

# Southern California Timing Association



## *Rookie Orientation Booklet* *El Mirage*

## **Introduction**

Welcome to Land Speed Racing!

In Southern California, Land Speed Racing takes place under the control of the SCTA - Southern California Timing Association, which represents 11 member clubs, of which, you must be a member of one to race. Each club has its own requirements for membership and contact can be made via the SCTA web site or found in the back of the SCTA Rule Book.

The El Mirage dry lakebed is located 40 minutes to the east of Palmdale or 30 minutes to the west of Victorville. The Bureau of Land Management manages the lakebed, and permits racing there for 6 months of the year – May through November (excepting August). A BLM fee is charged to enter the lakebed, so make sure you have either an SCTA season pass, or be prepared to pay \$15 per day at the El Mirage Visitor's Center when you enter.

Our racing boundaries are clearly defined by cones and signs and are patrolled by club members to ensure members of the public remain outside the dangerous areas (where the racing is taking place). Similarly, it is vitally important that racing vehicles remain inside the coned areas, as an accident involving members of the public would finish racing at El Mirage forever.

The SCTA is made up of volunteer members who have a love of racing and are prepared to put in large amounts of time to make it happen for everyone. It is a close-knit community that is dedicated to making racing safe and enjoyable for everyone who wants to try their hand at it.

Please remember that this book serves only as a guide to the Rookie Driver / Rider process. The final rules are found in the current year SCTA Rulebook, or for El Mirage specific rules, the current year El Mirage Procedures.

## Your First Race

After much blood, sweat and tears (not to mention money) you will be prepared for your first race as a rookie. Many rookie drivers are indoctrinated by more established race teams, while others come to the lake with a new car and new drivers. Below is a list of items you need to have or be prepared for:

- **Logbook** - New logbooks are available for purchase at the Registration trailer for \$10. You must have a logbook to go through tech inspection. The serial number of this book is also stamped on a sticker which is placed on the roll cage of the car, ensuring that important information can be recalled. An example of a few important pages in the logbook can be found in Appendix A of this booklet.
- **Tech Inspection** – Tech inspection is carried out by experienced volunteers who use a checklist to help you ensure your car / bike meets minimum SCTA standards. For a new vehicle or one that can exceed 200 mph, two inspectors are required to check the car out. Bailouts are also done at this time.



- **Inspection Form** – This form serves two purposes, first it records all of your vehicle and class information, as well as driver details. The reverse side contains the inspection form. It is important to fill this in correctly, as failure to do so could cost you a record. If in doubt – ask! A copy of the inspection form can be found in Appendix B of this booklet and on the SCTA web site.
- **Driver's Gear** – Drivers must have all their safety gear available for inspection during tech. During this time SFI tags, expiry dates and specifications are examined to ensure all equipment is safe and appropriate for the speeds you plan to do.

### **You should make sure you have the following items for inspection:**

#### **Car Driving Apparel**

- Racing suit
- Helmet
- Gloves
- Racing boots
- Head sock
- Racing socks
- Head and neck restraint device

#### **Motorcycle Riding Apparel**

- Rider's Helmet
- Leathers
- Boots
- Gloves

- Bailouts – Every new driver must complete a bailout to prove that they can safely exit the vehicle in a timely manner. This is done fully suited up (with race suit, gloves, boots, helmet and neck restraint device on) and fully belted in. The driver must demonstrate their knowledge of the fire system, parachute release and other safety related equipment appropriate to the vehicle. They also must show that they can reach every important system, with the belts done up. It is a good idea to practice this process a few times before going to inspection.



*New driver going through a bailout drill*

- Registration Trailer – After having successfully completed tech inspection you take all your paperwork to the registration trailer. There you will receive your inspected sticker that will go on the window of your vehicle. You will not be permitted to race without one – so don't lose it! At this point you also hand over your completed Medical Form and sign a waiver that allows you to get your driver's wristband. Other team members will also have to sign the waiver and get wristbands also. Team members are issued a red band, drivers, a yellow.



*Registration Trailer*



# Rookie Orientation

Rookie Orientation takes place at El Mirage at 4pm on the day before racing begins (3pm in November). This initial meeting is only the first part of the orientation process. The group will meet at the Registration Trailer, but may move to the SCTA buildings weather (wind) depending. The Rookie Orientation Director, or other experienced driver takes the orientation. All rookie drivers and crews have to attend this meeting and bring with them a tow vehicle with a working CB. After the classroom portion is completed, drivers and crews will drive down the course with the instructor pointing things out on the CB to familiarize everyone with the course.

In the morning, all rookies will meet the instructor again and attend the drivers meeting, which begins at 7:10am at the start line. The rookies will stay on the start line and watch the first 5 - 10 cars leave the line. This is an excellent opportunity to learn how it's done. The group will then go together down to the finish line (timing lights) and again watch and learn how to stop and where to pull out. Only after this last portion of the instruction, will rookie stickers be issued by the instructor.

As rookies, you and your crew will be under much scrutiny. Each run will be watched carefully and signed off by an official on the rookie sticker attached to your helmet.

