

Road Rash II Game Hacking Guide

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ROAD RASH 2 ROM HACKING GUIDE Ver 0.7 3/31/07

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<http://www.angelfire.com/games2/codehut/>

This guide will show you how to hack all of the bikes in Road Rash 2 (for Sega Genesis), as well as many other things. Here are some of the things you can hack in the ROM:

- Acceleration (in all gears)
- Top speed (for each gear)
- Handling (faster turning, etc)
- Make it so your bike won't slide out in turns
- Nitro bursts (even for bikes that don't have nitro)
- Prices for bikes
- Bike names and descriptions (in the bike shop)
- Which bike you start with (including the secret bike)
- How much money you start with
- Which level you start on (including secret level 6)
- Slow down or speed up the whole game (adjustable)
- Ride through obstacles
- Make all the tracks straight
- Miscellaneous stuff

With this guide, you can completely customize your motorcycle's performance and handling. You can make your bike as fast as you want (even faster than the hidden bike "Wild Thing 2000"). There are lots of other things covered in this guide as well.

I discovered many of these ROM addresses using the debugger in Gens.

Keep in mind that this is a guide for hacking the ROM, not save states. MAKE SURE you make a back-up copy of your ROM before you make any changes just in case something goes wrong.

Make sure your ROM is in "bin" format (not "smd"). The easiest way to tell if your ROM is in bin format is to open the ROM with a hex editor and look for the words "SEGA GENESIS", as well as the name of the game. If you don't see any plain text, then your ROM is probably not in bin format. There are lots of programs out there that will easily convert it for you.

To use this guide, you should know how to use a hex editor. There are lots of hex editors available. I use Hex Workshop.

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1) What you'll need
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-Road Rash 2 ROM (Road Rash II (UE) (REV00) [!].bin)

Note that I made this guide using the "REV00" version of the game. I don't know if it will work on the "REV02" version.

-Genesis emulator (use this to play the game on) (I use Gens)

-Hex Editor (use this to do your hacking)

=====
2) Hacking the Master Code into the ROM (must be done)
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The first thing you'll need to do to your ROM is hack a master code into it. If you don't do this, all you'll get is a blank screen when you try to run the game after you've made any changes to the ROM. The master code bypasses the checksum routine.

To hack the master code, just use your hex editor and go to this ROM address: \$0FF888. At that ROM address you should see this number: 66 02. Change the 66 02 to 4E 71. Save your changes and you're done hacking your master code. Easy enough.

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3) Hacking bike performance (acceleration, top speed, handling, nitro)
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This is the heart of the guide. I've divided this section into 4 sub-sections: Acceleration, top speed, handling, and nitro bursts.

3a) Acceleration

The ROM uses a value to determine how much acceleration the bike has in each of the 6 gears. This means there are 6 values for acceleration for each bike. 1st gear has a value, 2nd gear has a value, etc. To make the bike accelerate properly, you should modify all 6 values. The higher the value, the more acceleration the bike has. Here are the values the ROM uses for the slowest bike (SHURIKEN 400) and the fastest bike (WILD THING 2000) so you can get an idea of where you want to set yours:

-SHURIKEN 400 (slowest bike in the game)

1st gear: 00 22
2nd gear: 00 1A
3rd gear: 00 15
4th gear: 00 12
5th gear: 00 0F
6th gear: 00 0C

-WILD THING 2000 (fastest bike in the game)

1st gear: 00 30
2nd gear: 00 28
3rd gear: 00 23
4th gear: 00 20
5th gear: 00 1E
6th gear: 00 1C

Here is what the SHURIKEN 400 values from the ROM will look like in your hex editor:

00 22 00 1A 00 15 00 12 00 0F 00 0C

When you're hacking your values, don't change the "00" parts. For example, if you wanted to hack the SHURIKEN 400 bike so it accelerates faster in all 6 gears, this is what it would look like before and after in your hex editor:

Before hacking:

00 22 00 1A 00 15 00 12 00 0F 00 0C

After hacking:

00 3E 00 38 00 33 00 2E 00 28 00 23

Remember, do NOT hack the "00's". Only hack the other numbers.

