

## STOCK EPROMs for NCAP TESTING

### Heitz Tech Memo 30213

NHTSA NCAP testing requires measurement of the handwheel angle required for lateral acceleration of 0.3g in a “slowly increasing steer” test, then using steering angles 6.5 and 8 times this for their Road Edge Recovery and J-Turn tests.

This does not require preparation of new EPROMs for each test — it only requires selecting a stock EPROM and program address number within that EPROM for each test.

Analysis indicates that at 0.3g the range of steer inputs will be 30 to 60 degrees. This can be covered in two EPROMs: 30–45 and 45–60 degrees. In order to include extremes, three EPROMs might be used with ranges 20–35, 35–50, and 50–65 degrees.

A 30–45 degree EPROM for a Road Edge Recovery test will have as follows:

Program Address	Steer Angle Degrees	Program Address	Steer Angle Degrees
0	$30 \times 6.5 = 195$	8	$38 \times 6.5 = 247$
1	$31 \times 6.5 = 201.5$	9	$39 \times 6.5 = 253.5$
2	$32 \times 6.5 = 208$	A	$40 \times 6.5 = 260$
3	$33 \times 6.5 = 214.5$	B	$41 \times 6.5 = 266.5$
4	$34 \times 6.5 = 221$	C	$42 \times 6.5 = 273$
5	$35 \times 6.5 = 227.5$	D	$43 \times 6.5 = 279.5$
6	$36 \times 6.5 = 234$	E	$44 \times 6.5 = 286$
7	$37 \times 6.5 = 240.5$	F	$45 \times 6.5 = 292.5$

If the steer at 3g is found to be 37 degrees, then the 30–45 degree Road Edge Recovery EPROM would be selected and set for program address 7.

A required set of EPROMs can be prepared with little trouble. In fact, Heitz will supply 2-EPROM or 3-EPROM sets for Road Edge Recovery and J-Turn tests at no charge. The ROMsteer programs for these tests can also be downloaded from our website.

The ROMsteer programs can be found on the download page of our website at <http://www.atiheitz.com/download.htm>

A direct link to the file is: [http://www.atiheitz.com/download/rs\\_ncap.zip](http://www.atiheitz.com/download/rs_ncap.zip)

rs\_ncap.zip is a compressed “zip” file. It contains the following eleven files:

NCAP EPROMs.pdf – this document

Programs for the 2-EPROM sets:

- Ncapf2-1.rom – Road edge recovery (fishhook) for 0.3g angles of 30-45 deg.
- Ncapf2-2.rom – Road edge recovery for 0.3g angles of 45-60 deg.
- Ncapj2-1.rom – J-Turn for 0.3g angles of 30-45 deg.
- Ncapj2-2.rom – J-Turn for 0.3g angles of 45-60 deg.

Programs for the 3-EPROM sets:

- Ncapf3-1.rom – Road edge recovery for 0.3g angles of 20-35 deg.
- Ncapf3-2.rom – Road edge recovery for 0.3g angles of 35-50 deg.
- Ncapf3-3.rom – Road edge recovery for 0.3g angles of 50-65 deg.
- Ncapj3-1.rom – J-Turn for 0.3g angles of 20-35 deg.
- Ncapj3-2.rom – J-Turn for 0.3g angles of 35-50 deg.
- Ncapj3-3.rom – J-Turn for 0.3g angles of 50-65 deg.

These programs must be compiled using the ROMsteer software to create the EPROM files. The EPROM file contents will vary depending on the target machine (Sprint 1, Sprint2, or Sprint 3).