The Mechanic's Perspective to Pre-Purchase Motorcycle Inspections

While a less through inspection can generally still end up with a good purchase on a motorcycle, I have included a more detailed version below. If you want the short version. Make sure it starts good and idles good off choke if carbureted. Inspect for crash damage. Light scuffing is generally not a problem from tip over but it is a good indicator to look deeper. If it rides good and looks good you have a very high chance of getting a good motorcycle. However, the more detailed inspection I have will help prevent you from getting an unexpected surprise. Best of luck.

Kyle,

Beyond the Shine: Unveiling the Hidden Truth

As a mechanic, I've seen countless motorcycles roll into the shop, some gleaming and promising, others bearing the scars of neglect or hidden damage. A pre-purchase inspection is not merely a formality; it's a critical investment, a safeguard against costly repairs and potential safety hazards. This paper aims to provide a comprehensive, mechanic-centric guide to conducting thorough pre-purchase inspections, empowering buyers to make informed decisions and avoid costly pitfalls. We'll delve into the intricacies of each system, highlighting common issues and crucial inspection points, going beyond the superficial to reveal the true condition of a motorcycle.

Documentation and History - The Paper Trail:

Before even laying hands on the bike, scrutinize the documentation.

- **Title/Registration:** Verify ownership matches the seller's identification. Check for liens, salvage titles, or inconsistencies. A clean title is paramount. **Make sure the buyers name line is open for you to put your name in.**

- **Service Records:** Look for consistent maintenance records. Regular oil changes, valve adjustments, and tire replacements indicate responsible ownership. Gaps in service history raise red flags. While I have bought many bikes with no service history that were good bikes service history is typically a sign of a well taken care of motorcycle.

- **Recall History:** Check for outstanding recalls on the VIN. Unresolved recalls can pose safety risks. This is not necessarily a big issue pre-purchase as a dealer can address afterwords.
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- **Accident History:** Inquire about any accidents. Inspect for signs of repairs, such as mismatched paint, bent frame components, or bent fork, swingarms or shocks
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- **VIN Verification:** Ensure the VIN on the frame matches the title and engine. Check for signs of tampering. The Vin is on the steering head of the frame. It is stamped into the frame and sometimes a sticker in addition.

Visual Inspection - The First Impression: Surface Scrutiny

The visual inspection is the initial assessment, revealing obvious flaws and providing clues about the bike's overall condition. A clean good-looking bike is usually a good bike. A bike that looks neglected usually has been.

- **Overall Condition:** Note any dents, scratches, rust, or corrosion. Pay attention to the quality of paint and finishes.

- **Frame:** Inspect for straightness, cracks, or signs of damage. Check welds for integrity. A bent or damaged frame is a major red flag.

- **Forks:** Look for leaks, pitting, or damage. Check for straightness and smooth operation.

- **Suspension:** Inspect for leaks, damage, and proper function. Check for excessive play or binding. Pushing down on the tail and seeing if the suspension is free and not binding.

- **Steering Head Bearings:** Check for play or binding in the steering head bearings.

- **Swingarm Bearings:** Check for play or binding in the swingarm bearings.

- **Handlebars:** Check for straightness and proper alignment.

- **Wheels:** Inspect for dents, cracks, and trueness(straight and round). On spoked wheels make sure spokes are tight and not lose or broken. Going around with a metal object like a screw driver or wrench and tapping on them. A ring is good a dull thud is loose.

- **Tires:** Check for tread depth, age, and damage. Look for signs of dry rot or cracking.

Engine - The Heart of the Machine: Power and Performance

The engine is the most crucial component. Thorough inspection is essential.

- **Oil Level and Condition:** Check the oil level and look for signs of contamination (metal shavings, coolant). Dark or sludgy oil indicates poor maintenance.

- **Coolant Level and Condition:** Check the coolant level and look for signs of contamination (oil, rust). Milky coolant indicates a head gasket issue.

- **Leaks:** Inspect for oil or coolant leaks around the engine, seals, and gaskets.

- **Exhaust:** Check for leaks, damage, and excessive smoke. Blue smoke indicates oil burning, black smoke indicates rich running, and white smoke indicates coolant burning. Look at the low point to make sure it hasn't rusted through. Moisture can accumulate and rust through. Much more common on black exhaust than stainless steel.

- **Engine Noise:** Listen for unusual noises, such as knocking, ticking, or rattling. These can indicate serious internal problems. Always best to know what that bike is supposed to sound like. As there are very many different engine designs in motorcycles the sounds can be quite different.

- **Compression Test:** Perform a compression test to assess the condition of the cylinders. Low compression indicates worn rings, valves, or head gasket. (This requires specialized equipment and expertise.) While this is idea it's not always practical.

- **Valve Adjustment:** Check the valve adjustment intervals and inquire about recent adjustments. Improper valve adjustment can lead to engine damage. A little overdue is probably not a huge concern but a 50000-mile bike that has never adjusted the valves would be of concern. Depending on the bike this can be an expensive or time-consuming maintenance item.

Fuel System - The Lifeblood: Ensuring Proper Delivery

The fuel system ensures proper fuel delivery to the engine.

- **Fuel Tank:** Inspect for rust internally, dents, and leaks. Check the fuel cap for proper sealing.

- **Fuel Lines:** Inspect for cracks, leaks, and proper routing.

