If you regularly use this switch to shut off the engine, you are checking its operation each time you use the motorcycle.



**To inspect the remaining electrical items in this section, set the main switch to the On position. When you have completed these checks, set the main switch to the Off position.**

### Instrument Pod

The odometer/trip meter display should show the mileage reading, and “ODO” or “TRIP” should be part of the display. The low oil pressure indicator should illuminate. If the transmission is in neutral, the neutral indicator should illuminate. The gauge lights under the speedometer, tachometer, and fuel gauge should also illuminate.

Set the engine stop/run switch to the run position. The check engine indicator should illuminate. Return the engine stop/run switch to the stop position.

Press the horn button. The horn should sound.

Press the odometer/trip meter function button. The odometer/trip meter display should change to show the current trip meter reading.

## **Headlamp**

Check the headlamp to see that it is on. Set the headlamp dimmer switch to the high beam position. The headlamp brightness should increase and the high beam indicator in the instrument pod should illuminate.

## **Brake Light**

Apply slight pressure to the front brake lever; tail light brightness should increase. Apply slight pressure to the rear brake pedal; tail light brightness should increase.

## **Running Lights**

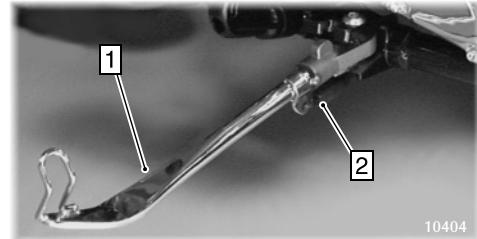
The two amber front running lights and the tail light should illuminate. The license plate light should also illuminate.

## **Turn Signals**

Move the turn signal switch to the left. The front and rear left turn signal lights, and the turn signal indicator, should flash. Push the switch in toward the housing. The turn signals and turn signal indicator should stop flashing. Repeat the operation for the right turn signals.

## Sidestand

Move the sidestand to its stored (up) position, then to its fully extended (down) position, and back again. It should move smoothly. When the sidestand is in its stored position, the sidestand return spring should hold the sidestand tightly against the motorcycle.



1. Sidestand
2. Return spring

## Fasteners

Visually inspect the entire motorcycle chassis and engine for loose, damaged, or missing fasteners. Each fastener has an important purpose or it wouldn't be there. Tighten loose fasteners to the proper torque (see "Torque Specifications," page 240). Replace stripped, damaged, or broken fasteners immediately.

Some genuine Excelsior-Henderson threaded fasteners are coated with a thread-locking patch. After removing and reinstalling the fastener 2 or 3 times, the thread-locking patch wears away and the fastener should be replaced with the same genuine Excelsior-Henderson fastener.

## Notes:



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# Operation and Riding

This section describes how to operate the Super X motorcycle for best performance and longevity, including:

- motorcycle break-in period
- starting the engine
- shifting gears
- accelerating
- braking
- stopping the engine
- parking

For safe operation and riding, see *Safety Information*, beginning on page 5.

## **Operating During Break-In Period (First 500 Miles)**

Your new Super X is designed and built with premium-quality materials and expert craftsmanship, providing optimum performance from the first mile. During the first 500 miles, critical parts require special wear-in procedures so they seat and mate properly. Use the following rules for operation during the first 500 miles to ensure your engine's long-term performance and durability.

### **During the first 500 miles:**

- Vary the engine speed. Do not keep a steady engine speed for an extended time.
- Do not exceed 70 mph. Within this limitation, you can run the engine at speeds up to 3000 rpm. Select gears that prevent lugging the engine.

### **At 500 miles:**

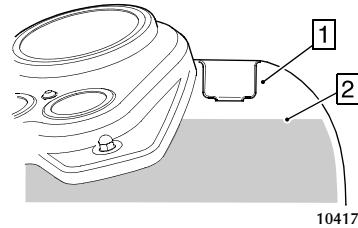
Perform the break-in maintenance after you've ridden your new Super X 500 miles. This maintenance is one of the most important services your motorcycle requires and should be performed by an authorized Excelsior-Henderson Dealer. Break-in maintenance includes servicing all adjustments, tightening all fasteners, and changing engine oil. Performing this maintenance at the required mileage point helps the engine maintain top performance for its entire service life.

## Fueling and Fuel Fill Height

Fuel the Super X with the sidestand down and on level ground. Use only the recommended fuel (see "Fuel Specifications," page 238). Fill the fuel tank to a level about 3/4" below the bottom of the fuel filler insert.

### ⚠ WARNING

- Do not allow gasoline to come into contact with a hot engine or exhaust system. This could cause a fire. Immediately wipe, or rinse with water, gasoline spilled on any part of the Super X or the surrounding area.
- Do not fill the fuel tank above the fuel filler insert. Overfilling the fuel tank may cause fuel to overflow when it expands.
- Fuel may leak from an improperly seated or tightened fuel cap. Tighten the fuel cap until you hear one or more distinct clicks. Be certain the fuel cap is properly seated and tightened before starting the engine.



1. Fuel filler insert
2. Fuel fill height

### ⚠ Caution

Fuel can damage painted surfaces and plastic parts. Wipe spilled fuel immediately from the motorcycle using a clean, dry, soft cloth.

## Starting the Engine

### **WARNING**

Before you start the engine, shift the transmission to neutral (see “Shifting Gears,” page 84) to prevent a sudden, accidental movement that could injure you or others.

---

The Super X has a port sequential fuel injection system. There is no choke or fuel shutoff valve. The Engine Control Module (ECM) makes all adjustments necessary for starting and running the engine in all temperatures and other ambient conditions.

### **Notice**

Start the motorcycle with the throttle closed (throttle control grip in the idle speed position), as the ECM adjusts the fuel flow needed to start the engine.

---

Follow these steps to start the Super X:

1. Perform the pre-operation check described in *Pre-Operation Check*, beginning on page 63. If you are carrying cargo, inspect cargo restraints for tightness.
2. Unlock the fork lock.

3. Unlock the main switch, remove the key, and set the indicator to the **On** position (see “Main Switch,” page 38).

The low oil pressure indicator illuminates. The neutral indicator illuminates if the transmission is in neutral.

4. Engage the front brake, mount the motorcycle, and place the sidestand in the stored (up) position. If the neutral indicator is not illuminated, shift the transmission to neutral (see “Shifting Gears,” page 84).

If the neutral indicator still does not illuminate, see “Neutral Indicator,” page 42.

5. Set the engine stop/run switch to the run position.

The check engine indicator illuminates. You should hear the fuel pump momentarily as it pressurizes the fuel system.

6. Leaving the throttle closed, press and hold the electric starter button for several seconds until the engine starts.

### **Caution**

Allow the engine to idle for about 30 seconds after a cold or a warm start; do not rev the engine or put the transmission in gear during this idling period. This allows the oil to reach all areas requiring lubrication before the engine is put under load.

---

If the engine does not start within a few seconds after you press the starter button, release the button and wait several seconds. Then press and hold the starter button again. Hold the starter button for as short a time as possible to minimize battery drain, and do not push the starter button for more than 10 seconds at any one time.

If either the check engine indicator or the low oil pressure indicator does not go out after the engine starts, stop the engine. See either “Check Engine Indicator,” page 41 or “Low Oil Pressure Indicator,” page 42.

## Jump-Starting

Although not recommended, we realize that in an emergency situation jump-starting the motorcycle may be necessary. Please use the following procedure when jump-starting the motorcycle.

### **WARNING**

The battery may contain explosive gases.

- Keep sparks, cigarettes, or any flame away from the battery.
- Avoid creating sparks by making sure the jumper cable clamps do not come into contact with anything other than the battery terminals or a safe ground.

---

1. Remove the battery box cover strap and the battery box cover. Slide the rubber boot off of the positive ( + ) terminal.
2. Connect the jumper cables in the following order:

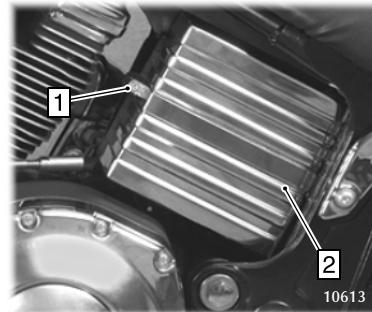
One end of a jumper cable to the positive ( + ) terminal of the discharged battery.

The other end of the same cable to the positive ( + ) terminal of the booster battery.

One end of a second jumper cable to the negative terminal of the booster battery.

The other end of the same cable to a safe ground on the motorcycle being jump-started. The best place to safely ground the Super X is to the front cylinder exhaust stud

3. Start the motorcycle.
4. Disconnect the jumper cables in reverse order
5. Slide the rubber boot over the positive terminal and reinstall the battery cover strap and cover.
6. Properly charge or replace the discharged battery as soon as possible (see "Battery," page 119).



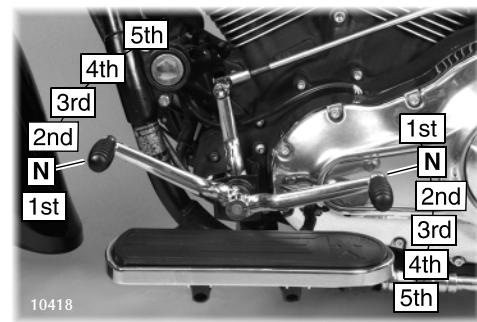
1. Battery cover strap
2. Battery cover

## Shifting Gears

### ⚠ WARNING

The clutch must be fully disengaged (clutch lever pulled completely in toward the handlebars) before you attempt to shift gears. Forced shifting (shifting without the clutch disengaged) may damage the engine, transmission, and drive train, causing you to lose control of the motorcycle.

The Super X is equipped with a five-speed transmission. The gear pattern is shown in the illustration to the right. The Super X has a heel-toe shift pedal which allows you to shift to a higher gear by depressing the rear of the pedal with your heel or by lifting the front of the pedal with your toe. To shift to a lower gear, depress the front of the pedal with your toe.



Neutral position is between first and second gear. The transmission is in neutral when the motorcycle moves forward or backward freely while the clutch is engaged. With the main switch set to either **On** or **Acc**, the neutral indicator illuminates when the transmission is in neutral.

To engage first gear, start the engine (see “Starting the Engine,” page 80). With the engine at idle speed, engage the front brake (squeeze the brake lever) and

disengage the clutch (squeeze the clutch lever). Push the shift pedal down until you feel it stop in first gear. Disengage the front brake (release the brake lever).

Simultaneously moving both the clutch lever and the throttle control grip with a smooth, gentle motion, gradually engage the clutch (release the clutch lever) and open the throttle (roll the throttle control grip toward you). As the clutch begins to engage, the motorcycle begins to move forward.

To shift to the next higher gear, accelerate smoothly and easily to the recommended shift point (see “Recommended Shift Points,” page 87). With a quick motion, simultaneously close the throttle completely and disengage the clutch. Raise the shift pedal with your toe, or depress it with your heel, until you feel it stop at the next gear. Simultaneously moving both the clutch lever and the throttle with a smooth, gentle motion, gradually release the clutch lever and open the throttle.

Within the recommended speed ranges (see “Recommended Shift Points,” page 87), you can downshift (shift to a lower gear) to slow the motorcycle or to increase the available power. You may want to downshift when climbing a hill or passing. Downshifting also helps to decrease your speed when combined with closing the throttle.

To shift to a lower gear, simultaneously pull in the clutch lever and close the throttle. Shift into the next lower gear and simultaneously release the clutch lever and open the throttle.

**⚠ WARNING**

Downshifting at a speed in excess of the recommended downshift point may severely damage the transmission or cause the rear wheel to lose traction. In either case, you could lose control of the motorcycle. It could also result in engine damage from running at excessive rpm. Reduce speed before downshifting and do not downshift at a speed above that in the table of recommended shift points.

---

**⚠ WARNING**

Downshifting abruptly on wet, rough, loose, or slippery surfaces can cause the motorcycle to skid. This can cause you to lose control of the motorcycle. When downshifting while passing over such surfaces, release the clutch lever very gradually.

---

**⚠ WARNING**

Downshifting in a curve may cause the rear wheel to lose traction, which could cause you to lose control of the motorcycle. Downshift before you enter a curve.

---

## Recommended Shift Points

The following table shows the appropriate speed at which to shift up and shift down to each gear.

**Recommended Shift Points (during break-in period)**

Upshift (Acceleration) Gear Change	Upshift Speed	Downshift (Deceleration) Gear Change	Downshift Speed
1st to 2nd	20 mph	5th to 4th	45 mph
2nd to 3rd	30 mph	4th to 3rd	35 mph
3rd to 4th	40 mph	3rd to 2nd	25 mph
4th to 5th	55 mph	2nd to 1st	15 mph

**Recommended Shift Points (after break-in period)**

Upshift (Acceleration) Gear Change	Upshift Speed	Downshift (Deceleration) Gear Change	Downshift Speed
1st to 2nd	15 mph	5th to 4th	50 mph
2nd to 3rd	25 mph	4th to 3rd	40 mph
3rd to 4th	35 mph	3rd to 2nd	30 mph
4th to 5th	50 mph	2nd to 1st	20 mph

## Accelerating



### Caution

Do not accelerate beyond 2500 rpm while the engine is cold. To maximize engine life and performance, allow the engine to warm up fully before accelerating beyond 2500 rpm.

---

To accelerate, open the throttle (roll the throttle control grip toward you). For even acceleration, open the throttle with a smooth, continuous motion. When you reach the recommended speed for upshifting, shift up one gear according to the instructions in “Shifting Gears,” page 84. The more quickly you open the throttle, the more quickly the motorcycle accelerates.



### WARNING

- Abrupt acceleration can cause your body to shift suddenly toward the rear of the motorcycle. This may cause you to lose of control of the motorcycle.
- Accelerating abruptly on wet, rough, loose, or slippery surfaces can cause you to lose of control of the motorcycle. When accelerating on such surfaces, whether you are at a stop or already in motion, open the throttle gradually.

---

## Braking

To slow the motorcycle with the brakes, close the throttle and apply the front and rear brakes evenly. As the motorcycle slows, either disengage the clutch or downshift each time your speed reaches a downshift point. Applying slightly more front brake than rear brake generally gives you the best braking performance. Do not apply the brakes so forcefully or quickly that either wheel stops rotating. Leave sufficient distance so you can apply the brakes gradually if you need to stop.

### **WARNING**

- Do not apply either brake so strongly that the wheel stops rotating. This may cause you to lose control of the motorcycle.
- Braking hard on wet, rough, loose, or slippery surfaces can cause the motorcycle to skid, and you could lose control of the motorcycle. Apply the brakes lightly on such surfaces.
- Braking while in a curve can cause you to lose control of the motorcycle. Brake before entering a curve.

---

## Stopping the Engine

Before stopping the engine, bring the motorcycle to a complete stop either in neutral or with the clutch disengaged. Once the motorcycle is at a complete stop, if it is not already in neutral, shift into neutral. To stop the engine, set the engine stop/run switch to the stop position and turn the main switch indicator to the **Off** position.

### **⚠ WARNING**

- Stopping the engine while the motorcycle is in motion and the transmission is engaged may damage the engine and the transmission or cause the rear wheel to lose traction. In either case, you may lose control of the motorcycle.
- If the motorcycle is in motion and the engine stops on its own, guide the motorcycle to a safe location off the road and away from traffic.

---

## Parking

When parking the motorcycle, choose a flat, firm surface. Bring the motorcycle to a complete stop and, with the transmission in neutral, stop the engine. Set the main switch indicator to **Off**. Fully extend the sidestand, turn the handlebars fully to the left, and lean the motorcycle to the left until the sidestand locks. Lock the main switch and the fork lock, and take the key with you.

### **WARNING**

Moving or operating the motorcycle with the forks locked severely restricts steering and can cause you to drop or lose control of the motorcycle.

---

If you must park on a slope, point the motorcycle toward the top of the slope. Put the transmission in gear and park the motorcycle so that it is stable when it rests on the sidestand.

If you must park on a soft surface, use a sidestand footrest under the foot of the sidestand to provide a firm surface. The sidestand footrest must be strong enough and large enough to support the motorcycle's weight without sinking into the parking surface. Many motorcyclists carry a sidestand footrest.

**Caution**

Asphalt pavement can become soft in hot weather. The sidestand can sink into soft asphalt until the motorcycle falls over. When parking on asphalt in hot weather, use a sidestand footrest under the foot of the sidestand to prevent the sidestand from sinking into the asphalt.

---

**WARNING**

A hot engine or hot exhaust pipes can be hazardous. The engine and exhaust pipes are hot for some time after the engine is stopped. Touching the engine or exhaust pipes while hot can cause serious burns. Allowing flammable materials to contact a hot engine or exhaust pipes may cause a fire. Park the motorcycle where people will not touch the engine or exhaust pipes and where it is not near flammable materials.

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## Notes:



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# Maintenance

This section includes information for maintaining your Super X motorcycle. It also includes recommended periodic maintenance intervals. “Periodic maintenance” means performing the regular service required to keep your Super X in top working condition. Regular service increases motorcycle durability, safety, and dependability, and provides greater riding pleasure.

Also see *Safety Information*, “Maintenance,” page 20.

Before you begin any maintenance procedure, read the instructions for the entire procedure in this section of the *Rider’s Handbook*. Choose a flat, firm surface for servicing the Super X. Make sure you have the time, tools, and expertise to complete a procedure properly.

During maintenance you might use products that are potentially hazardous; such as oil or hydraulic fluid. When using any of these products, follow the instructions and warnings on the product packaging.

For information on major repairs, see the *Super X Service Handbook*. Major repairs typically require the technical skills and specially designed tools available from your authorized Excelsior-Henderson Dealer.

To comply with emission regulations and to ensure proper engine function, we advise that all emission system maintenance and repair be performed by an authorized Excelsior-Henderson Dealer.

## New Motorcycle Break-In Maintenance

Perform the break-in maintenance after you've ridden your new Super X 500 miles. This maintenance is one of the most important services your motorcycle requires and should be performed by an authorized Excelsior-Henderson Dealer. Break-in maintenance includes servicing all adjustments, tightening all fasteners, and changing engine oil. Performing this maintenance at the required mileage point helps the engine maintain top performance for its entire service life.

## Periodic Maintenance Intervals

Use the following periodic maintenance interval table to determine how often you should perform maintenance on various Super X components. For additional information on maintenance operations for each component listed in the table, refer to the instructions in this section.



### Caution

If you regularly ride your Super X at high or low speed for an extended time, or in dusty or other adverse conditions, perform the required maintenance at more frequent intervals to help keep your motorcycle in safe operating condition.

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## Periodic Maintenance Intervals

### Periodic Maintenance Intervals (Continued)

Component (See operation codes below.)	500 mi	2,500 mi	5,000 mi	7,500 mi	10,000 mi	12,500 mi	15,000 mi	17,500 mi	20,000 mi	22,500 mi	25,000 mi	27,500 mi	30,000 mi	32,500 mi	35,000 mi	37,500 mi	40,000 mi	42,500 mi	45,000 mi	47,500 mi	50,000 mi														
Tires	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I															
Wheel spokes			I		I		I		I		I		I		I		I		I		I														
Wheel bearings***				I			I				I			I		I		I		I															
Sidestand			L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L															
All visible fasteners	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I															
Road test	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P															
Operation Codes																																			
I - Inspect (correct, clean, or replace if necessary)							A - Adjust							R - Replace or change																					
L - Lubricate with proper lubricant							P - Perform							** - replace every three years																					
* - at specified interval or annually																																			
*** - inspect during tire replacement																																			

Record information about periodic maintenance in the areas provided in the *Rider's Warranty and Service Records* booklet (Excelsior-Henderson document part no. 6999-0002) you received with your Super X.

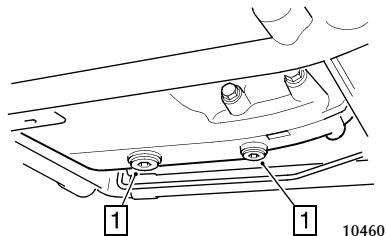
# Engine Oil

## Change Oil and Oil Filter

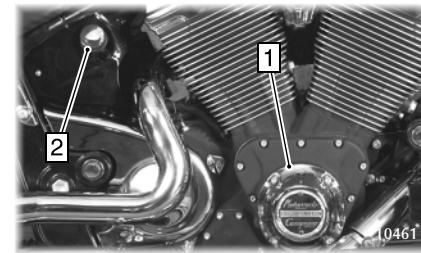
This procedure involves using the Excelsior-Henderson oil filter wrench, part no. EH-6999-0033, which is designed specifically for removing the oil filter.

1. Start and run the engine until it reaches normal operating temperature.
2. Stabilize the motorcycle in an upright position by using an appropriate motorcycle lift or a block of wood or steel placed securely under the frame.
3. Place an oil drain pan under the drain plugs.
4. Remove both drain plugs and their sealing washers, allowing the oil to drain into the pan.
5. Reinstall both drain plugs and sealing washers.
6. Remove the oil filter cover and move the drain pan under the oil filter.

**Torque: 30 ft-lbs**



1. Drain plugs

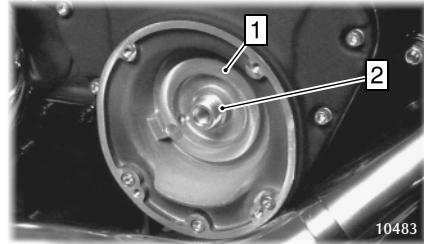


1. Oil filter cover  
2. Oil fill cap

7. Use an oil filter wrench to loosen the oil filter slowly, allowing any oil in the filter to drain into the pan before removing the filter.
8. Clean any residue or debris from the oil filter mounting plate and threads.
9. Apply a thin film of clean engine oil to the new oil filter gasket. Screw the new filter on until the gasket contacts the filter mounting plate. Tighten the filter *by hand* an additional 1/2 to 3/4 turn.
10. Fill the crankcase through the oil fill cap with 3-1/2 quarts of the proper grade and viscosity oil (see "Engine Oil Specifications," page 239).
11. Reinstall the oil fill cap and then start and run the engine until it reaches normal operating temperature.

**⚠ Caution**

After an oil change, the low oil pressure indicator remains illuminated longer than usual before going out. Revving the engine while the low oil pressure indicator is illuminated can damage the engine.



1. Mounting plate  
2. Mounting plate thread

12. Stop the engine and make sure there are no leaks around the drain plugs and oil filter. Reinstall the oil filter cover. Check the oil level using the recommended procedure and adjust if needed.

### Notice

Recycle used oil and oil filters in accordance with local regulations.

---

## Check Oil Level

1. With the engine at normal operating temperature, mount the motorcycle and bring it to an upright position on level ground.
2. With the transmission in neutral, start and run the engine at 2500 - 3000 rpm for 30 seconds. Shut the engine while the motorcycle is still in the upright position.
3. Rest the motorcycle on the sidestand and on level ground. Remove the oil fill cap and wipe the dipstick clean. Reinstall the dipstick and turn the cap clockwise until it seats.



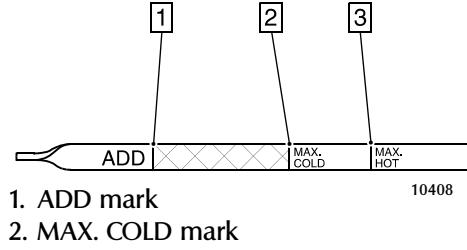
1. Fill cap and dipstick

4. Remove the dipstick again and note the oil level.
5. If necessary, add or remove oil to bring the level into the area on the dipstick above the ADD mark and below the appropriate MAX. mark (see "Engine Oil Specifications," page 239). Repeat steps 3-4 each time you adjust the oil level.

### **⚠ WARNING**

Do not operate the motorcycle with the oil level above the appropriate MAX. mark or below the ADD mark. Operating the engine with too much or too little oil can cause serious engine damage or engine seizure, resulting in you losing control of the motorcycle.

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## Air Filter Element

The standard Excelsior-Henderson air filter element is a dry paper/wire mesh design and does not require the use of air filter oil.