This would make the SHURIKEN 400 accelerate faster than WILD THING 2000. Note that the values steadily decrease from 1st gear to 6th gear. The values for each gear, and how much they decrease for each gear is entirely up to you. The reason the values decrease for higher gears is because that's the way it is in "real life" motorcycles. Real motorcycles accelerate much faster in 1st gear than they do in 6th gear. If you've ever ridden a 10 speed bicycle, then I'm sure you noticed it's much easier to peddle in 1st gear than it is in 10th.

So far I've tried values up to 00 6C for 1st gear, and 00 28 for 6th gear, but I'm sure you can go higher than that if you want. I'm sure you'll find that experimenting is lots of fun.

Below are the ROM addresses for acceleration for each of the bikes...

SHURIKEN 400
\$0278A8 to \$0278B3

PANDA 500
\$0278CE to \$0278D9

SHURIKEN TT 250
\$0278F4 to \$0278FF

PANDA 900
\$02791A to \$027925

BANZAI 7.11 and BANZAI 7.11 N
\$027940 to \$02794B

BANZAI 600 and BANZAI 600 N
\$027966 to \$027971

PANDA 600
\$02798C to \$027997

BANZAI 750 and BANZAI 750 N
\$0279B2 to \$0279BD

SHURIKEN 1000 and SHURIKEN 1000 N
\$0279D8 to \$0279E3

DIABLO 1000 and DIABLO 1000 N
\$0279FE to \$027A09

WILD THING 2000
\$027B7A to \$027B85

For info on hacking the bikes that the cops ride, and the bikes that the other riders use (Viper, Natasha etc) see section 9.

3b) Top speed

The ROM uses 6 values to determine the top speed in each of the 6 gears. To be honest with you, I found that you really only need to change the value for 6th gear, so that's the only ROM address I'll list. If you want to hack the top speeds for the other gears, you'll find those values right before the value for 6th gear (in the ROM).

Here's an example of how you would hack the top speed for the SHURIKEN 400 bike: Find the SHURIKEN 400 bike in the list below (it's the first bike listed) and use your hex editor to go to the ROM address listed (\$0278BE). This is what you should see: 2E E0. (Note that all the values for top speed are 2 bytes and use 2 ROM addresses). 2E E0 is the hex number for 120 MPH (120 MPH is the normal top speed for the SHURIKEN 400). To make the SHURIKEN 400 have a top speed of 180 MPH, just add 2 zeros to 180 (180 = 18000) and convert 18000 into a hex number (18000 = 4650 in hex) and hack that hex number into the ROM. So you would change the 2E E0 to 46 50. If you look right after the list of bikes below, you'll find complete instructions on how to convert the top speed you want for your bike into a hex number.

Here are the ROM addresses for top speed. I've also included the normal/stock top speed for each bike...

SHURIKEN 400 (120 MPH)
\$0278BE

PANDA 500 (125 MPH)
\$0278E4

SHURIKEN TT 250 (138 MPH)
\$02790A

PANDA 900 (146 MPH)
\$027930

BANZAI 7.11 and BANZAI 7.11 N (155 MPH)
\$027956

BANZAI 600 and BANZAI 600 N (128 MPH)
\$02797C

PANDA 600 (131 MPH)
\$0279A2

BANZAI 750 and BANZAI 750 N (140 MPH)
\$0279C8

SHURIKEN 1000 and SHURIKEN 1000 N (150 MPH)
\$0279EE

DIABLO 1000 and DIABLO 1000 N (160 MPH)
\$027A14

WILD THING 2000 (200 MPH)
\$027B90

NOTE:

Nitro bikes will have a higher top speed when you're using nitro.

When you hack a new value for top speed, it must be a hex number. If you don't know about hex numbers, that's OK. I've included a list of hex numbers you can use for different top speeds. I'll also explain how to make hex numbers for specific top speeds.

Here's a list of hex values you can use for different top speeds...

160 MPH = 3E 80
180 MPH = 46 50
200 MPH = 4E 20
210 MPH = 52 08

Here's how to make a hex value for a specific top speed: Lets say you wanted to make the top speed 215 MPH. All you do to get your hex number is use the Windows calculator. In case you don't know where your Windows calculator is, in Windows XP, click on "Start/All Programs/Accessories/Calculator". Once you have the calculator open, click on "View" and then make sure "Scientific" is checked.

