

HMMWV...

DIFFERENTIAL "WIND-UP"



Dear Editor,

While we were servicing a HMMWV, we noticed a grinding noise from the rear end when the truck was turned.

Troubleshooting the source of the noise, we found out the last driver had operated the truck off-road with the transfer in low (L) range. He then had driven back to the unit with the transfer in high-lock (H/L) range, not high (H) range as is required.

The TM says not to operate the truck on hard surfaces with the transfer in H/L range, because the wheels can't slip as designed, so we thought the differential had been damaged.

But before we began repairs one of our mechanics mentioned that driving the HMMWV backward for a short distance would "unwind" the differential and stop the noise.

So we drove the HMMWV backward and, sure enough, the noise went away. Maybe this will help others who have this problem.

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From the desk of the Editor



TACOM emphasizes that operating the HMMWV correctly in all conditions will prevent this differential "wind-up."

Wind-up can occur any time the truck is operated with the transfer locked. The front and rear rotate at the same speed. In off-road conditions, wheels can slip and the wind-up doesn't cause problems.

During turns on dry, hard roads, however, the locked transfer prevents the differential from letting the wheels spin at different speeds. That causes torque buildup, which you hear as grinding or popping from the rear end.

Drivers need to eyeball Tables 1-9 and 1-10 in TM 9-2320-280-10 for transmission and transfer case range selections that will prevent wind-up.

Table 1-9

CAUTION:

Damage to drivetrain will occur if transfer case ranges are not selected properly. Refer to paragraph 2-11, Placing Vehicle in Motion, and paragraph 2-29, Operating on Unusual Terrain, for specific instructions.

Transfer Case Range Selection

Recommended Shift Lever Position	Operating Condition
"H" (high range)	This drive range shall be selected whenever possible. High range should be used when operating on all primary, secondary, and off-road surfaces, where little or no wheel slippage exists. This range is also to be used when encountering sharp, continuous turns on high traction surfaces.
"H/L" (high lock range)	This drive range shall be selected only when continuous wheel slippage is evident; i.e., when operating in mud, snow, loose sand, or on ice, and increased control or additional traction is required.
"L" (low range)	This drive range shall be selected only when high ranges do not provide sufficient power to negotiate steep hills or downgrades. This range shall also be used when the vehicle is mired and cannot be extracted using the high lock range.
"N" (neutral)	Vehicle is disabled and must be towed.

After operating on unusual terrain in H/L or L range, drivers must shift the transfer case to H range before driving on a hard surface.

Note that Para 2-29, Operating on Unusual Terrain, carries this info on Page 2-139:

"If it is difficult to shift out of a locked range, drivetrain torque buildup may have occurred. If necessary to relieve drivetrain torque buildup when leaving a low traction surface for a high traction surface, the vehicle should be backed up for a distance of approximately 5 feet before proceeding."

Five feet may not be enough, and, in some cases, backing up won't solve the problem at all. It's best to operate right the first time.