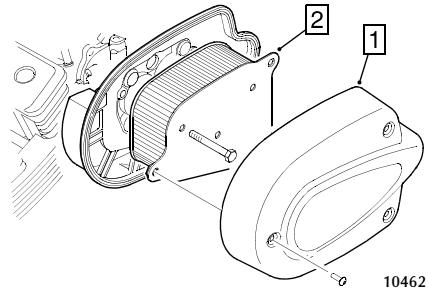
1. Remove the air filter cover and the air filter element.
2. To remove large debris particles from the element, strike the open face of the element squarely against a solid, clean, flat surface, using a short, sharp motion.
3. To remove smaller debris particles from the element, use low-pressure air and blow from the inside out.

### **⚠️ WARNING**

Wear face protection since low-pressure air can blow debris into your eyes and face.

---

4. Reinstall the air filter element and the air filter cover.



1. Air filter cover
2. Air filter element

## Drive Belt

### Check Drive Belt Tension

This procedure involves using the Excelsior-Henderson belt tension gauge, part no. EH-6999-0038, which is designed specifically for measuring drive belt tension. This procedure can be performed from either the right or left side of the motorcycle.

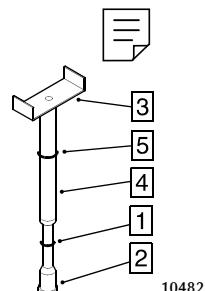
Before beginning this procedure:

- Make sure the Super X is dry and at room temperature.
- Make sure the rear suspension is properly adjusted (see “Rear Suspension Adjustment,” page 51).

1. Mount the Super X and bring it to a vertical position.
2. Position the small O-ring on the belt tension gauge (as shown) directly over the 10 lb mark on the plunger.

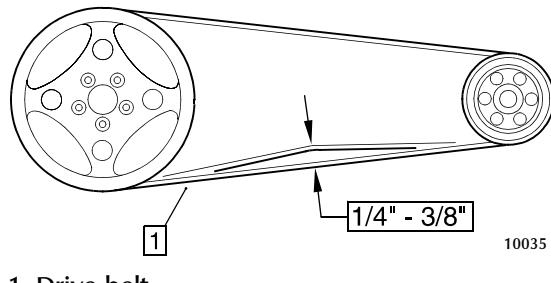
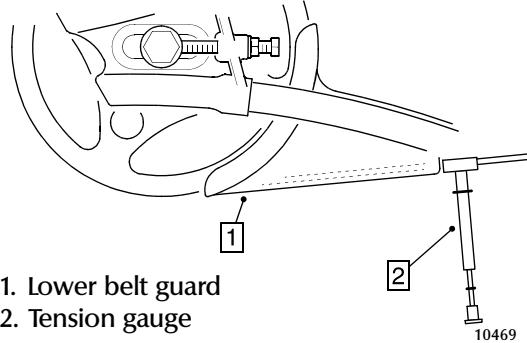
Have an assistant complete steps 3–5.

3. Place the base of the tension gauge bracket squarely against the lower strand of the drive belt at the front of the lower belt guard. On the lower belt guard, mark the position of the base of the tension gauge bracket. This mark represents *zero force*.



1. Small O-ring
2. Plunger
3. Base of bracket
4. Body
5. Large O-ring

4. Push the plunger upward until the small O-ring touches the tension gauge body. Make sure the tension gauge is seated squarely against the drive belt, and move the large O-ring until it aligns with the *zero force* mark you made on the lower belt guard.
5. Remove the belt tension gauge and measure the distance between the base of the tension gauge bracket and the large O-ring. If the measurement is between  $1/4"$  and  $3/8"$ , the drive belt tension is correct.
6. Adjust belt tension as necessary.



## Adjust Drive Belt Tension

### Notice

Before adjusting drive belt tension, be sure the rear axle is properly aligned (see “Align Rear Wheel,” page 139).

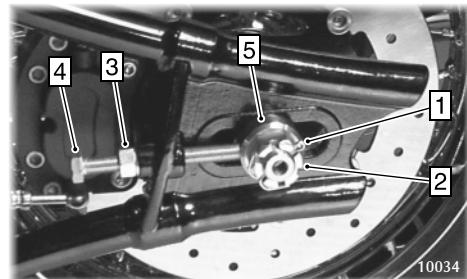
1. Remove and discard the rear axle cotter pin. Loosen the rear axle castle nut and the rear axle adjuster jam nuts.
2. Turn both rear axle adjusters an equal amount until the drive belt tension is correct (see "Check Drive Belt Tension," page 104), making sure the adjusters are firmly seated against the adjuster collars.
3. Tighten the adjuster jam nuts.
4. Tighten the rear axle castle nut.

**Torque: 111 ft-lbs**

5. Recheck drive belt tension, and install a new rear axle cotter pin.

### **⚠ WARNING**

Do not reuse a cotter pin because it may fail, causing the wheel to loosen and you to lose control of the motorcycle.



1. Cotter pin	4. Rear axle adjuster
2. Castle nut	5. Adjuster collar nut
3. Adjuster jam nut	

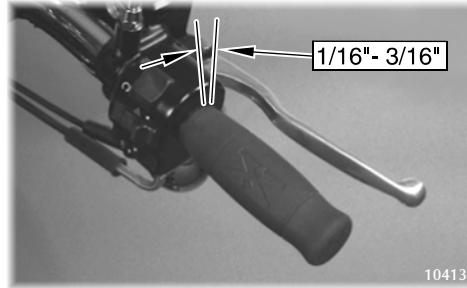
## Check Drive Belt Condition

Replace the drive belt if it is cracked or has broken teeth or frayed edges (consult your *Super X Service Handbook* or an authorized Excelsior-Henderson Dealer).

# Throttle

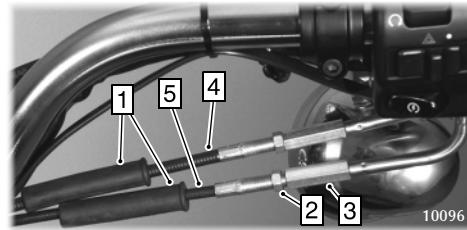
## Check Throttle Control Grip and Cables

1. Rotate the throttle control grip. It should rotate smoothly from its rest position to its completely open position and back again. It should return to its rest position quickly when released.
2. Throttle freeplay — the amount of throttle control grip movement from the rest position to the point of cable resistance — should be between  $1/16$ " and  $3/16$ ".
3. Adjust throttle freeplay as necessary.



## Adjust Throttle Freeplay

1. Slide the rubber covers off both cable adjusters, and loosen both adjuster jam nuts.
2. Turn both cable adjusters into the cable as far as possible.



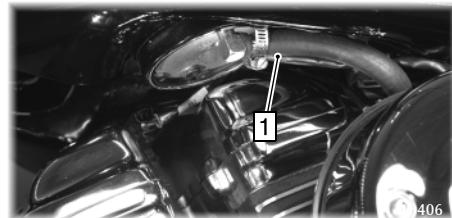
3. Turn the cable adjuster on the throttle opening cable out until the throttle freeplay is between 1/16" and 3/16".
4. Hold the throttle control grip at the fully closed position and turn the cable adjuster on the throttle closing cable out until resistance is felt.
5. Tighten the adjuster jam nuts on both cables, and reinstall both rubber covers.

## Fuel Hose, Rail, and Connections

Inspect the fuel hose, and its connection to the fuel pump and to the fuel rail, for dampness or stains from leaking or dried fuel. Tighten any leaking connections and replace components if necessary.

### Evaporative Emission Control System (California model only)

Visually inspect all evaporative emission control system hoses and connections. Make sure all connections are tight. Also, inspect the evaporative canister to make sure it has not been damaged.



1. Fuel hose

## Oxygen Sensor

The oxygen sensor is located in the exhaust header of the rear cylinder. Over time and miles the sensor tip becomes dirty, reducing its ability to monitor exhaust gases accurately. Replace the oxygen sensor at the prescribed intervals.

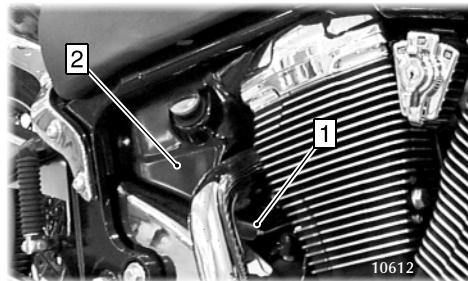
### **⚠ WARNING**

Under normal operating conditions, exhaust system components can be extremely hot. Allow the engine to cool before replacing the oxygen sensor.

1. Gently pull the sensor wire and connector out from under the electronics cover and disconnect the wire.
2. Remove and discard the existing sensor and sealing washer.
3. Install the new sensor with a new sealing washer.

**Torque: 20 ft-lbs**

4. Reconnect the sensor wire and gently feed the connector and wire under the electronics cover.



1. Oxygen sensor
2. Electronics cover

## Hydraulic Controls — Clutch and Brakes

If the hydraulic fluid is dark or cloudy, or has been in service for three or more years, see the *Super X Service Handbook*, or contact an Excelsior-Henderson Dealer, for fluid replacement.

### Check Hoses and Connections

Inspect clutch and brake hoses and connections for dampness or stains from leaking or dried fluid. Tighten any leaking connections and replace components as necessary.

### Check Front Brake & Clutch Fluid Level

1. To check the front brake or clutch fluid level, mount the motorcycle and bring it to a vertical position. Turn the handlebars until the reservoir is horizontal.
2. View the hydraulic fluid through the sight glass. The fluid should be clear and at a level above the “Lower” marking on the reservoir. Add hydraulic fluid if necessary.



Fluid reservoir with sight glass

## Check Rear Brake Fluid Level

1. To check the rear brake fluid level, bring the motorcycle to a vertical position with an appropriate motorcycle lift or a block of wood or steel placed securely under the frame.
2. View the hydraulic fluid through the sight glass. The fluid should be clear and at a level at or near the top of the sight glass. Add hydraulic fluid if necessary.

## Add Hydraulic Fluid

1. To add hydraulic fluid to the front brake or the clutch, mount the motorcycle and bring it to a vertical position. Turn the handlebars until the reservoir is horizontal.

To add hydraulic fluid to the rear brake, bring the motorcycle to a vertical position with an appropriate motorcycle lift or a block of wood or steel placed securely under the frame.

2. Wipe the area around the reservoir cover with a clean cloth.
3. Wipe the hydraulic fluid container with a clean cloth.
4. Remove the cover and gasket.

**⚠ WARNING**

Do not operate the front brake, clutch, or rear brake while its reservoir cover is removed. Fluid could overflow from the reservoir and cause air to enter the fluid system. Air in the hydraulic fluid system could cause a system malfunction and you could lose control of the motorcycle.

---

5. Carefully add enough fluid to bring the level above the “Lower” mark on the reservoir.

**⚠ WARNING**

Use only DOT 5 hydraulic fluid from a sealed, clean container. Using the wrong hydraulic fluid, or allowing contaminants into the hydraulic system, can damage the system seals, resulting in a system malfunction that could cause you to lose control of the motorcycle.

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6. Reinstall the reservoir gasket and cover.



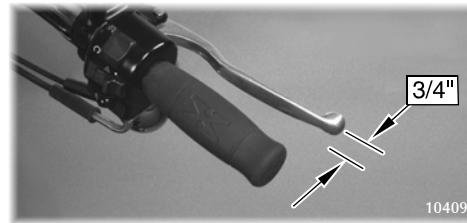
## Check Clutch Lever Movement

Squeeze the clutch lever toward the handlebar and release it. It should move freely and smoothly and should return to its rest position quickly when released. If the clutch lever does not travel all the way to the handlebar, or the clutch slips during normal motorcycle operation, see the *Super X Service Handbook*, or contact an Excelsior-Henderson Dealer for service.

## Check Front Brake Lever Movement

Squeeze the front brake lever toward the handlebar and release it. It should move freely and smoothly and should return to its rest position quickly when released. You should feel a firm resistance in the lever within the first  $3/4"$  of lever travel.

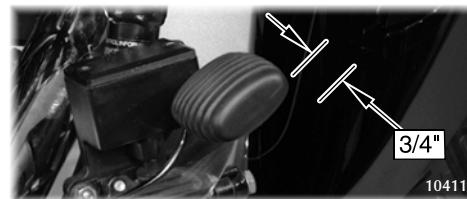
If the brake lever travels too far before beginning to engage the brake, see the *Super X Service Handbook*, or contact an Excelsior-Henderson Dealer for service.



## Check Rear Brake Pedal Movement

Press and release the rear brake pedal. It should move freely and smoothly and should return to its rest position quickly when you release it. You should feel a firm resistance in the pedal within the first  $3/4"$  of pedal travel.

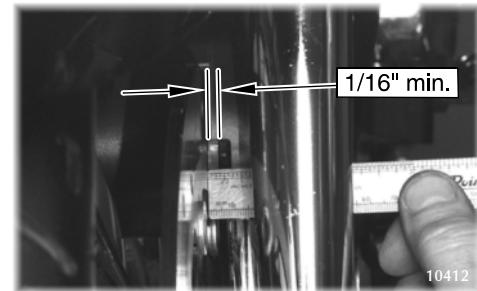
If the brake pedal travels too far before beginning to engage the brake, see the *Super X Service Handbook*, or contact an Excelsior-Henderson Dealer for service.



## Check Brake Pads

If brake pads require replacement, see the *Super X Service Handbook* or an authorized Excelsior-Henderson Dealer for assistance.

Looking in through the back of the front brake caliper, and down through the top of the rear caliper, you should see at least  $1/16"$  of friction material on the pads. If in doubt, measure remaining friction material. Replace brake pads having less than  $1/16"$  of friction material at their thinnest point. Replace brake pads in pairs.



## Spark Plugs

### Inspect Spark Plugs

The spark plugs must be removed from the engine to inspect them. Spark plugs with bright white deposits, sooty black deposits, or with damaged electrodes can indicate engine problems. If these conditions exist, or if the condition of one plug is markedly different from the other, see the *Super X Service Handbook* or an authorized Excelsior-Henderson Dealer for assistance.

## Remove Spark Plugs

1. Disconnect the spark plug wire/coil by pulling upward on the coil.
2. To prevent any debris from entering the engine through the spark plug hole, use pressurized air to blow clean the area around each spark plug before removing it.

### **WARNING**

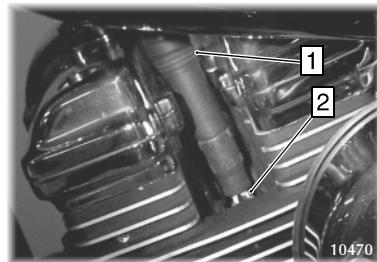
Wear face protection since low-pressure air can blow debris into your eyes and face.

3. Remove the spark plug from the cylinder head with a spark plug socket.

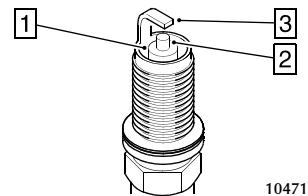
Both spark plugs should have the same light or medium tan color deposits on the insulator around the electrode tip. The spark plug electrode tip and bridge should have sharp, square edges.

If spark plugs are in good condition and are not due for replacement, you can clean them with a stiff bristle brush, set the gap and reinstall them.

**Torque: 15 ft-lbs**



1. Spark plug wire/coil
2. Spark plug



1. Insulator
2. Electrode tip
3. Electrode bridge

## Replace Spark Plugs

Replace Excelsior-Henderson spark plugs (Excelsior-Henderson part no. 3199-0030) at the recommended intervals. Replace spark plugs in pairs.

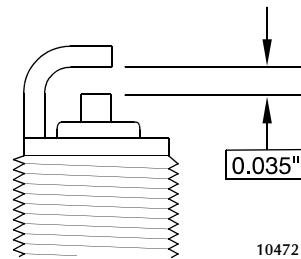
1. Set the electrode gap with a spark plug gauge.

**Gap: 0.035"**

2. Clean the mating surface on the cylinder head.
3. Install the spark plug with a spark plug socket.

**Torque: 15 ft-lbs**

4. Reconnect both spark plug wires/coils.



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## Saddles

The Super X has two saddles — the rider's saddle and the tandem saddle. This section explains how to remove and install the saddles.

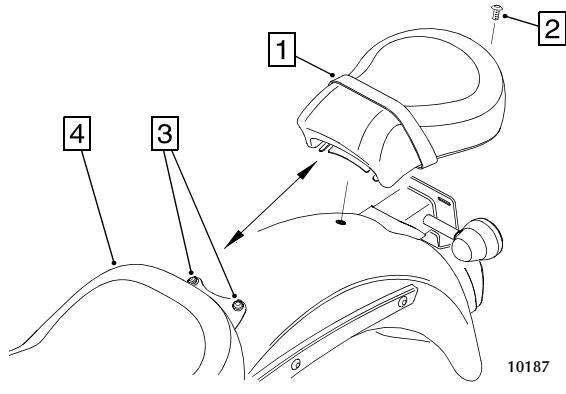
### Tandem Saddle

To remove the tandem saddle:

1. Remove the tandem saddle screw.
2. Lift the back of the tandem saddle slightly and pull it to the rear, out from the tandem saddle posts.

To install the tandem saddle:

1. Install the rider's saddle (see "Rider's Saddle," page 118)
2. Slide the front of the tandem saddle into the tandem saddle posts at the rear of the rider's saddle.
3. Install the tandem saddle screw.



1. Tandem saddle
2. Tandem saddle screw
3. Tandem saddle posts
4. Rider's saddle

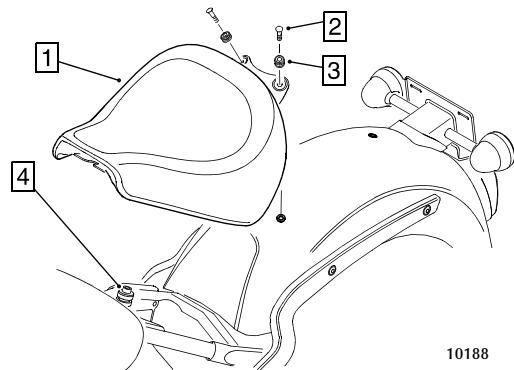
## Rider's Saddle

To remove the rider's saddle:

1. Remove the tandem saddle (see "Tandem Saddle," page 117).
2. Remove the rider's saddle screws and tandem saddle posts.
3. Lift the back of the rider's saddle slightly and pull it to the rear, out from the rider's saddle post.

To install the rider's saddle:

1. Slide the front of the saddle into the rider's saddle post at the rear of the fuel tank.
2. Install the tandem saddle posts and the rider's saddle screws.



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1. Rider's saddle
2. Rider's saddle screws
3. Tandem saddle posts
4. Rider's saddle post

## Battery

The 1999 Super X uses a permanently sealed, maintenance-free battery. Do not remove the battery cap strip for any reason. Keep battery connections clean and tight at all times.

### **WARNING**

The battery contains sulfuric acid, which can cause severe burns. Do not allow sulfuric acid to contact skin, eyes, or clothing.

Antidotes:

- External: Flush with water.
- Internal: Drink large quantities of water or milk. Follow with milk of magnesia, beaten eggs, or vegetable oil. Call physician immediately.
- Eyes: Flush with water for 15 minutes and get prompt medical attention.

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## Remove Battery

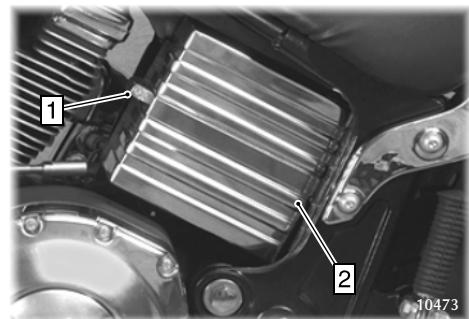
1. Remove the battery box cover strap and the battery box cover.
2. Disconnect the negative ( - ) battery cable (black with an exposed connector).
3. Disconnect the positive ( + ) cable (black with a plastic boot covering a red sleeve and the connector).

### **⚠ WARNING**

Disconnecting the positive cable first can produce an electric shock that could result in damage or injury.

---

4. Slide the battery out.



1. Battery cover strap
2. Battery cover

## Charge Battery

### **WARNING**

The battery may contain explosive gases.

- Keep sparks, cigarettes, or any flame away from the battery.
- Shield eyes and protect skin and clothing when handling or working near the battery.
- Make sure ventilation is adequate when charging or using the battery in an enclosed space.
- During charging, if the battery gets very hot to the touch, cease charging and let the battery cool down before continuing.

---

1. If necessary, clean oxidation from the cable connectors with a wire brush.
2. Following the charger manufacturer's instructions, use a 12 volt, 1 amp battery charger to charge the Super X battery, charging at a rate of 1.8 amps for approximately 16 hours. If you use a taper or trickle charger, it will take longer to charge the battery.
3. After charging the battery, use a voltmeter to check the charge. Allow battery to sit 1-2 hours before checking the charge. The charge should be a minimum of 12.8 volts. Repeat the charging cycle if the charge is less than the minimum.

## Install Battery

Before installing the battery, make sure it is fully charged and clean.



1. If you have not already done so, remove the tandem and rider's saddles (see "Saddles," page 117).
2. If necessary, clean oxidation from the cable connectors with a wire brush. Apply a thin coat of grease to the cable connectors.
3. Put the battery in the battery box and slide it into position in the frame.
4. Connect the positive ( + ) battery cable (black with a plastic boot covering a red sleeve and the connector).
5. Connect the negative ( - ) cable (black with an exposed connector).

### **WARNING**

- Connecting the negative cable first can produce an electric shock that could result in damage or injury.
- Connecting the battery cables to the wrong terminals can damage the electrical system.

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6. Install the battery box cover and the battery box cover strap.
7. Replace the saddles.

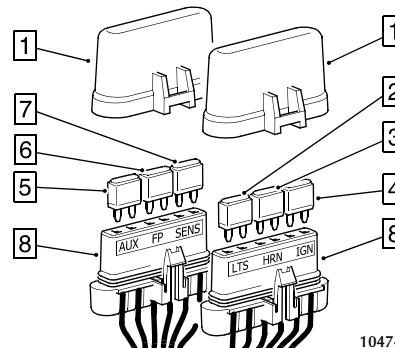
# Electrical Equipment

## Replace Fuse

### ⚠ Caution

Use only recommended amperage fuses or you can damage the electrical system.

1. Remove the tandem and rider's saddles (see "Saddles," page 117).
2. Pull the fuse block from the frame and remove the fuse block cover.
3. Gently remove the fuse from the fuse block.
4. Seat the new fuse firmly in the fuse block.
5. Replace the cover and reattach the fuse block to the frame.
6. Replace the saddles.



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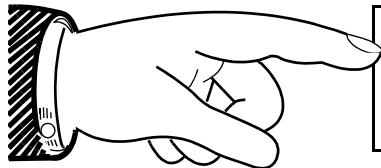
1. Fuse block cover
2. Lights fuse (15 amps)
3. Horn fuse (10 amps)
4. Ignition fuse (5 amps)
5. Auxiliary lights (10 amps)  
(see accessory instructions)
6. Fuel pump fuse (10 amps)
7. Electronic Fuel Injection (EFI) fuse (15 amps)



## Check Engine Stop/Run Switch

Be sure the engine stop/run switch stops the engine. If you regularly use this switch to shut off the engine, you are checking its operation each time you use the motorcycle.

## Check Instrument Pod Lights



**To inspect the remaining electrical items in this section, set the main switch to the On position. After you complete these inspections, set the main switch to the Off position.**

The odometer/trip meter display should show the mileage reading, and “ODO” or “TRIP” should be part of the display. The low oil pressure indicator should illuminate. If the transmission is in neutral, the neutral indicator should illuminate. The gauge lights under the speedometer, tachometer, and fuel gauge should also illuminate.

Set the engine stop/run switch to the run position. The check engine indicator should illuminate. Return the engine stop/run switch to the stop position.

