



**Honoring the past.
Forging the future.**

2017 Vehicle Rules

Version 3.9

1 Safety Equipment for All Eras of Cars, Trucks, SUVs, and UTVs

1.1 Helmets

Helmets must be approved by one of the following; Snell SA2015 / SA2010 / SFI 41.1 / FIA 8860-2010 / FIA 8859-2015 (the sticker must be attached). Straps must have D-ring fasteners only. No snaps or Velcro will be permitted. The interior and exterior areas of the helmet must be free of defects (i.e., the padding must be in good condition and the exterior of the helmet must not be damaged). Helmets must be worn at all times during Special stages. NORRA encourages the use of helmets during transit sections. NORRA encourages the use of head and neck restraint systems.

1.2 Protective Clothing

One-piece SFI 3-2A/1 (or greater) certified fire suits are mandatory for all vehicle categories (including prunner categories) and must be worn during all Special stages. Two-piece suits are not permitted. The suits must cover from the neck to the ankles and to the wrists. The suits must not have any holes, rips, and tears or be worn thin. The suits must also be free from any petroleum-based contaminants. All suits must be made from fire-resistant material with the manufacturer's fire resistant rating label attached. A minimum of a two-layer fire suit, fire resistant gloves and footwear are very highly recommended.

1.3 Eye Protection

Shatter resistant eye protection is required for all entrants.

1.4 First Aid Kit

A weatherproof first aid kit must be carried in each vehicle at all times and must contain at least the following items:

2	4" Bandage Compress	2	2" Bandage Compress
1	Triangular Bandage	8	2" x 3" Adhesive Bandages
4	1" x 3.375" Adhesive Bandages	4	Antiseptic (Methylate, etc.)
1	Eye Dressing Packet	1	Ace Bandage

The first aid kit must be easily accessible within the occupant's area without having to remove any body panels or equipment.

1.5 Emergency Warning Devices

Four wheel vehicles are required to carry at least two fifteen minute flares for emergency signaling or warning.

1.6 Horns

All vehicles must have a horn that is audible from a distance of 100 feet in front of the vehicle. Sirens are permitted during Special stages but are not to be used on the highway nor during transit sections.

1.7 Reflector

All 4-wheel vehicles must have two red reflectors of at least 2" diameter each or two 2-inch round red reflectors (DOT stock taillight lenses satisfy this requirement) attached to the rearmost portion of vehicle at each corner. The reflective tape or reflectors must be clearly visible from the rear. LED lights are non-reflective and do not meet this requirement.

1.8 Fire Extinguisher

Each 4-wheel vehicle must carry a portable UL approved 2.5-lb. ABC-class dry chemical type fire extinguisher. Halon type fire extinguishers do not meet this requirement as Halon is readily dispersed in wind. The fire extinguisher must have a capacity gauge, be fully charged, and readily accessible. An on-board fire suppression system (with discharge nozzles in the passenger compartment, the engine compartment and the fuel storage area) is highly recommended in addition to the portable fire extinguisher.

1.9 Survival Supplies

All vehicles must carry at least one day of survival supplies and one quart of water per occupant or rider. It is highly recommended that additional water be carried for each occupant during the hotter months.

1.10 Identification Markers

All vehicles will be required to display a 12x16" decal, to be provided by NORRA, on each side of the vehicle below the window net area. This decal will indicate the Era and Class. The competitor must provide 6" tall BLACK entry numbers to affix over the top of this decal. Additionally each vehicle must display the entry number on the front and rear of the vehicle in 4" tall numbers, and on the roof with 10" tall numbers. The numbers must be of a contrasting color from the background color.

2 Safety Equipment for all Motorcycle and ATV Riders

2.1 Helmets

Helmets must be full face and approved by one of the following; Snell M2015 / SA2015 / M2010 / SA2010 / ECE 22.05 (the sticker must be attached). Straps must have D-ring fasteners only. No snaps or Velcro will be permitted. The interior and exterior areas of the helmet must be free of defects (i.e., the padding must be in good condition and the exterior of the helmet must not be damaged). Helmets must be worn at all times during both Special stages and during transit sections.

2.2 Boots

Entries must wear motorcycle boots.

2.3 Eye Protection

Shatter resistant eye protection is required for all entrants.

2.4 Reflector

A minimum of one red reflector of at least 2" diameter each or one 2-inch round red reflectors (DOT stock taillight lenses satisfy this requirement) attached to the rearmost portion of vehicle at each corner. The reflective tape or reflectors must be clearly visible from the rear. LED lights are non-reflective and do not meet this requirement.

2.5 Survival Supplies

All vehicles must carry at least one day of survival supplies and one quart of water per occupant or rider. It is highly recommended that additional water be carried for each occupant during the hotter months.

2.6 Identification Markers

All motorcycles and ATVs must have identification numbers in the following locations and sizes:

- Sides: minimum 6 inches high centered on the side of vehicle and plainly visible.
- Front: minimum 4 inches high and plainly visible from the front of the vehicle.

3 Vehicle Rules for all Eras of Cars, Trucks, SUVs, UTVs and all Motorcycles and ATVs

3.1 Workmanship

All construction, modifications and alterations must be performed in a workmanlike manner and meet with the rules, regulations and approval of NORRA.