## Topics that will be covered during Rookie Orientation are:

### Course description

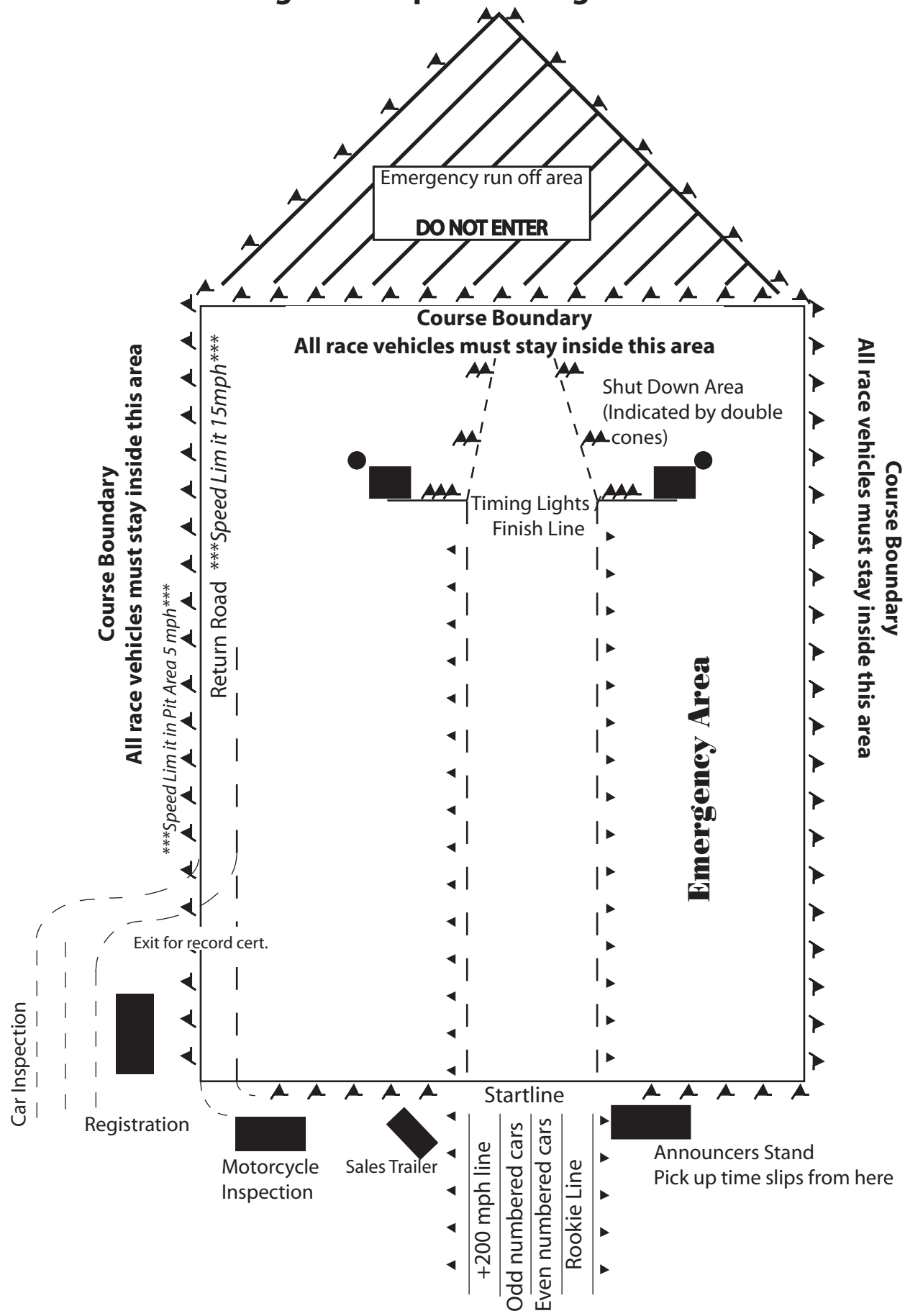
The course is 1.3 miles long, 90 feet wide with a 1.3-mile shut down area after the timing lights. Orange cones designate the "track" and additional marker cones long the side of the course indicate our safety zones. Patrols sit at intervals along these coned off areas to prevent the public entering. The finish line is clearly marked with two very large orange end signs and large orange balloons. The shut down area narrows down and is shown by double sets of cones lining the track. A line of orange cones approximately 3 feet apart shows the end of the course. This line is also known as the back door. Racing vehicles are **NOT PERMITTED** outside these cones or outside the safety zones to the side.



*Various vehicles going through the finish line / timing lights*

# El Mirage Land Speed Racing Course

Access Roads \*\*\*Speed Limit - 25 mph\*\*\*



**Course Boundary**  
All race vehicles must stay inside this area

**Course Boundary**  
All race vehicles must stay inside this area

Emergency run off area  
**DO NOT ENTER**

**Course Boundary**  
All race vehicles must stay inside this area

Shut Down Area  
(Indicated by double cones)

Timing Lights  
Finish Line

**Emergency Area**

Return Road \*\*\*Speed Limit 5 mph\*\*\*

Exit for record cert.

Car Inspection

Registration

Motorcycle Inspection

Sales Trailer

Startline

+200 mph line  
Odd numbered cars  
Even numbered cars  
Rookie Line

Announcers Stand  
Pick up time slips from here

Pre-Stage

## Drivers Meeting

Driver's meeting takes place at 7:10am at the starting line and follows the patrol meeting that starts at 7am. All drivers and crew members have to attend. Information about course conditions and procedures for that day are given at this time.



## Crew Preparation

- Role – The crew's job is to prepare the driver/rider and the race vehicle for a safe pass. It helps to go over everyone's roll, before getting up to the line.

Jobs may include:

- Crew Chief (organizes everyone else),
- Dressing the driver / rider
- \* Strapping the driver in (includes wrist restraints)
- Warming up the car or motorcycle
- \* Pulling the fire bottle and parachute pins (always show the driver the pulled pins)
- \* Putting up the window net
- Providing shade for the driver / rider
- \* Cleaning the windscreen

Driver / Rider safety – Very Important. Some teams have a checklist of things that must be completed prior to a pass.

