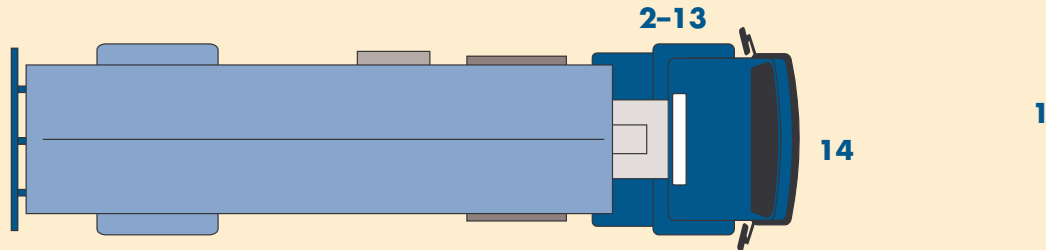


North American Standard Level I Inspection Procedure



For Levels II, III, IV, and V, omit steps that do not apply.
For more detailed information, see the written procedures contained in the CVSA Operations Manual.



□ STEP 1 Choose the Inspection Site

- Select a safe location, paved, level, away from traffic, visible to traffic, and able to support the weight of the vehicle.
- Avoid hills, curves, soft shoulders and construction sites.
- You must be visible to oncoming traffic.

□ STEP 2 Approach the Vehicle

- Observe the driver.
- Adhere to officer/inspector safety policies.
- Be alert for leaks, unsecured cargo.

□ STEP 3 Greet and Prepare Driver

- Identify yourself.
- Ensure that the driver is capable of communicating sufficiently to understand and respond to official inquiries and directions.
- Place chock blocks on the driver's side.
- Explain this inspection procedure.
- Ensure engine is off.
- Check seat belt usage and condition.
- Observe the driver's overall condition for illness, fatigue or other signs of impairment.
- Check for illegal presence of alcohol, drugs, weapons or other contraband.

□ STEP 4 Interview Driver

- Ask for the following from the driver: starting location, final destination, load description, time traveled, most recent stop, fueling location(s).
- Talk to the driver about the trip.

□ STEP 5 Collect the Driver's Documents

- Medical Examiner's Certificate (if applicable).
- Skill Performance Evaluation (SPE) Certificate (if applicable).
- Driver's license, CDL, record of duty status.
- Shipping papers.
- Periodic inspection certificates, CVIP.
- Supporting documents: bills of lading, receipts, other documents used to verify record of duty status.

□ STEP 6 Check for the Presence of Hazardous Materials/Transportation of Dangerous Goods

- Check shipping papers, placards, any leaks or spills, unsecured cargo, markings and labels.

□ STEP 7 Identify the Carrier

- Identify carrier using the following: vehicle identification, vehicle registration, insurance, operating authority, driver interview.

□ STEP 8 Examine Driver's License

- Expiration date
- Class
- Endorsements
- Restrictions
- Status

□ STEP 9 Check Medical Examiner's Certificate and Skill Performance Evaluation (SPE) Certificate (If Applicable)

- Check certificate date (may be valid for up to 24 months).
- Check corrective lens requirement.
- Check hearing aid requirement.
- Check physical limitations.

Note: In Canada and Mexico proper class indicates adequate medical.

□ STEP 10 Check Record of Duty Status

- Hours of Service verification.
- If driver claims to be exempt, check that driver meets all criteria for said exemption(s).
- Check accuracy of record.

□ STEP 11 Review Driver's Daily Vehicle Inspection Report (If Applicable)

- Review the required vehicle inspection report to verify that listed safety defects have been certified as corrected.
- Check for driver signature on previous inspection reports.

□ STEP 12 Review Periodic Inspection Report(s)

- Ensure vehicle has passed the required inspection and has the required documents and decals.

□ STEP 13 Prepare Driver for Vehicle Inspection

- Explain the vehicle inspection procedure.
- Advise the driver in the use of hand signals.
- Check chock blocks.
- Prepare the vehicle, vehicle transmission in neutral. Engine off, key must be in the "on" position, and release all brakes.
- Instruct driver to remain at the controls.

□ STEP 14 Inspect Front of Tractor

- Check headlamps, turn signals (do not use four way flashers to check turn signals) and all other required lamps for improper color, operation, mounting, and visibility.
- Check windshield wipers for improper operation (two wipers are required unless one can clean the driver's field of vision).