3.2 Radio Equipment

All competitors should carry a VHF radio able to transmit and receive on the official NORRA frequency, 151.625MHz. Any radio equipment is strictly prohibited from interfering with or disrupting event communications on all frequencies allotted to the amateur radio band, public service band, marine band and aircraft band as permitted by FCC rules. NORRA uses the 151.625 MHz frequency, commonly known as Weatherman. Outboard linear amplifiers with an output over 25watts are prohibited. An outboard linear amplifier is a device that boosts the power of the radio and is connected between the radio and antenna. Included in this rule is SEC8 in its entirety.

3.3 GPS Time/Position Recorders

All vehicles in competition shall have a GPS time and position recorder if mandated by NORRA. The time and position recorder shall be installed on the vehicle by NORRA or their designee. This recorder may not be relocated, tampered with or altered without prior approval of a NORRA official. Violation of this can be penalized by disqualification. This GPS time/position recorder may be used by NORRA for timing and scoring.

3.4 Navigation

NORRA routes are not physically marked. The course details are not released until shortly before the event so that competitors do not have the opportunity to “pre-run” the exact course. A route book is provided in addition to a GPS trail in both Lowrance and Garmin format. It is the competitor’s responsibility to successfully navigate such that they follow the route and avoid penalties for non-compliance. GPS navigation equipment is not allowed in some categories, see category details for specifics.

3.5 Vehicle Refueling

All vehicles may only be refueled with vented fuel cans or with gravity fed fuel towers, or with pressurized systems not to exceed 2psi. Refueling equipment must be at least 20’ from the course. All towers must have a spring loaded dead man valve to automatically close the line when the handle is released. The hose must have a break-a-way feature in the event the vehicle departs with the hose still attached. NORRA reserves the right to disallow any fueling system deemed unsafe. Refueling may only be performed with the vehicle stationary.

3.6 Lights

All vehicles will be travelling on public highways and may finish after dark. All vehicles must have forward facing headlight(s), rear facing red tail light(s), and rear facing red brake light(s). Motos / ATV’s must have one of each, Cars, Trucks, SUV’s, UTV’s must have two of each. Motos / ATVs may be except from the brake light if the vehicles was not equipped with one, however NORRA suggests brake lights be added to all Motos / ATV’s for safety.

4 Vehicle Rules for all Eras of Cars, Trucks, SUVs, UTVs

4.1 Suspension Components

4.1.1 Shock Absorbers

There must be at least one shock absorber per wheel in working condition at the start of the event. External reservoirs are permitted in any era unless prohibited by specific class rules.. Water cooled shocks are permitted in any era unless prohibited by specific class rules.

4.1.2 Wheels and Tires

Snap-on hubcaps or Snap-on wheel covers of any type are not permitted. Tires will be visually checked for condition and must be considered reasonably safe by NORRA prior to competing.

4.1.3 Fasteners

It is recommended that all component parts on the vehicle's suspension system, chassis and running gear be secured with S.A.E. Grade 8 or better nuts and bolts. It is further recommended that bolts be secured with either lock nuts, lock washers, cotter pins or safety wire and have at least one full thread showing through the nut.

4.2 Hoses

All fuel and brake line hoses including metal lines and fittings must be clamped and/or safety wired.

4.3 Steering and Brake Components

4.3.1 Steering

All steering components must be in good condition and in proper working order. If OEM drag link and tie rod ends are used, they must be secured with a cotter pin in each one.

4.3.2 Brakes

Brakes must be in a safe working condition and be able to apply adequate force to lock up all tires. Brakes must be in a safe operating condition during the entire event. If brake system problems do occur during the event they must be repaired before continuing in competition.

4.4 Electrical System

4.4.1 Ignition

Each vehicle must have a positive action on/off switch in good working order. The switch must be labeled "ignition" on/off and be located within easy reach of the driver and from the outside of vehicle. All electric fuel pumps with independent switches must be labeled —fuel on/off and be within easy reach of driver and from outside of vehicle. It is highly recommended that electric fuel pumps not be independently switched. OEM keyed ignition switches are acceptable.

4.4.2 Batteries

Batteries must be securely mounted with metal-to-metal tie downs. If flooded cell batteries are located in the passenger compartment of 4 wheel vehicles, they must be fully enclosed including the sides and bottom. Enclosure must be able to contain the quantity of acid contained in the battery if inverted and be designed to prevent spillage. For 4 wheel vehicles, batteries will be considered as being in the driver's compartment if there is no firewall between the battery and the driver.

4.4.3 Lights

All 4-wheel vehicles must have a minimum of two (2) headlights, two (2) tail lights, two (2) brake lights, and one rear facing amber light. Unless the stock location is used on production based vehicles, the tail/brake lights must be at least 36" above the ground. The brake lights must be at least 3" diameter or 7 sq in unless OEM brake lights are used on production based vehicles. The rear facing amber light must be wired to the ignition or battery such that it cannot be switched off while the ignition is on and must be mounted at least 48" from the ground. Vehicles may not be allowed to start a Special stage unless the amber light is operational. NORRA suggests a second amber light be installed as a spare and that the amber lights be positioned such that they are protected from damage in the event of a roll over.

All bike and quad entries must have one (1) headlight and one (1) taillight. The taillight must be on and operational at all times. The entry may not be allowed to start a Special stage unless the taillight is operational.

4.4.4 Starter

All cars and trucks must be self-starting by use of an onboard electric starter.

