



DEXTER AXLE

Electric Brake Trouble Shooting Guide

PROBLEM	CAUSES	REMEDIES
NO BRAKES	OPEN CIRCUITS	FIND AND CORRECT
	SEVERE UNDER ADJUSTMENT	ADJUST BRAKES
	FAULTY CONTROLLER	TEST AND CORRECT
	SHORT CIRCUITS	FIND AND CORRECT
WEAK BRAKES	GREASE/OIL ON MAGNETS/LININGS	CLEAN OR REPLACE
	CORRODED CONNECTIONS	CLEAN/CORRECT CAUSE
	WORN LININGS OR MAGNETS	REPLACE
	SCORED/GROOVED BRAKE DRUMS	MACHINE OR REPLACE
	IMPROPER SYNCHRONIZATION	CORRECT
	UNDER ADJUSTMENT	ADJUST BRAKES
	GLAZED LININGS	REBURNISH OR REPLACE
OVERLOADED TRAILER	CORRECT	
LOCKING BRAKES	UNDER ADJUSTMENT	ADJUST
	IMPROPER SYNCHRONIZATION	CORRECT
	FAULTY CONTROLLER	TEST AND CORRECT
	LOOSE, BROKEN BRAKE PARTS	REPLACE COMPONENTS
	OUT OF ROUND BRAKE DRUMS	MACHINE OR REPLACE
	INSUFFICIENT WHEEL LOAD	ADJUST SYSTEM RESISTOR
INTERMITTENT BRAKES	FAULTY CONTROLLER	TEST AND CORRECT
	BROKEN WIRES	REPAIR OR REPLACE
	LOOSE CONNECTIONS	FIND AND REPAIR
BRAKES PULL TO ONE SIDE	INCORRECT ADJUSTMENT	ADJUST
	GREASE/OIL ON LININGS/MAGNET	CLEAN OR REPLACE
	BROKEN WIRES	FIND AND REPAIR
	BAD CONNECTIONS	FIND AND REPAIR
HARSH BRAKES	UNDER ADJUSTMENT	ADJUST
	IMPROPER SYNCHRONIZATION	CORRECT
	IMPROPER CONTROLLER	CHANGE
	FAULTY CONTROLLER	TEST AND CORRECT
NOISY BRAKES	UNDER ADJUSTMENT	ADJUST BRAKES
	LACK OF LUBRICATION	LUBRICATE
	BROKEN BRAKE PARTS	REPLACE COMPONENT
	INCORRECT BRAKE PARTS	REPLACE
SURGING BRAKES	GREASE/OIL ON LININGS/MAGNET	CLEAN OR REPLACE
	OUT OF ROUND BRAKE DRUMS	MACHINE OR REPLACE
	FAULTY CONTROLLER	TEST AND CORRECT
DRAGGING BRAKES	OVER ADJUSTMENT	READJUST
	OUT OF ROUND BRAKE DRUMS	MACHINE OR REPLACE
	INCORRECT BRAKE PARTS	REPLACE
	BROKEN BRAKE PARTS	REPLACE
	FAULTY BREAKAWAY SWITCH	REPAIR OR REPLACE
	LOOSE WHEEL BEARING ADJ.	ADJUST
BENT SPINDLE	REPLACE AXLE	

Trouble Shooting Guide

VACUUM/HYDRAULIC TROUBLESHOOTING GUIDE

SCOPE AND PURPOSE:

The purpose of this trouble shooting guide is to provide a concise and orderly procedure for diagnosis of Vacuum/Hydraulic brake systems for trailers. The scope of the diagnostic procedures leads to identification of a failed or troublesome component and recommends maintenance or replacement of the component. The benefit of this procedure is exact identification of the problem, within a minimum of diagnostic time.

GENERAL PROCEDURE FOR ALL SYMPTOMS:

The procedure for diagnosis in **every** case is to run the Truck Test followed by the Trailer Test. The total time for both tests is approximately 7 minutes. If either the Truck Test or Trailer Test leads to other charts, the time will be longer.