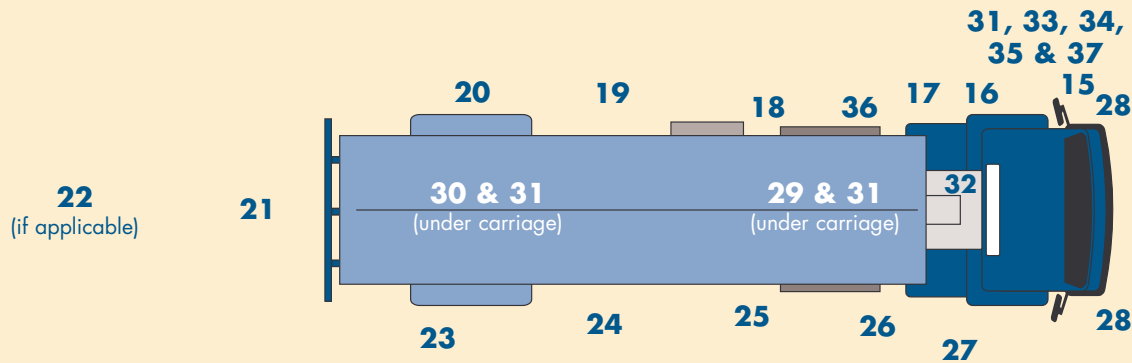
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STEP 15 Inspect Left Front Side of Tractor

- Check front wheel, rim, hub, and tire.

STEP 16 Inspect Left Saddle Tank Area

- Check fuel tank area.
- Check exhaust system.

STEP 17 Inspect Tractor Front

- Check air and electrical lines.
- Check driveline/driveshaft.

STEP 18 Check Left Rear Tractor Area

- Check wheels, rims, hubs, and tires.
- Check lower fifth wheel.
- Check upper fifth wheel.
- Check sliding fifth wheel.
- Check all required lamps.

Caution: Never place yourself in between tires of tandem axles.

STEP 19 Inspect Left Side of Trailer

- Check frame and body.
- Check condition of hoses.
- Check van and open-top trailer bodies.
- Check cargo securement.

STEP 20 Inspect Left Rear Trailer Wheels

- Check wheels, rims, hubs, and tires.
- Check sliding tandem.

STEP 21 Inspect Rear of Trailer

- Check tail, stop, turn signals, all other required lights and lamps/flags on projecting loads.
- Check external ABS malfunction lamp.
- Check cargo securement.

STEP 22 Inspect Double, Triple and Full Trailers

- Check safety devices on full trailers/converter dollies.
- Check the safety devices (chains/wire rope) for sufficient number, missing components, improper repairs, and devices that are incapable of secure attachments. Inspect pintle hook, eye and drawbar for cracks, excessive movement, and improper repairs.

STEP 23 Inspect Right Rear Trailer Wheels

- Check as in step 20.

STEP 24 Inspect Right Side of Trailer

- Check as in step 19.

STEP 25 Inspect Right Rear Tractor Area

- Check as in step 18.

STEP 26 Inspect Right Saddle Tank Area

- Check as in step 16.

STEP 27 Inspect Right Front Side of Tractor

- Check as in step 15.

STEP 28 Inspect Steering Axle(s)

- Check steering system (both sides).
- Check front suspension (both sides).
- Check front axle.
- Check frame and frame assembly.
- Check front brake components (both sides).
- If applicable, mark pushrods (both sides).

Note: Inform the driver that you are going under the vehicle. Enter the under carriage in view of the driver. (At front of power unit, rear of power unit, and in front of trailer axle(s).

STEP 29 Inspect Axles 2 and/or 3

- Check driveline/driveshaft.
- Check suspension (both sides).
- Check frame and frame assembly.
- Check brake components (both sides).
- If applicable, mark pushrods (both sides).
- Exit under carriage in view of driver.

STEP 30 Inspect Axles 4 and/or 5

- Same as step 29.

STEP 31 Check Brake Adjustment

- Ensure air pressure is 90–100 psi.
- Have driver fully apply brakes and hold.
- Measure and record all pushrod travel.
- Identify size and type of brake chambers.
- Ensure brake lining to drum contact.
- Listen for air leaks.

STEP 32 Inspect Tractor Protection System (This procedure tests both the tractor protection system and the emergency brakes.)

- Have driver release brakes and disconnect both brake lines.
- Full brake application.
- Listen for air leaks.