4.5 Vehicle Safety Equipment

4.5.1 Roll Cages

NORRA believes that it is each competitor's responsibility to present a safe vehicle for pre-event tech inspection. You must maintain your safety equipment including the roll cage integrity. NORRA reserves the right to not allow any safety cage design that, in the view of the tech inspector, is not fit for competition. You, as the competitor, are ultimately responsible for your own vehicle's safety features with respect to the design, quality of execution, maintenance and repair of the roll cage structure.

NORRA welcomes participation of vintage vehicles of all ages and will accept roll cage designs and tubing sizes that were used in the vehicle as it was built for, and used in, previous competition.

The remainder of this section represents NORRA recommended best practices for new vehicle construction:

All vehicles in competition are recommended to be equipped with a roll cage based on seamless mild steel/4130 chrome molly steel tubing. Minimum recommended design and tubing size for roll cage structure is in accordance with the following table:

Vehicle Weight

Under 2000 lbs.	1.5" x .095"
2001 to 2500 lbs.	1.5" x .120"
2501 to 3000 lbs.	1.75" x .095"
3001 to 4000 lbs	1.75" x .120"
4001 pounds and over	2.0" x .120"

Note: See manufacturer's reference charts for alloy steel tubing equivalent strengths. No aluminum or other non-ferrous materials are permitted.

MATERIAL

Roll cage construction material may be crew, dom, whr, wcr mild carbon steel or 4130 chromoly. 4130 chromoly is highly recommended for all roll cage construction. Stress relieve all welded intersections by flame annealing. All welds must be of high quality and craftsmanship with good penetration and with no undercutting of parent material. Oxy-acetylene brazing on roll cage is strictly forbidden.

ROLLCAGE DESIGN

NORRA recommends all roll cages be designed and constructed with one front vertical hoop, one rear vertical hoop, two interconnecting top bars, two rear down braces, one diagonal brace and all necessary gussets. The two top interconnecting bars must be placed as far to the outside of the top part of the front and rear hoops as possible. Rear down braces and diagonal brace should angle a minimum of 30 degrees from vertical. At the bottom of the diagonal brace there should be a cross member of the same tubing material and dimensions as the hoop. All roll cage components (hoops, braces, gussets, etc.) should have a minimum of 3-inch clearance from the component to the vehicle occupant's helmets when occupants are seated in their normal riding positions. All portions of the roll bar or bracing that might come into contact with the vehicle occupant's helmets should be padded. Roll cages should be securely mounted to the frame or body. All intersecting points should be gusseted and braced. Cab or body mounted roll cages should be bolted through the body structure and be attached by use of a minimum two 0.1875-inch thick doubler plates (one on each side of body structure). Bolts and nuts must be at least 0.375-inch-diameter S.A.E. Grade 8 or equivalent aircraft quality. Welding of cab or body mounted roll cages to body structure is strongly discouraged. Roll cage terminal ends should be attached to a frame or body member that will support maximum impact and not shear or allow more than 1.5 inches of movement in the cage terminal end.

All vehicles including those with stock steel doors should have at least one side bar on each side of vehicle that will protect occupants from side impact. The side bars should be of the same tubing material and dimensions as the rest of the roll cage. The side bars should be as close to parallel to the ground as possible, be located to provide maximum protection to the occupants, and be securely welded to the front and rear hoops. The location of the sidebars should not cause difficulty in entering or exiting the vehicle. Gussets constructed of 0.125-inch x 3-inch x 3-inch flat-plate or split, formed and welded corner tubing, or tubing-gussets made of the same material and thickness as the roll cage may be used. Gussets should be installed at all major intersections, including diagonal and rear down braces, where single weld fractures can affect occupants' safety.

4.5.2 Safety Harness

All vehicles must have a heavy-duty type five-point fast release latch (no push button type) seat belt, anti-submarine strap and shoulder straps with metal-to-metal buckles and connectors for each occupant.

The five-point harness system shall be SFI 16.1 certified and consist of one 2-inch wide anti-submarine strap, one 3-inch wide seat belt and two 3-inch wide shoulder straps (no "y" type shoulder belts permitted). UTV categories are permitted to use SFI 16.1 certified 2-inch wide lap and 2-inch wide shoulder harnesses. All vehicles are alternatively permitted to use SFI 16.5 certified 2-inch wide lap and 2-inch wide shoulder harnesses.

Harness material shall be made of nylon or Dacron polyester. Harness must be in new or perfect condition with no cuts, frayed layers, chemical stains, or excessive dirt and must be in flexible condition (i.e. material must not be rigid). All harnesses must show the manufacturer's name and the month and year of manufacture. For 2017, all belts must be no more than five (5) years old from the date of manufacture. Note this will be changed to three (3) years starting in 2018. No portion of the harness may be altered in any fashion from the manufacturer's standard design. No surplus safety harnesses are permitted.

Where "D" rings are used they must be doubled up, for example, two "D" rings per shoulder strap. The five-point harness must be mounted to the main structure members of the same size and dimension as the roll cage and be gusseted. The structure members must be in the following locations. The anti-submarine belt must mount to the floor structure as close to the front of the seat as practical in order to exert maximum restraint to the upward movement of the seat belt and shoulder straps. Shoulder straps must be mounted behind the occupants seats and be located a minimum of 4 inches below the top of the occupants shoulders. Seat belt should be mounted a minimum of 2.5 inches forward of the intersection of the back of the seat and the sitting portion of the seat. All adjustment buckles must be a minimum distance of 1.5 inches from the seat to prevent loosening or chafing. Mounting hardware must be a minimum of 0.312-inch Grade 8 bolts with a 1.5-inch diameter flat washer attached through the body or frame using lock nuts or cotter keys. All harness hardware must be safety tied.