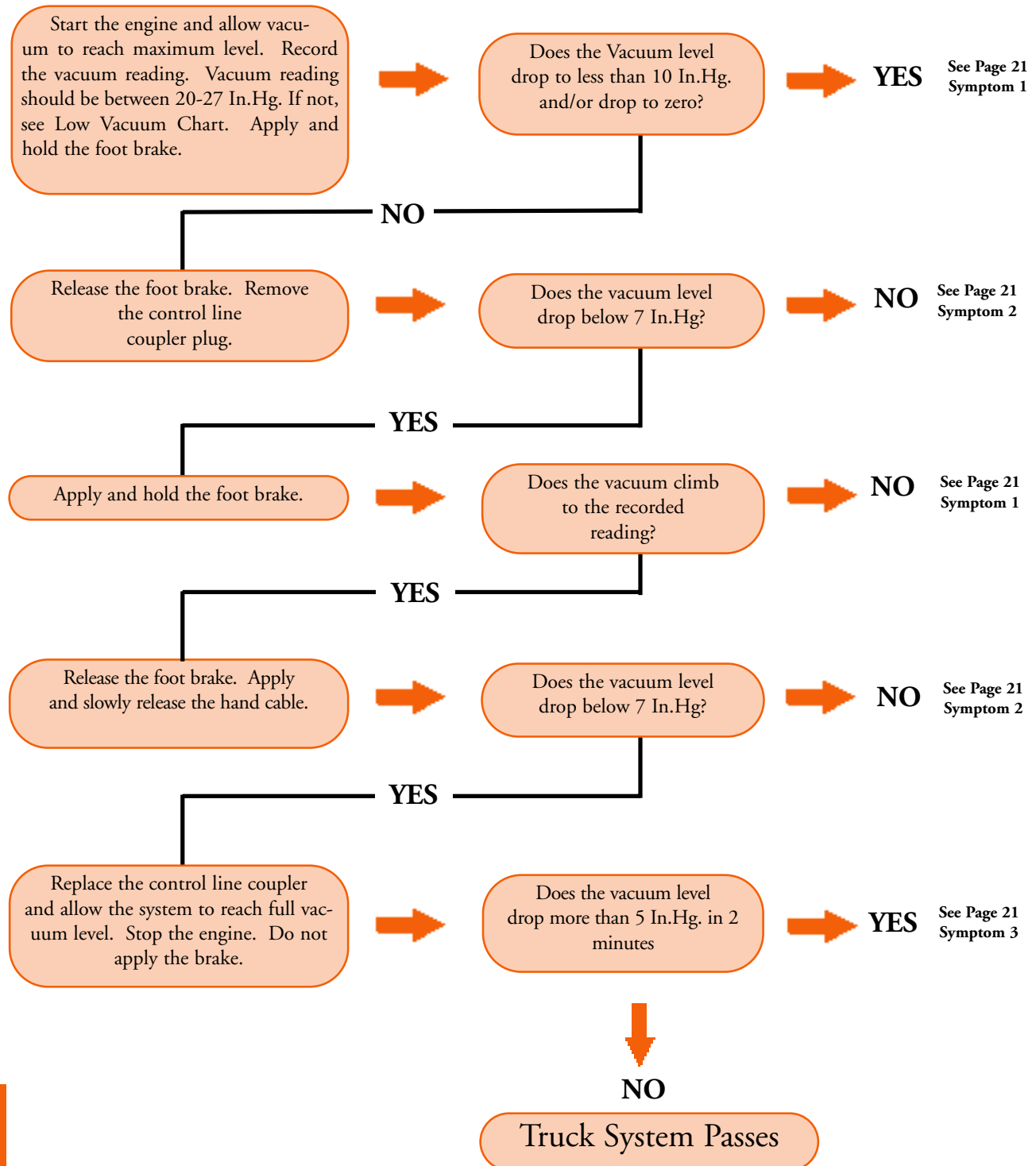
It is **impossible** to correctly diagnose a **trailer** without **the truck** which towed the trailer during the time that the problem occurred!

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Truck System Test

This test must be run with the trailer disconnected from the truck and the coupler plugs installed in the vacuum couplers. The truck must be equipped with a vacuum gauge connected to the trailer brake system.



Symptom 1:

The truck control valve is leaking vacuum when operated.

- 1) If the valve is new, the most probable cause is debris between the piston seal and poppet disc. Clean the debris out of the valve and run the failed portion of the test again.
- 2) If the valve is not new, the most probable cause is a bad piston seal. Replace the diaphragm assembly.