STEP 33 Inspect Required Brake System Warning Devices

- Observe the dash panel area when the key is turned “on” for the function test of the ABS malfunction lamp(s) (if applicable).
- Observe dash gauges while ignition is “on” and the driver is pumping the foot valve to approximately 55 psi for the function test of a low air pressure warning device.

STEP 34 Test Air Loss Rate

- Apply brakes while the engine is idling, the governor has cut in, and pressure is 80–90 psi.

STEP 35 Check Steering Wheel Lash

- Measure steering wheel lash while wheels are straight and the engine is running.

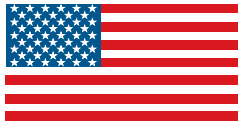
STEP 36 Check Fifth Wheel Movement

- Prepare the driver and vehicle.
- Check for excessive movement.

Caution: If conducted improperly, this method of checking for fifth-wheel movement can result in serious damage to the vehicle. Use caution and instruct the driver carefully.

STEP 37 Complete the Inspection

- Complete documentation.
- Conclude with driver.
- Follow correct and current OOS procedures (if applicable).
- Issue CVSA decal(s) (if applicable).



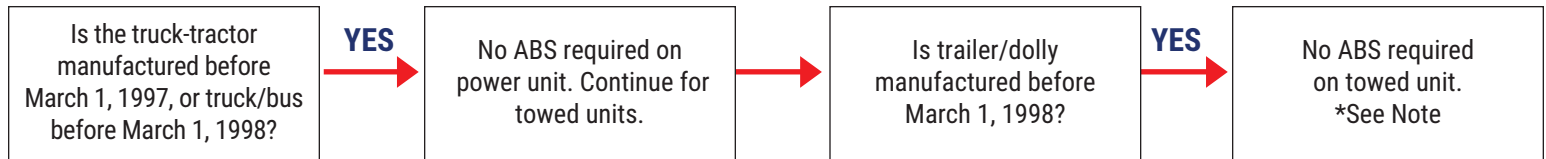
ABS Inspection Procedure U.S. Field Reference

Air Brake Equipped Vehicles



Performing antilock brake system (ABS) inspections, whether on a single unit or combination vehicle, requires determining applicability of regulations using the date(s) of vehicle manufacture, powering the ABS system off and on, and confirming whether the ABS malfunction lamps show violations. Additional steps are included for inspection of vehicles requiring ABS that are in combination with vehicles not requiring ABS, as well as trailers towed by power units that provide full-time power to trailers. The flowchart below summarizes the regulatory applicability, including effective dates, and the procedures for inspecting ABS on all vehicles and combinations in the United States. When required ABS malfunction lamps do not function or remain on, please refer to the Antilock Brake System (ABS) Inspection Bulletin for additional information on how to record and assign violations.

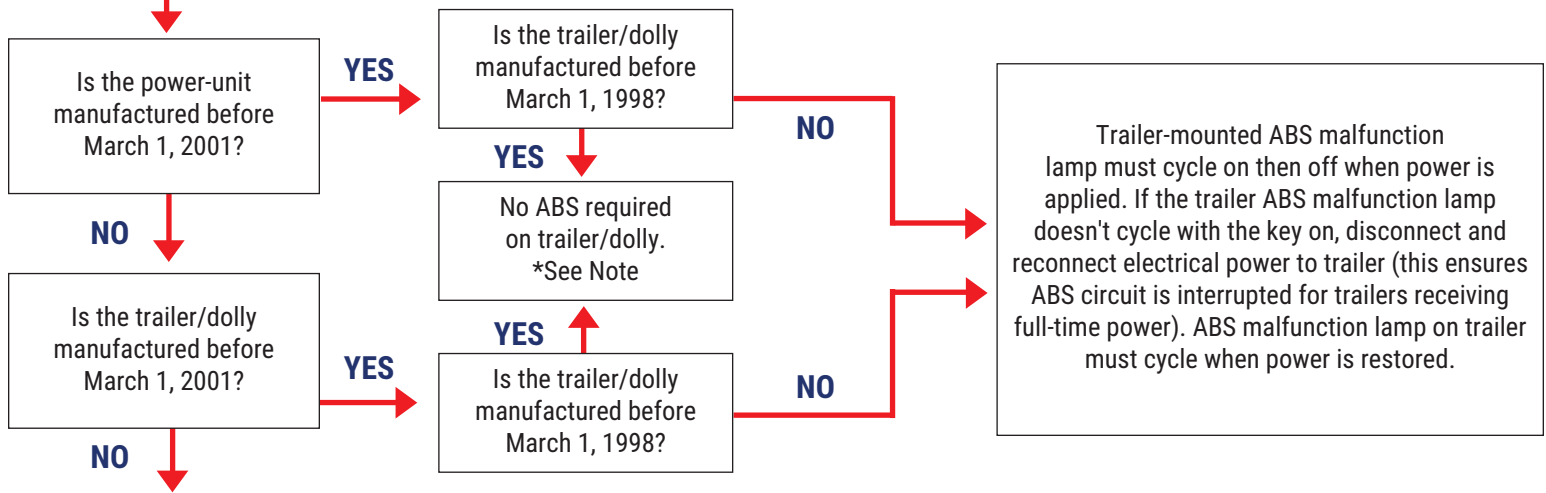
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ABS malfunction lamp on dash must cycle on then off when key is turned on.