4.5.3 Safety Nets

Safety nets are mandatory on all vehicles including the prerunner categories and must cover the complete open area of the cockpit on both sides of the vehicle. Nets must be installed on the inside of the roll cage to prevent them from being damaged or coming off in the event of a roll over or slide on the side. Nets attached to doorframes are permitted as long as door has a positive secondary latching device. Nets must be installed so that the occupants can release the netting unassisted and exit the vehicle regardless of the position of the vehicle.

The net border or edge and the net attachment must be made of materials that are as strong, or stronger than the net itself. Net attachments must be every 6 inches. Acceptable attachments are not limited to the following: hose clamps, snaps, heavy-duty nylon ties, lift-a-dot, metal hooks and steel rods.

The roof must be covered with sheet metal or aluminum. The occupants of all vehicles must be protected during a roll over in such a manner that prevents them from extending from the body or frame of vehicle.

4.5.4 Seating

A recognized manufacturer that specializes in seats for racing applications must make all seats. No stock production seats are allowed. All seats must be securely mounted to frame of vehicle and be properly reinforced in such a manner as to keep seat from moving in relationship to the frame. Adjustable track type seats must be securely mounted as to allow no lateral or vertical movement. Stock VW-type seat runners must be clamped to the floor with a minimum of two 0.375-inch diameter U-bolts per rail and have 1-inch minimum diameter flat washers on the underside. Head and neck restraints designed and installed to prevent whiplash are mandatory on all 4 wheel vehicles. Restraints must be a headrest constructed of at least 2-inch thick resilient padding and be approximately 36 square inches in area. All portions of the roll bar or bracing that might come into contact with the vehicle occupant's helmets must be padded.

Vintage cars that competed with NORRA prior to 1973 may use the original seating at the discretion of NORRA.

4.6 Fuel System

4.6.1 Fuel

Any of the following commercially available fuels may be used:

- a) Service station pump gasoline (including Ethanol up to E100)
- b) Racing gasoline as manufactured
- c) Commercial aviation gas
- d) Diesel fuel (including Bio-diesel up to B100)
- e) Propane or natural gas.

Oxygen bearing fuels including alcohol and nitro-methane are prohibited, except for those originally present in service station pump fuel and as mentioned above. Commercially produced nationally advertised fuel additives may be used.

4.6.2 Fuel Tanks

Safety fuel cells are required for all vehicles except as noted below. Auxiliary fuel tanks may be added. Auxiliary fuel tanks must be safety fuel cells. All fuel tanks must be securely mounted. Fuel tank must be filled from and vented to the outside of the vehicle. There must be a substantial cross member and firewall between the fuel tank and the occupants. No GI-cans or fuel containers similar in construction or purpose will be permitted in or on any vehicle during the event.

Safety fuel cells shall consist of a bladder enclosed in a smooth skinned container. The container shall be constructed of 20ga. steel, 0.060-inch aluminum or 0.125-inch marlex. Magnesium is strictly prohibited. Container must be securely attached to vehicles with bolts or steel straps. All fittings must be built into the skin and bonded to the skin as an integral part of the tank or mechanically sealed by a ring and counter ring system by either flat joint or an "O" ring. Internal baffling is mandatory in all fuel cells. Bladder construction shall be of nylon or Dacron woven fabric impregnated and coated with a fuel resistant elastomer. Rotary molded polymer cells are acceptable. The minimum standards for the physical properties are in accordance with the following table:

Test Type	Minimum Standard	Test Specification
Tensile Strength	450 lbs.	Spec CCC-T-1916 Method 5102
Tear Strength	50 lbs.	Spec CC-T-1916 Method 5134
Puncture Test	175 lbs.	Spec MIL-T-6396 Article 4.5.17

These physical properties must be maintained throughout all areas of the finished bladder including seams, joints and fittings.

Vintage cars that competed in NORRA prior to 1973 without a fuel cell shall be allowed to use the same original fuel tank, at the discretion of NORRA, provided they are presently equipped with rollover valves in both the filler and vent. The fuel tank must have a skid plate if located under the chassis and be separated from the passenger compartment by a sealed firewall.

Vehicles in the prerunner truck category or in any of the rally categories, may use an OEM or metal fuel tank if mounted in the original (OEM) location outside of the passenger compartment. Such tanks must have a separate skid plate and must not encroach into the passenger compartment. If the fuel tank encroaches into the passenger compartment then the above rules shall be in effect regarding safety fuel cell construction, firewall, and roll over valves. A tank that is cut into the floor of the passenger compartment shall be considered outside the passenger compartment if the floor is modified such that the tank is still sealed from the passenger compartment. OEM or metal tanks used in the prerunner truck category or in the rally categories must be fitted with rollover valves in the fuel filler such that fuel cannot readily flow out of the tank if the vehicle is upside down or on its side.

4.6.3 Fuel Filler, Vents, and Caps

Fuel filler lines and caps must be located and secured in such a manner as to prevent being knocked off or open during movement, rollover or accidental impact. Design and installation must be in such a manner to prevent fuel escaping from pickups, lines, fillers and breather vents if vehicle is partially or totally inverted. Fuel breather lines must have a rollover check valve incorporated into the fuel cell.

