

FIX-N-FAX #151

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

Number 151

Date: July 1994

Dayco Bulletin -- Fan/Acc. Drive Belts

INTRODUCTION:

This bulletin is being issued in order to provide a general assistance guide to those in the field with the day-to-day responsibility of maintaining and replacing v-ribbed belts (Dayco Poly Rib®) used in the heavy vehicle industry today. Since the somewhat recent introduction of serpentine as well as single v-ribbed belt drives for heavy duty vehicles a few years ago, there may be some confusion as to when to replace the v-ribbed belt and what is causing the need for possible replacement. This bulletin has been designed to assist those who may have such concerns.

The normal cause for v-ribbed belt replacement is rib rubber fatigue, which is a natural occurrence and is known as "rib cracking." Beyond "rib cracking" there exist several other reasons to replace the drive belt.

WARNING SIGNS FOR BELT REPLACEMENT ARE:

RIB CRACKING:

As a v-ribbed belt goes through its natural life it passes through several phases of cracking.

- After an extended time in service, minor rib cracks may appear, usually one or two cracks per inch of belt. ***This is Normal*** (see photo)No. 1).
- A replacement concern should occur when the belt ribs exhibit **severe multiple cracking** which will lead to rib chunking (see photo No. 2).
- When severe cracking or rib chunking appears, it is time to replace the belt (see photo No. 3).



PHOTO NO. 1

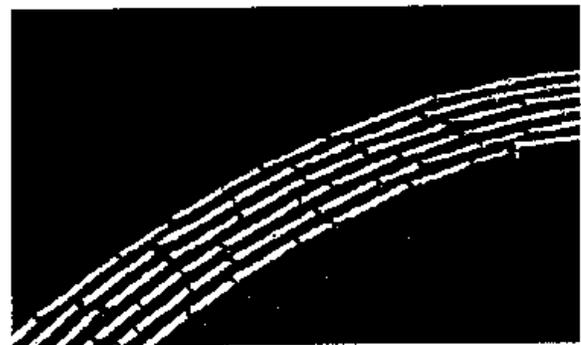


PHOTO NO. 2

RIB SIDEWALL GLAZING:

When the ribs appear to have a shiny surface that is hard and brittle, it is usually an indication of belt slippage. This is attributed to inadequate tension and/or extreme temperature. Both characteristics will lead to severe cracking and failure often with little advance warning. If this happens, locate the cause and correct before installing a new belt.

BELT WEAR:

Accelerated wear on any part of the belt; fabric backing, tensile cord, or rib rubber is a concern and should be investigated for cause and corrected before installing a new belt.



PHOTO NO.3

- **Drive Misalignment**-Belt performance will begin to be adversely affected when misalignment exceeds 1/16 inch for each 12.0 inch of belt span (1/3 of 1').
- **Belt Length**-Must be correct.
- **Environmental Conditions**-Temperature, exposure to engine fluids, etc.
- **Abrasive Materials**-Such as small stones, sand, metal shavings, etc. (see photo No. 4).

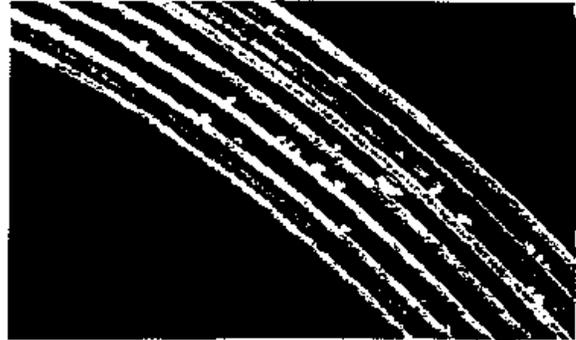


PHOTO NO. 4

FOREIGN OBJECTS:

V-Ribbed belts, like most engine components, can tolerate only so much abuse before failure.

Any object protruding in the path of the belt drive and contacting the belt will cause damage and failure of the belt. Locate the object and remove before installing a new belt (see photo No. 5).

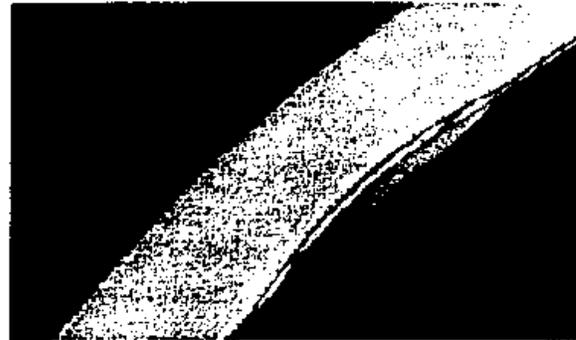


PHOTO NO. 5

NOISE/VIBRATION/HARSHNESS (NVH)

Much effort has gone into the design of each v-ribbed belt drive in order to prevent NVH problems by the end user. However field problems occasionally occur which may be related to NVH causes.

some causes:

Insufficient belt tension may create a high-pitched howl (squeal) or rasping sound during engine acceleration or deceleration.

Misalignment may cause a chirping noise, especially at or near idle speed. Rigid bracketing of accessories is a must for reasonably vibration-free belt spans...some span vibration is to be expected during the range of engine speed and accessory loading.

(see [FIX-N-FAX INDEX](#))