Trailer-mounted ABS malfunction lamp must cycle on then off when power is applied. Have the driver apply service brake and hold. If the trailer light doesn't cycle, disconnect and reconnect electrical power to trailer (this ensures ABS circuit is interrupted for trailers receiving full-time power). ABS malfunction lamp on trailer must cycle when power is restored.

CONTINUE FOR TOWED UNITS



Trailer-mounted ABS malfunction lamp must cycle on then off when power is applied. If the trailer ABS malfunction lamp doesn't cycle with the key on, disconnect and reconnect electrical power to trailer (this ensures ABS circuit is interrupted for trailers receiving full-time power). ABS malfunction lamp on trailer must cycle when power is restored.

The dash-mounted trailer ABS malfunction lamp and trailer-mounted ABS malfunction lamp must both cycle (on then off) for proper system operation. The lamps must cycle when the ignition key is turned on or when power is restored through the pigtail connection. Normal operation of the lamps is through the ignition key, but trailers receiving full-time power will require the disconnecting and reconnecting of the electrical power to the trailer (this ensures the ABS circuit is interrupted). In the case of full-time power, the trailer-mounted ABS malfunction lamp must cycle when power is restored; the dash-mounted trailer ABS malfunction lamp may cycle with the key or when power is restored, depending on the vehicle manufacturer.

***NOTE:** If multiple units are being towed, any unit that is required to have ABS and is towed behind a vehicle manufactured before April 1, 2000, or a vehicle exempt from ABS requirements must have functional ABS (unit ABS malfunction lamp cycles on then off) upon service brake application.

North American Standard Inspection Procedure for Performance-Based Brake Testing



INTRODUCTION: Research has shown that performance-based brake testers (PBBTs) are effective enforcement tools. PBBTs are capable of assessing brakes in a complementary manner to visual inspection methods in that they provide a direct and objective measure of a vehicle's actual brak-

ing performance. Additionally PBBTs are able to check brakes that are otherwise difficult to inspect visually, such as those with low ground clearance and those that do not have exposed pushrods (air disc brakes, wedge brakes, hydraulic brakes, electric brakes, etc.).

Each tester type has a unique method of operation. Therefore, training and operation issues must be tailored specifically to each piece of equipment. This document sets guidelines for general operational procedures.

GENERAL OPERATING GUIDELINES

Although each PBBT operates in a unique manner, there are similar general procedures that should be followed before, during, and after testing.

BEFORE TESTING EACH DAY:

1. Deploy the tester if a mobile unit. Pay particular attention to the safety and usability of the location. Refer to the PBBT manufacturer's operation manual if in doubt as to the suitability of a location.
2. Inspect, and as necessary, clean any debris, oil, or other contaminants from the test surface.
3. For those PBBTs with no integrated weighing capabilities, yet require actual axle weights be entered, scales must be available.
4. Clear the tester of any vehicle. This will ensure that calibration check (zero offset) is conducted properly.
5. Power up the tester.
6. Perform a calibration check (zero offset) on the unit. For most PBBTs this is an automatic part of the power up process.
 - a. Do not place vehicles out-of-service if a successful calibration check cannot be achieved.
7. Check for next calibration due date.
 - a. Do not place vehicles out-of-service using a PBBT with a past due calibration date.
8. Conduct inspections only with a qualified PBBT inspector.