The vent line must extend at least 4 inches above the fuel cell, be routed to one side at least 3 inches beyond the fuel cell then wrapped back to the other side of the fuel cell and down to below the belly pan of the vehicle or 3 inches below the fuel cell, whichever is lower. The objective is to route the vent line such that fuel cannot readily flow out the breather if the vehicle is on its side or upside down.

All fuel fillers attached to the frame or body panel must use a flexible coupling to the tank. All fuel fillers must be surrounded by a boot or splashguard (body panel is acceptable as a splashguard if sealed). Boot or splashguard must direct fuel spillage to outside of vehicle and away from driver's compartment, engine and exhaust. A fuel filler rollover-check-valve must be incorporated into all fuel cells.

4.7 General Vehicle Components

4.7.1 Throttles

Every carbureted vehicle with a foot throttle must have two return springs, with a minimum of a 2-lb. pull, attached to the carburetor. Vehicles using OEM fuel injection or computer controlled throttles are exempt from this requirement. A stop or override system must be used to keep linkage from passing over center and sticking in an open position.

A hand throttle may be used if physical limitations necessitate use of such device. The hand throttle must follow the same guidelines as a foot throttle and must be deemed safe by NORRA.

4.7.2 Exhaust

Exhaust system design and installation must be done in such a manner as to extend past the rear of the driver's compartment, be directed rearward out of the body and away from the driver and co-driver, fuel cells and tires.

4.7.3 Driveshafts

All front engine vehicles with open driveshafts must have a 0.25-inch x 2-inch steel strap or a 2-inch wide heavy nylon webbed retainer hoop. Hoop or strap must be securely mounted to a body or frame member and must be located within the first 6 inches of the main driveline behind the slip yolk or universal joint. Hoop or strap must be fabricated and located in such a manner that it will reasonably prevent the front of the driveshaft from digging into the ground when the rear suspension is fully compressed to the upper limit of wheel travel. The loop must be as short as possible to prevent severe "whipping" of the driveshaft. A plate that extends down from the frame or body to shorten the strap is advisable.

4.7.4 Fluid Coolers

Oil coolers, transmission coolers and radiators located ahead of the driver and co-driver or in the passenger compartment must have a shroud that will prevent liquids from blowing back or leaking onto the driver and/or co-driver in the event of a rupture or leakage. All hoses running through the passenger compartment must be shielded. Steel braided hoses do not constitute a shield.

4.7.5 Auxiliary Equipment

All vehicles must start event with a functional generator or alternator, fan, water pump (water cooled vehicles) and a complete functional electrical system.

4.7.6 Driver's Compartment

The vehicle occupants must be able to enter and exit, unassisted and with ease, the driving compartment with the vehicle in any position. Firewalls and/or bulkheads must separate the driving compartment from any fuels, engine fluids and acids.

4.7.7 Doors and Latches

All vehicles with operational doors must have positive locking mechanisms and must have a secondary latching device.

4.7.8 Firewalls

All vehicles must have an all-metal firewall separating the driver's compartment from the danger of fire from the engine and fuel supplies. A minimum firewall must be liquid tight and extend from the driver's shoulder height to the vehicle floor and from body side to body side. If rear mounted fuel cell is higher than drivers shoulder height, the firewall must extend at least 2 inches above the top of the fuel cell. The hood is considered an extension of the firewall on front engine vehicles. Any hole placed in the firewall for structure members, lines, etc. must be kept to a minimum. The hole should not have more than 0.0625-inch gap around the items passing through the firewall. Metallic tape must be used to seal the hole between the firewall and the item passing through the firewall.

4.7.9 Floorboards

Floorboards or belly pans are required on all vehicles and must be attached by a minimum of six 0.25-inch bolts (Dzus fasteners are not permitted) per side if not an integral part of the body or chassis. Floorboards must cover the entire area from in front of the pedal assembly to behind the seats and from outside edge to outside edge on each side. Floorboards in the front must extend up in front of the pedal assembly. Installation must be done in such a manner as to afford maximum protection to the occupants from debris.

4.7.10 Bumpers

No hazardous front or rear bumpers, nerf bars, frame heads or other protruding objects from vehicles are permitted. Ends must be capped and rounded to prevent any sharp edges. Bumpers and protective bars must be designed in a way as to reasonably inhibit two vehicles from becoming locked together. A safe front and rear bumper is required on all vehicles.

4.7.11 Mirrors

A rear view mirror is required on all vehicles. Mirrors must have at least 6 square inches of mirror surface. Mirror must have a reasonably unobstructed view of area behind vehicle.

4.7.12 Skid Plates

Skid plates designed to reasonably protect the front suspension, steering and brake components are recommended on all vehicles. Skid plate must be made of metal and be securely attached.

4.7.13 Storage

All spare parts and extra equipment carried on a vehicle must be securely fastened to prevent movement during competition. All spare parts and extra equipment must be carried in such a manner as to reduce the risk of injury to the occupants.

4.7.14 Chassis and Body

All body parts mandated by category rules must remain on the vehicle (accidental damage excluded) during the entire length of event. The categorization of vehicles is based upon the chassis, not the body. For example a buggy chassis (tube frame transaxle mid/rear engine) will not be allowed in a truck category just because it has a truck body on it.

