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# Hydraulic Calipers



Semi-Loaded Caliper programs are the choice of consumers

## UNLOADED



- Choice of Friction
- Caliper alone
- Must use **old** bracket or source
- Must use **old** hardware or source



**WHY?:** Lowest cost. Some calipers used with multiple brackets, so can reduce caliper SKU count.

**WHY NOT?:** May need to replace hardware and bracket during service. Forced to stock bracket and hardware separately. Higher total program costs and stocking complexity. Potentially reusing parts that should be replaced if not.

## SEMI-LOADED



BBB Program

- Choice of Friction
- Caliper
- Bracket (when applicable)
- New hardware



**WHY?:** Lower total program SKU Count while ensuring complete repairs. Friction is often customer or vehicle specified, best not to include.

**WHY NOT?:** Certain markets or strategies may want lowest cost service parts. Certain markets or customers may not value the bracket being included.

## LOADED



- Friction Included
- Caliper
- Bracket (when applicable)
- New hardware



**WHY?:** Friction matched to OE application, enables single kit per application – complete job or none.

**WHY NOT?:** Higher caliper repair costs compared to competitors. Friction market has become multiple lines at WD: Value, Better, and/or Best. Another layer of duplication to include loaded calipers.

1. Choice of Friction (WD & Tech)
  - Reducing Caliper Shelf Costs
  - Reducing inventory duplication
2. Ready for Installation (Tech)
  - Bracket attached for mounting to vehicle
  - Just add friction choice
3. No Surprises (WD & Tech)
  - OEM Specific hardware included
  - No back and forth trips to the toolbox
4. Quality Assured (WD & Tech)
  - BBB Brake Caliper backed by limited lifetime warranty
5. 16 SKUS Available for this program

## DIAGNOSTICS



## Choice of Friction

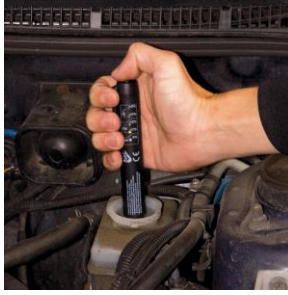


## Bolt-In Ready

## PRE-SERVICE, INSPECT THE BRAKE SYSTEM, NOT JUST THE PADS AND CALIPERS

### TEST THE FLUID BEFORE SERVICE

- Brake fluid is hygroscopic meaning it absorbs water
- At 3% moisture content the boiling point is lowered by 40%
- Electronic testers test for moisture
- Strip tests test for copper break down



### FLUSH THE SYSTEM BEFORE ANY CALIPER REPLACEMENT

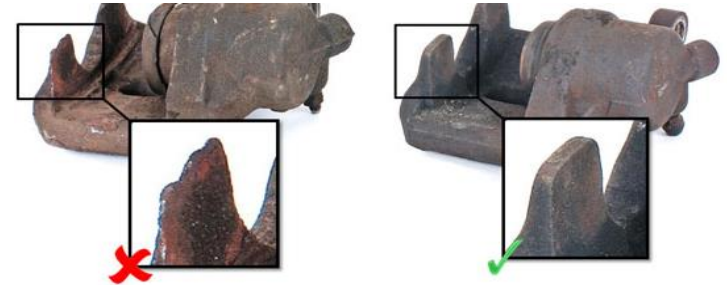
- Remove the old fluid, as well as any contaminants in the line or host before installing a replacement brake caliper
- Prevent dirty fluid from staying inside a replacement caliper



CLEAN DIRTY

## CORES

- WE DO NOT salvage:
  - rubber components
  - bushings
  - pad hardware
  - heavily pitted cast iron housings or brackets
- WE DO NOT use Heli coils
- WE DO NOT fill casting holes or perform welded repairs to castings



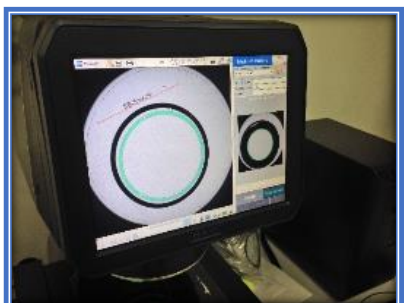
## RECLAIM

- All reclaimed pistons are gauged and inspected for any minute indication of damage
- Threaded bolts, guide pins, and other small hard parts are cleaned, gauged, and then zinc-dichromate plated

Control samples for every workorder



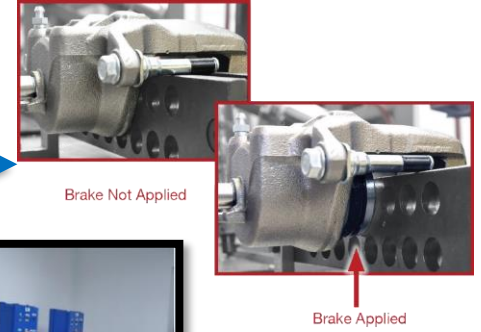
# Remanufacturing Process



# Remanufacturing Quality Control



- ✓ **Proprietary Piston Movement Test**
  - Performed During Assembly
  - Ensures proper functioning pistons for every installation

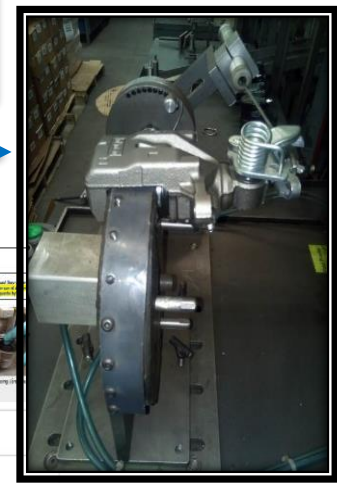


- ✓ **Computerized Pressure Test (w/OEM equipment)**
  - 100% end of line



- ✓ **Production Life Cycle Testing**
  - The first caliper in production performs as well as the last
  - Bench and cold chamber (0°F) 30,000+ cycles

- ✓ **Rear Parking Brake Lever Actuator**
  - All rear parking brake work cells actuator the lever assembly to ensure smoother operations and proper sealing of component behind the piston (5 actuations)



- ✓ **OE Piston Material Specifications Matched**
  - Phenolic pistons not substituted with Steel Pistons
    - Ensures proper heat dissipation per application requirements



- ✓ **Detailed Application Specific Remanufacturing Tools & Gauges**
  - Each caliper restored using proper torque, component materials, and spec sheets

# Calipers Built to a Higher Standard