DURING TESTING:

- STEP 1** Greet the driver and obtain driver and vehicle documentation.
- STEP 2** Enter unique vehicle identifier into the PBBT software.
 - This would typically be license plate number. Also enter the Inspector ID number.
- STEP 3** Briefly explain the purpose of the test and describe what will be expected of them during the test.
- STEP 4** Visually check for under inflated tires.
 - If tire air pressure is too low as defined by the *North American Standard Out-of-Service Criteria*, have driver inflate tires to correct pressure. If not possible, the test is invalid and take the appropriate out-of-service action for flat tires.
- STEP 5** Verify that the reservoir air pressure is between 90 and 100 psi prior to testing each axle.
- STEP 6** Check the vehicle for locked inter-axle differential or other potential exceptions (as provided by PBBT manufacturer). General guidelines listed below:
 - For roller testers** (See appendix A for details):
 - Spread-axle tandems.
 - Four-spring suspension tandems.
 - Kwik Loc add-on axles.
 - For flat plate testers** (See appendix B for details):
 - Track width too wide.



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- Wheelbase too long.
- Deceleration-sensitive cargo.

Compensate for exceptions using techniques described in appropriate appendix.

STEP 7 Position vehicle relative to the tester.

For roller testers:

- Position axle on the tester.
- Make sure vehicle's tires are not rubbing on tester body.
- Advise the driver to hold the steering wheel firmly when testing the steer axle, to avoid the vehicle moving sideways.

For flat plate tester:

- Position vehicle in front of tester.
- Line up vehicle so that tires will not overhang off side of plates.

STEP 8 Perform the test.

For roller testers:

- Advise driver to place vehicle in neutral and release all brakes.
- Ensure the vehicle has settled into the rollers and is not rocking.
- Start the test.
- After rolling resistance measurement is completed, instruct the driver to gradually apply brakes to full brake application.

- Axle test is complete when maximum brake force is achieved or test stops automatically due to lock-up.

For flat plate testers:

- Drive forward onto tester at 4-8 mph.
- Signal driver to stop when in position.
- Driver to apply brakes as hard as possible, without locking the wheels.
- Tester will indicate when to proceed with next axle or vehicle.

STEP 9 Observe test closely while in progress. Look for the following:

- Driver not applying brakes fully.
- Other improperly conducted tests such as pumping, non-steady or erratic application of brakes.
- Vehicle shift during testing, possibly coming in contact with tester frame.
- Vehicle moving off test surfaces.
- Worn parts, components, or unsecured loads that may become dangerous during the test process.

STEP 10 After each axle test:

- Review the results.
- If an individual axle shows BF/WL less than 43.5%, retest the axle to ensure proper test.
- Advise the driver to move to the next axle.

- Verify 90 and 100 psi air pressure prior to starting the rollers or conducting the next stop on a flat plate tester.

STEP 11 After completion of all axles:

- Review the pass or fail results/criteria according to the applicable Federal, State, Provincial or Territorial laws and refer to the *North American Standard Out-of-Service Criteria* for appropriate out-of-service action.
- Present and review results with driver.

STEP 12 If the vehicle passes:

- Continue with remainder of the inspection.
- Document the PBBT test results and complete the required inspection paperwork.

STEP 13 If the vehicle fails:

- Complete the inspection.
- As a courtesy, provide driver with fault tree list of defects for finding problem(s), (e.g. RP 649).
- Document the PBBT test results and complete the required inspection paperwork.
- Follow correct and current OOS procedures.

APPENDIX A

SUPPLEMENT TO STANDARD TEST PROCEDURE FOR SURFACE MOUNT AND MOBILE ROLLER BRAKE TESTERS

Special considerations apply to some PBBTs due to suspension-induced weight shift between the axles or variations in load sharing between axles due to axle spacing or air-bag compensation. This variation can result in some axles weighing light and others heavy. A heavy axle will allow additional brake force (if available) to be measured while a light axle may limit the brake force being measured to that allowed by the coefficient of friction between the tires and the test surface.

The phenomenon is more pronounced with above-ground PBBTs, but has also been observed with in-ground roller testers. Flat plate testers are not likely to be subject to these variations.

In all cases, either some “ballpark” observations must be made by the inspector to determine whether the axle appears unusually light (<10,000 for a steer axle or <3000 for an unladen non-steer axle) or unusually heavy (>14,000 lbs for a steer axle or >20,000 lbs for a laden tandem axle or >22,000 lbs for a single laden non-steer axle). Some PBBTs can incorporate these checks.

In most cases, if leveling ramps can be employed, the variation in weight will be mitigated. In some cases, remotely measured axle weight will have to be used.