Symptom 2:

The truck control valve is in a constantly applied condition.

- 1) If the valve is new, the most probable cause is an improper cable installation. Make sure the cable sheath has been cut to the proper length, per installation instructions. Make sure the cable sheath is not bound by cable ties in such a manner, as to impair freedom of the cable within the cable sheath. Make sure the cable stop is at least 1/8" away from the valve lever when the cable is in the non-applied condition. If the installation passes the above conditions, *see step 2 below*.
- 2) The problem is in the lever assembly or in the valve casting. Replace the valve.

Symptom 3:

The truck control valve or the vacuum lines are leaking excessively.

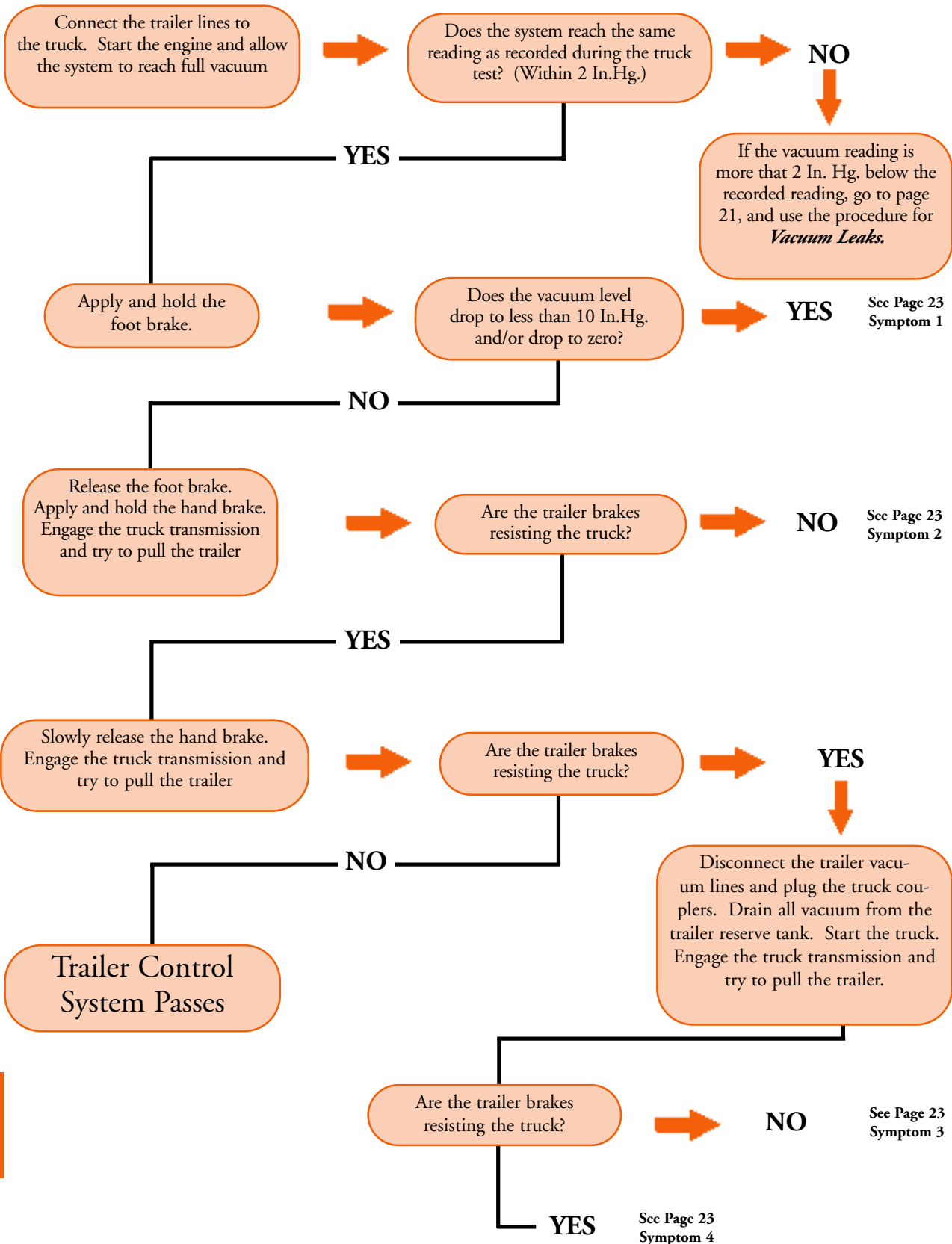
- 1) If the valve is new, the most probable cause is debris in the check valve or debris in the poppet. Clean the check valve and/or the poppet and rerun the leakdown portion of the test.
- 2) If the check valve and poppet area are clean, check for leaks at each fitting and hose connection, from the valve to the coupler plate. Also check for a leak in the vacuum gauge line. After finding the leak, rerun the leakdown test. *See "Vacuum Leaks"* below for recommended procedures to locate and isolate vacuum leaks.