These could include:

- Driver / Rider gear - do you have it all
- Leathers have button to prove they have been checked at tech inspection (motorcycles only)
- Kill switch lanyard is present (motorcycles only)
- \* Checking restraints
- \* Checking arm restraints
- \* Ensuring driver can reach everything in cockpit
- \* Fire pins, parachute pins
- Going over instructions / procedures

### Other Considerations:

- Driver/ Rider comfort – Sitting in the hot sun in a fire suit or leathers isn't comfortable. Provide an umbrella or some sort of shade.
- Driver / Rider instructions – Driving or riding a race vehicle at high speeds for the first time is stressful and there is a lot to remember. Go over the instructions and procedures with your driver / rider multiple times.

### Equipment

- \* Fire bottles – ensure all safety pins are pulled (check bottles for secondary pins)
- \* Parachute – ensure parachute safety pin is pulled – the driver will activate the chute when the cross the finish line.
- Kill switch is attached to rider (motorcycle only)
- Helmet is securely done up
- Working CB in tow vehicle – make sure it is tuned to the correct channel (1 or 10)
- Fire Extinguisher in tow vehicle
- Tool box in tow vehicle – be sure to include Dzeus tools if appropriate.

\*specific car items

### Line procedure

As a rookie, you will line your car up in the extreme right hand line. You will be permitted to race after the first 25 cars have left the line. When your vehicle is 3 back from the line, **be ready in your car - fully strapped in and ready to go.** It is beneficial to spend LOTS of time sitting in your vehicle getting familiar with the systems. *Try finding everything with your eyes closed.*





## Rookie Pass – Driver / Rider and Crew

As a rookie, you will attend a two part orientation which will familiarize you and your crew with the procedures at El Mirage. The rookie will also be under close scrutiny and each pass will be monitored by either the Rookie Director or appropriate Tech Chair, Chief Inspector, Starter or other official.

The rookie will need to make a clean pass under 150 mph. The officials observing the rookies may also designate other speed limits depending on the skill and performance of the driver / rider.

A clean pass is the goal and that means that the rookie followed the Starter's orders, went through the timing lights, pulled the chute (car only), kept the race vehicle straight, turned to the left (on a non-eventful run), and stopped on the course side of the return road (about 3 feet from the cones). Your crew is also under scrutiny. Officials are watching to see that they left the starting line turned to the left and drove down the return road, keeping to the speed limit. They then met you, and towed you back along the return road, at the speed limit.



## Driving the course

Where to go?

The Starter releases the race vehicle from the starting line. It then goes down the course, keeping within the cones. When leaving the starting line on your motorcycle, use caution not to spin the rear wheel. The course surface can be much looser than it looks.

How to stop?

As a rookie, you **MUST** pull your parachute (car only) and come off the throttle when you cross the finish line / timing lights. In a car, the chute safely slows the vehicle, without relying on the brakes. It also prevents the course from getting cut up. On a motorcycle, coming off the throttle slowly, allows the rider time to slow down gradually, while maintaining control of the motorcycle and remaining inside the course boundaries.

Where to stop?

After crossing the finish line, the race vehicle pulls the parachute (car only) and when slowed down sufficiently, turns off the course to the left and comes to a stop **INSIDE** the cones that mark the return road. Be careful to stop away from other race vehicles. You don't want to run over their parachutes, or have them run over yours or you.

## What next?

After stopping, exit the vehicle or dismount your motorcycle and have a look around to make sure everything is ok. Do you still have all your parts? Are all the tires still inflated? Is there any smoke or fluid loss? Gather up your parachute (if driving a car) and wait for your tow vehicle. Keep an eye out for other drivers / riders who are exiting the course.



## Emergencies

### What could go wrong?

Many things can go wrong with a run and not all of them are emergencies. If in doubt, turn to the RIGHT. Safety crews are watching and will come out to help.

- Fire – In the event of a fire it is important to stop safely, shut off your engine and activate your fire system. Turn out to the RIGHT. Safety crews will come out and help put out the fire.
- Engine blows up – Losing an engine may also cause a fire, in addition to leaving parts on the course. Turn out to the RIGHT. The course will also have to swept for parts.
- Lose control
  - Spin – pull the parachute and stop safely.
  - Can't control car – stop in the safest manner possible. Don't worry about not getting off the course – stop safely.
- Can't see the course
  - If at any time you can't see the course it is your responsibility to come to a stop safely. This may include stopping in a straight line on the course.
  - Dust – Dust gets into a race vehicle through any hole or imperfect seal. If you are unsure where you are and can't see – pull the parachute (car only) and stop.
  - Obstruction – Problems have included drivers who can't see over the steering wheel, dust storms that effect vision and things covering the windscreen.



**IF YOU CAN'T SEE PULL THE PARACHUTE AND STOP!**

#### Race vehicle isn't running right

- Pull the parachute (car only) and turn out to the LEFT before the finish line and try again. This leaves the course clear for the next people in line behind you.

#### Race vehicle feels strange

- This may be a case of inexperience or something may indeed be wrong. If in doubt, pull the parachute (car only) and turn out to the LEFT before the finish line and get some help. There are many experienced drivers or riders who would be happy to help if you are unsure.

#### Motorcycle Specific Issues

- Tire spin at high speed can and will cause tire failure.
- Stopping should be done cautiously and smoothly. Using the brakes too harshly can cause a loss of traction and control. Sitting up in the wind to slow down can also cause a loss of control.