Special consideration should be given to:

1. spread-axle tandems;
2. four-spring suspension tandems, and
3. Kwik Loc add-on axles.

The following recommendations are provided:

Recommendations For Spread Axles:

If the PBBT-measured GVW exceeds the rating (GVWR) by more than 10 percent because of an unsupported axle, two alternate methods are available.

- Portable ramps and platforms can be used to support the untested axle, thus alleviating the extra weight component (Figure 1c). Ramps and platforms must be positioned by the inspector for each axle.
- Remotely-measured axle weights, from either a platform scale or a set of portable scales, can also be used for computation of BF_{tot}/GVW .

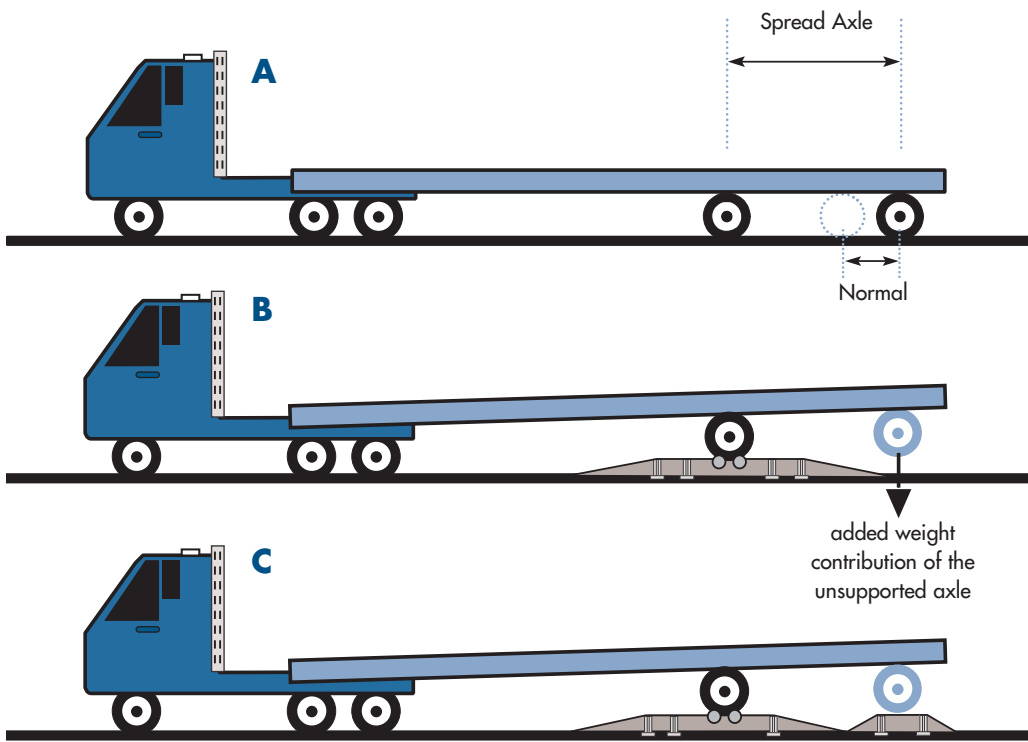


Figure 1. Illustration of: (a) spread axle tandem, (b) additional weight due to unsupported axle when testing lead axle on above-ground PBBT, (c) use of additional ramps and platforms.

Recommendation for four-spring suspensions.

In the case of four-spring suspensions on above-ground PBBTs, the untested axle of the tandem set must be level with the test axle. I.e. there must be a sufficiently wide level section such that the adjacent axle is not resting on the sloping portion of the ramps (Figure 2).

Figure 2. (a) Four-spring tandem suspension leads to unequal weight distribution and adds weight to leading axle for some PBBTs. (b) Use of platforms which are level with the PBBT test bed minimizes this problem.

Recommendations for Kwik Loc Axles.

The procedure to be used for Kwik Loc axles (Figure 3), is illustrated in the flow chart in Figure 4. This procedure should be incorporated into the standard test procedures.