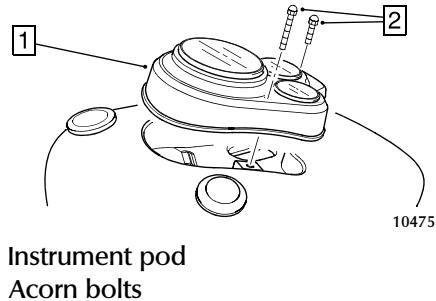
Press the horn button. The horn should sound.

Press the odometer/trip meter function button. The odometer/trip meter display should change to show the current trip meter reading.

## Replace Instrument Pod Light Bulb

The instrument pod uses a variety of light bulbs. Use only the recommended replacement bulb (see “Electrical,” page 237).

1. Remove the acorn bolts securing the instrument pod to the fuel tank.
2. Cover the fuel tank with a clean cloth. Lift the instrument pod and place it face down on the cloth.
3. Gently pull the rubber bulb socket from the back of the instrument pod and remove the bulb.
4. Install the new bulb and test for proper operation.
5. Reinstall the instrument pod.



## Check Headlamp

Check the headlamp to see that it is on. Set the headlamp dimmer switch to the high beam position. The headlamp brightness should increase and the high beam indicator in the instrument pod should illuminate.

## Replace Headlamp Sealed Beam Lamp

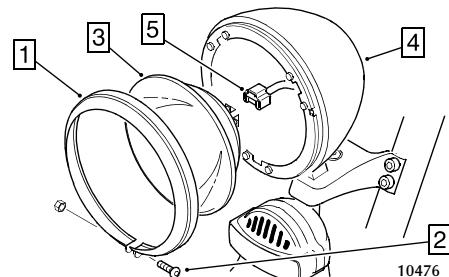
The Super X headlamp uses a halogen sealed beam lamp. Use only the recommended replacement lamp (see "Electrical," page 237).

1. Remove the headlamp bezel screw and the headlamp bezel.
2. Lift the lamp from the headlamp bucket, and disconnect the wire terminal from the back of the lamp.
3. Connect the new lamp and test for proper operation.
4. Reinstall the headlamp.



## Check Brake Light

Apply slight pressure to the front brake lever; tail light brightness should increase. Apply slight pressure to the rear brake pedal; tail light brightness should increase.

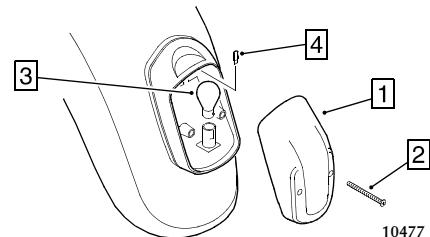


1. Headlamp bezel
2. Headlamp bezel screw
3. Lamp
4. Bucket
5. Wire terminal

## Replace Brake/Tail or License Plate Light Bulb

The Super X uses a dual element bulb for the brake/tail light and a separate single element bulb for the license plate light. Use only the recommended replacement bulb (see *Specifications*, “Electrical,” page 237).

1. Remove the lens screws and lens from the brake light housing.
2. Remove the brake light bulb with a push-twist-lift motion. Remove the license plate light bulb by pulling it up and out of its socket.
3. Install the new bulb(s) and test for proper operation.
4. Reinstall the lens. Do not overtighten the lens screws as this could crack the lens.



1. Lens
2. Lens screw
3. Brake/tail light bulb
4. License plate light bulb

## Check Running Lights

The two amber front running lights and the tail light should illuminate. The license plate light should also illuminate.

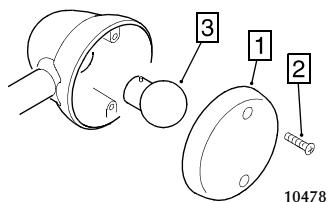
## Check Turn Signals

Move the turn signal switch to the left. The front and rear left turn signal lights, and the turn signal indicator, should flash. Push the switch in toward the housing. The turn signals and turn signal indicator should stop flashing. Repeat the operation for the right turn signals.

## Replace Turn Signal/Running Light Bulb

The Super X uses dual element bulbs for the front turn signal/running lights, and single element bulbs for the rear turn signals. Use only the recommended replacement bulbs (see *Specifications*, “Electrical,” page 237).

1. Remove the lens screws and the lens from either the front turn signal/running light bucket or the rear turn signal light bucket.
2. Remove the light bulb with a push-twist-lift motion.
3. Install the new bulb and test for proper operation.
4. Reinstall the lens. Do not overtighten the lens screws as this could crack the lens.



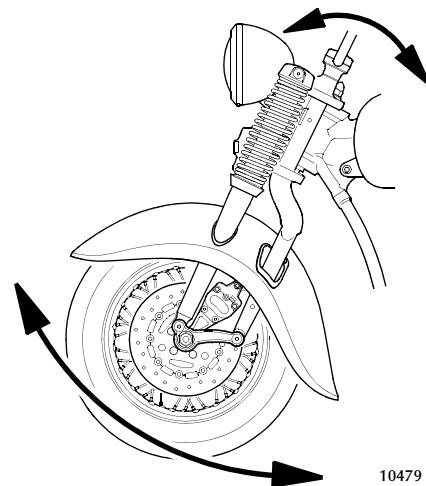
# Steering

## Inspect Steering Movement

Mount the motorcycle and bring it to a vertical position. Turn the handlebars from stop to stop. The action should be smooth but not loose or interfered with by wires or control cables.

## Inspect Steering Head Bearings

1. Position the motorcycle on level ground in an upright position. Raise the front wheel off the ground with an appropriate motorcycle lift or by placing a block of wood or steel securely under the frame.
2. With the front wheel straight, hold the lower end of the front forks near the axle and try to move the forks forward and backward. The forks should have no freeplay (forward and backward movement).
3. If any freeplay is present, the steering head bearings should be adjusted. See the *Super X Service Handbook* or an authorized Excelsior-Henderson Dealer for assistance.



## Tires

### Check Tire Pressure

Normal riding warms the tires and increases the tire air pressure. For an accurate reading, check the tire pressure before you ride. Adjust tire pressure as required for the total weight of your intended load.

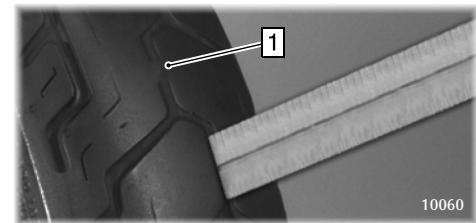
	Up to 200 lb load	200 lb-440 lb load
<b>Front: Dunlop® tires 491 Elite II MT90HB16</b>	36 psi (cold)	36 psi (cold)
<b>Rear: Dunlop® tires 491 Elite II MU90HB16</b>	36 psi (cold)	40 psi (cold)

### Check Tire Surface Condition

Inspect the tire sidewalls, road contact surface, and tread base for cuts, punctures, and cracking. Replace damaged tires immediately (see your *Super X Service Handbook* or an authorized Excelsior-Henderson Dealer).

### Check Tread Depth

Raised areas at the base of the tread, known as wear bars, act as easily-visible tread depth indicators. When the road contact surface has worn to the top of the wear bars, replace the tire.



1. Wear bar

If you have installed tires that do not have wear bars, use an accurate ruler or depth gauge to measure the shallowest tire tread you can find (usually near the center of the tire surface). Replace a tire with a tread depth less than 1/16" (see your *Super X Service Handbook* or an authorized Excelsior-Henderson Dealer).

## Wheels

### Check Spokes

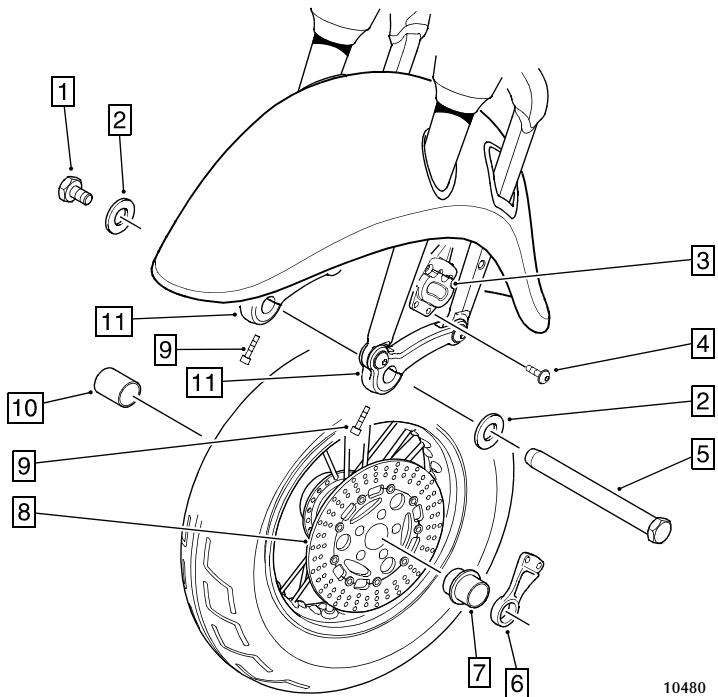
Inspect both wheels for loose, bent, broken, or missing spokes. To identify loose spokes, grasp each spoke and try to move it side to side or up and down. All spokes should be equally tight and have the same amount of flex. Tighten loose spokes or replace bent, broken, or missing spokes (see your *Super X Service Handbook* or an authorized Excelsior-Henderson Dealer).

#### **⚠ WARNING**

Spokes adjusted or replaced improperly could distort the wheel, making the motorcycle difficult to handle and causing you to lose control of the motorcycle.

---

## Remove Front Wheel



- 1. Axle bolt
- 2. Bevel washer (2)
- 3. Brake caliper
- 4. Caliper screw (2)

- 5. Axle
- 6. Caliper bracket
- 7. Left wheel spacer
- 8. Brake disc

- 9. Pinch bolt (2)
- 10. Right wheel spacer
- 11. Rocker (2)

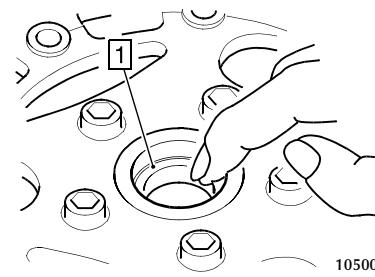
1. Position the motorcycle on level ground in an upright position. Raise the front wheel off the ground with an appropriate motorcycle lift or by placing a block of wood or steel securely under the frame.
2. Loosen both pinch bolts. Remove the right side axle bolt and bevel washer.
3. Remove the brake caliper mounting screws.
4. Support the wheel from underneath, and carefully push or pull the axle out to the left. Remove the remaining bevel washer.
5. Slide the brake caliper out of the way as you remove the wheel, wheel spacers, and the caliper bracket.

### Notice

Do not operate the front brake while the front wheel is removed. Doing so will cause difficulty reinstalling the brake disc between the brake pads.

## Inspect Front Wheel Bearings

After removing the wheel, turn each bearing inner race with your finger. If the race does not turn smoothly and quietly, the wheel bearings must be replaced. See the *Super X Service Handbook* for replacement instructions, or contact your Excelsior-Henderson Dealer.



## Install Front Wheel

1. Place both wheel spacers and the caliper bracket in position on the wheel.
2. Being careful to avoid damaging the brake pads, lift the front wheel, spacers, and bracket up between the rockers. Guide the caliper over the brake disc. Support the wheel from underneath.
3. Coat the axle with a thin film of molybdenum grease. Slide the axle all the way through the bevel washer, rockers, spacers, bracket, and wheel from the left side of the motorcycle.

### Notice

Be careful not to contaminate the surface of the brake rotor with grease.

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4. Install both brake caliper mounting screws.

**Torque: 35 ft-lbs**

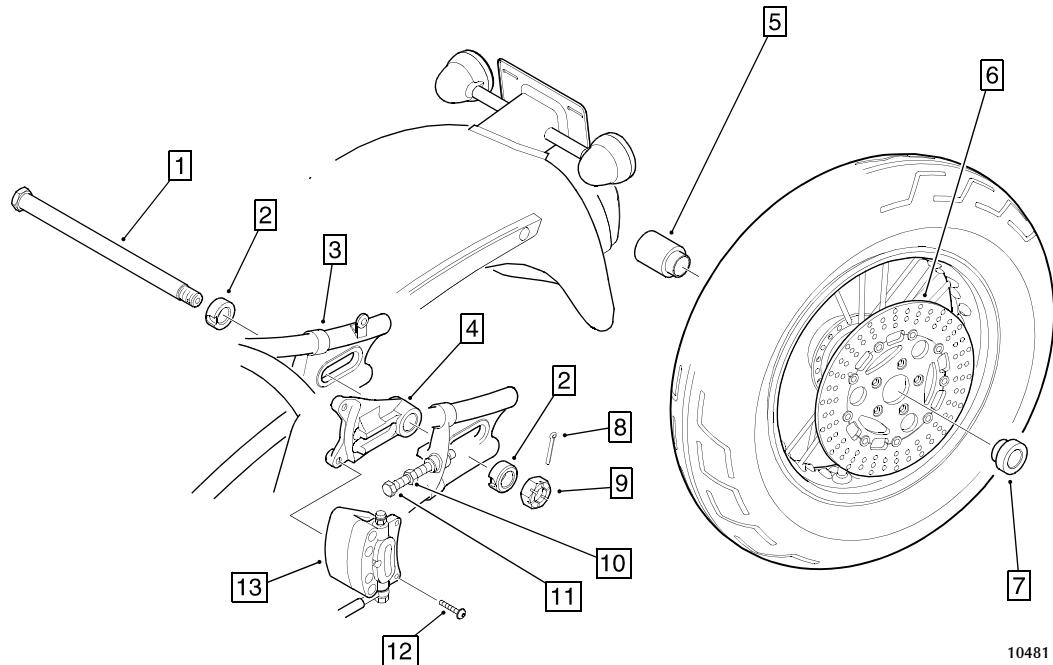
5. Install and tighten the bevel washer and axle nut.

**Torque: 79 ft-lbs**

6. Tighten both pinch bolts.

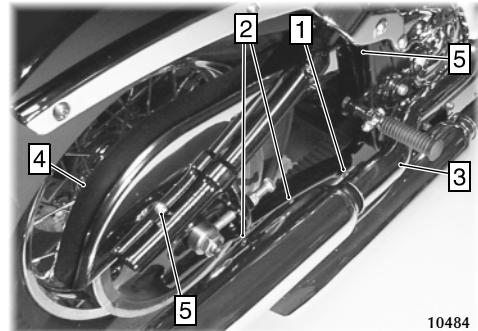
**Torque: 18 ft-lbs**

## Remove Rear Wheel



1. Axle
2. Adjuster collar (2)
3. Swing cage
4. Brake caliper bracket
5. Right wheel spacer
6. Brake disc
7. Left wheel spacer
8. Cotter pin
9. Castle nut
10. Adjuster jam nut (2)
11. Rear axle adjuster (2)
12. Brake caliper mounting screws (2)
13. Brake caliper

1. Position the motorcycle on level ground in an upright position. Raise the rear wheel off the ground with an appropriate motorcycle lift or by placing a block of wood or steel securely under the frame.
2. Loosen the muffler clamp for the rear muffler.
3. Remove the rear muffler mounting bolts. Support the header pipe and slide the muffler off.
4. Remove the rear belt guard mounting screws and the rear belt guard.
5. Remove and discard the rear axle cotter pin.
6. Remove the castle nut.
7. Loosen the rear axle adjuster jam nuts and turn the adjusters out as far as possible. Slide the rear wheel and axle all the way forward in the swing cage axle slots.
8. Lift the drive belt off the rear sprocket to the outside of the motorcycle.
9. Remove both brake caliper mounting screws. Slide the brake caliper from the brake disc. Do not allow the brake caliper to hang from the brake hose.



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1. Rear muffler clamp
2. Rear muffler mounting bolts
3. Header pipe
4. Rear belt guard
5. Belt guard mounting screws (2)

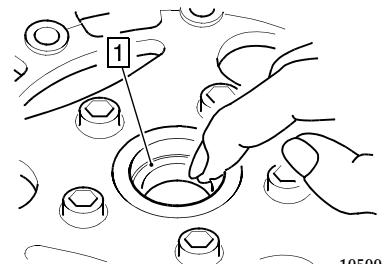
10. Support the rear wheel from underneath and carefully push or pull the axle out to the right.
11. Hold the brake caliper bracket in position and pull the wheel to the rear until the wheel spacers clear the swing cage. Remove both wheel spacers.
12. Remove the rear wheel.

### Notice

Do not operate the rear brake while the rear wheel is removed. Doing so will cause difficulty reinstalling the brake disc between the brake pads.

## Inspect Rear Wheel Bearings

After removing the wheel, turn each bearing inner race with your finger. If the race does not turn smoothly and quietly, the wheel bearings must be replaced. See the *Super X Service Handbook* for replacement instructions, or contact your Excelsior-Henderson Dealer.



1. Inner race

## Install Rear Wheel

1. Position the rear wheel between the swing cage, underneath the rear fender.
2. Make sure the brake caliper bracket is in position on the swing cage.
3. Place both spacers in position on the wheel. Lift the rear wheel and spacers into the swing cage from behind. Support the wheel from underneath.
4. Coat the rear axle with a thin film of molybdenum grease and slide it all the way through the right adjuster collar, swing cage, spacers, wheel, and the brake caliper bracket from the right side of the motorcycle.

### Notice

Be careful not to contaminate the surface of the brake rotor with grease.

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5. Slide the rear wheel and axle all the way forward in the swing cage axle slots.
6. Guide the caliper over the brake disc and install the caliper mounting screws.

**Torque: 35 ft-lbs**

7. Place the drive belt on the rear sprocket and install the rear belt guard.
8. Install the left adjuster collar and castle nut. Tighten the castle nut finger tight.
9. Turn the rear axle adjusters in until they seat into the adjuster collars.
10. Install the rear muffler and muffler clamp.
11. Align the rear wheel.

## Align Rear Wheel

This procedure involves using the Excelsior-Henderson rear wheel alignment gauge, part no. EH-6999-0037, which is designed specifically for aligning the rear wheel.

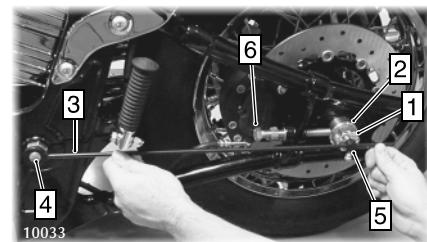
Before aligning the rear wheel, loosen the rear axle castle nut, and make sure the rear axle moves easily from front to back. Whenever you turn the rear axle adjusters during this procedure, push the rear wheel forward to keep the adjuster collars seated against the rear axle adjusters.

### ⚠ WARNING

A skewed rear axle can damage the drive belt, causing it to fail and you to lose control of the motorcycle.



1. Place the open end of the rear wheel alignment gauge over the exposed end of either swing cage pivot bolt.
2. Loosen the pointer thumb screw and slide the pointer along the rod until pointer tip rests in the center dimple of the rear axle. Tighten the pointer thumb screw.



1. Castle nut	4. Swing cage
2. Adjuster collar	5. pivot bolt
3. Alignment	6. Rear axle
gauge	adjuster

3. Move the alignment gauge to the opposite location on the other side of the motorcycle.
4. Without moving the alignment gauge pointer, turn the rear axle adjuster in or out until the center dimple in the rear axle aligns with the pointer tip.
5. Repeat steps 1-4 on alternate sides of the wheel until the distance from the swing cage pivot bolt to the rear axle center dimple is equal on both sides of the motorcycle.
6. Check the drive belt tension and adjust it if necessary (see “Check Drive Belt Tension,” page 104).
7. Tighten the adjuster jam nuts.
8. Tighten the rear axle castle nut.

**Torque: 111 ft-lbs**
9. Recheck drive belt tension, and install a new rear axle cotter pin.

**⚠ WARNING**

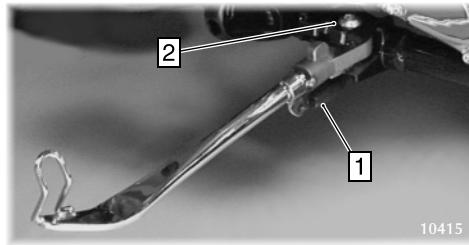
Do not reuse a cotter pin because it may fail, causing the wheel to loosen and you to lose control of the motorcycle.

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## Sidestand

Move the sidestand to its stored (up) position, then to its fully extended (down) position, and back again. It should move smoothly. When the sidestand is in its stored position, the sidestand return spring should hold the sidestand tightly against the motorcycle.

Lubricate the sidestand pivot with a few drops of clean engine oil or with a spray lubricant designed for drive chains or cables.



1. Return spring  
2. Pivot

## Fasteners

Visually inspect the entire motorcycle chassis and engine for loose, damaged, or missing fasteners. Each fastener has an important purpose or it wouldn't be there. Tighten loose fasteners to the proper torque (see "Torque Specifications," page 240). Replace stripped, damaged, or broken fasteners immediately.

Some genuine Excelsior-Henderson threaded fasteners are coated with a thread-locking patch. After removing and reinstalling the fastener 2 or 3 times, the thread-locking patch wears away and the fastener should be replaced with the same genuine Excelsior-Henderson fastener.

## Road Test

Before returning the motorcycle to regular use, road test it in a safe environment. Pay special attention to the proper fit and operation of all serviced components. Make any corrections or additional adjustments as necessary to ensure safe and enjoyable vehicle performance.

### **WARNING**

Improperly installed or adjusted components can make the motorcycle unstable or hard to handle. Improperly installed electrical components can cause engine or electrical system failure. In either case, damage or injury could result.

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## Notes:



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# Cleaning and Storage

This section explains how to properly clean the various parts of your Super X and how to store the motorcycle to keep it in good working order and appearance.

## Cleaning

Clean your Super X regularly to protect it from corrosion and to keep it looking new. Clean the motorcycle if it is dusty or muddy, or if it has picked up foreign material such as road salt, insects, oil, tar, or tree sap. If you ride in an area with salty or polluted air, wash your motorcycle frequently. Proper cleaning requires washing and drying the motorcycle, and then applying wax, polish, and protectants to extend the service life and appearance of various components.

During cleaning and storage you might use products that are potentially hazardous; such as polishing compounds and fuel stabilizer. When using any of these products, follow the instructions and warnings on the product packaging.

Some foreign materials are corrosive to the motorcycle's finish, and you should remove these materials as soon as possible. Road salt is particularly corrosive. If you have been riding on salted roads, wash the motorcycle immediately with cold water. Do not use warm or hot water for this purpose, as increased water temperature increases the corrosive effect of salt. Oil, tar, and tree sap may also damage the motorcycle's finish. If normal washing does not remove these materials, you may need to use a special cleaner. Choose a cleaner designed for use on the type of surface you need to clean.

## Washing and Drying

Before washing the motorcycle, make sure the exhaust pipes are not hot. Cover each exhaust pipe opening with a plastic bag and attach the bag to the pipe with a strong rubber band. To prevent contamination from water, check that the spark plugs, spark plug wire caps, oil fill cap, and fuel caps are properly seated.

The following instructions explain the proper procedure for washing and drying the motorcycle.

1. Park the motorcycle in the shade to prevent water spotting.
2. The Super X engine cases are painted. If you choose to use a degreaser, follow the degreaser manufacturer's instructions.
3. Rinse off as much dirt and mud as possible with water running at low pressure.

### **⚠ Caution**

- Do not use excessive water pressure or high-pressure sprayers such as those found at coin-operated car washes. Excessive water pressure may allow water to seep into and deteriorate such components as wheel bearings, brake caliper assemblies, brake master cylinders, and transmission seals.
- Electrical components may be damaged by contact with water. Do not spray or allow water to come into contact with electrical components or connectors.