To make your hex number for 215 MPH, enter 21500 into the calculator and then click on "Hex". The hex number it gives you should be 53FC. This is the number you would hack into the ROM. As you can see, all you do is add 2 zeros to the MPH number and then convert it into a hex number. Another example: If you wanted 220 MPH, you would enter 22000. Note that when you enter your MPH number, make sure that "Dec" is checked on the calculator, and then click on "Hex" to get your hex number. The hex number for 22000 would be 55F0.

3c) Handling

This section is going to be the hardest to explain because there are several different values used to make the bikes handle differently. Each bike uses different values. I recommend that you only change one value at a time and see what it does. I also recommend that you write down what the original value was, and what the new value is, and then write down what effect it had on the bike. That way, it'll be easier to get a bike to handle just the way you want.

Below is a quick description of the 4 different handling values used in the ROM. Each of the 4 values represents a different ROM address. The 4 ROM addresses (for each bike) are listed further down. Use your hex editor to hack the values.

1st value:

How quickly the bike returns to center/upright position after making a turn. The higher the value, the faster the bike returns to the upright position after turning. The normal/stock values used in the ROM range from 14 to 18. I tried using 68 and the bike returned to the center/upright position VERY quickly.

2nd value:

How quickly the bike turns. In other words, how fast the bike responds when you press the directional pad to make a turn. The higher the value, the faster the bike will turn. The normal/stock values used in the ROM range from 20 to 50. Hacking a value of somewhere between 40 and 80 will make your bike turn very fast.

3rd value:

How sharp the bike will turn. Higher values make you turn sharper, but you also slide out easier on turns. You can keep your bike from sliding out by modifying the fourth value (below). The normal/stock values used in the ROM range from 06 to 0B. I tried using a value of 44 and my bike turned very sharp.

4th value:

How much traction the bike has when turning. The lower the value, the more traction you have. The normal/stock values used in the ROM range from C0 to E0. Setting this value to 20 should keep you from sliding out in turns.

Below are the ROM addresses for each of the 4 values listed above.

Each bike has 4 ROM addresses. The 1st ROM address is for how quickly the bike returns to the upright position after turning, the 2nd ROM address is for how quickly the bike turns, the 3rd ROM address is for how sharp the bike turns, and the 4th ROM address is for how much traction the bike has.

SHURIKEN 400 ---- \$02773F, \$027741, \$027742, \$027745

PANDA 500 ----- \$02774F, \$027751, \$027752, \$027755

SHURIKEN TT 250 - \$02775F, \$027761, \$027762, \$027765

PANDA 900 ----- \$02776F, \$027771, \$027772, \$027775

BANZAI 7.11 ----- \$02777F, \$027781, \$027782, \$027785

BANZAI 600 N ---- \$02778F, \$027791, \$027792, \$027795

BANZAI 750 N ---- \$02779F, \$0277A1, \$0277A2, \$0277A5

SHURIKEN 1000 N - \$0277AF, \$0277B1, \$0277B2, \$0277B5

BANZAI 7.11 N --- \$0277BF, \$0277C1, \$0277C2, \$0277C5

DIABLO 1000 N --- \$0277CF, \$0277D1, \$0277D2, \$0277D5
PANDA 600 ----- \$0277DF, \$0277E1, \$0277E2, \$0277E5
BANZAI 600 ----- \$0277EF, \$0277F1, \$0277F2, \$0277F5
BANZAI 750 ----- \$0277FF, \$027801, \$027802, \$027805
SHURIKEN 1000 --- \$02780F, \$027811, \$027812, \$027815
DIABLO 1000 ----- \$02781F, \$027821, \$027822, \$027825
WILD THING 2000 - \$02782F, \$027831, \$027832, \$027835

3d) Nitro bursts

Hacking nitro bursts is fairly easy. You can increase the number of nitro bursts the nitro bikes have, or you can even add nitro to bikes that don't normally have any. I'll also show you how to hack the ROM so that all the nitro bikes will have infinite nitro bursts.

Below is a list of all the bikes along with a ROM address for each one. Pick the bike you want to hack. Use your hex editor and go to the ROM address listed for that bike. Change the value there to how many nitro bursts you want (from 01 to 0E). If you go higher than 0E, your dash will start to look funky. 0E will give you 14 bursts. If you want more than 14 bursts, use the "infinite nitro" hack below.