- **Fuel Filter:** Check the condition of the fuel filter if installed. A clogged filter can restrict fuel flow. Most fuel injected bikes have a filter in the tank on the fuel pump that is not serviced unless there is a problem. These most often get clogged from a rusted tank.

- **Carburetor/Fuel Injection:** Inspect for leaks, damage, and proper operation. Check for smooth throttle response. On a carbureted bike once warmed up make sure it idles without the choke on.

- **Fuel Pump:** Listen for proper operation a loud whine could be a failing fuel pump can cause fuel starvation. Fuel pumps are often audible when the key is turned on.

Electrical System - Powering the Ride

The electrical system powers all the bike's essential functions.

- **Battery:** Check the battery voltage and condition. Look for signs of corrosion or damage. Most batteries only last a few years. This would not be a make-or-break item for me but it does affect overall cost.

- **Charging System:** Test the charging system to ensure the battery is being properly charged.

  Should have 14v at battery terminals with bike running. These do not fail often.

- **Lights:** Check all lights, including headlights, taillights, turn signals, and brake lights

- **Horn:** Test the horn for proper operation.

- **Wiring:** Inspect for frayed wires, loose connections, and signs of damage. This is where amateurs destroy motorcycle reliability. Very few people do quality electrical work. If a harness is hacked up with accessories this has a high chance of becoming a nightmare at some point.

- **Switches:** Check all switches for proper operation.

Brakes The Lifeline: Ensuring Safe Stopping

The brakes are critical for safety. Thorough inspection is essential.

- **Brake Pads/Shoes:** Check the thickness of the brake pads or shoes. Worn pads or shoes need replacement. Legal minimum is 2/32
- **Brake Rotors/Drums:** Inspect for wear, damage, and warping. Brake drums on the rear last an extremely long time. Unless you suspect a problem, this could be look at after purchase.

- **Brake Lines:** Inspect for leaks, cracks, and proper routing.

- **Brake Fluid:** Check the brake fluid level and condition. Dark or contaminated fluid needs replacement.

- **Brake Levers/Pedals:** Check for proper operation and adjustment. Make sure it is a firm lever.

- **ABS (If Applicable):** Test the ABS system for proper operation.

: Drivetrain - The Transmission: Power Transfer

The drivetrain transfers power from the engine to the rear wheel.

- **Chain/Belt:** Check the condition, tension, and lubrication of the chain or belt.
- **Sprockets/Pulleys:** Inspect for wear and damage. The u shape of the tooth becomes distorted to one side
- **Clutch:** Check the clutch operation for smooth engagement and disengagement.
- **Transmission:** Check for smooth shifting and unusual noises. Make sure you can find neutral when it is running. During the test ride it's good to accelerate in 2nd gear hard and let off quickly a few times to make sure it doesn't pop into neutral.
- **Final Drive:** Inspect the final drive (shaft drive or chain/belt) for leaks, damage, and proper operation.

Frame and Bodywork - The Chassis: Structural Integrity

The frame and bodywork provide structural integrity and protection.

- **Frame:** Inspect for straightness, cracks, or signs of damage. Check welds for integrity.
- **Subframe:** Inspect for damage or bending.
- **Fairings/Bodywork:** Inspect for cracks, scratches, and damage. Check for proper fit and alignment.
- **Seat:** Check for tears, rips, and proper mounting.

Controls and Ergonomics - The Interface: Comfort and Functionality

The controls and ergonomics affect rider comfort and control.

- **Handlebars:** Check for proper adjustment and comfortable reach.
- **Levers/Pedals:** Check for proper adjustment and comfortable reach.
- **Seat:** Check for comfort and proper height.
- **Mirrors:** Check for proper adjustment and visibility.
- **Grips:** Check for wear and damage.

Test Ride - The Real World: Assessing Performance

A test ride is essential to assess the bike's performance and handling.

- **Engine Performance:** Check for smooth acceleration, power delivery, and throttle response.

- **Transmission Performance:** Check for smooth shifting and proper gear engagement.
- **Brake Performance:** Check for effective braking and proper brake feel.
- **Suspension Performance:** Check for smooth ride quality and proper handling.
- **Steering Performance:** Check for smooth and responsive steering.
- **Overall Handling:** Assess the bike's stability and maneuverability.

Common Problem Areas - The Mechanic's Checklist: Identifying Recurring Issues

Experience reveals common problem areas.

- **Cam Chain Tensioners:** Prone to failure on certain models.
- **Chain and sprocket worn out:** rusty chain, high wear on sprockets
- **Head Bearings:** Wear and tear leads to play and wobble in the front end
- **Fork Seals:** Leaks are common, especially on older bikes.
- **Carburetor Diaphragms:** Dry rot and cracking are common.
- **Carbureted bik**e will start and idle but will not run without choke
- **Carbureted bike** leaking fuel on the ground due to sticking float
- **Hacked up wiring harness.** Run this will be a headache you don't want
- **Lots of missing fasteners or random hardware.** If lots of hardware looks replaced mismatched and not factory this is a good indicator a lot of stuff has been messed with by someone who isn't qualified.

Happy bike shopping. My experience with Japanese bikes has been overall excellent. If you are entering the sport of motorcycle riding this would be my recommendation. The price, reliability and ease of repair makes them an excellent choice. What ever you choose ride a mechanically sound bike.

Wish you the best

Kyle
Two Trails Moto Mechanic