4. Wash the entire motorcycle using a soft cloth or sponge soaked in a solution of mild detergent and warm water, applying minimal pressure as you wash. Let the detergent do the cleaning, not the pressure you apply. Excessive washing pressure may cause dirt, sand, or other foreign materials on the motorcycle to scratch the finish. Keep the cloth or sponge clean by rinsing it frequently, and soak it in the detergent and water solution to provide plenty of soapy water for washing. A toothbrush or bottle brush can help you wash places that are difficult to reach with a cloth or a sponge.

### Notice

Use as little water as possible when washing near the air cleaner or the exhaust pipe openings. An excessively wet air cleaner, or water in the exhaust pipes, may cause the engine to start and run poorly. Dry these components thoroughly before using the motorcycle.

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If oil, tar, tree sap, or other foreign material is difficult to remove by applying gentle pressure using the warm water and mild detergent mixture, you may need to use a special cleaner. See “Cleaning,” page 145.

5. Rinse the motorcycle with water running at low pressure.
6. Remove the rubber bands and plastic bags from the exhaust pipes, and wipe the motorcycle dry with a soft cloth or chamois.
7. After washing the motorcycle, start the engine and let it idle for a few minutes. Make sure the brakes are functioning properly before riding.

**Notice**

Excessively wet brake pads or discs may diminish braking effectiveness. Dry these components thoroughly before using the motorcycle.

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## **Waxing, Polishing, and Applying Protectants**

After washing and drying the motorcycle, you can help extend the life and appearance of its components by waxing painted surfaces, polishing chrome surfaces, and applying a protectant to exposed rubber, vinyl, and plastic parts. Avoid cleaning-waxing compounds, as they may contain abrasives that may damage the finish of painted parts. For chrome surfaces, use either a window-cleaning solution or a polish specifically designed for chrome. Follow manufacturer's instructions for proper application and use of wax, polish, or protectants.

After washing and drying the motorcycle, to help extend the life and appearance of its components:

- Wax painted surfaces. Avoid cleaning-waxing compounds, as they may contain abrasives that may damage the finish of painted surfaces.
- Polish chrome surfaces. Use either a window-cleaning solution or a polish specifically designed for chrome.
- Apply a protectant to exposed rubber, vinyl, and plastic components.

**⚠ WARNING**

- Do not use a protectant on the saddles, footboard inserts, or handgrips that leaves a slippery coating after it dries. If these surfaces are slippery, you may have difficulty holding your position on the motorcycle while riding, which may cause you to lose control of the motorcycle.
- Follow manufacturer's instructions and safety precautions on wax, polish, and protectant labels to prevent injury or damage.

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## Repairing Painted Surface Damage

After cleaning the motorcycle, inspect it for damage to the painted surfaces. If you discover chips or scratches in the paint, apply genuine Excelsior-Henderson touch-up paint as soon as possible to prevent corrosion.

## Storage

If you will not operate the Super X for several months, such as during the winter, store the motorcycle to prevent damage to the fuel system and the battery, and to protect components from corrosion or deterioration. This section includes instructions for preparing the Super X for storage, maintaining it during storage, and removing it from storage.

## **Preparing for Storage**

### **Choose an Adequate Storage Location**

Choose a dry, well-ventilated storage location, inside a garage or other structure if possible. The location should have a firm, flat surface and allow enough space that the Super X does not come into contact with other objects and other objects are not likely to come into contact with it.

To best preserve tire condition:

- The storage area should have a relatively constant and moderate temperature.
- The motorcycle should not be near a radiator or other heat source, or any type of electric motor.
- The storage surface should be free of oil and gasoline.

For further information on proper tire storage, see the *Dunlop Maintenance & Tire Care Booklet* you received with the Super X.

### **Clean and Protect the Motorcycle**

To prepare the Super X for storage, begin by cleaning it (see “Cleaning,” page 145). Wax painted surfaces and polish chromed surfaces. Apply protectant to exposed rubber, vinyl, and plastic parts.

## Stabilize Fuel

1. Using a mixture of fuel and the amount of gasoline stabilizer recommended by the stabilizer manufacturer, fill the fuel tank only to the top of the filler insert.
2. Start and run the engine for a few minutes to pass the stabilized fuel through entire fuel injection system.

## Protect Engine Components

1. Change the engine oil (see “Change Oil and Oil Filter,” page 99). You do not need to replace the oil filter at this time, but you must replace the oil filter when you remove the Super X from storage.

### **⚠ Caution**

Carbon deposits, normally suspended in engine oil that is in service, settle on internal engine components during storage. Settled carbon deposits can cause engine damage.

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2. Using pressurized air, blow any debris from the area around each spark plug.

### **⚠ WARNING**

Wear face protection since low-pressure air can blow debris into your eyes and face.

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3. Remove the spark plugs (see “Remove Spark Plugs,” page 115). Pour one tablespoon of clean motor oil into each spark plug hole.
4. Reinstall the spark plugs without reconnecting the coils (see “Replace Spark Plugs,” page 116). With the main switch in the **On** position, the stop/run switch set to run, and the transmission in neutral, press the electric starter button to crank the engine a few times. This procedure inhibits corrosion by coating the cylinder walls with the oil you poured in the spark plug holes.
5. Set the main switch to the **Off** position and reconnect the coils.

### **Inflate Tires**

Inflate the tires to normal pressure.

### **Remove, Clean, and Store Battery**

1. Remove the battery (see “Remove Battery,” page 120).
2. Clean corrosion from the battery terminal connectors and the battery terminals. Clean the outside of the battery with a solution of mild detergent and warm water.
3. Store the battery in a dry location that maintains a temperature of 32°–90°F.
4. While in storage, fully charge the battery once a month (see “Charge Battery,” page 121).

## **Park and Cover the Motorcycle**

Park the Super X in its storage location and lock the forks. Cover the motorcycle with a durable, breathable material or with a high-quality motorcycle cover designed for storage. Covering the Super X helps protect it from dust and other airborne materials. The cover must be of a breathable material to prevent moisture from building up on the motorcycle.

## **Maintaining During Storage**

Check and maintain normal tire pressure during storage.

## **Removing from Storage**

1. Remove the cover and unlock the front forks.
2. Check the tire pressure and inflate the tires if necessary.
3. Reinstall the battery (see “Install Battery,” page 122).
4. Wash and dry the entire motorcycle (see “Washing and Drying,” page 146).
5. Without first starting the engine and bringing it to normal operating temperature, change the engine oil and filter (see “Change Oil and Oil Filter,” page 99, beginning with step 2).

**Caution**

During storage, temperature and humidity changes can cause condensation to form in the crankcase and mix with engine oil. Running the engine with oil that contains condensation can cause engine damage.

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6. Wax, polish, or apply protectant to the appropriate motorcycle components (see “Waxing, Polishing, and Applying Protectants,” page 148).
7. Perform the pre-operation check described in *Pre-Operation Check*.
8. Test ride the Super X before returning it to regular use (see “Road Test,” page 142).

## Notes:



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# Our Tradition of State of the Art

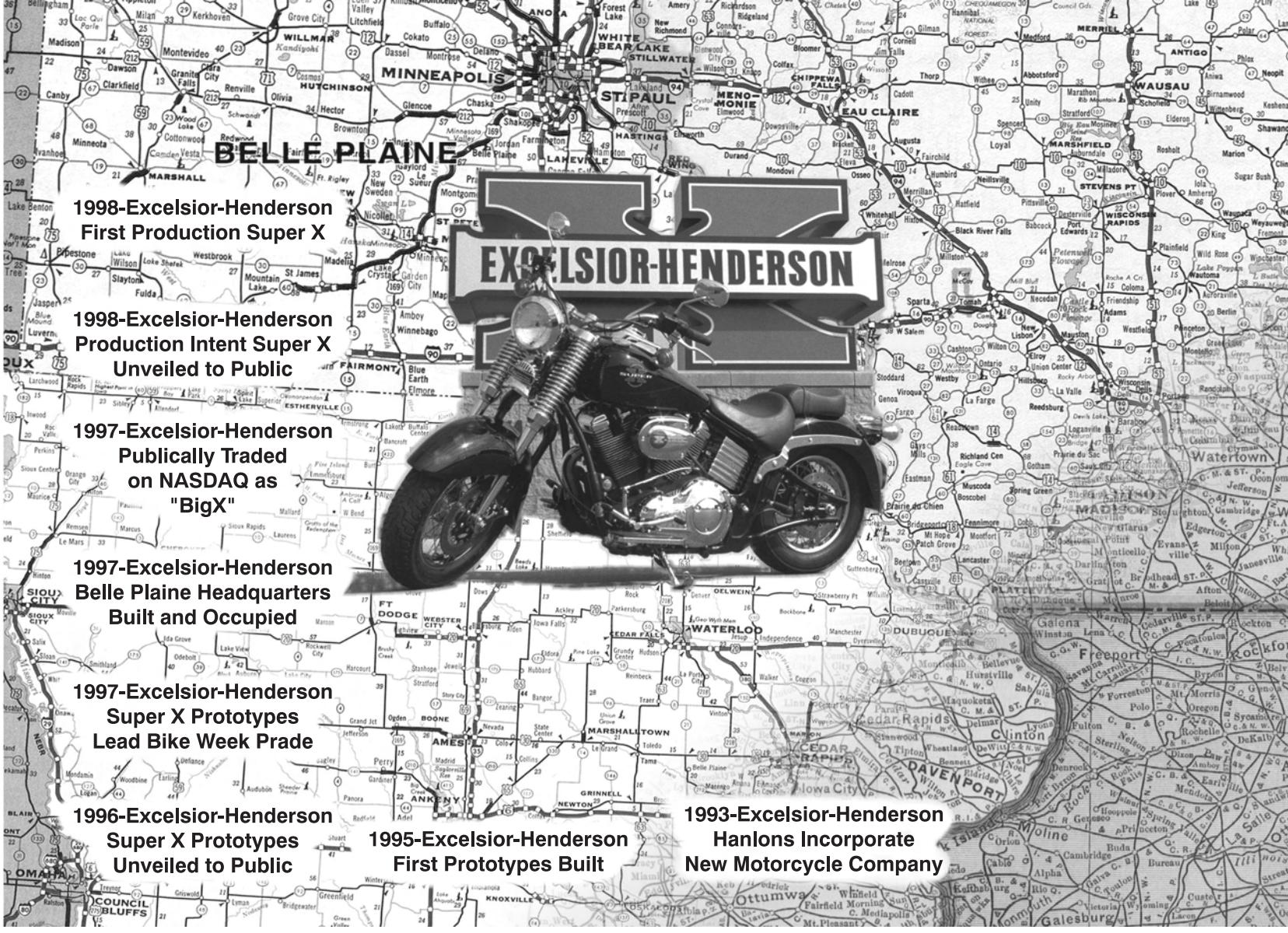
In the early years, Excelsior-Henderson forged a reputation for manufacturing premium-quality motorcycles. With trend-setting designs, advanced manufacturing techniques, and the finest motorcycle manufacturing facility in the world, they defined “state of the art” for the motorcycle industry year after year.

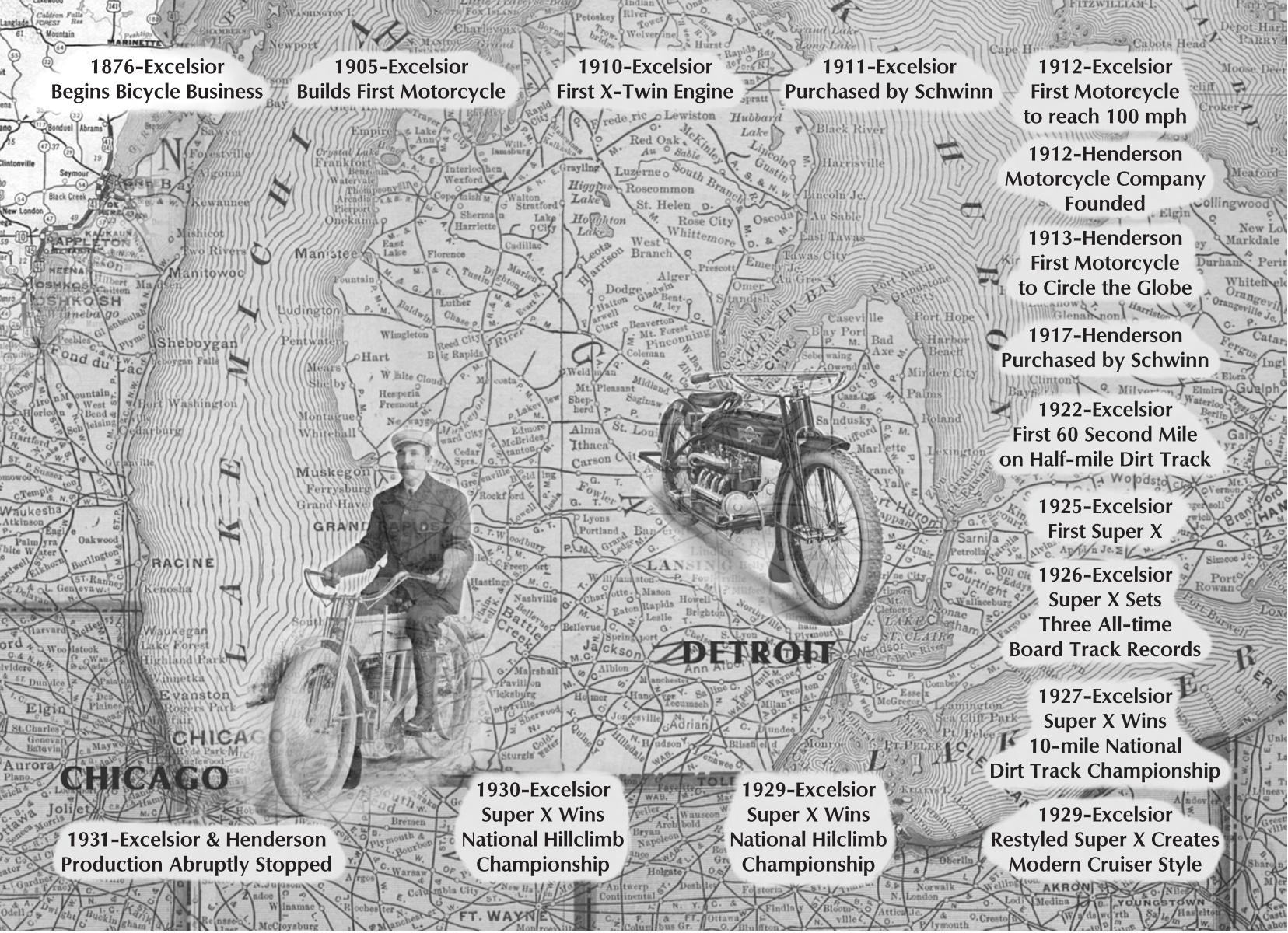
Continue reading and let “Traditions Alive Today” show you how today’s Excelsior-Henderson carries forth that heritage. We’ll look beneath the chrome of the 1999 Super X motorcycle, and then introduce you to the Hanlon family, the Road Crew™, and the new Excelsior-Henderson headquarters and production facility.

Discover the passion and perseverance required to build a Proud American Motorcycle Manufacturing company. In “The Road from 1992 through 1998” we recall each milestone in the journey toward our company’s American Dream.

Witness the industry-pioneering spirit of the original Excelsior and Henderson makers, and the strength and courage of the people who rode the early motorcycles. The descriptions, photographs, and stories of “The Trail from 1876 through 1931” introduces you to the riders and machines that defined the great sport of motorcycling in America.

So sit back, relax, and enjoy your ride through Excelsior-Henderson’s history. Take the time to read about our journey—it’s the only story of its kind in American motorcycling history.





1876-Excelsior  
Begins Bicycle Business

1905-Excelsior  
Builds First Motorcycle

1910-Excelsior  
First X-Twin Engine

1911-Excelsior  
Purchased by Schwinn

1912-Excelsior  
First Motorcycle  
to reach 100 mph

1912-Henderson  
Motorcycle Company  
Founded

1913-Henderson  
First Motorcycle  
to Circle the Globe

1917-Henderson  
Purchased by Schwinn

1922-Excelsior  
First 60 Second Mile  
on Half-mile Dirt Track

1925-Excelsior  
First Super X

1926-Excelsior  
Super X Sets  
Three All-time  
Board Track Records

1927-Excelsior  
Super X Wins  
10-mile National  
Dirt Track Championship

1929-Excelsior  
Restyled Super X Creates  
Modern Cruiser Style

1931-Excelsior & Henderson  
Production Abruptly Stopped

1930-Excelsior  
Super X Wins  
National Hillclimb  
Championship

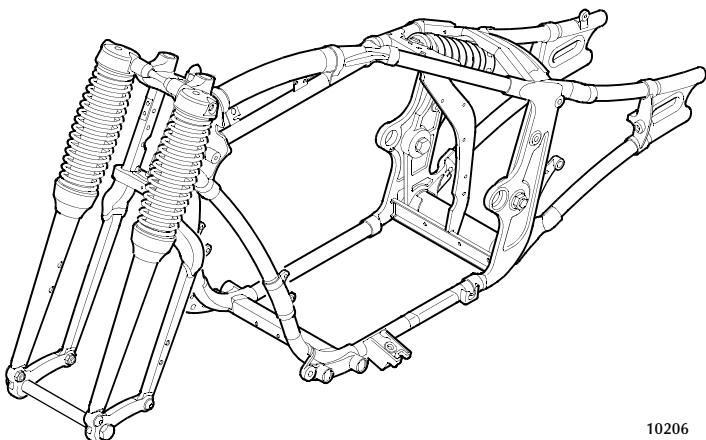
1929-Excelsior  
Super X Wins  
National Hilclimb  
Championship

## Traditions Alive Today

### The 1999 Super X

From tire to tire, saddle to sidestand, each part on the Super X is new and original, not "off the shelf." Inspired by the Excelsior-Hendersons of days past, the new Super X is a powerful, aggressive, and innovative machine that combines the finest in today's technology with the timeless heritage of the original.

At the core you'll find a full cradle double wishbone style frame. Tubular steel sections are joined to lug castings by computer-guided robotic welders to ensure consistent, accurate frame construction. Suspended over leading-link front forks and an adjustable rear shock absorber, you'll find a backbone tough enough to handle whatever the road has in store, and forgiving enough to console your sensitive parts.



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Redefining style with purpose, the lines of the new Super X flow effortlessly through the air even when its standing still. The frame and suspension seem to sweep across the entire motorcycle. The front fender and frame downtubes run side-by-side in a common curve. The front suspension struts and the rigid front fork pass through a fully-valanced front fender. The fuel tank, crowned with a three-gauge instrument pod, flows smoothly into the low-slung saddle. The frame, the pronounced front springs, the fork through the fender styling, the fuel tank, the instrument pod, and the saddle are all trademarks of the original Super X.



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## 1999 Super X

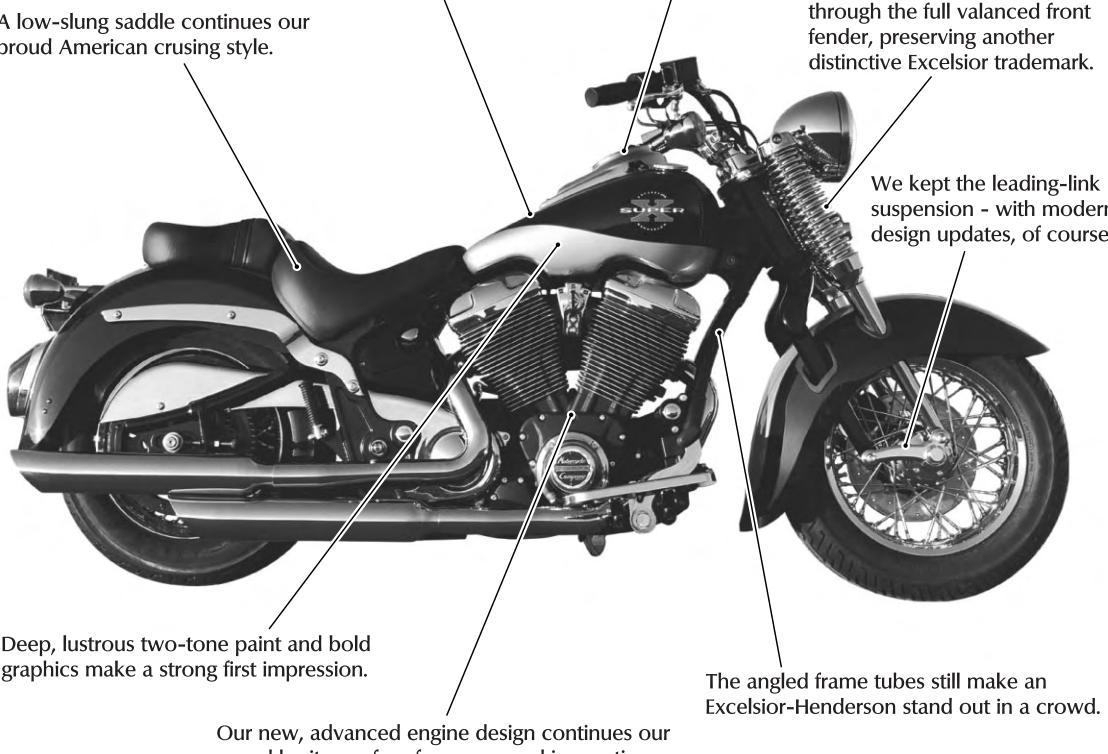
A low-slung saddle continues our proud American cruising style.

The 5.5 gallon teardrop fuel tank follows the sleek curves of the bike.

Instruments top the tank with style; evoking the glory days of American motorcycling.

The beefy front fork tubes pass through the full valanced front fender, preserving another distinctive Excelsior trademark.

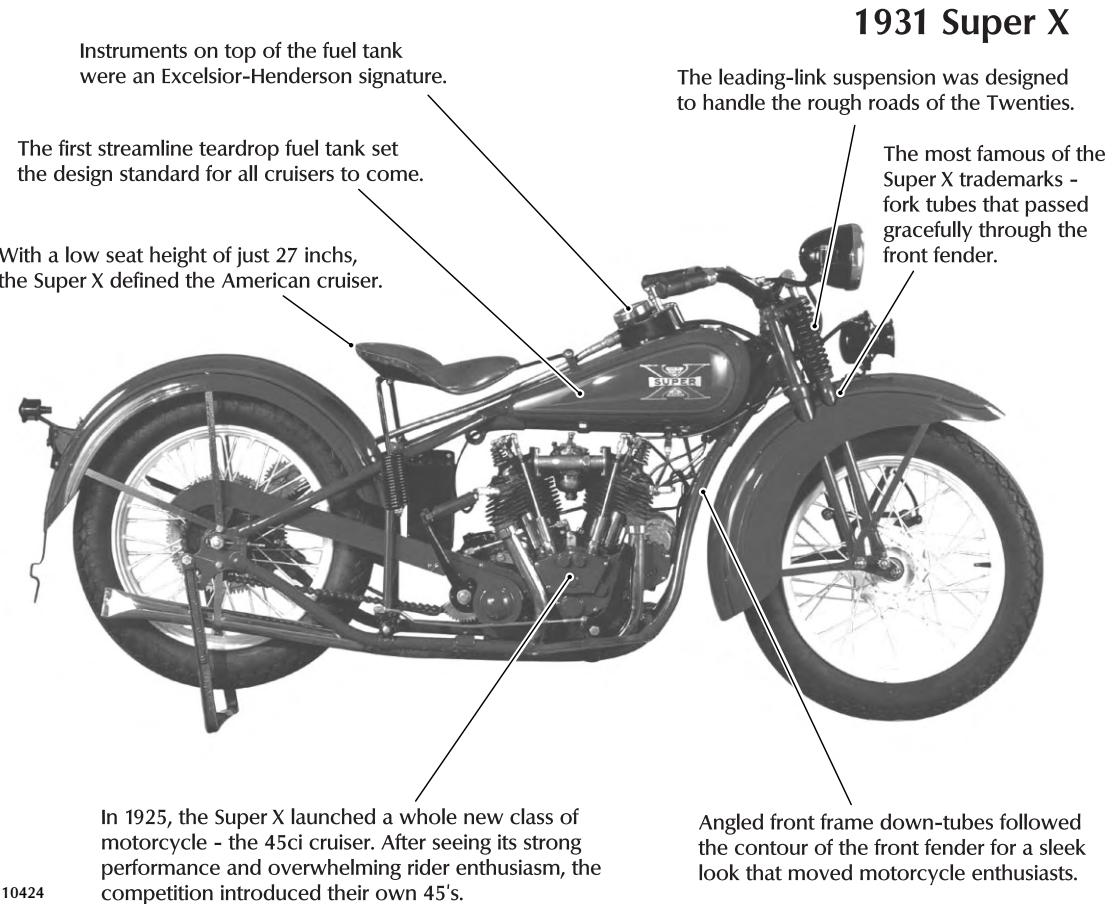
We kept the leading-link suspension - with modern design updates, of course.