### **What do I do Next?**

#### Licensing Runs

- While competing as a Rookie driver / rider, you are able to work through your licencing levels, under the close supervision of the Rookie Director, Tech Inspectors and Chairs, Race Director and Starters. The licencing levels are in your rule book. After running at the perscribed speed and making a clean run, you then take your timing slip to the Starter who saw you off and ask nicely if they would sign your license. This slip is then taken to the Record Certification Inspector at Impound, who will issue your licence for that speed level.

### **Next Meet - What Happens**

#### Starting Position

- Your starting position is determined on your performance at the previous meet (or meets for that racing season). It is posted on the SCTA website under El Mirage Results.

#### Records

- After your Rookie runs at your first meet, you are able to run against records. If you are lucky enough to break a record, then your race vehicle will need to be towed to impound (either Car or Motorcycle) and will be inspected for record certification. You will need the timing slip, log book and entry form (which was given to you at registration). The Record Certification Inspectors may look at fuel, engine size, the timing slip and class compliance. If everything is correct, the Record Certification Inspector will then issue you your record certification sheet. A formal certificate and red timing plaque will be issued at a later date.



# Appendix A

M. Macmillan JDM CRX

## Official Vehicle Log Book Southern California Timing Association



No 3042

NOTE: It is the purpose of this Log to maintain an individual safety and legality history of the vehicle described within, thereby aiding continuity of information from one event to the next, regardless of what region in which a race takes place. A minimum of time and cooperation is required to properly fill in the pages which will result in a higher degree of race worthiness.

The below log book pages show the record of drivers who have done bailouts in this car.

Notes & Comments
<p>Line System - Helix 1301 &amp; FE36                      6/23/08 - PRESIDENTIAL 5300/172679 JIM MILLER                      7/24/08 wire seal, LE FRONT, TUBING BAND TO WHEELS                      WILLIAM MACMILLAN BAIL OUT OK STEVE DAVIES</p> <p>JOE MCLEODTHY COMPLETE BAIL OUT                      DRILL ON 5.6.09.</p> <p>Doug Mac Millan Bail out OK                      8-12-09</p> <p>Craig Corbin Bail out OK                      8-12-09</p>

Record of Vehicle Ownership
Competition No. _____ Date Log Issued _____ Date of Construction _____ Manufacturer/Builder _____ Type of Vehicle _____ Original Owner _____ Major Modification for Class _____ Second Owner _____ Purchase Date _____ Major Modification for Class _____ Third Owner _____ Purchase Date _____ Major Modification for Class _____ Fourth Owner _____ Purchase Date _____ Major Modification for Class _____
Technical & Safety Information
<b>Cars: Roll Bars &amp; Cages</b> Main Frame _____ Material _____ Main Hoop _____ Fore & Aft Bracing _____ Supplemental Bracing _____ Attachments _____
<b>Motorcycles</b> Main Frame Manufacturer _____ Material _____ Serial No. _____ Front Fork Assembly _____ Steering Damper _____ Chain Guard _____ Swing Arm Assembly _____ Kill Switch _____ Fuel Shut Off _____ Wheel & Tire Assembly: Front _____ Rear _____
Safety Equipment Cars & Motorcycles
Seat Belts Year Purchased _____ SEMA Tag No. _____ Width _____ No. of Connection Points _____ Fire System Brand _____ Type _____ Date Last Filled _____ Chute(s) No. of Chutes _____ Make _____ Wind Screen Material _____ Notes: _____

The above page shows the record of ownership and commonly used vehicle codes. The below page is a blank event record which must be filled in for each event or class change.

Event Record
Location: El Mirage <input type="checkbox"/> Bonneville <input type="checkbox"/> Muroc <input type="checkbox"/> Other <input type="checkbox"/> Event Date: _____ Competition No. _____ Engine Class _____ Body Category _____ Existing Record _____ Engine Make _____ No. of Cylinders _____ C.I.D. _____ Bore _____ Stroke _____ Normally Aspirated <input type="checkbox"/> Super Charged <input type="checkbox"/> Turbocharged <input type="checkbox"/> Gas <input type="checkbox"/> Fuel <input type="checkbox"/> Other <input type="checkbox"/> Body Classification: _____ Classification as inspected _____ Modifications done for class _____
Safety Inspection
Inspectors Signature _____ #1 Signature _____ Print Name _____ #2 Signature _____ Print Name _____ #3 Signature _____ Print Name _____ Driver No. 1: _____ Print Name _____ SCTA License No. _____ Class: _____ Yr. Issued _____ Driver No. 1: _____ Print Name _____ SCTA License No. _____ Class: _____ Yr. Issued _____ Driver No. 1: _____ Print Name _____ SCTA License No. _____ Class: _____ Yr. Issued _____
Reinspection Correction
Vehicle Representative Owner <input type="checkbox"/> Driver <input type="checkbox"/> Mechanic <input type="checkbox"/> Other <input type="checkbox"/> Signature _____ Print _____ Inspectors Comments _____ _____ _____ Inspectors Signature _____ Print Name _____
Event Results
Record: Yes <input type="checkbox"/> No <input type="checkbox"/> Speed: _____ Notes: _____ _____ _____