Here are the ROM addresses for nitro bursts...

SHURIKEN 400 ---- \$027749
PANDA 500 ----- \$027759
SHURIKEN TT 250 - \$027769
PANDA 900 ----- \$027779
BANZAI 7.11 ----- \$027789
BANZAI 600 N ---- \$027799
BANZAI 750 N ---- \$0277A9
SHURIKEN 1000 N - \$0277B9
BANZAI 7.11 N --- \$0277C9
DIABLO 1000 N --- \$0277D9
PANDA 600 ----- \$0277E9
BANZAI 600 ----- \$0277F9

BANZAI 750 ----- \$027809

SHURIKEN 1000 --- \$027819

DIABLO 1000 ----- \$027829

WILD THING 2000 - \$027839

Infinite nitro hack...

Want all your nitro bikes to have infinite nitro bursts? Here's how:

Use your hex editor and go to this ROM address: \$00E74A. The value there should be 53 79. Change the 53 79 to 60 04. Save your changes and you're all set to use as much nitro as you can handle.

=====
4) Hacking the prices for bikes (and names/descriptions)
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I'm not going to go into much detail about hacking the prices for each of the bikes because to be frank, all you have to do is hack the ROM so you start with lots of money and you can buy any bike you want.

Here is the starting and ending ROM addresses for the prices for all the bikes (except WILD THING 2000): \$009FA6 to \$009FC3. The price for each bike uses 2 bytes. The order they're in is listed below. If you want to make all the bikes free, just open the ROM with your hex editor and change every value from \$009FA6 to \$009FC3 into zeros. Note that when you go to buy a bike, it will still show the regular price, but you'll get the bike for free. The prices that are shown are also hackable starting at this address: \$006FC6 (in plain text).

ROM order for bike prices... (\$009FA6 to \$009FC3)

SHURIKEN 400
PANDA 500
SHURIKEN TT 250
PANDA 900
BANZAI 7.11
BANZAI 600 N
BANZAI 750 N
SHURIKEN 1000 N
BANZAI 7.11 N
DIABLO 1000 N
PANDA 600
BANZAI 600
BANZAI 750
SHURIKEN 1000
DIABLO 1000

If you want to change the bike names or descriptions in the game (in the bike shop), they start at this ROM address: \$0068B2. It's

mostly in plain text.

=====
5) Hacking starting items (bikes, level, money)
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I've divided this section into 3 parts. One for which bike you start with, one for which level you start on, and one for how much money you start with.

5a) Starting bike

To change which bike you start a new game with, use your hex editor and go to this ROM address: \$001F87. Change the value there to match the value listed below for the bike you want. For example, if you wanted to start with WILD THING 2000 (the secret bike), you would change the value to 0F.

PANDA 500 ----- 01
SHURIKEN TT 250 - 02
PANDA 900 ----- 03
BANZAI 7.11 ----- 04
BANZAI 600 N ---- 05
BANZAI 750 N ---- 06
SHURIKEN 1000 N - 07
BANZAI 7.11 N --- 08
DIABLO 1000 N --- 09
PANDA 600 ----- 0A
BANZAI 600 ----- 0B
BANZAI 750 ----- 0C
SHURIKEN 1000 --- 0D
DIABLO 1000 ----- 0E
WILD THING 2000 - 0F

5b) Starting level

To change which level you start a new game on, use your hex editor and go to this ROM address: \$001FBF. Change the value there to whichever level you want to start on:

Level 2 = 02
Level 3 = 03
Level 4 = 04
Level 5 = 05
Level 6 = 06 (secret level)

NOTE: Level 6 is a secret level where you get to race against all the cops. If I remember correctly, when you finish the level, the game ends and goes to a blank screen. Reset to race again.

5c) Starting money

To change how much money you start with, use your hex editor and go to this ROM address: \$001F7E. The value there should be 00 64. Change the value there to however much money you want to start a new game with (in hex). You normally start with \$1000. Here are some values you can use for different amounts of money:

\$100,000 = 27 10

\$250,000 = 61 A8

\$500,000 = C3 50

=====
6) Hacking the game speed (slow down or speed up the whole game)
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This hack is useful if you make a really fast bike and you find that you can't react fast enough to make the turns in the track. You can adjust how slow (or how fast) you want the game to run.