Deep, lustrous two-tone paint and bold graphics make a strong first impression.

Our new, advanced engine design continues our proud heritage of performance and innovation. This 1386cc X-Twin is the pinnacle of design.

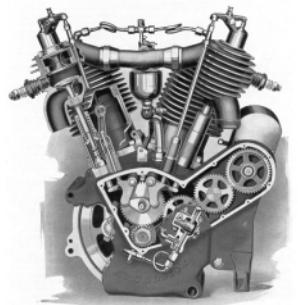
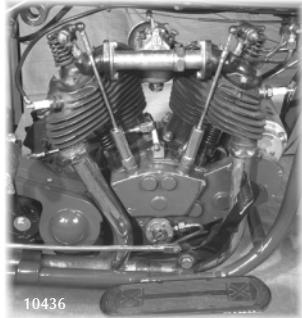
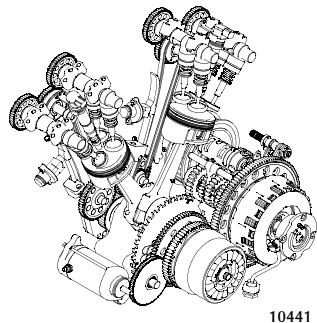
The angled frame tubes still make an Excelsior-Henderson stand out in a crowd.





The heart of the Super X is its unique X-Twin™ engine. The 85 cubic inch displacement power plant features two dual overhead cam, four valve, opposed cylinders configured at a 50° angle. Each of the massive black cylinders blows into an exhaust system that mirrors the highway as it stretches rearward.

The X-Twin™ is fed by a closed-loop electronic fuel injection system. Exhaust characteristics are monitored and fuel performance data is sent back to the system's brain. This system "closes the loop," resulting in the best possible engine performance in any situation.



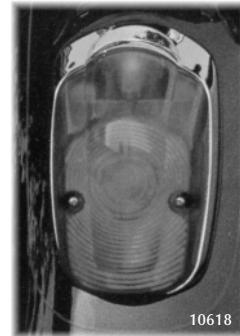
Employing electronic fuel injection opens the door for the *EXAMINATOR™*. This fully-integrated computer diagnostic system is designed to provide our factory-trained service technicians vital engine data. This system makes servicing your Super X as precise and effective as possible.

The X-Twin™ engine package includes a constant mesh five speed transmission, putting the power to the pavement through a compensated multi-gear primary, a beefy multi-plate wet clutch, and a high performance synchronous drive belt. This gives the Excelsior-Henderson Super X a bite rivaled only by its bark.

Like it or not, eventually you'll need to slow down. The front and rear four piston brake calipers, squeezing full floating discs, will handle the job easily. To help prevent any uninvited guests from joining you during braking, the classic fresnel-cut rear tail light stands out in the crowd.

The original Excelsior-Hendersons were renowned for their premium quality paint finishes. Today's Excelsior-Henderson continues that tradition by using the most advanced painting technology available to produce show-quality finishes that look exceptional and stay that way.

The new Super X delivers performance, reliability, comfort, and style. Its attention to detail is unmistakable. This motorcycle is a new classic and, without a doubt, a product of our tradition.



## The Company

This piece of the our trip spotlights the Excelsior-Henderson family, and the methods used in pursuing our mission.

The “pursuit of excellence” is not just a catch-phrase at Excelsior-Henderson, it is the standard by which we judge ourselves every day. We also believe in having fun, and it shows in our work and in our enthusiasm for motorcycles.



### The Excelsior-Henderson Mission

The Excelsior-Henderson Mission Statement is the foundation of the company's thinking, decisions, and actions:

***To design, manufacture, and sell profitably throughout the world, premium quality American made motorcycles that are reminiscent of the legendary, unequalled lifestyle experiences of the earlier years of motorcycling.***

## The Excelsior-Henderson Mission Principles

In pursuit of its mission, Excelsior-Henderson operates with the following Mission Principles:



*People are our greatest asset.*

*We will maximize our enterprise value by working as a team.*

*Our products will be proudly made in the United States of America.*

*We will build the best heavyweight motorcycles in the world.*

*We exist to serve our dealers and customers. They are part of our team and we need to always understand their value.*

*We will have fun...our team, families, dealers, customers, and shareholders.*

*We will make our products available throughout the world.*

*Integrity, honesty, persistence, and knowledge will be expected, fostered, and rewarded.*

*We must profit in order to provide a livelihood for our team, families, dealers, customers, and shareholders.*

### **The Excelsior-Henderson “Road Crew”**

The company's employees, dealers, and advisors make up the immediate family which we refer to as our “Road Crew.” Our customers and investors are considered members of our extended family; as one of the mission principles states, serving them is the reason the company exists.



Excelsior-Henderson's management team is a group of business professionals with a record for “Making Good.” They're also motorcycle enthusiasts who have experienced many miles of road. They combine their passion for motorcycles with a broad, diverse knowledge of business and the motorcycle industry, providing the definition and direction with which we pursue our company's mission.

## The Hanlon Family

Dan Hanlon founded Hanlon Manufacturing in 1993 and was joined by family members of his brothers Dave and Terry, and Dave's wife Jennie.

A licensed rider since high school, Dan Hanlon bought his first bike when he was 17. From that point forward, motorcycles, muscle cars, and street rods have kept a bit of dirt under Dan's fingernails. Dan's business experience stems from private and Fortune 500 companies, MBA degree, and founding and selling a previous manufacturing company.

At 18, Dave Hanlon bought his first bike, took it apart, modified it, repainted it, and proceeded to ride the wheels off of it. He's been at it ever since. A licensed rider since 1971, Dave has been attending motorcycle rallies for more than twenty years. Dave's sales experience spans over eighteen years in field management with trucking companies.

Active in motorcycling since 1974, Jennie Hanlon has been a licensed rider since 1982 and leads the apparel and merchandise efforts. Terry Hanlon has also ridden motorcycles since high school, joining the company early as an R & D technician, and becoming the primary factory test rider.



10622

## Our Home

Walking through the entrance to Excelsior-Henderson headquarters, and into the two-story, glass-roofed atrium, gives you a sense of being outside. The atrium recreates the feel of Main Street in a small American town of the 20s or 30s. It includes a complement of benches, ornate street lamps, a vintage motorcycle museum filled with Excelsiors and Hendersons, and a company store. This building was designed by Excelsior-Henderson to demonstrate its commitment to employees, business associates, and visitors who will find our home “biker” friendly.

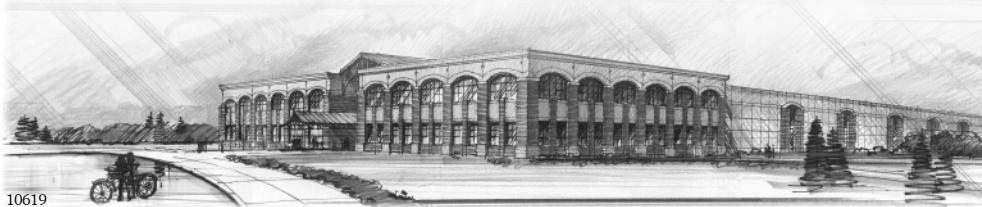
While Excelsior-Henderson builds big motorcycles, the company doesn't hold to the philosophy that



bigger is better in all cases. Says Dan Hanlon, “True to our heritage in the history of American motorcycles, we have a tradition of building quality, not quantity.”

The facility in Belle Plaine, Minnesota, was designed to be just the right size, with room for expansion as needed. The 160,000 square foot building contains all welding, painting, and assembly operations, and has a production capacity of 20,000 bikes per year. It houses research and development, engineering, sales and marketing, executive functions, and manufacturing in an open atmosphere that promotes teamwork. By keeping all of the organization’s central functions together, we promote a well-integrated group and give each member of the Road Crew a unique opportunity to know and experience all aspects of the company and its business. Excelsior-Henderson is the only motorcycle manufacturer to house all facets of the business under one roof.

The automation, sophistication, and cleanliness of our home are direct results of comprehensive planning by experienced industry professionals. Our processes, equipment, and the building itself, are truly “State-of-the-Art,” allowing Excelsior-Henderson to inhabit “The Finest Motorcycle Manufacturing Facility in The World” once again.



10619

## The Road from 1992 through 1998

The story of today's Excelsior-Henderson began as a spark in December of 1992, at a Christmas gathering on the Hanlon family farm in Belle Plaine, MN; and was ignited to action. Brother Tom was anxious to buy some American iron, looking for something new besides the obvious one selection, and was earnestly pursuing and contemplating putting money down on another motorcycle company that was just getting started.

Well, this was interesting news especially to an entrepreneurial brother like Dan, who had just accepted a buyout offer of his manufacturing company he launched prior, and was looking for his next great manufacturing adventure—he also was experiencing buying a new American motorcycle of the only kind available since there were no other alternative heavyweight motorcycles. Tom provided the paperwork to Dan for further homework, and the research yielded interesting trends.

Due to several market forces converging together coupled with the fact there is robust growth in the motorcycle industry and waiting lists, the research determined that yes, indeed, there is opportunity for a new entrant, particularly one that had



a true American heritage. Tom never did put money down on the other startup motorcycle project, and as fate would have it, instead he would later become the earliest investor into another new American motorcycle company.

After conducting the initial research and due diligence, by early 1993 Dan Hanlon had concluded he would start a new American motorcycle company, and launched Hanlon Manufacturing as a sole proprietor devoting fulltime efforts toward drafting the extensive business plan and began building the roadmap that could be executed. The project was so daunting and long term that every step had to be carefully analyzed and blueprinted to ensure the probability of success—for once a venture such as this is launched—there is no turning back and one's life is changed forever.

Nearly a year from the initial spark the business plan was complete—either to be shelved or executed. Inspired to proceed, Dan incorporated Hanlon Manufacturing Company and invested the seed money to formally move forward, file trademarks, secure contracts, and investors, some of which came from family members, like brother Tom. As the enthusiasm and momentum built, shortly thereafter, brother Dave Hanlon was invited to join the company, later his wife Jennie, and Terry Hanlon also joined early—as it now became a family effort.

The business plan called for creating a company that would market, sell, and support products world-wide, and be capable of sustained, long-term growth. The industry's experience with failed attempts at reviving American brands led the

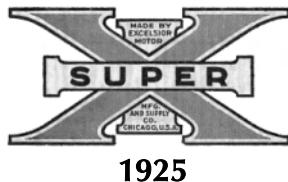
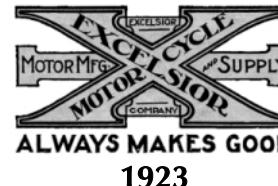
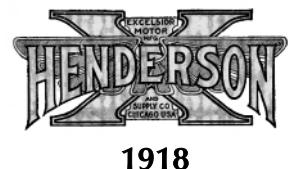
company to plan a well-funded, globally-oriented company to assure future customers of their intention to stay in the business.

The company was wary of the traditional venture capitalists due to previous startup experiences, and knew there were better direct alternatives. So, the company focused on attracting the wisdom and guidance of private investors that had successfully built their own companies. The decision proved fruitful; by April of '94 the company had moved their offices from Dan's basement in Burnsville to a suburban Minneapolis (Burnsville) office complex.

Also during earlier research, the company had investigated various resources including numerous American motorcycling historical data searching for a name that resonated with the same vision for the mission and principles of the new company. Of the more than 250 American motorcycle brands throughout history, one clearly stood above the rest: Excelsior-Henderson. As one of the "Big Three" motorcycle manufacturers of the time, the original Excelsior-Henderson had all of the elements of a strong heritage: innovation, styling, technology, reliability, racing, and lifestyle. The Schwinn Company bought the original Excelsior Motor Mfg. and Supply Company, however had ceased the motorcycle business for over 60 years; the company embraced the name and heritage they sought.

The company began designing their new motorcycle based on Excelsior-Henderson's 1931 Excelsior Super X. This impressive machine was the most innovative trendsetter of the industry, proving to be the perfect model to update for the 90s. By 1995, the company was producing the first prototypes.

In March, 1996, the name of the company changed from the Hanlon Manufacturing Company to the Excelsior-Henderson Motorcycle Manufacturing Company. Another step in establishing a name with genuine American heritage was complete. Fund raising continued throughout the year and, in September, the company had raised enough money in a registered private placement to garner additional state and local funding.



The Senior Vice Presidents came on-board in 1996; Al Benz in Engineering, Allan Hurd in Manufacturing, John LaVoie in Marketing, and Tom Rootness as Chief Financial Officer. These individuals, as well as all that followed, would be instrumental in ensuring the company's goal of developing the Super X, and creating the most modern motorcycle production facility in the world.

At the 1996 Sturgis rally, the company reached one of its most critical milestones. Before a crowd of 5,000 of the most staunch critics imaginable, Excelsior-Henderson unveiled the first Super X prototypes. Excelsior-Henderson had crossed the line from two years of T-shirts and talk to become recognized as a company with a goal, a product, and the will to realize them both.

1996 was also the year Excelsior-Henderson announced plans for its state-of-the art factory and headquarters, and found itself the fortunate object of a bidding war. With plans to construct a facility that would eventually employ over 450 people, the company excited interest around the country. The company received more than two hundred proposals from locations in twenty states, offering attractive incentives. After visiting twenty potential sites in twelve states, Belle Plaine, Minnesota was chosen as the location for Excelsior-Henderson's new home.



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The company continued to reach milestones. On March 20th, 1997, Excelsior-Henderson unveiled running prototypes of the Super X at Bike Week, the spring motorcycle extravaganza in Daytona Beach, Florida. Astride their Super Xs, the Hanlons and other company riders queued up behind members of Daytona Beach's motorcycle-mounted police force to lead the first annual Excelsior-Henderson Daytona Bike Week parade through Daytona Beach.

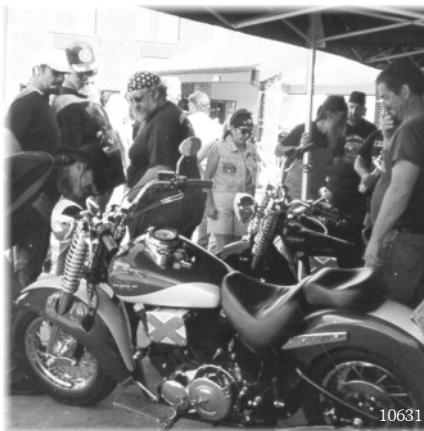
The procession ended at Daytona's Peabody Auditorium where the Hanlons joined other company officials and engineers to answer questions and hear opinions from the thousands who had gathered to get a look at the Super X prototypes. While few in the crowd knew as well as the Hanlons how much more work was needed to bring the Super X to production, many acknowledged how far the company had come. The public recognized the significance of this step in the company's progress toward establishing itself and its reborn American motorcycle brand.

Less than a month later, on April 16th, with over 2,500 people in attendance, Excelsior-Henderson held ground-breaking ceremonies for its new headquarters. State and local dignitaries joined company family members and Belle Plaine citizens in turning the fertile farm soil, beginning the process of building the company's new home. For the Hanlon family who graduated from area high schools and whose families have been in the Minnesota River Valley for over 130 years, the event was also a significant homecoming. Belle Plaine welcomed them back in the style only a small midwestern community can produce.



Not long after the ground-breaking, the company began forming its dealer network. In late July, with the BIGX ticker symbol added to the NASDAQ exchange's listings,

Excelsior-Henderson became a publicly-held company. The company sold 4 million shares in the initial public offering, and sales, representing 31% of the company's equity, brought the market value of Excelsior-Henderson to over \$100 million.



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The final Super X prototype attracted plenty of attention again at the Sturgis rally, held August 4-9, 1997. Over 25,000 visitors passed through the company's tent for a look at the bikes, the EXperience—the traveling heritage exhibit—and the Excelsior-Henderson apparel and accessories. Once again, the tough crowd's reaction was encouraging. The Hanlons said of the event, "This year we came for acceptance, for people to walk up and tell us they like our product. That's what we left town with—acceptance."

In the final months of 1997, business publications took increasing interest in Excelsior-Henderson. The company was the featured cover story of Inc. magazine and the accompanying article gave a balanced, positive assessment of the company, drawing notice from business community members and less typical readers as well. In the first week of November, Excelsior-Henderson got more national attention as a result of a cover story in USA Today's business section. Now the American business community was starting to understand what motorcycle enthusiasts and industry-watchers, private investors, shareholders, and Minnesotans had known about Excelsior-Henderson for some time.



On November 10, less than six months after the ground-breaking, Excelsior-Henderson occupied its headquarters in Belle Plaine, as administrative, sales, and advertising teams moved into the new facility. The next day, in a ceremony celebrating the opening of the new headquarters and honoring American veterans, the company raised its flag beside the American, state, POW & MIA, and Belle Plaine flags. The Hanlons said they felt it was fitting the company was moving in during the week of Veterans' Day, because veterans had helped provide the opportunity to live in a free country in which people can realize their dreams.

Before the year was out, Excelsior-Henderson reached another critical financial milestone. On December 23rd, the company completed a bond offering, finishing a three-year process of raising the dollars needed to begin production of the Super X. In the year ahead, Excelsior-Henderson would continue to meet milestones and experience success.



Bike Week 1998 in Daytona Beach saw Excelsior-Henderson continue to state its presence in style and enthusiasts were treated to a display of the latest Super X prototypes.

The company's first annual Shareholders Meeting & Biker BBQ drew a record-breaking crowd, with over 4,500 in attendance. The crowd was not disappointed. The company provided food and drink for everyone, with outdoor spaces set up to accommodate the huge response to the meeting's invitation. Not even a tent the size of a football field could hold the massive group, so sound and video were fed to an adjoining tent. Among the music, casual dress, logo-wear, and charged atmosphere that characterize Excelsior-Henderson get-togethers, the company offered a sneak-peek at the production-intent Super X. The crowd roared its approval.



10620



In the first week of August, 1998, using the Black Hills Motorcycle Classic as its stage once again, Excelsior-Henderson unveiled the production-intent Super X to the press and the general public. One of the most significant events in the preproduction history of the Super X, the unveiling made good on the promise of the previous two years' prototypes. Once again, the company's tent was jammed to

capacity with anxious onlookers hearing the new, throaty snarl that was destined to echo in the streets in 1999. As before, the bikers' approving questions "When?" and "How much?" were far and away the most common.

On December 30, 1998, six years of planning, financing, designing, engineering, marketing, bleeding, and sweating culminated in the shape of the first production bike: #00001. Accompanied by the cheers of the employees and the pop of champagne corks, #00001 rolled off of the line.



Staying true to the company's emphasis on heritage, #00001 was immediately delivered to the Excelsior-Henderson Heritage Museum in the lobby of the Belle Plaine headquarters for all visitors to enjoy.

1998 brought to a close the first major phase in the history of the new Excelsior-Henderson Motorcycle Manufacturing Company.



10623

## The Trail from 1876 through 1931

In the early 1900s, motorcycles were just evolving beyond bicycles with engines attached to them. They were ridden by a daring few over the paths, trails, and rough, unpaved roads of the time. A few decades later, they were sophisticated machines engineered specifically for their purpose, ridden by thousands—people of all ages, incomes, and backgrounds; commercial and civil employees; and members of the military.

Hanlon Mfg. secured a brand that epitomized the early days of motorcycling. From the first Excelsior in 1905 to the abrupt end of Excelsior-Henderson production in 1931, let's review the role the company, its motorcycles, and the riders played in the remarkable evolution of motorcycling in America during the first decades of the 20th century.

The complete history of the company resides variously in texts on the history of motorcycling, in the product documents and meager records of the early manufacturers, in the racing records of the times, and in the memories of those who took part in the first great era of American motorcycling. Taken together, these sources reveal confusion and sometimes conflict in technical facts and dates. In highlighting the history of Excelsior-Henderson, this section relies on the best information available and resolves issues of fact by agreeing with the majority of research where conflict exists.

## 1876-1910: The Beginnings of Excelsior

The story of the Excelsior-Henderson brand begins in 1876 with the founding of the Excelsior Supply Company, a maker of bicycles and parts. By the latter half of the 1800s, bicycles had become very popular as durable, light, and relatively safe transportation—faster than walking and second only to it for economy.

Bicycles were significant forerunners of motorcycles in the ways bicyclists used them, the characteristics they demanded in them, and the culture they formed around them. People commuted, toured, and raced on bicycles. Some folks used bicycles in their work, while others rode for pleasure and good health. This popularity created fierce competition among manufacturers, leading them to continually improve performance, reliability, comfort, and appearance. All of these aspects of bicyclists and bicycles defined the original context of motorcyclists and motorcycles.

While bicycle manufacturers improved their products, others developed powered versions and new types of engines. About ten years before the Excelsior Supply Company was founded, two independent developers created powered two-wheeled vehicles by adding a steam engine to a prototypical bicycle called a



10644

velocipede. In 1876, a 4-stroke internal combustion engine was developed in Germany. Two years later a 2-stroke version of the engine appeared.

In 1885, a German developer built a gas-powered, wooden, belt-drive two-wheeler. It was the first powered two-wheel vehicle with equal-sized wheels and the engine between the wheels and is considered by many to be the first motorcycle. By 1894, a German machine called the “motorcycle” was commercially manufactured.

By the end of the 19th century, bicycling was the sport in the United States. Top racers, sponsored by the major manufacturers, were common household names. On the streets, the culture of bicycling included bicycle rallies, group rides, hill climbs, street racing—exactly what the culture of motorcycling would become in future years.



Bicycling had an even closer tie to the development of motorcycling. The very first use of motorcycles in the U.S. was to pace and provide draft for velodrome bicycle racing. Two racers on the track would pedal up to speed, and then motorcycles would swoop directly in front of the bicycles to pace and draft for them. It didn't take long before people took these pacing motorcycles out onto the streets.

The earliest motorcycles had the same traits as bicycles—they were strong, light, durable, and economical—and were used in the same applications. They were faster than bicycles and advertised as a way to ride without the work. These early motorcycles used a standard or strengthened diamond-shaped bicycle frame, an engine, and the necessary belts or chains to transfer the engine's power to the front or rear wheel. During the first decade of the 20th century motorcycles were built by bicycle and automobile manufacturers who were as new to motorcycles as motorcycles were new.

By the time Excelsior built its first motorcycle in 1905, the company already had nearly 30 years of experience engineering bicycle frames and parts. This gave them a leg up on the other motorcycle manufacturers, who had considerable difficulty keeping their bikes together on the torturous roads of the day.



At 233, 235, 237 Randolph Street, Chicago, Illinois, Excelsior crafted its first motorcycle. It was a single-speed machine, featuring a single-cylinder, 21 cu. in. "F-head" engine, in which the intake valve was on top of the cylinder and the exhaust valve was inverted inside the cylinder. The frame was a keystone type, with the crankcase an integral frame component. Dual top frame tubes sandwiched the fuel tank, a feature quickly copied by other manufacturers. With a flat, leather belt transferring power to the rear wheel, and a leading-link front suspension to swallow the bumps, riders could speed along at 35 to 40 miles per hour.