4.7.15 Fenders

Fenders must be securely attached to vehicle on all categories requiring fenders.

4.8 Engine, Transmission, and Drivelines

4.8.1 Engine Displacement

Where applicable, engine displacement must adhere to category rules. Engine displacement may be checked by NORRA. Unless otherwise specified in the category rules, engines may be of any manufacture and any number of cylinders. This includes categories for production based vehicles.

4.8.2 Fuel Delivery

Fuel delivery method (carburetion or fuel injection) is open unless otherwise specified in the category rules.

4.8.3 Transmission

Every vehicle must have a functional reverse gear. Vehicles in categories requiring four-wheel drive must be capable of being driven through all wheels.

4.8.4 Turbochargers and Superchargers

Superchargers and Turbochargers are not permitted on any gasoline-powered vehicles except as allowed in category specific rules. Within this document, the word "turbochargers" shall be used generically to indicate any forced induction mechanism, whether it is a turbocharger or supercharger.

5 Vehicle Rules for All Motorcycles and ATV

5.1.1 Brakes

Brakes must be in a safe working condition and be able to apply adequate force to lock up all tires. Brakes must be in a safe operating condition during the entire event. If brake system problems do occur during the event they must be repaired before continuing in competition. NORRA recommends the brakes be equipped with a rear facing red brake light to warn others that the vehicle is slowing.

5.2 Electrical System

5.2.1 Ignition

Each vehicle must have a positive action on/off switch in good working order. The switch must be labeled "ignition" on/off and be located within easy reach of the driver and from the outside of vehicle. All electric fuel pumps with independent switches must be labeled —fuel on/off and be within easy reach of driver and from outside of vehicle. It is highly recommended that electric fuel pumps not be independently switched. OEM keyed ignition switches are acceptable.

5.2.2 Batteries

Batteries must be securely mounted with metal-to-metal tie downs. Enclosure must be able to contain the quantity of acid contained in the battery if inverted and be designed to prevent spillage.

5.3 Fuel System

5.3.1 Fuel

Any of the following commercially available fuels may be used:

- a) Service station pump gasoline (including Ethanol up to E100)
- b) Racing gasoline as manufactured
- c) Commercial aviation gas
- d) Diesel fuel (including Bio-diesel up to B100)
- e) Propane or natural gas.

Oxygen bearing fuels including alcohol and nitro-methane are prohibited, except for those originally present in service station pump fuel and as mentioned above. Commercially produced nationally advertised fuel additives may be used.

5.3.2 Fuel Tanks

Auxiliary fuel tanks may be added. All fuel tanks must be securely mounted to the bike / atv.

5.3.3 Engine Displacement

Where applicable, engine displacement must adhere to category rules. Engine displacement may be checked by NORRA. Unless otherwise specified in the category rules, engines may be of any manufacture and any number of cylinders.

5.4 Body

5.4.1 Hoses

All fuel and brake line hoses including metal lines and fittings must be clamped and/or safety wired.

5.4.2 Seating

All seats must be securely mounted to frame of vehicle and be properly reinforced in such a manner as to keep seat from moving in relationship to the frame.

5.4.3 Storage

All spare parts and extra equipment carried on a vehicle must be securely fastened to prevent movement during competition. All spare parts and extra equipment must be carried in such a manner as to reduce the risk of injury to the occupants.

5.4.4 Fenders

Fenders must be securely attached to vehicle on all categories requiring fenders.

6 Technology Eras for Cars, Trucks, SUVs, and UTVs

NORRA has introduced the concept of "Technology Eras". An Overall Trophy will be awarded for the lowest overall time in each Era. The Eras are *roughly* defined by the technology that was available in that era, rather than by specific build dates. The Era technology restrictions are primarily focused upon chassis, suspension, and transmission technology. Era specific engine technology restrictions are in place in some classes and may be implemented in additional classes in the future.

The NORRA Eras are:

- **Pioneer Era (1967 - 1975)**
 - Characterized by early Burros and original Stoppes
 - 2" shocks, 33" max tire size, swing axle buggies (35" tire for trucks)
- **Legend Era (1976 - 1982)**
 - Characterized by early open class IRS buggies and stock trucks
 - 2" shocks, 33" max tires (35" tire for trucks)
- **Challenger Era (1983 – 1988)**
 - Type 4 & early Porsche 6 cylinder buggies and quarter elliptic trucks
 - 2.5" shocks, 35" max tires
- **Vintage Era (1989 – 1997, rolling 20 years old)**
 - Big engine buggies, racing transaxles, linked production based trucks
 - Big modern shocks allowed, 37" max tires
- **Historic Era (20+ year old tube frame trucks and truggys)**
 - A new era in pure tube frame unlimited trucks and truggys
 - Unlimited class for 20+ year old machines
- **Evolution Era (Modern machines)**
 - Multiple classes of modern racing machines
 - Pro Unlimited class, race for cash

6.1 The Exception Rule

For all Eras and Classes, an exception may be made for authentic vehicles that can document they had technology which these rules ban from a given Era. Examples would include Big Oly which was essentially a Trophy Truck in 1970, or cars that ran Micky Thompson 36" tires as early as 1976. Exceptions will not be made for Tribute builds nor for undocumented vehicles. (Tribute builds must follow these technology limits). Exception requests must be sent via email, with documentation attached, to info@norra.com no later than 90 days before the event to be considered for a waiver.