## Technical Inspection

Paperwork	1ST	2ND	3RD
1.A SHEET LOGBOOK/TAG - check log no/tag, logbook comments, codes			
7.B.1 ENTRY NUMBER & CLASS DESIGNATION - contrasting, displayed correctly			
7.A.1 LICENSE - State Driver's License with motorcycle endorsement. SCTA - above 125MPH			
<b>GENERAL REQUIREMENTS ALL MOTORCYCLES &amp; STREAMLINERS (if applicable)</b>			
<b>Riding Apparel &amp; Support Equipment</b>			
7.C.1 HELMET - check SCTA sticker, full-face with a shield, Snell tag <b>M2010</b> or later			
7.C.2 RIDING SUIT - Good condition, 1-piece or 2-piece zip together, racing leathers			
7.C.3 BOOTS - suitable for motorcycle riding and at least 8" high			
7.C.4 GLOVES - Must be approved motorcycle leather racing gloves			
1.L SUPPORT VEHICLE EQUIPMENT - Minimum 10 B.C rated fire extinguisher and CB Radio			
<b>Tires &amp; Wheels</b>			
7.B.8 TIRE SPEED RATINGS - 0-70MPH Any motorcycle tire, 70 -150 Correct speed rating, 150-200 ZR rated 200+ Race tires.			
7.B.8 TIRE CONDITION - All Production (DOT) tires must be less than 10 yrs. old.			
7.B.8 TIRE CONDITION - must be good, without any repairs, no cords showing.			
7.B.9 TIRE VALVE STEMS & CAPS - must be metal			
7.B.9 RUBBER ANGLED VALVE STEMS (tube type) - must be anchored to resist deflection			
7.B.10 WHEELS/SPOKES - check for loose or missing spokes, bent or cracked rims.			
7.B.15 AXLE NUTS & PINCH BOLTS must be secured by safety wire, pins or other devices			
<b>Fuel System</b>			
7.B.25 FUEL TANK - must be well constructed and securely mounted			
7.B.25 FUEL TANK CAP - shall be a positive locking type or screw-on			
7.B.24 FUEL FILTERS AND PETCOCKS - No plastic components, must be metal			
7.B.25 FUEL LINES - must be safely routed and secured by metal clamps, unless OEM.			
7.B.25 FUEL LINES - All unvalved lines are fireproofed, including tank crossover			
7.B.25 FUEL LINES - Clear fuel lines allowed if line is marked "for fuel use"			
7.B.21 NITROUS OXIDE SYSTEM - Bottle shut-off protected, location marked, if covered			
<b>Controls</b>			
7.B.3 THROTTLE - self-closing, quickly and smoothly, no throttle locks allowed.			
7.B.23 BRAKE CONTROL(S) - operable with hand on handlebar or foot on foot peg			
7.B.21 ENGINE KILL SWITCH - positive off - no push and hold type, operable from grips			
7.B.22 ENGINE KILL LANYARD - Check operation and mounting angle			
7.B.2.3 FUEL PUMP STOP LANYARD - Required if engine kill lanyard does not shut-off fuel pump			
7.B.2.4 GASOLINE/FUEL PUMP SHUTOFF - operable from riding position, check operation			
7.B.2.5 FUEL SHUTOFF - operable from grips, check operation (FUEL CLASS)			
7.B.4 CONTROL LEVERS have ball-ends, 1/2" minimum diameter			
7.B.4 HANDLEBARS - hand grips must be located outside of the forks			
<b>Frame, Suspension &amp; Steering</b>			
7.B.7 FOOT RESTS - required, location cannot expose rider to direct engine exhaust			
7.B.10 FORK STOPS - limits travel before hand touch or dampener bottoms			
7.B.19 CHAIN GUARD - For Production/Modified Production classes OEM if original and provides coverage.			
CHAIN GUARD - For A/APS & Sidecar, metal construction, width 1 1/2 times chain or belt, and covers from center of front sprocket to rear edge of rear sprocket.			
7.B.22 DRIVE SPROCKET, PRIMARY DRIVE AND CLUTCH - Must have side protection			
7.B.17 STEERING DAMPENER - required (ALL CLASSES)			
7.B.23 BRAKES - Production class must have original front & rear, other classes, rear only.			
<b>Other</b>			
7.B.24 BALLAST - Located ahead of rear axle, securely mounted, metal hold downs only			
7.B.26 BATTERY - securely mounted, metal hold downs only.			
7.B.5 LIGHTS/MIRRORS - Removed or all glass or plastic lens are taped			
7.B.20 EXHAUST PIPE(S) - outlet(s) directed away from rider, rear wheel and the course			
7.B.12 WINDSHIELDS/WINDSCREENS - must be shatter resistant material.			