By 1906, motorcycles had evolved to using spring frames, magneto ignitions, and spring-mounted seats. Bicycle frames, wheels, and tires had been replaced by sturdier versions. Excelsior offered its first two-cylinder model, with a 61 cu. in. (1000 cc) engine, in 1910. Like the 30.50 cu. in. single-cylinder model, the two-cylinder Excelsior Auto-Cycle Models F and G were single-speed, but they had a heavier frame. The single-cylinder model was discontinued in 1913.



10643

## 1911-1917: The Joining of Forces

### 1911

Excelsior gained popularity in its first years, as motorcycling clubs formed and held competitions. Early motorcycle races were held on flat dirt tracks of various lengths, on board tracks, and across long distance courses between cities or national borders. The board tracks, or motordromes, were high-banked ovals with a wood surface of two-inch wide planks. Similar to the bicycle racing velodromes, board tracks were renowned for treacherous racing and huge splinters. Depending on the type of competition, riders raced against each other, against the clock, or for top speed over a given distance. With competition riders on the payroll, manufacturers used racing and hillclimbing to get their names in front of spectators who were also potential customers, and to test new designs under the grueling stresses of competition. The designs and modifications that succeeded in competition often appeared on later road models in one form or another.

When Excelsior began competing, motorcycle racing was a popular sport. Excelsior quickly became a serious challenge to other industry competitors.

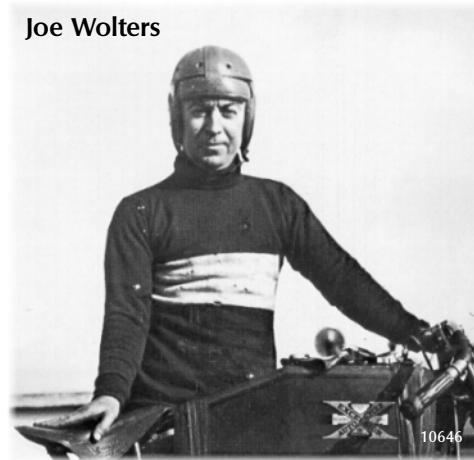


### At Chicago's 1/3 mile Riverview

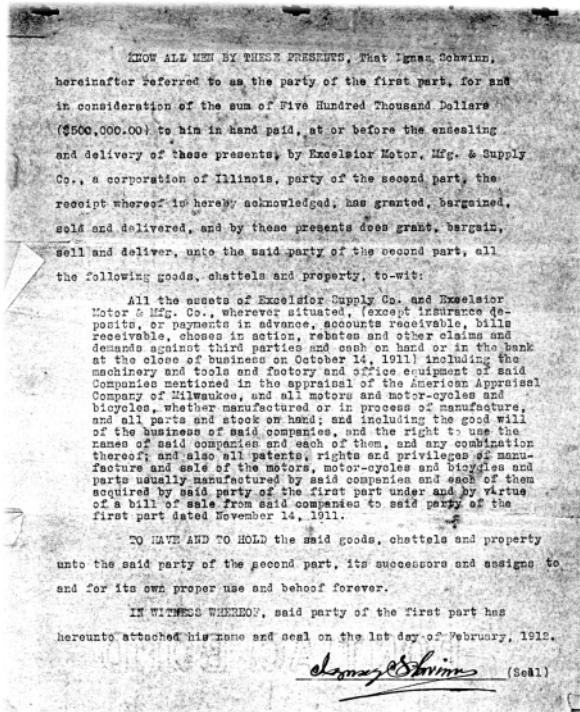
Motordome, Excelsior rider Joe Wolters was almost unbeatable in 1911. In August, he set an unofficial two-mile world record, making the six laps in 1 minute, 22 2/5 seconds, with a speed of 87.3 mph. At the track that same month, Wolters set a new one-mile record with a time of 40 1/5 seconds, a speed of 88.9 mph. In September, Excelsior rider Jake DeRoiser set an unofficial world record for the kilometer of 94 1/5 mph. Wolter's and DeRoiser's exploits increased motorcycle enthusiasts' interest in the Excelsior brand and drew attention from the industry's top competitors.

The Chicago-based Schwinn Company entered the motorcycle industry in 1911. At first, they drafted plans to build their own motorcycle. Upon surveying the competition, Schwinn concluded that the impressive quality and durability of the Excelsior would be difficult to beat. They chose to draft an agreement to purchase neighboring Excelsior.

**Joe Wolters**



Original corporate documents at the American Motorcycle Association museum show that Schwinn contracted to purchase Excelsior on November 14, 1911. Schwinn agreed to purchase all assets of the Excelsior Supply Company and the Excelsior Motor and Manufacturing Company, including: manufactured and in-process motorcycles, bicycles, and motors; factory and office equipment; tools; all parts and stock; good will; and all rights, including the company's patents and names; and the privileges of manufacturing and sales. With motorcycles gaining growing acceptance as a mode of transportation, and with Schwinn's experience building frames for two-wheelers, Excelsior was a logical addition to this successful bicycle manufacturing company.



Courtesy: AMA AMHF

**1912**

On February 1, 1912, Schwinn concluded the purchase of Excelsior for the price of \$500,000 and moved the factory to 2246 Union Avenue, Chicago, where it remained until 1914. They immediately advertised the new Excelsior aggressively and added it to the offerings of some of the franchisees in their extensive dealer organization. A 1912 advertisement for the Excelsior announced a lower price due to increased factory output and improved economies. The motorcycle was touted for its comfort, speed, durability, and economy. Easy riding and steady handling due to its long wheel base and low center of gravity was also advertised.

On December 30, 1912, Excelsior gained renown for being the first motorcycle to officially reach 100 mph. On that day, at the one-mile board track in Playa del Ray, California, Excelsior rider Lee Humiston "turned a ton," becoming the first motorcyclist officially timed at 100 mph by a sanctioning organization. At the same track a few days later, on January 7, 1913, Humiston took every time record for the distances between 2 and 100 miles, breaking the previous 100 mile record of 75 minutes, 24-2/5 seconds with his time of 68 minutes, 1-4/5 seconds.



Also that year, in Detroit, Michigan, the Henderson Company began manufacturing its in-line four-cylinder Henderson motorcycle. The Henderson Company made a motorcycle for those who wanted more than a motorized bicycle and developed a premium-quality machine with a distinguished appearance.

The Vice President and principal designer of the Henderson Company, William (Will) Henderson, had a desire to build motorcycles from the time he was a boy. He worked for nearly eighteen years in the motorcar business as a designer and draftsman. His father—Vice President of the successful Winton Motors, an automobile manufacturer with a reputation for building fine products—repeatedly tried to discourage his son, not believing there was any future in motorcycles. But Will would not be thwarted, and time and again presented his father with plans for a motorcycle, plans he worked on at night, after a full day at work.

Finally, Will came to his father with a fully-detailed design for a four-cylinder motorcycle. Will's Father, concerned about the effect on his son's health of many sleepless nights spent designing, convinced Will to give up his job and advanced him money to create a prototype. His Father hoped his son would give up the

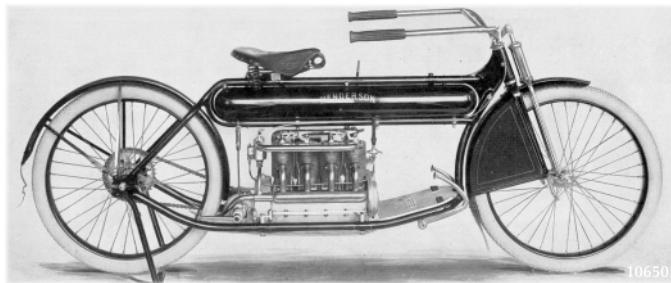


Will Henderson on his 1912

project when faced with the practical difficulties of building the prototype. Instead, Will pursued his task with a relentless passion and, in late 1911, the Henderson Company began advertising its first model, the 1912 Henderson. At age 28, Will had been working on motorcycle designs for about nine years.

The 1912 Henderson was an unusual motorcycle for the time. It was a single-speed machine, with a clutch and no gearbox. The engine was an automobile-like 58.9 cubic inch (965 cc) four-cylinder, featuring four individually-cast cylinders of the F-head design.

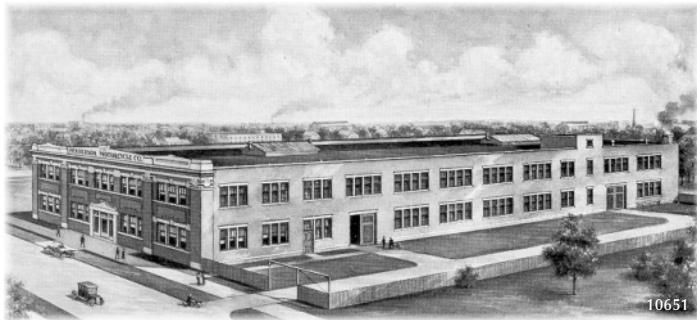
Because the four-cylinder engine delivered relatively constant power strokes, the 1912 model was designed with a chain drive instead of a belt. The engine was started with a folding hand crank, eliminating the pedals and the complex procedure required to start most other motorcycles made in the United States. The frame was elongated, extending about two feet past the front of the engine, with the front down tube curved in the same arc as the front fender. A rubber-coated floorboard was mounted to the lower horizontal frame members in the space in front of the engine. Automotive-type pedals, on either side at the front of the footboard, controlled the bicycle-style rear coaster brake.



The finish was black with gold pinstripes; the fenders had red pinstripes; and the unique, round-ended, cylindrical fuel tank had red V-shaped panels at either end. The passenger, or tandem, saddle was located in front of the operator's saddle, and footpegs extended from the front fork for the passenger's feet. The Henderson was advertised for its mechanical advantages and low center of gravity, its quiet and vibrationless ride, its roomy footboard in front of the engine, and its easy hand-crank starting method.

The Henderson did well in its first year of production, gaining acclaim from riders and dealers alike, particularly because its four-cylinder engine gave it extraordinary performance in mud, sand, and in climbing steep hills. The 1912 Hendersons were first

built in an assembly plant running two shifts, and with a significant amount of the manufacturing jobbed out. In June, Henderson production was moved to a new manufacturing plant designed to produce 25 motorcycles per day. July 27, 1912, was declared a "Henderson Red Letter Day," as the company received over 100 orders that day from dealers around the country. Henderson was already exporting its product around the world to countries such as England, Australia, Argentina, and Japan.

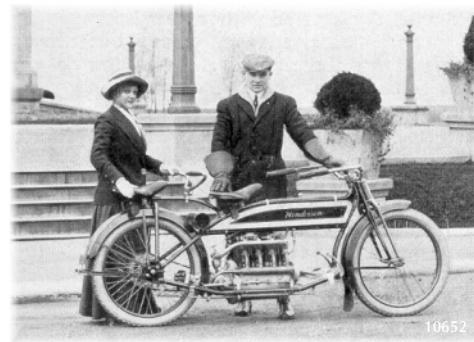


**1913**

In 1913, Excelsior sold existing inventory, but stopped manufacturing the single-cylinder model. The two-cylinder model used an all-chain drive and remained a single-gear machine. Excelsior was advertised as the only motorcycle with "complete control in the handlebars," with the right hand grip controlling the throttle and the left the clutch. Advertisements also emphasized the comfortable ride afforded by the saddle mounted on the "Kumfort Kushion" seat post and the cradle spring front forks.

Excelsior racing great Bob Perry began his career in 1913. He rode a 1913 model to win the prestigious 300 mile Grand Prix road race held on a 11-1/2 mile circuit in Savannah, Georgia.

Meanwhile, Henderson's 1913 model changed considerably from the previous year's model. The engine displacement was increased to 64.9 cubic inches (1064 cc). The top frame tube now sloped down near its intersection with the seat mast, resulting in a lower saddle height. The bicycle-style rear coaster brake was replaced by a band brake manufactured by Henderson. The fork and frame were strengthened, and the slab-sided fuel tank tapered toward the rear to accommodate the sloped top frame tube. The forward-tandem saddle was replaced by a rear-mounted version, a



Henderson-made accessory. The 1913 Henderson was now dark blue with gold pinstripes and had a gray fuel tank with dark blue panels bordered with gold pinstripes.

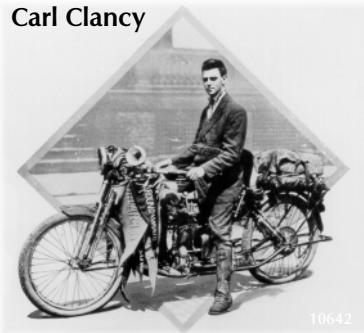
A touring machine, the Henderson did not figure in track racing or hillclimbing at first. However, it was a record-setting long distance and endurance competitor right from the start. In 1913, Carl Clancy, on his 1912 Henderson Four, became the first motorcyclist to circle the world, putting over 18,000 miles on his machine.

#### 1914

Other than offering a two-speed rear hub as an option, the 1914 Henderson was largely similar to the 1913 model. In a 1914 publication, the company issued this statement:

“Another year’s use of the Henderson, in the service of an always-growing number of riders, has served to demonstrate further the correctness of the Henderson’s fundamental and essential characteristics. So, for 1914, no radical change or departure is made. There are refinements in detail, of course, that have been pointed out by our own observations and which have been crystallized from suggestions of Henderson users.”

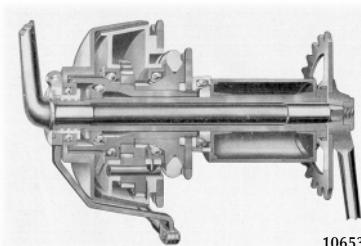
Carl Clancy



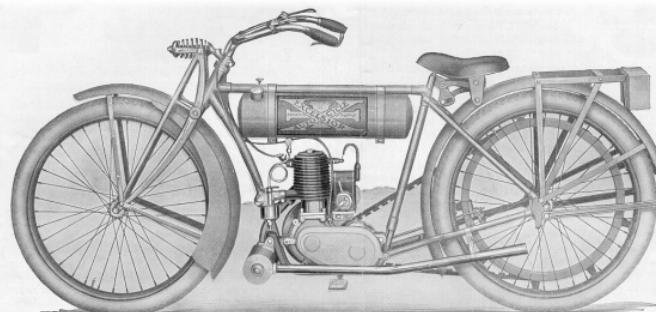
The 1914 Henderson did feature a saddle adjusting plate, which allowed the rider to adjust the saddle-spring tension to his or her own weight. The plate improved the comfort of the ride and lowered the saddle position another inch. In advertising, Henderson continued to promote its motorcycle as exceptionally comfortable and vibration-free.

Excelsior also offered its first two-speed model in 1914, using a planetary gearset. Both the single- and the two-speed Excelsior twins were fitted with a heavier, leaf-spring front fork.

Excelsior returned to the single-cylinder market again in 1914, offering the Lightweight, its first two-stroke machine, with a 15 cubic inch (250 cc) engine. The Lightweight was a single-speed that used a notched flat belt for power transmission.

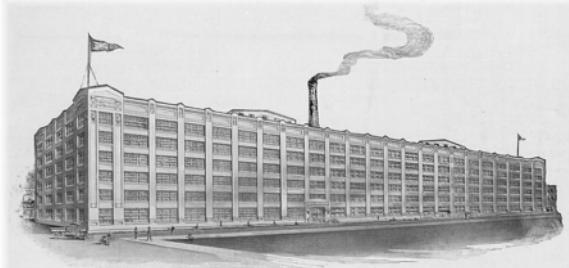


Two-Speed Gearset

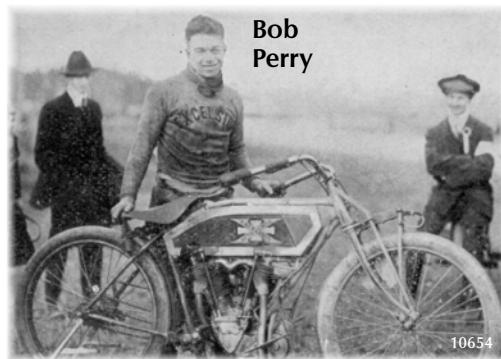


Excelsior moved into its new factory—the world's largest motorcycle manufacturing facility—at 3703 Cortland Street, Chicago, in 1914. The six story reinforced concrete building was designed throughout for the efficient and economical production of motorcycles. With the largest possible proportion of glass walls to ensure good lighting, a filtered air ventilation system, and even a test track on its roof, it was one of the finest manufacturing facilities in any industry. "A workman's comfort means efficiency and this again in turn means careful and perfect workmanship, all of which ultimately results in the mechanical perfection for which Excelsior Autocycles have established a reputation through the world."

In April, Excelsior's Bob Perry defeated Charles Balke to win the 5-mile National Championship in Sacramento, California. In May, Excelsior rider Carl Goudy won the 10-mile professional race in Philadelphia, Pennsylvania. And, at the two-day meet in Chicago that month, Bob Perry racked up victories repeatedly in the strictly stock class.



10665

Bob  
Perry

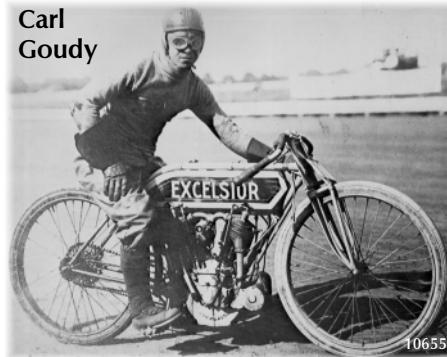
10654

In July, at the meet in St. Louis, Missouri, Excelsior riders won all three National Championships and half of all the events. Excelsior rider Joe Wolters took the One-Hour Championship held in Birmingham, Alabama on October 8th. In the amateur arena, the National Amateur Champion for 1914, W.A. Lauders, won the St. Louis meet on his Excelsior.

## 1915

Excelsior made major design changes in its existing models' performance and appearance in 1915. The company also incorporated those changes into a new model, the "Big Valve X." The Big Valve X had a 61 cu. in. engine and Excelsior's first three-speed transmission. It was advertised as "The Fastest Motorcycle Ever Built" and won many competitions in its first year. For the Lightweight, the 1915 model had a two-speed transmission.

The 1915 Excelsior models had new styling characteristics that began a trend that continues in motorcycles built today. The top frame tube and the fuel tank sloped gradually from the steering head back to the seat post. The fuel tank had attractively rounded sides instead of the flat slab sides on previous models. The



1915 models had a gray painted finish and maroon tank panels outlined in gold pinstripe; gold-lettered name decals; arrow-tipped, scarlet pinstripes on the fork tubes; and nickle-plated cylinders and control components. These models also featured valanced fenders.

Factory riders Bob Perry and Carl Goudy, piloting their Excelsior Big Valve Xs, made 1915 one of Excelsior's finest years in racing; it was also Perry's career best season. Among other wins, Perry took three 100-mile races and the prestigious One-Hour National Championship that year. He and Goudy won the 300-mile relay race at Readville, Massachusetts, and the 200-miler at Columbus, Ohio. According to a magneto manufacturer's advertisement of 1915, Perry and Goudy took five of the ten races won that year on motorcycles using their magnetos. In September, Goudy brought even more attention to the "X" when he won the 300-mile race at Chicago's Speedway Park two-mile board track, breaking the record for the distance.

Hendersons were not in the competition limelight in 1915, but on March 18, the 1915 Henderson Model E appeared with dramatic changes to the frame. The Model D, with the long wheelbase and frame extended beyond the front of the engine, continued to be available for. The Model E had a shorter frame, as the space between the front of the engine and the front of the frame was eliminated. The footboard that had been in front of the engine had been replaced by a separate footboard on the outside of the frame on each side of the motorcycle. Henderson offered single- and two-speed models in both the short and long frame.

Important business developments occurred in 1915 for the Henderson Company. In March, just two weeks before announcing the Model E, Henderson announced that it had received a sizable contract to supply motorcycles to a country neutral in the conflict of World War I. With the war in progress, English and German motorcycle manufacturers were unable to supply motorcycles to Europe, and Henderson closed a contract to distribute its products in Milan, Italy.

## 1916

By 1916, many American law enforcement bodies specified the Excelsior X-twins for their motorcycle patrols. The War Department purchased small quantities of Excelsiors, and the motorcycles were known to have performed well in Pershing's 1916 Mexican campaign and overseas in World War I.



The Excelsior Lightweight single-cylinder was offered in single- and two-speed models in 1916. The price of the singles increased and may have further lessened already weak consumer interest given the singles' mild performance. This was the last year of the Lightweights. Schwinn disagreed with Henry Ford's statement that a lightweight motorcycle sold at an attractive price would outsell his automobiles. Rather, Schwinn agreed with the President of another motorcycle manufacturer that the three-speed motorcycle had taken its place in the industry and that what Ford heard as a demand for an affordable lightweight was really a demand for a three-speed motorcycle at a reduced price.

Excelsior took one National Championship in 1916, the 10-mile race in Chicago, won by Glenn Stokes on May 30th. The Big Valve X did have important moments at other notable races that year, including a first and second finish by Bob Perry and Glenn Stokes at the Detroit 100-mile flat track race on June 11th. Once again, component manufacturers advertised wins on motorcycles using their products, and the 1916 list included three races won by Perry, and the Pikes Peak Hillclimb won by Floyd Clymer.



10666

The 1916 Henderson Models F and F2, a single- and a two-speed respectively, appeared in advertisements in October, 1915. Only the short wheelbase models were available. In the 1916 models, valve size was increased, the hand crank was replaced by a kick starter, and the clutch could be controlled by either a lever on the tank or a foot-operated pedal. By January 20, 1916, advertisements showed an increased price for both the single- and the two-speed models, citing cost increases and shortages in materials and labor due to the war.

Police departments, railway companies, and the Post Office Department all ordered Hendersons that year. The popularity of the Henderson continued to increase as Hendersons started showing up as victors in motorcycle club races. Roy Artley began a long series of records for Henderson in 1916, when he set four consecutive records for the San Francisco-to-Los Angeles run.

## 1917

In 1917, the United States was actively involved in World War I. Motorcycle manufacturers felt the shortage and increased cost of supplies and labor. By mutual agreement, Excelsior and the other two major American motorcycle producers—who, together, were the main factory racing sponsors—refrained from supporting racing. To show their patriotic spirit, Excelsior models for 1917 through 1919 were finished in military olive.



In spite of the war's effect on the industry, Excelsior and Henderson continued developing their motorcycles. The 1917 Henderson Model G was a major advance over the previous year's model. Numerous improvements resulted in an almost entirely new engine that was one of the most advanced of the time. The Model G also had a three-speed internal transmission, a left-side mounted kick starter, and improved front forks.

Even with factory sponsorship suspended, 1917 and 1918 were filled with motorcycle competition, setting records in endurance runs, and in hillclimbing. In 1917, C. Lambert won both the stock and free-for-all (professional and amateur riders combined) hillclimbing events on his Excelsior at Capistrano, California. Later that year, astride his Excelsior, Wells Bennett made the single perfect score at the Los Angeles Motorcycle Club's twelfth annual endurance run.

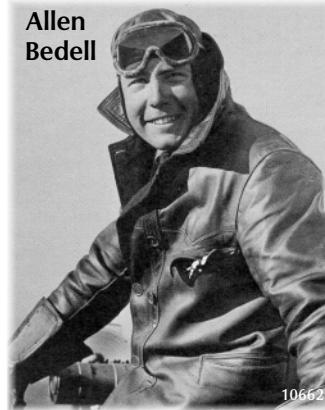


10682  
Hollywood Actor Tom Mix on his Henderson Model G

Hendersons were also in competition news. In July, 1917, Alan T. Bedell completed the New York-to-Los Angeles coast-to-coast ride on his Henderson in 7 days, 16 hours, and 16 minutes, covering 3,296 miles. Bedell, 21 years old and 180 pounds, beat the 1914 coast-to-coast record by 3 days, 19 hours. In 1917, paved or surfaced roads existed mostly in cities and large towns; cross-country roads were generally dirt, gravel, sand, or mud. On his coast-to-coast run, Bedell rode many miles in deep sand or on rock-strewn roads.