➤ First came the Pioneers, creating the sport of desert racing...

6.2 PIONEER Era (1967 - 1975)

- Pioneer Buggy class
 - VW Type 1 engines only (any displacement)
 - VW Swing axle transaxles only
 - Stock VW front / rear suspension
 - 100" max wheelbase
 - 33" max tire diameter
 - 2" max shock diameter, no coilovers, no bypasses
- Pioneer VW Bug class
 - VW Bug conforming to Pioneer Era limitations
- Pioneer Truck class
 - Body style must have existed in this Era
 - Stock chassis, stock suspension
 - 35" max tire diameter
 - 2" max shock diameter, no coilovers, no bypasses
- Pioneer 4x4 class
 - Body style must have existed in this Era
 - Stock chassis, stock suspension, solid axle 4wd
 - 35" max tire diameter
 - 2" max shock diameter, no coilovers, no bypasses

Pioneer Era Categories (racing for Pioneer O/A)	Prior class name (although with new rules)
Pioneer Buggies	Swing axle buggy class (VBSW)
Pioneer Bugs	Swing axle VW bug meeting Pioneer limits
Pioneer Trucks	Some vehicles from VOTRL or VOTRL45
Pioneer 4x4s	Some vehicles from V108-77 or VOT4x4

➤ The Pioneers became Legends...

6.3 LEGEND Era (1976 - 1982)

- Legend Buggy class
 - VW Type 1 engines only (any displacement)
 - VW IRS transaxles allowed (091, 002, swingers)
 - Beam fronts with arms no more than 2.5" over stock length
 - Rear arms no more than 3x3
 - 110" max wheelbase
 - 33" max tire diameter
 - 2" max shock diameter, no coilovers, no bypasses
- Legend VW Bug class
 - VW Bug conforming to Legend Era limitations
- Legend Truck class
 - Body style must have existed in this Era
 - Stock chassis, stock concept suspension
 - 35" max tire diameter
 - 2" max shock diameter, no coilovers, no bypasses
- Legend 4x4 class
 - Body style must have existed in this Era
 - Stock chassis, stock concept suspension, solid axle 4wd
 - 35" max tire diameter
 - 2" max shock diameter, no coilovers, no bypasses

Legend Era Categories (racing for Legend O/A)	Prior class name (although with new rules)
Legend Buggies	VOB22
Legend Bugs	VW Bug meeting Legend era restrictions
Legend Trucks	Some vehicles from VOTRL or VOTRL45
Legend 4x4s	Some vehicles from V108-77 or VOT4x4

➤ The Challengers stepped up to take on the Legends...

6.4 CHALLENGER Era (1983 - 1988)

- Challenger Buggy class
 - 3.5L max air cooled, 2.5L max water cooled
 - Non-production buggy chassis
 - Any transaxle but non-sequential
 - Front beams of unlimited dimensions, no a-arms
 - Rear IRS, no solid axle
 - 35" max tire diameter
 - 2.5" max shock diameter, coilovers ok but still no bypasses
- Challenger Bug class
 - VW Bug conforming to Challenger Era limitations, 3.0L type 4, 2.5L VW H2O
- Challenger Truck class
 - Body style must have existed in this Era
 - Stock chassis, stock concept suspension, quarter elliptics ok
 - 35" max tire diameter
 - 2.5" max shock diameter, front coilovers ok but still no bypasses
- Challenger 4x4 class
 - Body style must have existed in this Era
 - Stock chassis, stock concept suspension, quarter elliptics ok, solid axle 4wd
 - 35" max tire diameter
 - 2.5" max shock diameter, front coilovers ok but still no bypasses

Challenger Era Categories (racing for Challenger O/A)	Prior class name (although w/ new rules)
Challenger Buggies	VOB30 (unless big shocks)
Challenger Bugs	VW Bug meeting Challenger restrictions
Challenger Trucks	Some vehicles from VOTRL or VOTRL45
Challenger 4x4s	Some vehicles from V108-77 or VOT4x4

➤ The Challengers evolved to become Vintage...

6.5 VINTAGE Era (1989 – 20 years old)

- Vintage Open Buggy classes, must be at least 20 years old
 - Big Engines
 - Sequential transaxles
 - Beams ONLY unless car is documented to have had them 20 years ago
 - Tribute or new builds must have beams, no A-arm tribute cars
 - Rear IRS, no solid axle (Solid rear axle buggies belong in the Historic Class)
 - 37" max tire diameter
 - Big modern shocks

- Vintage Truck classes, must be built from 20+ year old production truck
 - Body style must have existed in this Era
 - Production based modified chassis, stock concept suspension, linked w/coilovers
 - No pure tube frame trucks (those belong in the Historic Class)
 - 37" max tire diameter
 - Big Modern shocks

- Vintage Limited Air Cooled VW powered classes
 - Common modern rule packages for VW powered buggies and VW's
 - These classes have changed very little over the last 20 years so newer builds are permitted in these vintage classes as long as they conform to the class limitations