If you'd rather not hack this into your ROM, but you still want to slow the game down, you can use these Game Genie codes instead:

AMTA-AA3R

Slows the game way down. You can turn the code on or off at anytime during the race.

AMTA-AA3R + ASTA-AABY

Slows the game down a little bit. You can turn the code on or off at anytime during the race.

If you want to hack the slower game speed into your ROM, here's how:

Use your hex editor and go to this ROM address: \$00E02E. The value there should be 66 00. Change the 66 00 to 60 02. This will slow the game way down. If you want to adjust how much the game slows down or speeds up, do this hack as well as the hack below.

If you want to adjust how much the game slows down or speeds up, do the hack above (at \$00E02E) AND do this hack: Go to ROM address \$00E035 and change the value there to adjust what speed the game runs at. "03" makes the game run a little bit slower than normal, "07" makes the game run a little bit faster than normal. You can use other values if you want. Just remember that you must hack both ROM addresses to be able to adjust the game speed. If you only do the first hack (at \$00E02E), the game will run very slow.

=====
7) Ride through obstacles

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This is a pretty neat hack. It lets you ride right through all the obstacles on the track (cars, signs, trees, etc). You just pass right through them without crashing.

If you want the option of being able to turn this hack on or off, skip this section and use this Game Genie code instead:

BD3T-AA8C
Ride through obstacles.

If you decided you want to hack this into your ROM, here's how: use your hex editor and go to ROM address \$00F3C2 and change the 4E B9 to 60 08. Save your changes and you're ready to go.

=====
8) Make all the tracks straighter
=====

If you hacked a new bike with an ultra high top speed and you'd like a fairly straight track to test it on, or if you just want to make the game easier, here's a Game Genie code you can use:

RG5T-A61N

It will make Arizona perfectly straight, and the rest of the tracks will only have a few gentle turns.

If you want to hack that code into your ROM, go to this ROM address: \$00B7ED and change the 75 to 71. Save the change and you're all set.

NOTE: I recommend using the Game Genie code instead of hacking it into the ROM simply because I haven't had time to test the code very much and I don't know if it has any side effects (although it seemed to work fine on level one tracks).

=====
9) Miscellaneous stuff
=====

This is where I'm putting ROM info I found that I really haven't had time to experiment with very much yet.

ROM addresses for bike performance for the cops and the other riders in the game (Viper, Natasha, Kakana, etc). Their bikes use the same format in the ROM as the bikes you ride. Here are the starting and ending ROM addresses for all of them... \$027A24 to \$027C03. You can hack how fast (or how slow) their bikes accelerate, and you can hack their top speeds (ie. make them slower). Just remember that the values for WILD THING 2000 are in there as well (from \$027B7A to \$027B9D).

I hacked this code \$027A4A:0000 which sets the acceleration value to zero in first gear, and when I started a race on level 1, 4 riders

just sat there when the race started.

Here is a ROM address with lots of potential: \$010AE0. That's the starting ROM address for what looks like the stats for all the other riders in the game. I'm guessing it might be something like how aggressive they are, which weapon they have, etc, but that's just a guess. All of the names of the riders and cops are listed in plain text so it should be pretty easy to experiment.

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10) Game Genie codes

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Here are some Game Genie codes I made that you might find useful...

RH6A-86YJ

Master code (not necessary if you already hacked the master code into the ROM).

AW2A-CA6C

No damage from hitting trees.

AW1T-CA56

No damage from hitting road signs.

AW3T-CA7E

No damage from hitting cars head on (cars coming towards you).

Of course all of these can be hacked into your ROM if you'd like.

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Well, that's all for now. If you enjoy Road Rash 2 as much as I do, then I'm sure you'll have hours of fun hacking the ROM. Road Rash 2 is by far one of the best games for the Genesis. I also have lots of ROM info for Road Rash 1 and Road Rash 3, so someday I may write ROM hacking guides for them as well.

Happy hacking,

Tony Hedstrom.

email me if you have any questions or comments: t_hedstrom@yahoo.com

And visit my website for more guides and Game Genie codes:
<http://www.angelfire.com/games2/codehut/>

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