That year, Roy Artley set two important records. He set a new sidecar 24-hour distance record of 706 miles. In July, the same month Bedell made his coast-to-coast ride, Artley set a new record for the Three-Flag (Canada-United States-Mexico) run on his stock Henderson, besting by more than eight hours the record held since 1915. The following year, Wells Bennett and his Excelsior, would better Artley's record by over two hours, though Bennett's route was about 50 miles shorter than Artley's.

By 1917, in spite of the Henderson motorcycle's excellent reputation and strong sales, the Henderson



Motorcycle Company was having serious financial difficulty. While Henry Ford purchased a Henderson that year, more and more prospective customers chose products like Ford's over those like Henderson's. With automobiles becoming less expensive and selling in ever-increasing numbers, the motorcycle industry as a whole experienced problems from growing competition.

At the same time, Schwinn was doing well with its finances from its bicycle and motorcycle businesses. Excelsior documents dated March 15, 1917, reveal a complete set of plans for a four-cylinder motorcycle. The plans for the four-cylinder, referred to as Model O, are very similar to those for the Henderson Model K produced in 1920. The Model O had a side-valve engine, ball housing clutch, and three-speed transmission, with front forks identical to the Henderson's. From these plans, it appears Excelsior was poised to enter the four-cylinder market. But the Model O was never produced.

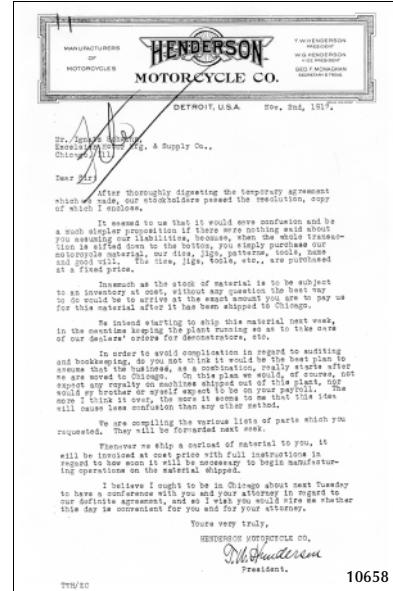
On October 1, 1917, the Henderson Motorcycle Company presented Schwinn and the Excelsior Motor Manufacturing and Supply Company with a financial statement and a proposal for the sale of Henderson to Excelsior. Schwinn eagerly jumped at the opportunity to add one of the world's most recognized four-cylinder motorcycles to his stable. Not only did the addition of Henderson fulfill Schwinn's desire to provide a four-cylinder, but Henderson's commitment of building only the highest-quality motorcycles matched his own, and that of Excelsior.

On November 10, the Henderson board of directors approved a resolution to discontinue production, liquidate assets, and pay liabilities. Three days later the board ratified the contract between Excelsior and Henderson and attached its

November 10 resolution to the contract. Two days later, on November 15, 1917, Schwinn returned the signed originals of the contract for sale and a certified copy of the Henderson resolution, and authorized execution of the sale contract.

Though the Henderson Company still existed, it no longer produced motorcycles. Tom Henderson joined Excelsior as sales manager and Will came on board as factory superintendent. Tom Henderson's protege engineer Arthur O. Lemon, who had worked at Henderson with Tom, also came to Excelsior.

Schwinn pressed to have Henderson transfer motorcycles, parts, and manufacturing tools as quickly as possible so Excelsior could offer the Henderson brand in 1918. By November 23, 1917, nine boxcars had been loaded in Detroit and shipped to Chicago. Shipping continued as late as December 24, 1917, with jigs and tools arriving with those later shipments. Six complete 1918 Hendersons were shipped to Chicago on December 19. The Chicago factory likely produced very limited numbers of the 1918 Henderson until late December, 1917, when the factory became fully operational.



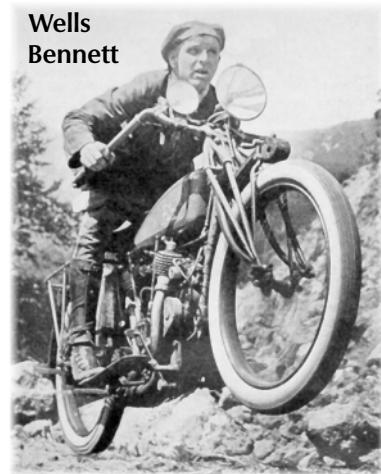
Courtesy: AMA AMHF

## 1918-1925: Excelsior-Henderson and The Super X

### 1918-1919

The years 1918 and 1919 were relatively quiet product development times for Excelsior-Henderson. The Excelsior models from these two years were largely unchanged from the 1917 models. The Henderson Model H and Model Z came out in 1918, and are recognized as the first models marketed by Excelsior. The Model H was largely the same as the previous year's Model G. The Model Z had an increased engine bore, wider mudguards, and a military olive finish with brown stripes. The 1919 Hendersons were fitted with an Excelsior internal-external brake which used a different rear wheel.

In 1918, the voluntary suspension of factory-supported racing continued. Wells Bennett garnered many victories between 1917 and 1921 on his Excelsior, and brought considerable publicity to Excelsior-Henderson in the process. In June, 1918, Bennett broke the record for the Los Angeles-to-Needles, Arizona run, a 302-mile trip, with an average speed of 42.3 mph over the sandy trails through the desert. In August, Bennett broke another point-to-point record, making the Three-Flag run of 1,621 miles in 70 hours. Bennett's mere 23 mph average speed is an indication of road conditions rather than the abilities



of rider or motorcycle. His route included many miles of rough, muddy road and often required him to ford rivers and streams, as bridges were scarce.

In 1919, the year of the Armistice, Excelsior stated that 100,000 Excelsiors had been marketed, with a substantial number sold overseas. The Motorcycle and Allied Trades Association (M&ATA) declared that year that it would no longer sanction intercity record runs. When long-distance record setting began in 1903, road conditions made high speeds virtually impossible. By 1919, the improved condition of roads led riders seeking long-distance records to exceed speed limits whenever possible. This brought on the M&ATA action.

Wells Bennett continued to bring attention to the Excelsior name in competition throughout 1919. That year, he piloted his Excelsior on four unofficial record-setting runs. Bennett broke the sidecar record for Los Angeles-to-San Diego and the sealed-high-gear-with-sidecar record for Los Angeles to Bakersfield. He also took the record for Los Angeles-to-San Diego with a passenger and the San Francisco-to-Los Angeles record.

## 1920

Will Henderson broke his contract with Excelsior in early 1920, and formed another motorcycle manufacturing company with Max M. Sladkin of Philadelphia, Pennsylvania. Sadly, Will Henderson was killed December 11, 1922, in a collision caused by an automobile driver who did not see him as he took one of his new company's 1923 models for its first test ride.

Arthur Lemon, now Chief Designer at Excelsior-Henderson after Will Henderson's departure, updated the Excelsior Model 17-C using the same trailing-link front fork used on the Hendersons. The Excelsiors dropped the military olive finish for the dark blue finish of the Hendersons. Excelsior designer J.A. McNeil, with help from engineer/rider Bob Perry and rider Carl Goudy, developed a special overhead-cam, two-cylinder racing engine for the 1920 season. The year began with great promise in racing for Excelsior.

That enthusiasm quickly diminished. On January 2, 1920 Bob Perry crashed one of the overhead-cam racing X-twins in a practice run for the 100-mile national championship at Los Angeles' Ascot Park. Before the run, Perry declared in the pits that he intended to run the lap at full speed and wanted to be timed. According to an eyewitness account, Perry took a turn at full speed at the top of the track and started to skid, the machine going down as he tried to regain control; he died five hours later. Schwinn, disheartened at the death of his friend, lost interest in racing and the potential of the overhead-cam X-twin was left unrealized.



Bennett   Perry   McNeil   Wolters

Fortunately, the Excelsior-Henderson legacy did not die with Bob Perry. Wells Bennett continued making records in 1920 on his Excelsior mount. He set another sealed-in-high-gear sidecar record for the Los Angeles-to-Bakersfield run, covering the 126 mountainous miles in 3 hours, 7 minutes. He turned in another Three-Flag run record too, making his 1655 mile route in 51 hours, 4 minutes.

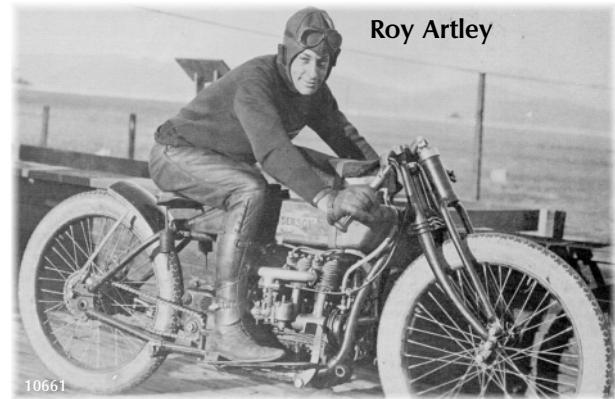
The year was a busy one for Arthur Lemon. In addition to updating the Excelsior Model 17-C, he headed the redesign of the Model Z renamed the Model K. The 1920 Henderson Model K was a completely redesigned machine. It had the same elements as the earlier models, but almost all of them had been changed to some degree.

Once again, a new Henderson model appeared with a radically improved engine. The Model K featured a pressure feed oil system—all the oil was carried in the crankcase and circulated through internal passages by a gear-driven oil pump. The engine valves were repositioned, replacing the earlier models' overhead rocker arms and push rods. The carburetor was also repositioned for more even fuel distribution. This model also came with a reverse gear—another industry first according to Henderson literature.



The engine improvements required Lemon to design heavier-duty forks, frame, wheels, and other parts. The original single-tube, loop-cradle frame was replaced by a double-down-tube cradle frame with a stronger steering head forging. Special steel forging was used in every frame joint, and the Model K was touted as the only motorcycle in America with every joint forged. The forks were also made much stronger, with thicker tubing, a stronger crown, and larger rockers. Overall, the Model K was heavier and stronger, and its increase in popularity in 1920 and 1921 is a legend in the motorcycle industry.

Roy Artley demonstrated the Model K's performance at a board track in Cotati, California. He rode 300 miles at a speed of 77 mph, and for one hour of the ride, at a constant 80 mph. Such a feat would not have been possible with the splash oiling system of previous Henderson models. Artley showed the new Henderson was reliable at high speed over a long distance.

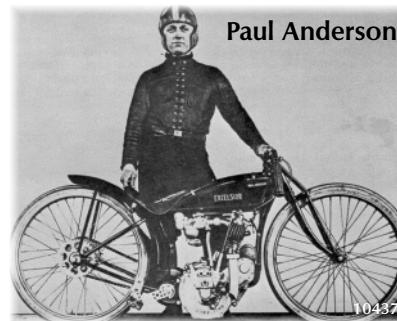


## 1921-1922

The Excelsior X-twin was offered in a 74 cubic inch version in 1921, in addition to the 61 cubic inch version. The larger twin was intended for the demands of commercial applications which often included a sidecar. The 1921 Henderson was largely unchanged from the Model K.

In September, Paul Anderson set half-mile track records for the 1-, 2-, and 10-miles on an Excelsior "half-twin." The 30.50 cubic inch engine had the X-twin's case but only a single-cylinder; the opening in the case for the second cylinder was sealed. Anderson, like other half-mile track riders of the time, was trying for the one-minute mile. His one-mile speed was 57.3 mph.

In 1922, Arthur Lemon developed a new type of cylinder, called the "M" type, for use on the Excelsior half-twin racers. The main advantage of the new cylinder design was the air passage between the cylinder and the valve pocket. This feature alleviated the heat distortion problems that had kept predecessor half-twins from running at peak performance for more than a short time. Lemon's and



Anderson's efforts brought the Excelsior brand the coveted sixty-second mile on a half-mile track. Anderson made the record on November 12, at the dirt track in Winchester, Indiana. He also took the 5-mile open event, the 5- and 25-mile State Championships, and another 5-mile open event that same day. Lemon, whose interest was in hillclimbing, had proven his "M" cylinder design and set the direction for Excelsior's upcoming hillclimbing efforts.

Maldwyn Jones, who rode for Excelsior in 1922, had a successful year both on the dirt track and in hillclimbing. Jones attended a two-day meet in South Bend, Indiana, along with Paul Anderson. Both riders were on the Excelsior 30.50 cubic inch half-twin. Anderson was injured in the first 5-mile event and was unable to compete for the rest of the meet. Jones, the lone Excelsior competitor, won each of the seven races in which he competed. In November, while Anderson was tearing up the half-mile track in Winchester, Indiana, Jones repeatedly reached the top at the hillclimb in Dayton, Ohio, where he took the 80 cubic inch, the 61 cubic inch, and the free-for-all events on his Excelsior.

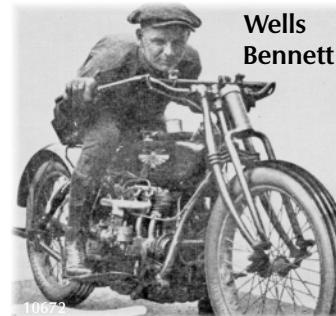
The Henderson De Luxe, an evolution of the Model K, appeared in 1922. The De Luxe featured many engine improvements and a rear brake almost twice the



size of the Model K rear brake. With its dark blue finish, gold stripes, and gray wheels, the De Luxe also had a small open chain guard in place of the Model K closed guard. The new features gave the right side of the motorcycle a much sleeker look. On a stock version of the Henderson De Luxe, Wells Bennett set many distance and time records that year, bringing Henderson into the competition spotlight once again.

The first of Bennett's major feats on the De Luxe came May 30-31, when he broke the 24-hour distance record at the Tacomah Speedway board track in Washington. Bennett rode 1562.54 miles for the record; he broke the distance record for every hour increment from 1 to 23; he broke the time records for every 100-mile increment between 100 and 1500, and for the 50 and 250 miles as well. Bennett's 24-hour record remained unbroken for over fifteen years.

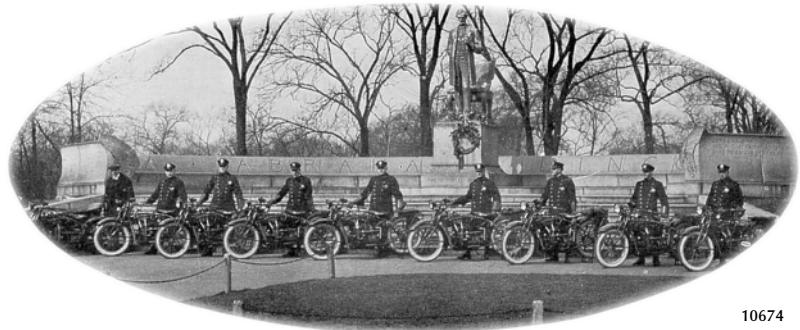
On the same Henderson De Luxe, Bennett set a new Three-Flag record in September. He covered his 1650 mile route from Canada to Mexico in 43 hours, September 12-13. Just over a month later, still riding the same De Luxe, he broke the record for the transcontinental Los Angeles-to-New York run. Starting October 25 and finishing October 31, he made the 3400 mile journey in 6 days, 15 hours, 13 minutes, beating the previous record by 7 hours, 39 minutes. In the five months between the beginning of his 24-hour run at Tacomah and the end of



his transcontinental run, including incidental travel, Bennett had put 14,312 miles on his Henderson De Luxe.

The De Luxe made news in other arenas as well. Only two riders in the Los Angeles Motorcycle Club's 1922 endurance run made perfect scores: Freddie Ludlow and "Blick" Wolter, both on the 1922 Henderson De Luxe.

Paul Anderson reached a speed of 98 mph in a demonstration for the Chicago Police Department and 100 mph before the San Diego Police Board. Clearly able to catch almost any automobile of the time, the De Luxe became the fleet motorcycle of choice for police departments in Chicago, Los Angeles, and other large cities.



## 1923-1924

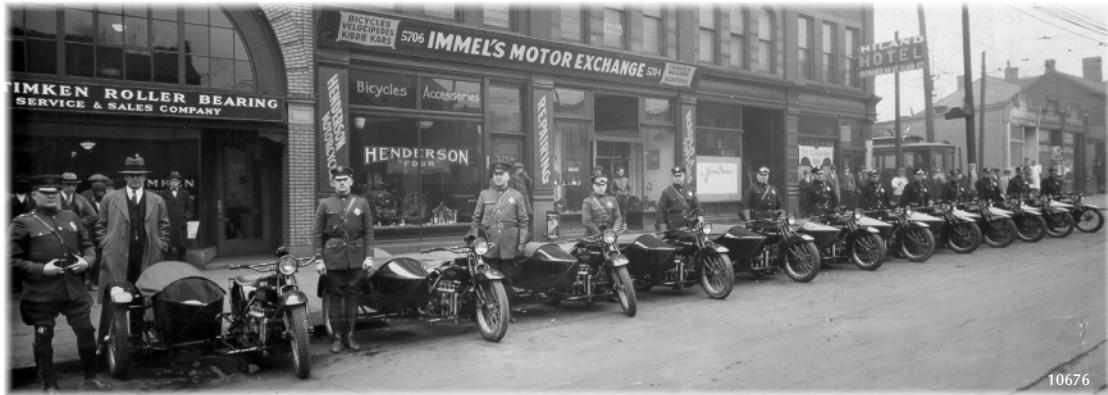
The “M” cylinder Excelsior came out a winner of the Capistrano, California hillclimb in both 1923 and 1924. Ed Ryan took the 80 cubic inch free-for-all event at the 1923 Capistrano hillclimb on his “M” cylinder Excelsior. Instead of the conventional rear tire, Ryan’s machine used a metal tractor band. His bike also featured a frame that extended several feet behind the rear wheel to prevent the backward flip that often occurred during hillclimbing. Ryan’s success lead some to refer to the “M” cylinder as the “Capistrano engine.”



At the 1924 Capistrano event, the Excelsior-Henderson factory fielded three riders on three different-class Excelsior machines, and each won his event. Capistrano-area rider Shorty Heaton won the 61 cubic inch event, Ed Ryan the 74 cubic inch, and Wells Bennett the 80 cubic inch. Excelsior, keen to win the competition and to have riders equal to the capabilities of the motorcycles they fielded, paid Bennett’s expenses from Portland, Oregon, and Ryan’s from Colorado Springs, Colorado. The strategy paid off.

In 1923 and 1924, the Henderson De Luxe continued to make its mark in competition, in law-enforcement applications, and with the buying public. Wells Bennett brought the Three-Flag solo and sidecar records back to Henderson in June, 1923. Bennett made the Canada-to-Mexico solo run in 42 hours, 24 minutes. He then attached a sidecar and, with passenger Ray Smith, rode back to Canada to break the Three-Flag sidecar record. On October 20, 1924, Freddie Ludlow rode his factory-tuned Henderson De Luxe to a new quarter-mile speed record. At the Culver City, California board track, Ludlow made a speed of 127.1 mph, verified by both industry and police observers.

In 1924, Hendersons were in use by 600 police departments in the United States and sales were at an all-time high. The reputation of the Henderson De Luxe for reliable high-speed performance over long distances continued to make it a law-enforcement favorite.



The Henderson's reputation for elegance and automobile-like construction, made the De Luxe popular with the rich and famous as well. The Henderson De Luxe was a favorite choice of movie producers and actors alike.

## 1925

Excelsior-Henderson produced the legendary Super X for the first time in 1925, superseding the 61 cubic inch Excelsior X-twin. The Super X was a revolution in design and styling. It weighed about 100 pounds less than a comparable machine and had a much lower seat height. Except for the F-head valve configuration in the new 45 cubic inch X-twin and the return to leading-link front forks, the Super X was a major departure from its predecessors. The three-speed transmission and the engine were of unit construction—the gears were integrated with the engine in a common housing. This unit construction power plant was unique in American designs, and it would be 27 years before another such power plant appeared. A helical gear primary drive, housed in an oil bath, with a cast-aluminum case, replaced the sheet metal-covered primary chain drive of earlier Excelsiors. The sport version—the Super Sport X—came with a high compression set of pistons



for maximum speed and power, and a low compression set for the variety of speeds needed in everyday use.

To economize production, Super X used the same fuel tank and frame members as the Henderson. With its light weight and fairly even torque at varying speeds, the Super X was destined to be a remarkable performer, and it was not long before its abilities became known in competition. Its reasonable price quickly made it popular with the buying public as well.

One of those who brought Excelsior-Henderson many victories and records riding the Super X was racing great Joe Petrali. A competitor with an established reputation, Petrali was well known for his ability to tune motorcycles for speed. In spite of the fact that he was not an engineer by education or training, Petrali had proven abilities and experience. He succeeded in convincing Schwinn to let him join the design team. Beginning in 1926, Petrali started setting records on the competition version of the Super X, which was a direct-drive, single-speed machine, as mandated by contemporary racing rules.

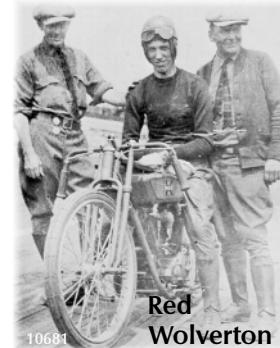
**Joe Petrali**



The Super X quickly drew attention at motorcycle club competition events. As there was not yet a 45 cubic inch competition class, the Super X was pitted against 61, 74, and 80 cubic inch machines in club flat-track and hillclimb events. Despite its smaller engine, the Super X often won these competitions. Red Wolverton rode the Super X to three unofficial records at the Baltimore, Maryland, Laurel Speedway 1 1/8 mile board track. His one-mile speed was 95.7 mph; five-mile, 92.68 mph; and ten-mile, 91.05 mph.

Meanwhile, the 1925 Henderson De Luxe underwent major appearance changes. The top frame tube sloped toward the rear, lowering the saddle and improving both the riding position and the overall appearance of the De Luxe. The fuel tank was shortened, but its width was increased to maintain fuel capacity. The finish was still dark blue with gold pinstripes, but the wheels were now cream-colored with dark blue stripes.

By the end of 1925, Excelsior-Henderson was poised for the developments that would bring the company to the pinnacle of its first era. The Super X had performance and durability characteristics that meant competition success and was priced to appeal to a broad market. The Henderson De Luxe was renowned for its long-distance durability, and for its speed, strength, and comfort. It had a solid place in commercial, civil, and high-end private use markets. Despite the constant encroachment into the motorcycle market by the affordable automobile,



the prospects for Excelsior-Henderson were bright, and the company would soon develop what is now recognized as the original cruiser-style motorcycle.

## 1926-1931: The Birth of the “Cruiser”

### 1926-1928

With its new Super X, Excelsior-Henderson entered the 1926 racing season with a machine that appeared destined to make its mark. The company successfully lobbied to have a new 45 cubic inch class recognized for the 1926 racing season, and Joe Petrali set about establishing the Super X as a record-setting machine. Petrali's efforts helped make the reputation of Super X as “the world's fastest stock model.”

On July 2, 1926, Petrali set three all-time board track records on his Super X at the Altoona, Pennsylvania track. He made the one-mile record with a speed of 107.65 mph, the five-mile at 103.60 mph, and the ten-mile at 100.70 mph. According to advertisements in September, 1926, Petrali's record at Altoona “marked the first time



a small motor of stock design had exceeded the century mark." Appearing at the Salem, New Hampshire board track with Excelsior-Henderson factory riders Bill Minnick, Cy Merrill, and Bob Sirkegian, Petrali won a ten-mile race in the 61 cubic inch class on his 45 cubic inch Super X.

In 1927, Petrali continued his racing and record-setting feats. On March 15, he set two new board track records at the Culver City, California track. His speed for the 50 miles was 82.3 mph and for the 100 miles, 73.0 mph. At the Milwaukee dirt track on July 31st, Petrali won the 45 cubic inch class 10-mile National Dirt-Track Championship on his Super X. He also set dirt track records for the 10 miles with a speed of 75.3 mph and for the 15 miles at 75.5 mph.

