

NVH Diagnostic Report

Report Date	Record Name	Record Date	Record Length
April 13, 2022	2022 Ford Ranger 4WD 2.3L 10-Speed A/T Door Axle Code 71 or 73 (3)	2022-04-11 03:43:04	37:59.5

Vehicle Data:

- Manufacturer: Ford
- Year: 2022
- Model: Ranger
- Powertrain: Four Wheel Drive
- Number of Cylinders: 4
- Tire Diameter: 31.61
- Rear Axle Gear Ratio: 3.73
- Front Axle Gear Ratio: 3.73
- Transfer Case Gear Ratio: 1.0
- Transmission Speeds: 10

Relevant Settings:

- Amplitude Threshold: 0.001g

Diagnostic Results

The diagnosis shown below is the primary vibration detected. Repair this vibration first and then re-test for additional vibrations if needed.

(D1) 1st Order Driveshaft Speed Related Vibration

Definition: First order Driveshaft speed related vibrations cause one shake or disturbance for each revolution of the Driveshaft. There are over 123 conditions that can cause a driveshaft speed related vibration.

Totals

Tire Speed Related Vibrations

Order	Times Detected	Average Amplitude (g)
1st	461	0.038
2nd	671	0.037
3rd	227	0.050

Driveshaft Speed Related Vibrations

Order	Times Detected	Average Amplitude (g)
1st	3325	0.234
2nd	117	0.051
3rd	31	0.028

Engine Speed Related Vibrations

Order	Times Detected	Average Amplitude (g)
1st	64	0.063
2nd	928	0.282

Vibration Breakdown By Vehicle Speed

The NVH app takes samples of the vibrations on your vehicle twice per second.

- The "Count" column shown below indicates the number of times each type of vibration was detected in that particular vehicle speed range.
- The "Count (Time) Spent in Range" column shows the number of half second intervals spent driving at that vehicle speed range, and the amount of time spent driving at that vehicle speed range.
- The "Percentage" column shows the percentage of time the vibration was detected at that vehicle speed range. It is possible for this to exceed 100% if multiple instances of the vibration were detected in the same half second interval.

Tire Speed Related Vibration Breakdown

1st Order Tire Speed Related Vibration Breakdown

Vehicle Speed	Count	Count (Time) Spent in Range	Percentage	Average Amplitude (g)
5-9 MPH	19	28 (00:14.0)	67.86%	0.015
10-14 MPH	34	30 (00:15.0)	113.33%	0.013
15-19 MPH	4	26 (00:13.0)	15.38%	0.017
20-24 MPH	4	26 (00:13.0)	15.38%	0.059
25-29 MPH	2	32 (00:16.0)	6.25%	0.125
30-34 MPH	6	36 (00:18.0)	16.67%	0.121
35-39 MPH	3	42 (00:21.0)	7.14%	0.120
40-44 MPH	1	84 (00:42.0)	1.19%	0.114
55-59 MPH	39	888 (07:24.0)	4.39%	0.055
60-64 MPH	25	1216 (10:08.0)	2.06%	0.026
65-69 MPH	315	1654 (13:47.0)	19.04%	0.038
70-74 MPH	9	230 (01:55.0)	3.91%	0.010

2nd Order Tire Speed Related Vibration Breakdown

Vehicle Speed	Count	Count (Time) Spent in Range	Percentage	Average Amplitude (g)
5-9 MPH	10	28 (00:14.0)	35.71%	0.011
10-14 MPH	12	30 (00:15.0)	40.00%	0.033
15-19 MPH	2	26 (00:13.0)	7.69%	0.030
20-24 MPH	8	26 (00:13.0)	30.77%	0.013
25-29 MPH	4	32 (00:16.0)	12.50%	0.026
30-34 MPH	20	36 (00:18.0)	55.56%	0.028
35-39 MPH	31	42 (00:21.0)	73.81%	0.033
40-44 MPH	7	84 (00:42.0)	8.33%	0.019
45-49 MPH	8	134 (01:07.0)	5.97%	0.011
50-54 MPH	2	110 (00:55.0)	1.82%	0.009
55-59 MPH	18	888 (07:24.0)	2.03%	0.108
65-69 MPH	549	1654 (13:47.0)	33.19%	0.037

