



Service Bulletin No. 1072

COACH MODEL	: All
BULLETIN TYPE	: Service information
MANUAL & SECTION	: Maintenance Manual : Chapter 6 - Air system
DATE	: January 31 st , 2001
SUBJECT	: Air compressor and discharge line inspection and maintenance
TERMS & CONDITIONS	: Service information only. Note that no claims will be accepted with reference to this Bulletin.

DESCRIPTION:

The purpose of this Bulletin is to remind customers that there are specific service requirements for the engine mounted air compressor and discharge line. Since this item on the maintenance schedule is often overlooked, coach owners, operators and their service personnel are urged to review the sections pertaining to the air compressor and plumbing in the Van Hool maintenance manuals, and in the supplemental publications from the manufacturer of the engine installed in their coach. The extensive information contained in those publications is of great importance to maintaining an efficient and trouble-free compressed air system. The general text below summarizes the more important aspects of air compressor and discharge line inspection and maintenance. Note, however, that the compressor and engine manufacturer's recommendations always take priority over general rules.

Service Bulletins are issued to supplement or supersede information in the Van Hool manuals. Note Service Bulletin number, date and subject on the register at the end of the relevant chapter(s). File Service Bulletin separately for future reference.

FACTS ABOUT AIR COMPRESSORS :

1. Oil deposits :

All air compressors have a small amount of oil carryover, which lubricates the piston rings and moving parts. When the oil is exposed to normal air compressor operating temperatures over a period of time, it will form varnish or carbon deposits. If not inspected regularly, the air compressor piston rings will be affected by high operating temperatures and pressures, and will not seal properly (see also "duty cycle"). The result will be a lesser compressor performance and more oil blow-by, which further increases carbon build-up.

2. Duty cycle and compressor reliability :

The key factor which determines the reliability and durability of an air compressor in an application is the amount of time the air compressor is supplying air during vehicle operation, known as the duty cycle of the compressor.

Compressors are not designed to pump continuously, so they have best durability, when pumping 25% or less of the vehicle running time. When pumping, a compressor generates a lot of heat, which is dissipated during the time the compressor is not pumping.

If the compressor duty cycle exceeds 25% of the vehicle running time, the compressor will begin to overheat. Thus the sealing of the piston rings is reduced and more oil will be allowed to pass into the compressed air discharge. This oil carryover fouls the air compressor head, downstream plumbing, the air dryer and the vehicle air system.

3. Duty cycle and air dryer performance :

The air dryer receives air from the air compressor, traps moisture and oil in a filtration and dessicant system, then purges the contaminants from the air system. High air compressor duty cycles also raise the temperature of the air supplied to the air dryer, which reduces the effectiveness of the dessicant in the dryer.

4. Solutions for high duty cycles :

If the duty cycle is found to exceed 25%, there are several options to improve the situation :

- a. Find and stop all leaks in the air system. Air system leaks can double or triple operating duty cycles. Close attention to correcting air system leaks is critical in high duty cycle applications.

b. If stopping the leaks does not reduce compressor duty cycle to below 35%, be prepared to provide increased compressed air system maintenance, including some, or all of the following :

- de-carbonizing the compressor,
- cleaning or replacing restricted discharge plumbing,
- replacing air dryer dissicant more frequently than normal schedules,
- generally cleaning the compressed air system, including downstream components controlling or using compressed air.

5. Maintenance schedule :

Every 180,000 miles (G maintenance interval), perform a thorough inspection of the compressor unloader valve, and check the discharge line for carbon build-up as explained in the Van Hool Maintenance Manual.

Depending upon the results of this inspection :

- Disassemble compressor and unloader, clean and inspect all parts thoroughly, replace all worn or damaged parts using only genuine replacements or replace the compressor with a genuine remanufactured unit. Do not downsize the compressor.
- Remove and clean, or replace the air discharge line.
- Remove and clean, or replace the governor.

6. Tests :

Several tests may be performed to check air compressor and discharge line performance :

1. Block the coach wheels.
2. If the brake system design allows to do so, check brake adjustment.
3. Drain all air tanks. Air dryer operation may be assessed by measuring the amount of water caught. Close the air tank cocks. The low air warning should be operating.
4. Start the engine and run at fast idle (1 250 rpm).
5. Start timing, as the system pressure reaches approximately 50 psi.
6. Stop timing at approximately 90 psi. The air build time should be less than 3 minutes.

This completes the test of the compressor output.

7. Continue high idle. The compressor governor should cut out the compressor at approximately 125 psi. The compressor governor should cut in the compressor at approximately 100 psi.

This completes the test of the governor setting.

7. Troubleshooting :

SYMPTOM	CAUSE	REMEDY
Excessive build-up and recover time.	Restricted discharge line or compressor discharge cavity.	Inspect the compressor discharge port and line for restrictions and carbon build-up. If a carbon build-up is found, check for proper compressor cooling. Replace faulty sections of the discharge line.
Excessive build-up and recover time.	Excessive air system leakage.	Test for excessive system leakage and repair as necessary. Use the following as a guide : build system pressure to governor cut-out and allow pressure to stabilize for one minute. Shut down the engine. Using the dash gauge, note system pressure and pressure drop after two minutes. Pressure drop should not exceed 4 psi. Fully apply the service brake. Pressure drop should not exceed 3 psi per minute.