While the 1927 Super X was racking up victories and records on the dirt, boards, and hills, the 1927 Henderson De Luxe appeared with a number of engine refinements and other advancements. The 1927 De Luxe had a center-lit instrument pod mounted on the tank. The pod included a speedometer, oil gauge, ammeter, and ignition switch. The horn was moved from the handlebars to the front fender, and the tool box was moved from the top of the fuel tank to a position under the saddle next to the battery box. The valanced front fender with the front fork passing through it appeared on both the Henderson De Luxe and the Super X in 1927.



The last Henderson De Luxe model was produced in 1928. The main changes from 1927 were the addition of a front brake (believed to be another industry first) and the design of the front forks. The forks were the same as those used on the 1927 Super X, with larger tubes, a recoil spring inside the center barrel of the fork, and a leading link design. The engine compression was also increased. The 1928 De Luxe was available in the traditional deep blue, but could have a standard or custom two-tone finish for an additional cost. These were the last models with the fuel tank between the frame tubes. The switches in the instrument pod were changed to push-pull operation.

In 1928, Schwinn wanted a new Henderson model with a lower saddle height and an engine with more power, more durability, and smoother operation. The Henderson was destined for an almost complete redesign and the engineer to

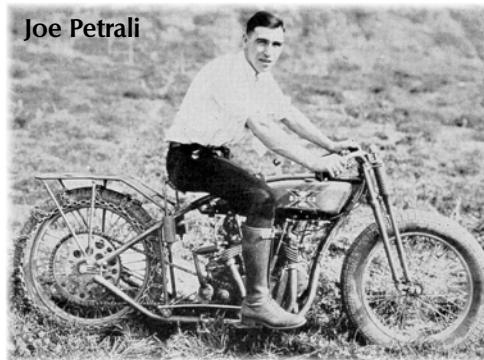
make the changes became available by midyear. In June, A.R. "Connie" Constantine joined Excelsior-Henderson after nine years as an engineer with an industry competitor. Constantine made a thorough assessment of the De Luxe and concluded that the machine required redesign; years of boosting horsepower had come at the expense of engine durability at sustained high speed. The results of Constantine's efforts appeared in the Hendersons and the Excelsiors the following year.

Beginning in 1928, Excelsior-Henderson changed its focus in competition from racing to hillclimbing. Joe Petrali had mated the "M" cylinders to a Super X to create a 61 cubic inch hillclimber dubbed "Big Bertha." Atop the big hillclimber, Petrali captured 31 first place finishes in 31 consecutive events, including the 1928 National Hillclimb Championships. Between the end of May and mid-July, Petrali also took two flat track victories. Gene Rhyne



A. R. Constantine

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Joe Petrali

joined Petrali as a factory hillclimber that year and rode Big Bertha to win the 61 cubic inch class event at the Vallejo, California hillclimb. The next month, Petrali rode his Big Bertha to a victory in the same class event in the hillclimb at Mount Garfield, Michigan.

Henderson made its last appearance in the long-distance record books in 1928, when rider C.A. Cameron set the stock 100-mile record with an average speed of 94.5 mph.

## 1929

The result of Constantine's redesign efforts appeared in both the restyled 1929 Super X and the 1929 Henderson Models KJ and KL. The Henderson Model KL was a super-sport version that developed five more horsepower than the KJ. Because of its sleek new appearance, the 1929 Henderson quickly became known as the "Streamline Henderson." The styling of the 1929 Super X and the Henderson Streamline drew the attention of enthusiasts and embodied the look that defined the style still evident in today's cruiser motorcycles. The split, tear-drop shaped fuel tanks were streamlined and enclosed the top frame tube, giving both the Excelsior and



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Henderson models the sleek appearance that is one of the defining characteristics of the cruiser style. A new instrument pod was mounted to the fuel tanks and the saddle position was lowered.

While its appearance was a dramatic change from the De Luxe, the Streamline also had a host of functional alterations—the new lines and fuel tanks accounted for only two of the 57 new features listed for the Streamline. The 80 cubic inch engine was a new F-head type with a five-bearing crankshaft for higher sustained speeds and smoother running at all speeds. A new intake manifold and carburetor resulted in down-draft carburation that improved fuel combustion and engine performance. The new rocker clutch pedal eliminated the need for the auxiliary hand clutch lever and simplified the look of the left side. Among the many other improvements were control cables fully enclosed in the handlebars, a new saddle, and a non-glare instrument lamp shield.

In response to Schwinn's request to build a motorcycle that would win the National Hillclimb Championship in 1929 for the 45 cubic inch class, Constantine developed an overhead valve version of Super X engine. Twenty of the overhead valve Super Xs were built and proved capable of meeting Schwinn's requirements. The engine produced a potent 10:1 compression ratio and yielded 45 horsepower when run on alcohol-benzol fuel. An even ratio between cubic inches and horsepower, exemplified by the overhead valve engine, was highly desirable for more than twenty years.

At the 1929 National Hillclimb Championship at Muskegon, Michigan, Joe Petrali rode the overhead valve 45 cubic inch Super X to victory for the event in that

class, and the 61 cubic inch Big Bertha for that class' victory. He came away with the National title of overall Hillclimb Champion and the added distinction of being the sole rider to take a 45 cubic inch engine motorcycle over the top of the Muskegon hill. Gene Rhyne rode in the same championship and took the overall runner-up spot.

The 1929 Streamline was the fastest Henderson to date, but the competition efforts of Excelsior-Henderson were focused entirely on hillclimbing—the Super X and Big Bertha garnered competition headlines for the Excelsior brand alone. However, Henderson enthusiasts proclaimed the Streamline as the finest of the four-cylinder motorcycles ever built. With police riders reporting that the Streamline could run smoothly in high gear at speeds as low as 8 mph and then accelerate to 110 mph, the Streamline became the standard of police departments around the country.



**1930-1931**

In 1930, the United States and the entire world were in the grips of the Great Depression. Excelsior-Henderson continued to sell its motorcycles at a brisk pace and dealers continued to prosper in spite of the economy. The restyled Super X remained unchanged in 1930 and 1931. In 1930, Henderson offered a new modification of the Streamline called the Henderson Special. A high speed solo machine not designed for use with a sidecar, the Special differed from the Streamline in cylinder design and had improved fuel passages and increased compression. Joe Petrali tested the Henderson Special on April 29, 1930, and was clocked over two runs at an average speed of 112.61 on the factory stock motorcycle.

The Super X and the Big Bertha continued to carry riders to wins in the 1930 National Hillclimb Championship held at Muskegon, Michigan. Gene Rhyne was the National Champion and Joe Petrali the runner-up. Petrali began the 1930 hillclimb season on April 27th with victories in both the 45 and 61 cubic inch class events at the Niles, Michigan hillclimb.

In the worsening conditions of the Depression in 1931, 69-year-old Ignaz Schwinn planned to turn over the bicycle and motorcycle businesses to his son Frank, along with his controlling interest in



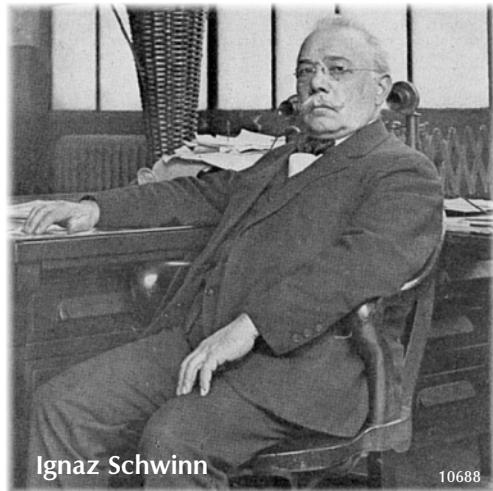
Gene Rhyne

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some 50 Chicago businesses. While Schwinn liked motorcycles, that part of his business did not play a significant part in the Schwinn fortune. Frank Schwinn was not partial to motorcycles. He prepared to take over the family business and make decisions based on the harsh economics of the Depression.

Ignaz Schwinn was among the most successful and powerful in both the motorcycle and bicycle industries, and he had developed friendships with other successful and powerful people including those in national office. In 1931, Schwinn made a trip to Washington, D.C. and met with one of these friends. He came away with the realization that the Depression was going to worsen considerably. Schwinn felt sales would decline in the Depression and the motorcycle business would cease to be profitable.

So, on March 31st, 1931—the day before his 70th birthday—Schwinn assembled his chief motorcycle management and bluntly announced, “Gentlemen, today we quit.” Production ended immediately and the process of dismantling the motorcycle operation started at once. The company had a large quantity of orders on hand, including commitments for police motorcycles. In spite of the threat of lawsuits by those whose orders had



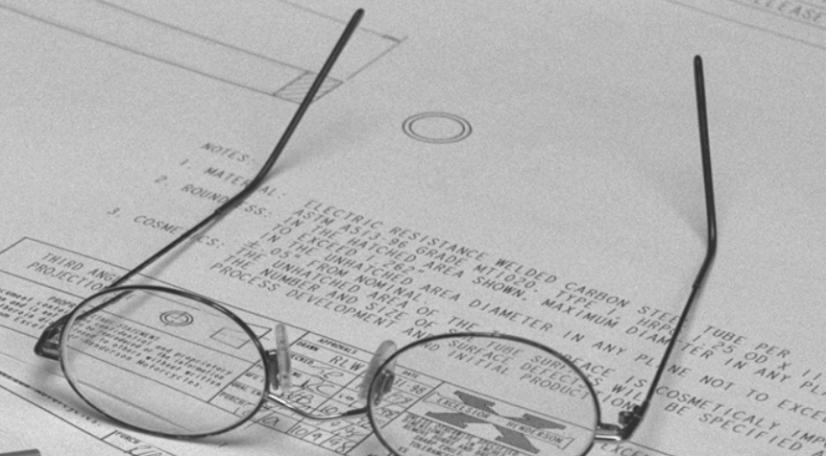
Ignaz Schwinn

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been taken, no back orders were filled. Dealers and owners were shocked at the sudden disappearance of Excelsior-Henderson.

The end of the first era of Excelsior-Henderson came at a time when the company was producing the finest models in its history. What appeared to be the end of the brand turned out to be merely a 62-year hiatus, ending in 1993 with the incorporation of the new Excelsior-Henderson Motorcycle Company.





# Specifications

## Dimensions

Overall length .....	92.5"
Overall width.....	39.5"
Overall height .....	52.5"
Saddle height.....	26.5"
Wheelbase.....	62.9"
Ground clearance.....	5.9"

## Weight

Dry weight.....	675 lbs
Gross Vehicle Weight Rating (GVWR) .....	1140 lbs
Gross Axle Weight Rating – front...	394 lbs
Gross Axle Weight Rating – rear ...	746 lbs

## Engine

Type .....	50° X-Twin™
Number of cylinders...	2
Bore.....	3.66"
Stroke .....	4.02"
Displacement.....	85 cu. in. (1386 cc)
Compression ratio .....	9.2 : 1

Fuel system .....	port sequential, closed loop fuel injection
Starting system .....	electric
Lubrication system .....	pressure lubrication, dual scavenge
Air cleaner.....	dry paper/wire mesh

## Transmission

Type .....	5 speed, constant mesh
Primary reduction system .....	wet multi-gear drive
Primary reduction ratio.....	1.75 : 1
Gear shift pattern .....	1 down, 4 up
Gear ratios: 1st.....	2.53 : 1
2nd .....	1.77 : 1
3rd.....	1.35 : 1
4th.....	1.00 : 1
5th.....	0.80 : 1
Clutch.....	wet multi-disk
Drive belt.....	high performance synchronous

**Chassis**

Frame type .....	tubular steel, double cradle
Front suspension .....	leading link, double strut system
Rear suspension.....	adjustable, gas charged system
Caster angle .....	30°
Trail.....	6.25"
Steering angle .....	±43°
Turning radius.....	7.6'
Brakes (diameter X width):	
Front .....	11.5" X 0.236" floating disc, 4 piston caliper
Rear .....	11.5" X 0.236" floating disc, 4 piston caliper

**Wheels**

Type:	
Front .....	stainless steel 40 spoke
Rear .....	stainless steel 40 spoke
Size:	
Front .....	3.0 X 16
Rear .....	3.5 X 16

**Tires**

Type.....	tube
Size:	
Front .....	MT90HB16
Rear .....	MU90HB16
Manufacturer and model .....	Dunlop 491 Elite II
Maximum load:	
Front .....	770 lbs
Rear .....	930 lbs

**Air pressure (cold):**

Up to 200 lb. load:	
Front .....	36 psi (cold)
Rear .....	36 psi (cold)
200 lb. – 440 lb. load:	
Front .....	36 psi (cold)
Rear .....	40 psi (cold)

## Electrical

### Ignition system:

Type..... inductive coil  
Timing..... ECM-driven

### Spark plug:

Type..... Excelsior-Henderson  
part no. 3199-0030  
Gap..... 0.035 in.

Battery..... sealed 18AH

Generator..... 35 amp regulator

### Light bulbs (voltage, wattage X quantity):

Headlamp..... halogen sealed  
beam, ANSI #H6024

Running light/Front  
turn signal..... ANSI #198

Rear turn signal..... ANSI #199

Tail/brake light..... ANSI #198

License plate light..... ANSI #193

Speedometer..... ANSI #161

Tachometer..... ANSI #74

Fuel gauge..... ANSI #74

### Instrument Pod Indicators:

Headlamp high beam.. ANSI #74

Check engine..... ANSI #74

Turn signal..... ANSI #74

Neutral ..... ANSI #74

Low oil pressure ..... ANSI #74

Low battery voltage ... LED

Low fuel ..... ANSI #74

### Fuses:

Auxiliary lights..... 10 amps  
Fuel pump ..... 10 amps  
EFI ..... 15 amps  
Lights..... 15 amps  
Horn ..... 10 amps  
Ignition ..... 5 amps

## Fluids

### Capacities:

Fuel tank..... 5.75 gal  
Engine oil (with filter)... 3.5 qt (US)

Fuel..... unleaded gasoline  
only, 92 pump  
octane minimum

### Engine oil:

Classification ..... API-rated SF or SG  
Viscosity..... 25W-50 (+40°F)  
Brake and clutch fluid ..... DOT 5 hydraulic  
fluid

## **Fuel Specifications**

Use only unleaded gasoline, 92 pump octane minimum.

- DO NOT USE GASOLINE CONTAINING METHANOL.

Using gasoline/methanol blends can result in poor starting and drivability, and may damage critical fuel system components.

- Gasoline containing up to 15% Methyl Tertiary Butyl Ether (MTBE) can be used.
- Gasoline containing up to 10% Ethanol can be used.
- Gasoline that has been Reformulated or Oxygenated can be used.

# Engine Oil Specifications



## Notice

Use only API-rated SF or SG grade oil. Use the appropriate viscosity oil for the lowest ambient temperature you expect to encounter before the next scheduled oil change.

In the first 500 miles, use only a mineral-base engine oil with 10W-40 viscosity rating.

After the first 500 miles, use an engine oil of appropriate viscosity rating for the lowest ambient temperature you expect to encounter before the next scheduled oil change.

Engine oil viscosity	10W-40	25W-50
Temperature	30°F	40°F

Engine oil viscosity chart

## ⚠ Caution

Do not combine mineral-base and synthetic oil in the crankcase at the same time, as this can cause serious engine damage.

## Torque Specifications

### Engine

Spark plug.....	15 ft-lbs
Upper cam cover screw.....	12 ft-lbs
Air cleaner cover screw .....	8 ft-lbs
Air cleaner element screw.....	8 ft-lbs
Throttle body bracket screw.....	8 ft-lbs
Exhaust flange nut.....	20 ft-lbs
Exhaust clamp .....	55 ft-lbs
Oxygen sensor.....	20 ft-lbs
Heat shield clamp .....	8 ft-lbs
Muffler mounting screw.....	30 ft-lbs
Timing gear cover screw .....	8 ft-lbs
Oil filter cover screw.....	8 ft-lbs
Oil pump cover screw .....	8 ft-lbs
Crankcase:	
3/8-16 .....	25 ft-lbs
5/16-18 .....	18 ft-lbs
Oil drain plugs .....	30 ft-lbs
Starter motor mounting screw .....	8 ft-lbs
Starter terminal nut.....	5 ft-lbs
Primary drive cover screw.....	8 ft-lbs
Primary drive cover insert screw .....	8 ft-lbs
Clutch access cover screw.....	8 ft-lbs

### Chassis

Front engine flange to frame.....	20 ft-lbs
Front engine brackets to frame:	
3/8-16 .....	35 ft-lbs
5/16-18 .....	20 ft-lbs
Rear engine mount rod to engine ..	60 ft-lbs
Isolation mount to engine.....	55 ft-lbs
Isolation mount cap nut.....	50 ft-lbs
Footboard support screw .....	25 ft-lbs
Footboard pivot screw.....	8 ft-lbs
Passenger foot peg post screw.....	50 ft-lbs
Passenger foot peg pivot screw .....	25 ft-lbs
Shifter bracket screw .....	14 ft-lbs
Shifter lever pinch screw .....	8 ft-lbs
Shifter rod acorn nut.....	25 ft-lbs
Rear brake master cylinder	
adapter screw .....	10 ft-lbs
Rear brake master cylinder screw ..	18 ft-lbs
Rear brake reservoir screw .....	18 ft-lbs
Rear brake pedal post .....	50 ft-lbs
Swing cage pivot:	
Bolt .....	80 ft-lbs
Nut.....	79 ft-lbs
Rear shock absorber.....	72 ft-lbs

## Chassis (continued)

Battery cover strap screw .....	7 ft-lbs	Hydraulic line banjo bolt.....	18 ft-lbs
Voltage regulator screw.....	7 ft-lbs	Switch cluster mounting screw .....	20 in-lbs
Rear electronics cover screw .....	7 ft-lbs	Throttle cable retainer screw .....	20 in-lbs
Electronics/oil fill cover screw .....	7 ft-lbs	Headlamp/horn bracket screw .....	10 ft-lbs
Main switch bracket screw .....	7 ft-lbs	Horn screw .....	22 in-lbs
Main switch screw .....	7 ft-lbs	Headlamp post screw .....	25 ft-lbs
Rear axle nut .....	111 ft-lbs	Headlamp mounting screw.....	35 ft-lbs
Rear brake caliper bracket screw .....	35 ft-lbs	Front fender screw .....	35 ft-lbs
Rear brake rotor screw.....	50 ft-lbs	Instrument pod mounting screw.....	12 ft-lbs
Rear sprocket screw.....	55 ft-lbs	Fuel tank mounting screw.....	20 ft-lbs
Front axle bolt.....	79 ft-lbs	Rider seat screw .....	18 ft-lbs
Front brake caliper bracket screw .....	35 ft-lbs	Tandem seat screw.....	18 ft-lbs
Front caliper rod .....	30 ft-lbs	Rear fender support screw .....	50 ft-lbs
Front caliper rod bracket screw .....	35 ft-lbs	Rear fender screw.....	35 ft-lbs
Front brake rotor screw.....	50 ft-lbs	Rear fender extension:	
Front hub cap screw .....	10 ft-lbs	Nut .....	10 ft-lbs
Rocker pivot screw.....	25 ft-lbs	Screw .....	7 ft-lbs
Rocker pinch screw .....	18 ft-lbs	License plate bracket screw .....	7 ft-lbs
Front strut pivot shaft screw .....	55 ft-lbs	Tail light housing screw .....	5 ft-lbs
Front strut cap screw .....	10 ft-lbs	Front belt guard screw.....	7 ft-lbs
Top triple clamp acorn nut .....	25 ft-lbs	Rear upper belt guard .....	10 ft-lbs
Handlebar riser post.....	50 ft-lbs	Rear lower belt guard.....	5 ft-lbs
Handlebar riser screw .....	17 ft-lbs		
Handlebar riser cap screw.....	17 ft-lbs		
Hydraulic reservoir clamp screw .....	10 ft-lbs		

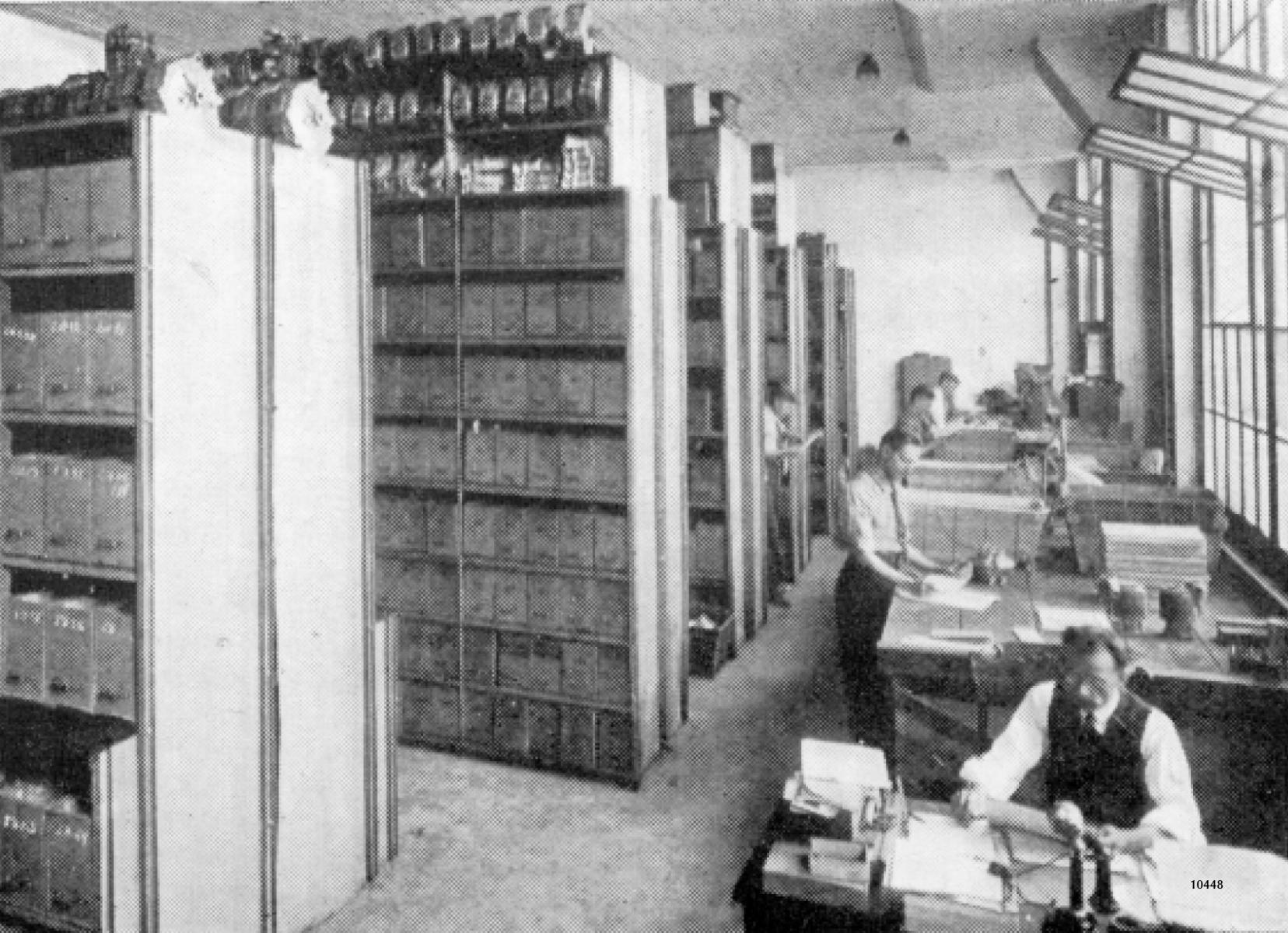
## Identification Numbers for Your Super X

Vehicle Identification Number

Engine identification number

Key identification number

## Notes:



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\* See the *Super X Service Handbook* or your Excelsior-Henderson Dealer.  
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