Vacuum Leaks:

The recommended procedure to locate a vacuum leak is to isolate each component in the system. For a truck/trailer system, start at the truck control valve by disconnecting the manifold and control line at the valve. Plug the elbows and rerun the leakdown. If the valve passes, reconnect one line at a time and rerun the leakdown to determine which line leaks. Remember, all vacuum connections are suspect. This includes damaged coupler plugs, damaged female coupler O-rings, gauge hoses, gauge tees, etc. Follow the procedure of adding one connection or length of hose to the system at a time and rerunning leakdown to isolate the problem. This is a tedious and often time consuming procedure, but it yields definitive results. Major components in the brake system should have already been eliminated by following the truck test and trailer test.

TRAILER SYSTEM TEST

This test must be run after the truck system test. Do not attempt to diagnose the trailer system without running the truck system test first.



Symptom 1:

The trailer system is losing vacuum when operated.

- 1) Disconnect the loop hose from the trailer relay valve to the booster master cylinder. Plug the end of the hose and the open port on the booster master cylinder. Apply and hold the foot brake. If vacuum drops as earlier, replace the relay valve. If vacuum does not drop, replace the trailer booster diaphragm or the trailer booster.

Symptom 2:

The trailer system cannot produce hydraulic pressure

- 1) Check the trailer brake fluid reservoir. If low, fill the reservoir. If the booster is completely out of fluid or has been out of fluid in the past, re-bleed the trailer brake system. Re-try the failed portion of the test. If the test fails after this step, *go to step 2 below.*
- 2) Check brake shoe adjustment. If the brakes needed adjustment, re-try the failed portion of the test. If the test fails after this step, replace trailer booster.

Symptom 3:

Failure of this portion of the test indicates a control problem, which should have been identified earlier by the truck test or earlier steps in the trailer test. Rerun the truck test and the trailer test. Pay particular attention to the maximum obtainable vacuum reading. If the level is below 15 In.Hg. or drops below 15 In.Hg. after initial brake release, the booster may be consuming excessive amounts of vacuum during operation. This condition is most often caused by brake shoes out of adjustment. If the vacuum is slow to recover after brake release, ensure a vacuum pump is being utilized with the system, and that it is in good working order. See the *Low Vacuum Chart* to diagnose this problem

Symptom 4:

The Brakes are not releasing and there is no vacuum available to the brake booster.

- 1) Open the brake bleeder screw on the brake booster. Re-try the failed portion of the test. If the test passes, replace the brake booster. If the test fails, the problem is in the trailer brake assemblies or possibly a crimped brake line. In either case, the truck and trailer control system and trailer booster are not at fault.