## ADDITIONAL REQUIREMENTS FOR MOTORCYCLE STREAMLINERS

Apparel & Support Equipment	1ST	2ND	3RD
3.A.2 HELMENT: Streamliner riders must use a Snell Foundation SA 2010 or later			
7.H.3 DRIVERS SUIT/HEADSOCKS/SHOES/GLOVES - meet class requirements, SFI tags attached			
<b>Driver Equipment</b>			
7.H.4 ROLL BAR/ROLL CAGE/CROSS BRACES - meet class requirements, correctly braced			
7.H.4 ROLL BAR and HEADREST PAD - required in helmet contact area (SFI approved)			
3.D.1 SEAT - securely mounted - bottom and back			
7.H.5 SEAT BELT/SHOULDER HARNESS/CROTCH STRAP - Must be securely mounted, SFI spec 16.1 w/tags, not 5 years old, correct for seat and rider. Appropriate labels must be present. <b>Adjustable leathers must use 3-bar system.</b>			
7.H.17 NITROUS OXIDE - no nitrous bottles in drivers compartment			
3.1 FUEL TANKS, BATTERY & FUEL LINES - Must be located outside of driver compartment			
7.H.6 FRESH AIR VENT - driver compartment has adequate venting			
7.H.7 WINDSHIELD - Shatter-resistant plastic or Lexan, 120 degree view.			
7.H.14 DRIVER'S SPACE - Must be free of sharp edges, projections and other sources of injury			
7.H.10 BAIL-OUT DRILL - Verify driver is able to exit liner unassisted within 15 sec.			
3.L CANOPY - Check latch operation inside and out, exterior latch clearly marked "Open"			
3.W STEERING CONTROL - Operates freely, rigidly mounted, must have steering stops			
3.W BRAKE CONTROL - Located inside cage/easy to operate with restraints on			
3.W/FI FIRE/FUEL/IGNITION/PARACHUTE CONTROLS - Driver must demonstrate access/operation to each control while wearing helmet, suit and gloves and while properly restrained.			
7.H.9 TIRES - Any tire within the driver compartment must have a fender to protect the driver			
3.J THROTTLE OPERATION - self closing, quickly and smoothly.			
<b>Fire Suppression System:</b>			
3.Q MINIMUM AGENT REQUIREMENTS - Must meet class/speed minimums			
7.H.2 FIRE SYSTEM - Under 150 mph nozzle located in driver's area, over 150 mph - driver + engine			
3.Q FIRE NOZZLES - One in driver's area, Over 150 mph, 2 more nozzles aimed at header/oil pan			
3.Q FIRE BOTTLES - must be securely mounted - hose damps not acceptable			
3.Q BI-ANNUAL INSPECTION STICKER(S) - valid and readable without removing bottles			
<b>Chassis:</b>			
7.H. FIRE DOORS - required to access engine compartment, clearly marked			
7.H.14 HEIM JOINTS - safety washers required on all heim joints (NO ALUMINUM)			
7.H.19 SHOCK ABSORBERS - required for each sprung wheel			
7.H.22 CHAIN GUARD - Positioned to prevent damage to oil, coolant, fuel or brake lines			
7.H.13 PARACHUTE - 1 required, 2 required over 250 mph, check mounting/demonstrate operation.			
7.H.23 MAIN BATTERY DISCONNECT SWITCH - Must be visible and clearly marked outside			
7.H.19 SKIDS - Must have positive lock in up & down positions, surface friendly design			
7.H.11 WHEELS - Over 200 mph must use race rims or be reinforced per 2.G.			
7.H.1 FIREWALL - Metal, .060 minimum thickness, all holes sealed.			
3.F Inlake passing through firewall goes through upper half only			
3.P EXHAUST PIPE(S) - outlet(s) must be directed away from driver, wheels/tires and course			
7.H.1 DRAINS - Must have adequate drain holes in the engine/fuel compartment			
7.B.21 NITROUS BOTTLE - Must be securely mounted, pressure relief valve vent to outside w/hard line			
7.H.21 TOWING - Must have obvious tow strap attachment			
<b>ADDITIONAL SIDECAR REQUIREMENTS</b>			
7.1.1 LOADING - side cars wheel must be sufficiently loaded to assure stability (10%)			
7.1.6 SIDECAR ATTACHMENT - attaching fasteners secured by safety wire, pins or other			
7.1.10 SIDECAR WHEEL - the inside (toward rider) of the sidecar wheel must be covered			
7.1.11 PLATFORM - Minimum dimensions each side 12 in wide x 32 in long, rectangular shaped			
7.1.11 PLATFORM - Must demonstrate the platform accommodates a kneeling passenger			
<b>Remarks</b>			
ENTRY NO. _____			

# ENTRY/ Inspection Form - Cars



Southern California Timing Association  
Bonneville Nationals, Inc.



Entry No.: \_\_\_\_\_

Log Book No.: \_\_\_\_\_

Class Record: \_\_\_\_\_

Vehicle Classification:

Engine \_\_\_\_\_ Body \_\_\_\_\_  
Class \_\_\_\_\_ Class \_\_\_\_\_

Computer Codes:

Engine \_\_\_\_\_ Body \_\_\_\_\_  
Code \_\_\_\_\_ Code \_\_\_\_\_

**CAUTION:** The computer codes on this form determine the class in which your vehicle is entered. There will be **NO** corrections allowed after the vehicle has left the start line.

**(Please Print)**

Date: \_\_\_\_\_ SCTA Club: \_\_\_\_\_ New Car: \_\_\_\_\_ New Driver(s): \_\_\_\_\_

Entry Name: \_\_\_\_\_ Gas: \_\_\_\_\_ Fuel: \_\_\_\_\_

Vehicle Make / Model / Year: \_\_\_\_\_ Blown: \_\_\_\_\_ Unblown: \_\_\_\_\_

Engine Make / Year: \_\_\_\_\_ No. of Cylinders: \_\_\_\_\_ Displacement: \_\_\_\_\_

Sponsor(s): \_\_\_\_\_

Special Features: \_\_\_\_\_ Cell Ph: \_\_\_\_\_

Owner(s) Names(s)\*: \_\_\_\_\_ Home Ph: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

E-Mail address(es): \_\_\_\_\_

"The Entrant is either the Owner of the vehicle or the Owners's representative with full legal authority and responsibility to properly present the vehicle for competition at this SCTA/BNI Event. Entrant, owner(s) and driver(s), vehicle and vehicle identification must conform to SCTA rules regarding membership, qualifications, safety, competition class identification etc. to accrue points. I the owner(s) or entrant of the above described vehicle do hereby warrant that all the above facts are true and correct. If for any reason I am found in error on the above facts, or violate any rules or regulation of this event, I understand that I will be barred without consideration from any further competition during this event and the vehicle will accrue no points for the event."