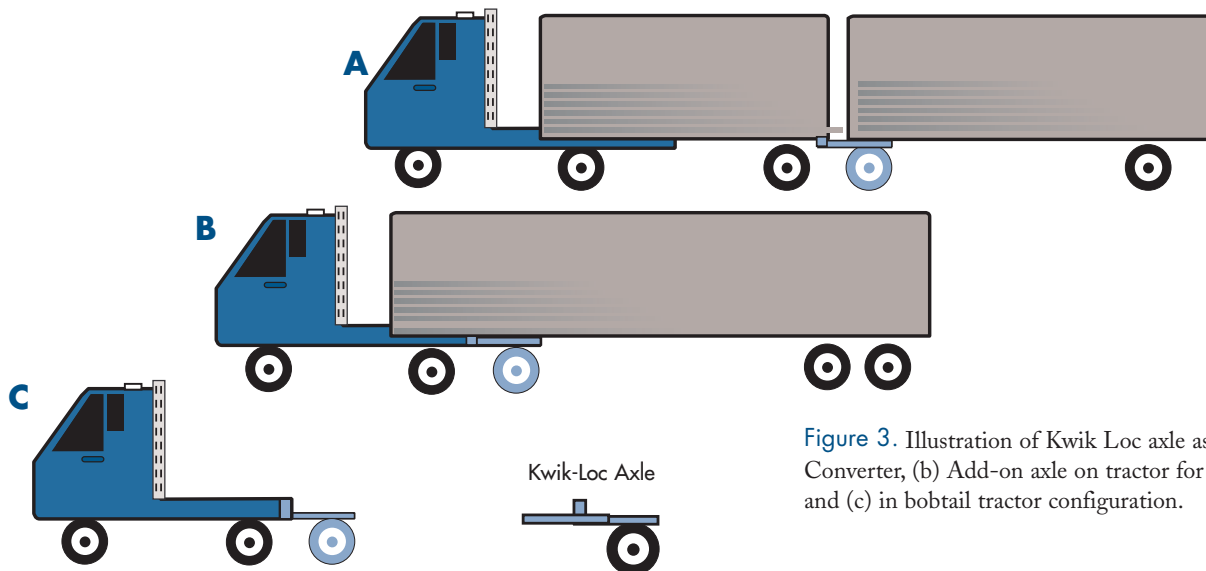
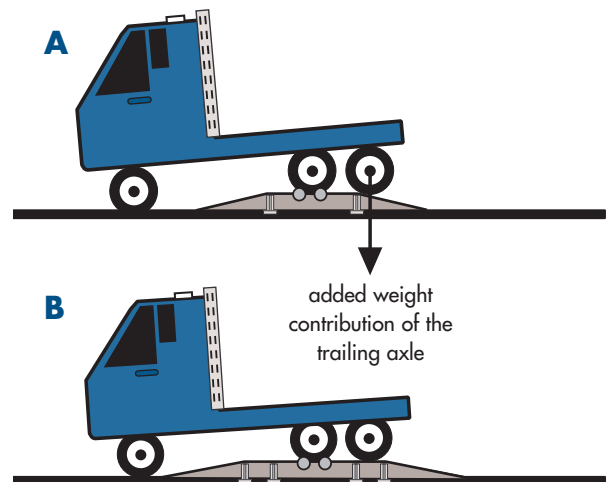


Figure 3. Illustration of Kwik Loc axle as: (a) Dolly Converter, (b) Add-on axle on tractor for semi-trailer, and (c) in bobtail tractor configuration.