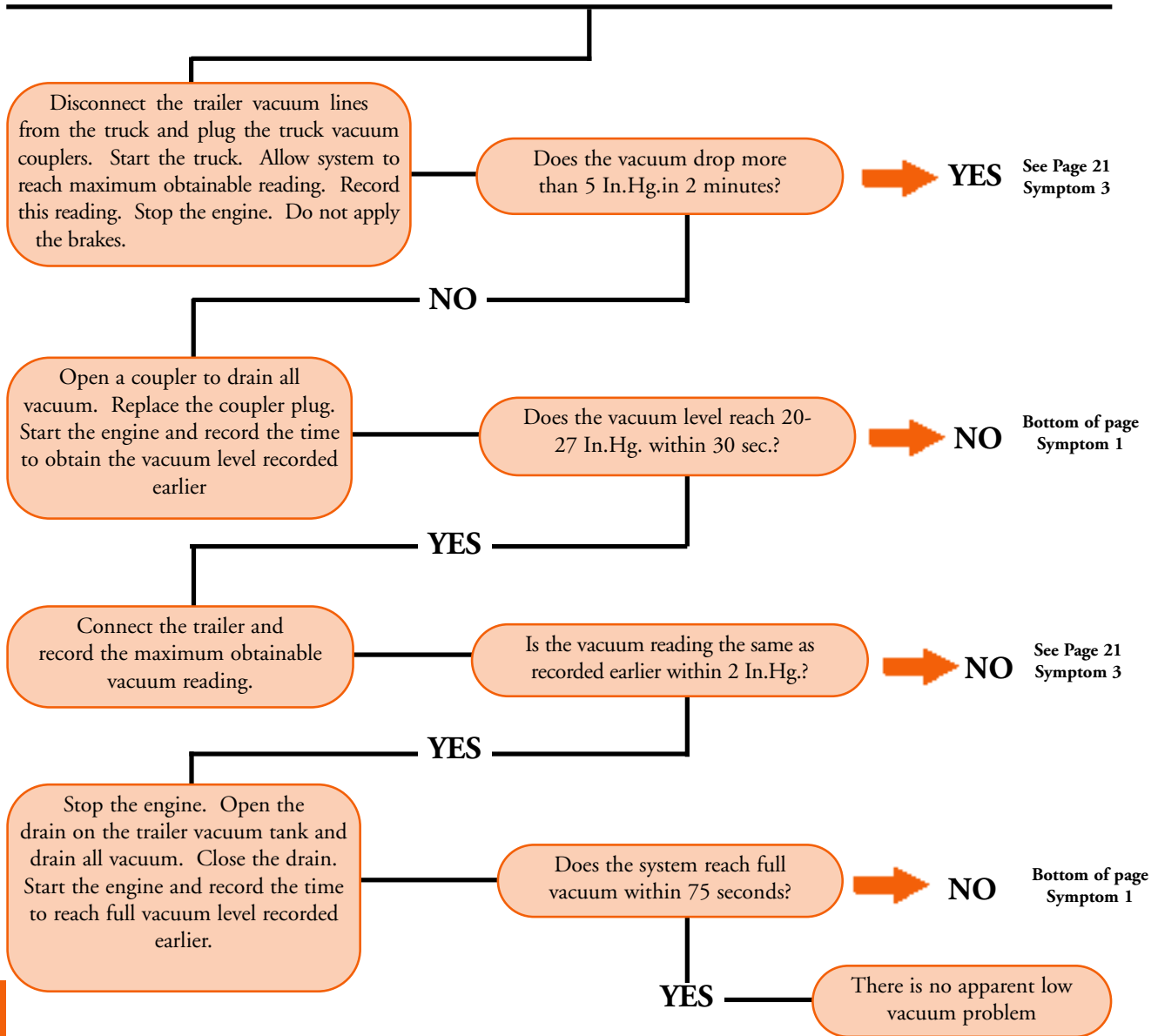
LOW VACUUM CHART

If this chart has been referred to by other tests in the diagnostic procedure, the first step is to determine if the truck is equipped with a vacuum pump. All trucks after 1986 require a vacuum pump solely dedicated to the operation of the trailer brakes, with the following exceptions: 1994 and later Chev/GMC 6.5 L diesels; Super Duty Ford Trucks prior to 1999 with 7.3L - 7.5L diesel engines.

The trucks listed as exceptions are equipped with factory vacuum pumps and are used only for accessory operations on the truck. This permits their use as a source for trailer brake vacuum.

If the system being diagnosed has operated properly in the past without a vacuum pump, the possible problem can be due to vacuum leaks or high altitude operation, which reduces vacuum capability. If high altitude is present, vacuum capability is reduced 1 In.Hg. for every 1000 ft. of elevation. For example, if a vacuum pump produces 27 In.Hg. at sea level, the maximum gauge reading obtainable at 10,000 ft. elevation is 17 In.Hg. It may be necessary to reduce the vacuum levels requested in this chart by adjusting the values for altitude.

This chart assumes a vacuum pump as the source for trailer brake vacuum.



SYMPTOM 1:

The vacuum pump appears to be weak or inoperative. Replace the Pump