Entrant Signature \_\_\_\_\_

## Release

Please read carefully before signing

I, the undersigned, in consideration of the timing facilities and privileges extended to me, hereby agree on behalf of myself, my successors and assigns, that I shall accept full and entire responsibility for any and all consequences, injuries or otherwise that may arise from the operation of my vehicle operated by me in any race, timing event or other contest or event conducted by the Southern California Timing Association, Inc., Bonneville Nationals, Inc. and/or its members; and I hereby, in behalf of myself, my successors and assigns, release, covenant not to sue and waive any and all legal liability and/or cause of action that I may now have or hereafter acquire against the Southern California Timing Association, Inc., Bonneville Nationals, Inc. or any of its members or anyone employed or acting as timers, judges or any other capacity in conducting such races and/or timing event at the dry lakes or any other place. **By my signature I swear and affirm that I have read and understand the rules and regulations of the event and will comply with them. I do understand that land speed racing is DANGEROUS and can result in injury, paralysis and/or death.**

Entrant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Print name: \_\_\_\_\_ Competitor Log Book \_\_\_\_\_

Driver Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Print name: \_\_\_\_\_ Competitor Log Book \_\_\_\_\_

Alt. Driver Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Print name: \_\_\_\_\_ Competitor Log Book \_\_\_\_\_

Alt. Driver Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Print name: \_\_\_\_\_ Competitor Log Book \_\_\_\_\_

Alt. Driver Signature: \_\_\_\_\_ Date: \_\_\_\_\_ Print name: \_\_\_\_\_ Competitor Log Book \_\_\_\_\_

200 mph line or long course qualified in this class? Yes: \_\_\_\_\_ No: \_\_\_\_\_

Primary / 1st Inspector's Signature: \_\_\_\_\_ Print Name: \_\_\_\_\_ Inspection Date: \_\_\_\_\_  
 Over 200 mph / New Vehicle  
 2nd Inspector's Signature: \_\_\_\_\_ Print Name: \_\_\_\_\_ Inspection Date: \_\_\_\_\_  
 Over 250 mph / 3rd Inspector's Signature: \_\_\_\_\_ Print Name: \_\_\_\_\_ Inspection Date: \_\_\_\_\_

Sec./Ref. No.	Requirements	N/A	1	2	3
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**Safety / Clothing:**

1.A	Vehicle and driver present in Race Ready Condition – i.e. race tires, belts etc.				
3.Q	<input type="checkbox"/> 10.B.C. Portable Fire Extinguisher / <input type="checkbox"/> CB Radio in Push, Crew Vehicles				
3.A.2, 3.D.3, 3.A.3	<input type="checkbox"/> Helmet, full face with shield – SA2010 or later / <input type="checkbox"/> Arm Restraints SFI 3.3/SCTA / <input type="checkbox"/> Head/Neck Restraints				
3.A.1	<input type="checkbox"/> Drivers Suit / <input type="checkbox"/> Head sock / <input type="checkbox"/> Gloves / <input type="checkbox"/> Shoes – to meet class requirements (SFI tag attached)				

**Drivers Compartment:**

1.A	Vehicle chassis number sticker on chassis – Must match log book				
3.B, 3.B.1	Roll Cage / Cross members – meets class requirements				
3.B.2	Roll Cage and Headrest Padding – in helmet contact area (SFI approved)				
3.D.1	Seat securely mounted – bottom and back – no sprung or plastic seats				
3.D.2	Seat Belt/Shoulder Harness/Crotch Strap, (SFI spec 16.1, 16.5) w/tag, not over 5 years old—securely mounted.				
3.D.3, 3.N	Fire / Fuel / Ignition / Parachute Release inside cage – easily accessible with restraints on				
3.L	Steering Wheel Clearance – operates freely, rigidly mounted				
3.H.1	Reverse Gear lockout, auto trans mandatory, manual recommended				
3.J	Throttle / Toe Strap / Positive Stop				
3.W	Brake Operation – inside cage / easy to operate with restraints on				
3.D.3, 4.P, 3.G, 3.E	Window Net / Floorboard / secondary flooring / inner paneling – securely mounted as required				
3.1.2, 3.Y	All fuels / Oil Vent / Nitrous Oxide / Components <b>must</b> be completely isolated from the driver's compartment				
3.E	Fresh air vent – enclosed vehicles – fire protection around ducting				
3.E	Disabled door and steering wheel locks				

**Fire System:**

3.Q	0-200 mph – 10 lbs. minimum - *driver and engine				
3.Q	201+ mph – 11 lbs minimum* over 5 lbs. for driver				
3.Q	Bottles Securely Mounted – hose clamps alone are not acceptable				
3.Q	Fire Nozzle in drivers area				
3.Q	Bi-Annual (2yr.) Inspection Sticker/Certificate(s) legible without removing the bottles				
3.Q	Two (2) 180° Fire Nozzles directed to header / oil pan area				

**Engine Compartment:**

3.1.1	Fuel Shut-off - Electric Fuel Pump Safety Switch - check operation				
3.J	Throttle Operations – two return springs / over center positive stop				
3.I, 3.R	Metal Clamps on fuel lines / water lines				
3.F	Firewall – (Metal .060 minimum thickness) all holes sealed, engine/drivers compartment				
3.P	Exhaust Headers directed away from course and braced				
3.1.2	Nitrous Oxide system / pressure relief valve vented to outside vehicle w/hard line, securely mounted				
3.X	Blower Restraints – (SFI type)				

**Drivetrain:**

3.O	Flywheel Shield – 1/4" steel or approved equivalent				
3.H	Automatic / Planetary Transmission Shield – (SFI 4.1 recommended)				
3.I	Fuel lines, tanks & bottles in flywheel plane require extra shielding				
3.S	Drive shaft Sling 360° – front 25% of driveshaft (1/4"x1" steel minimum requirement).				