3rd Order Tire Speed Related Vibration Breakdown

Vehicle Speed	Count	Count (Time) Spent in Range	Percentage	Average Amplitude (g)
5-9 MPH	2	28 (00:14.0)	7.14%	0.040
15-19 MPH	2	26 (00:13.0)	7.69%	0.024
20-24 MPH	13	26 (00:13.0)	50.00%	0.016
25-29 MPH	15	32 (00:16.0)	46.88%	0.016
30-34 MPH	4	36 (00:18.0)	11.11%	0.035
50-54 MPH	14	110 (00:55.0)	12.73%	0.015
55-59 MPH	1	888 (07:24.0)	0.11%	0.040
65-69 MPH	162	1654 (13:47.0)	9.79%	0.060
70-74 MPH	14	230 (01:55.0)	6.09%	0.052

Driveshaft Speed Related Vibration Breakdown

1st Order Driveshaft Speed Related Vibration Breakdown

Vehicle Speed	Count	Count (Time) Spent in Range	Percentage	Average Amplitude (g)
5-9 MPH	6	28 (00:14.0)	21.43%	0.026
15-19 MPH	13	26 (00:13.0)	50.00%	0.016
20-24 MPH	8	26 (00:13.0)	30.77%	0.010
35-39 MPH	6	42 (00:21.0)	14.29%	0.048
40-44 MPH	44	84 (00:42.0)	52.38%	0.030
45-49 MPH	19	134 (01:07.0)	14.18%	0.017
50-54 MPH	26	110 (00:55.0)	23.64%	0.016
55-59 MPH	645	888 (07:24.0)	72.64%	0.107
60-64 MPH	1086	1216 (10:08.0)	89.31%	0.302
65-69 MPH	1211	1654 (13:47.0)	73.22%	0.280
70-74 MPH	261	230 (01:55.0)	113.48%	0.150

2nd Order Driveshaft Speed Related Vibration Breakdown

Vehicle Speed	Count	Count (Time) Spent in Range	Percentage	Average Amplitude (g)
5-9 MPH	2	28 (00:14.0)	7.14%	0.018
10-14 MPH	4	30 (00:15.0)	13.33%	0.012
15-19 MPH	5	26 (00:13.0)	19.23%	0.023
20-24 MPH	6	26 (00:13.0)	23.08%	0.021
35-39 MPH	2	42 (00:21.0)	4.76%	0.045
40-44 MPH	8	84 (00:42.0)	9.52%	0.018
45-49 MPH	10	134 (01:07.0)	7.46%	0.020
50-54 MPH	8	110 (00:55.0)	7.27%	0.014
60-64 MPH	30	1216 (10:08.0)	2.47%	0.108
65-69 MPH	42	1654 (13:47.0)	2.54%	0.045

3rd Order Driveshaft Speed Related Vibration Breakdown

Vehicle Speed	Count	Count (Time) Spent in Range	Percentage	Average Amplitude (g)
5-9 MPH	4	28 (00:14.0)	14.29%	0.011
10-14 MPH	5	30 (00:15.0)	16.67%	0.016
35-39 MPH	2	42 (00:21.0)	4.76%	0.040
40-44 MPH	15	84 (00:42.0)	17.86%	0.036
45-49 MPH	5	134 (01:07.0)	3.73%	0.021

Engine Speed Related Vibration Breakdown

1st Order Engine Speed Related Vibration Breakdown

Vehicle Speed	Count	Count (Time) Spent in Range	Percentage	Average Amplitude (g)
0-4 MPH	7	23 (00:11.5)	30.43%	0.009
5-9 MPH	6	28 (00:14.0)	21.43%	0.013
10-14 MPH	9	30 (00:15.0)	30.00%	0.010
45-49 MPH	10	134 (01:07.0)	7.46%	0.020
55-59 MPH	25	888 (07:24.0)	2.82%	0.116
60-64 MPH	7	1216 (10:08.0)	0.58%	0.100

2nd Order Engine Speed Related Vibration Breakdown

Vehicle Speed	Count	Count (Time) Spent in Range	Percentage	Average Amplitude (g)
5-9 MPH	6	28 (00:14.0)	21.43%	0.018
10-14 MPH	7	30 (00:15.0)	23.33%	0.015
40-44 MPH	11	84 (00:42.0)	13.10%	0.024
45-49 MPH	7	134 (01:07.0)	5.22%	0.019
50-54 MPH	9	110 (00:55.0)	8.18%	0.026
55-59 MPH	4	888 (07:24.0)	0.45%	0.065
60-64 MPH	675	1216 (10:08.0)	55.51%	0.342
65-69 MPH	205	1654 (13:47.0)	12.39%	0.140
70-74 MPH	4	230 (01:55.0)	1.74%	0.321

This report, along with the data and diagnoses it contains, was generated by the NVH app (iOS Version: 4.0.8 (2)), created by Vibrate Software, Inc.

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