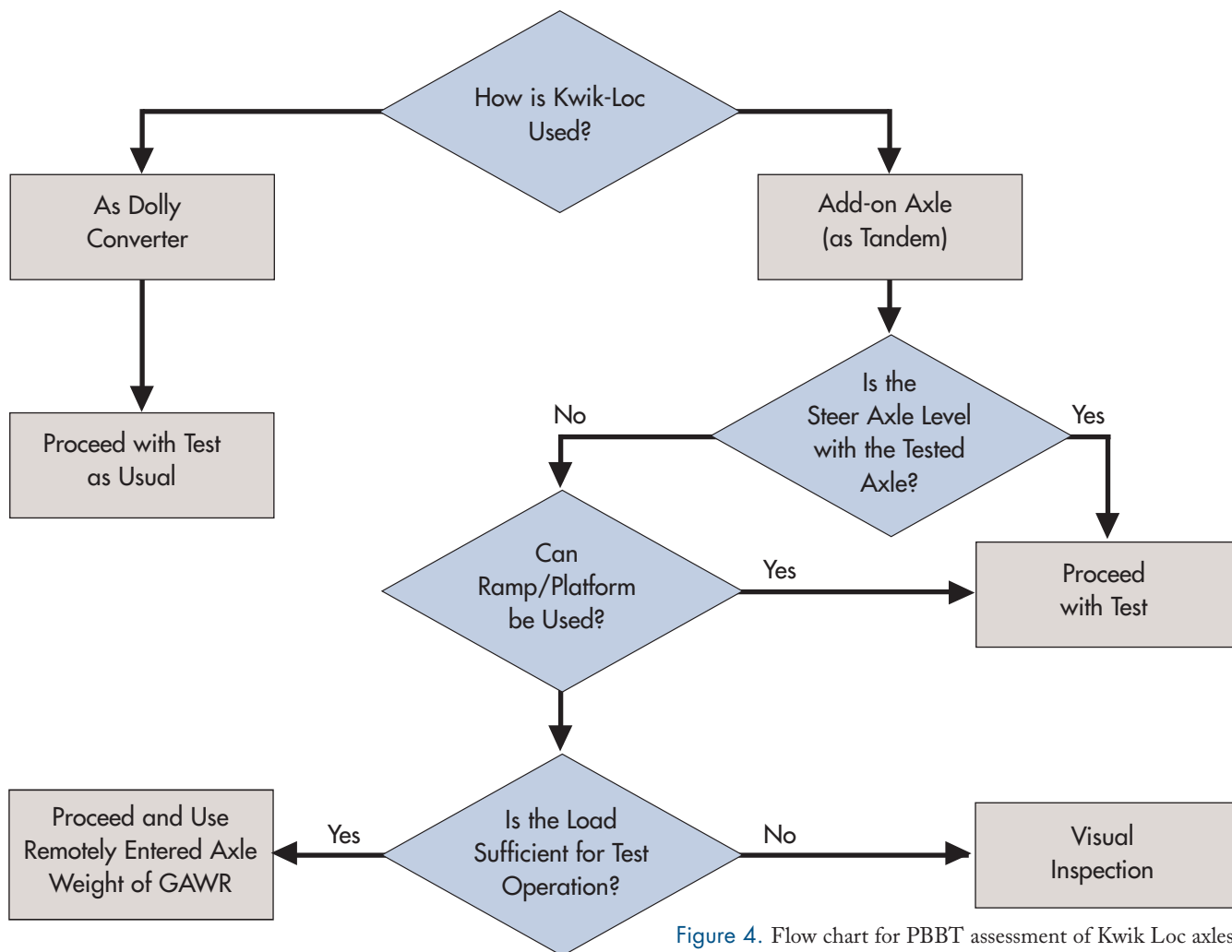


Figure 4. Flow chart for PBBT assessment of Kwik Loc axles.

APPENDIX B

SUPPLEMENT TO STANDARD TEST PROCEDURE FOR FLAT PLATE BRAKE TESTERS

Flat plate testers have fewer vehicle specific exceptions but rely more on the driver to perform the test correctly.

To Perform a Correct Test the Driver and Inspector Must:

1. Pull onto tester in the correct speed threshold, typically 4-8 mph.
2. Pull on squarely with tester.
3. Pull on such that the tires are not partially off the edge of the tester and on surrounding roadway. This will reduce the amount of brake force measured and increase the likelihood of failure. Some vehicles may have too wide (or too narrow) track width to be accommodated on tester - see manufacturer's info for details.
4. Apply the brakes aggressively when signaled. If brakes are applied too late, the wrong axle may be measured. PBBT inspectors must be able to identify when this occurs.
5. Apply the brakes sufficiently to generate a 0.435g stop. If brakes are not applied aggressively enough, the vehicle may appear to fail. PBBT inspectors must become adept at spotting when brakes are not applied sufficiently.
6. If the brakes are applied too hard (for the current loading), the wheels may lock. This may cause a "hopping", leading to unsteady

brake force measurement. The stop should be repeated with a less aggressive brake application such that the wheels do not lock.

7. If the entire vehicle cannot be accommodated on the tester in one stop, additional stops must be performed until all axles have been tested.

To accomplish this, there are typically two systems at the PBBT inspector's disposal.

- a. An automatic sequence that already knows the vehicle type. This will guide the inspector and driver through the test automatically with no operator intervention. An example of a common automatic sequence is a 5-axle tractor-trailer combination.
- b. A manual sequence whereby the PBBT inspector chooses what tests to perform on an axle by axle (or tandem by tandem) bases. For example, a very long two-axle vehicle like a bus can be tested as two separated single axle stops.

In the event that the test is not performed correctly by the driver, it is advised that they be made to repeat the test. Under no circumstances should a driver be "rewarded" with a wave through for incorrectly performing the test.