**Chassis:**

2.F	Tires – <input type="checkbox"/> O.E.M. up to Approved Speed, <input type="checkbox"/> O.E.M. VR & ZR rates / Up to 200 mph, <input type="checkbox"/> Over 201 mph - Approved racing tires only				
2.G	<input type="checkbox"/> O.E.M Wheels – <input type="checkbox"/> Welded production wheels / <input type="checkbox"/> Certified Alloy Wheels, 1/4" retainers / <input type="checkbox"/> Racing Wheels <input type="checkbox"/> Under 200 mph, proper lugs. <input type="checkbox"/> Over 200 mph, 1" lugs and five 1/2" dia studs: <input type="checkbox"/> 29" dia, tires, or <input type="checkbox"/> 17" wheel				
2.F	<input type="checkbox"/> Metal Caps on all valve stems / <input type="checkbox"/> Metal Valve Stems on all tubeless tires				
2.G	Wheel Cover – 6 machine grade screws / 3 Dzus fasteners				
3.L., 3.T	Steering Gear, Shaft securely mounted / Steering Stops				
3.T	Safety washers on all heim joints				
2.D	Shock absorber for each sprung (non-rigid) wheel				
3.S	Traction bar slings – minimum 1/4" dia				
3.1	Fuel / Water tanks securely mounted / properly vented				
2.J, 3.K	Ballast / Battery securely mounted				
2.E	Safety Hubs / no "C" clips / Front / Rear				
3.M	<input type="checkbox"/> 1 Parachute, over 160 (lakes), 175 (B'ville) / <input type="checkbox"/> 2 Chutes, over 250 (lakes), 300 (B'ville)—check mounting/operation				
2.I	Bumper / Push Bar, Prompt Removal Device / Tow Rope Attachment Point / Clearly Marked / Readily Available.				

**Body:**

2.K	Body meets class requirements / Neat appearance				
2.L, 3.I.2	Vehicle Number / Class / Nitrous Oxide Inside / Markings on body and legible				
4.X	Roof Rails over 200 mph as required by class				
3.U	<input type="checkbox"/> <b>All</b> non-laminated glass windows and lights <b>must</b> be covered in safety film: <input type="checkbox"/> Window both sides, <input type="checkbox"/> Lights - outside <input type="checkbox"/> Polycarbonate over 200 mph <input type="checkbox"/> Frameless Window				
3.U	Window Tabs – front and rear over 160 mph (lakes), 175 mph (B'ville)				
3.E, 2.M	<input type="checkbox"/> Door(s)/Canopy easy to open from inside and out—check operation / <input type="checkbox"/> "Open" clearly marked for canopy / Hood Release				
3.K	Main Battery Disconnect Switch – visible and clearly marked <input type="checkbox"/> Front <input type="checkbox"/> Rear <input type="checkbox"/> Operable / Clearly Marked.				

**Remarks:** \_\_\_\_\_



## Appendix C - Speed Calculations

### RPM/Speed Calculations

#### For Cars/Trucks

$$RPM = \frac{SPEED \times 336 \times GEAR}{DIA}$$

RPM = engine speed

SPEED = vehicle speed in MPH

GEAR = final drive gear ratio (2.50, 3.30, etc.)

DIA = drive tire diameter in inches

Example: What engine speed is required to go 140 mph with a 3.00:1 final drive ratio and 27" tall rear tires?

$$RPM = \frac{SPEED \times 336 \times GEAR}{DIA} \quad \longrightarrow \quad RPM = \frac{140 \times 336 \times 3.00}{27}$$
$$RPM = \frac{141120}{27} \quad \longleftarrow \quad RPM = 5227$$
$$\quad \quad \quad \longrightarrow$$

**\*\*NOTE\*\*** The above example assumes a 1:1 final transmission gear. If using overdrive transmission, multiply final drive ratio by transmission overdrive ratio to get effective final gear.

Example: What engine speed is required to go 140 mph with a .75:1 overdrive, 3.50:1 final drive ratio and 27" tall rear tires?

$$RPM = \frac{SPEED \times 336 \times GEAR}{DIA} \quad \longrightarrow \quad RPM = \frac{140 \times 336 \times (3.50 \times .75)}{27}$$
$$RPM = \frac{123480}{27} \quad \longleftarrow \quad RPM = 4573$$
$$\quad \quad \quad \longrightarrow$$

## RPM/Speed Calculations

### For Motorcycles

$$RPM = \frac{SPEED \times 336 \times PRI \times GEAR \times \frac{BIG}{SMALL}}{DIA}$$

RPM = engine speed

SPEED = vehicle speed in MPH

PRI = primary drive ratio (between crankshaft and clutch)

GEAR = transmission gear ratio (1.33, 1.00, etc.)

BIG = tooth count of big (rear) sprocket

SMALL = tooth count of small (front) sprocket

DIA = drive tire diameter in inches

Example: What engine speed is required to go 140 mph on a 2006 Kawasaki ZX-14 with a 25" tall rear tire in 5<sup>th</sup> gear?

Primary Drive Ratio = 1.54:1

5<sup>th</sup> Gear Ratio = 1.15:1

Big Sprocket = 41 teeth

Small Sprocket = 17 teeth

$$RPM = \frac{SPEED \times 336 \times PRI \times GEAR \times \frac{BIG}{SMALL}}{DIA} \longrightarrow RPM = \frac{140 \times 336 \times 1.54 \times 1.15 \times \frac{41}{17}}{25}$$
$$RPM = \frac{200919}{25} \longrightarrow RPM = 8037$$