Vintage Era Categories (racing for Vintage O/A)	Prior class name (although w/ new rules)
Vintage Open Buggies	VOB (can be Buggy or Bug chassis)
Vintage 6-Cylinder Buggies	VOB45 (now 4.5L 6-cyl class)
Vintage 4-Cylinder Buggies	VOB45 (now 2.5L 4-cyl class)
Vintage Open Trucks	VOT
Vintage 6-Cylinder Trucks	VOT45 (now 4.5L 6-cyl class)
Vintage 4-Cylinder Trucks	VOT45 (now 2.5L 4-cyl class)
Vintage Open Truck, Rear Leafs	VOTRL w/ big shocks & 37" tires
Vintage Open Truck w/4x4	VOT4x4 w/ big shocks & 37" tires, ifs 4wd ok
Vintage Short Wheelbase 4x4	V108-77 & V108, solid front axle 4wd, 108" wb
Vintage Military Vehicle	New class
Vintage Production Cars	VPS
Vintage Class 12	Class 12
Vintage Class 5	Class 5 open cooled or 2.5L H2O cooled
Vintage Class 5-1600	Class 5-1600
Vintage Class ½-1600	Class ½-1600
Vintage Class 9	Class 9
Vintage Class 11	Class 11

➤ **The Historic Era ushered in the tube frame unlimited vehicles...**

6.6 HISTORIC Era (Must be at least 20 years old)

- Historic Truck and Tuggy class
 - Unlimited class for vehicles at least 20 years old

Historic Era Categories (racing for Historic O/A)	Prior class name (although w/ new rules)
Historic Truck and Truggy	HTT

➤ And now we find ourselves in the modern Evolution Era...

6.7 Evolution Era (modern race cars)

- Multiple modern categories for any modern racecar or prerunner that meets safety rules.
- VW powered classes are in the Vintage Era even if built more recent

Evolution Era Categories (racing for Evolution O/A)
Unlimited
Rally Raid AWD
Rally Raid 2WD
Rally Raid Production
Modified UTV
Stock UTV
Class 10
Heavy Metal (8, 6100, TT spec, PT, 1450, 6, 7200, 3)
Class 7100
Ultra 4x4
Trophy Lite
Meyers Manx
Modern Military Vehicles
Prerun Trucks (must have doors)
Prerun Buggies (must have back seat)
RV (Recreational Vehicles)

7 Motorcycle and ATV Categories

Motorcycles and ATV's are classified as follows. See specific category rules for details.

Note: As of 2016 NORRA classifies UTV's as cars since occupants are belted inside a cage. When separate routes and schedules are used to separate cars and bikes, the UTV's will run with the cars.

Motorcycle & ATV Categories

Name	Max CC	Max Year
Modern Open		
Modern Lites	250cc 2s / 400cc 4s	
Vintage Open		1993
Vintage Lites	250cc 2s / 400cc 4s	1993
Super Vintage		1984
Classic British Thumpers		1976
2 Strokes Only		
50+ (aka Vintage Dudes)	All riders 50+	
ATV (quads (no side-by-side)		
ATC (3-wheelers)		
Motos w/ side cars		

8 Pioneer Categories (1967 - 1975)

8.1 Pioneer Buggies

The spirit of this category is to provide a home for non-production based Buggies that raced in the 1967-1975 era.

Engines can only be VW Type 1 but can be built to any size.

Transaxles must be VW swing axle type.

The maximum wheelbase is 100", measured at ride height.

Stock front and rear VW suspension pieces are required, ball joint or link pin style is allowed.

The maximum shock diameter is 2" (OD). No coilovers. No bypass shocks (internal or external).

The maximum tire diameter is 33".

Bugs are allowed in this class if they do not meet the Pioneer bug rules but do meet the Pioneer buggy rules.

8.2 Pioneer Bugs

The spirit of this category is to provide a home for VW Beetles that raced in the 1967-1975 era.

Engines can only be VW Type 1 but can be built to any size.

Transaxles must be VW swing axle type.

The maximum wheelbase is 95", measured at ride height.

Stock front and rear VW suspension pieces are required, ball joint or link pin style is allowed however must use what originally came on the car (cannot convert ball joint to link pin and vice versa).

Car must use a stock VW pan from rear bulkhead to front bulkhead.

The maximum shock diameter is 2" (OD). No coilovers. No bypass shocks (internal or external).

The maximum tire diameter is 33".

8.3 Pioneer Trucks

The spirit of this category is to provide a home for production based Trucks that raced in the 1967-1975 era.

The body style must have existed in this era.

The chassis must be stock.

The suspension must be stock including mounting / pivot locations and spring mounting locations.

Spring rate is open but leaf springs and shackles must be stock lengths.

The maximum shock diameter is 2" (OD). No coilovers. No bypass shocks (internal or external).

The maximum tire diameter is 35".

No rear links.

8.4 Pioneer 4x4s

The spirit of this category is to provide a home for production based 4x4 Trucks / SUVs that raced in the 1967-1975 era.

The body style must have existed in this era.

Example: A 1977 Bronco can be legal in this class since its body style was introduced in 1966.

The chassis must be stock.

Must have solid front axle 4 wheel drive.

The suspension must be stock including mounting / pivot locations and spring mounting locations.

Spring rate is open but leaf springs and shackles must be stock lengths.

The maximum shock diameter is 2" (OD). No coilovers. No bypass shocks (internal or external).

The maximum tire diameter is 35".

No rear links.

9 Legend Categories (1976 – 1982)

9.1 Legend Buggies

The spirit of this category is to provide a home for non-production based Buggies that raced in the 1976-1982 era.

Engines can only be VW Type 1 but can be built to any size.

Transaxles must be VW but can be IRS (091, 002, or swinger).

The maximum wheelbase is 110", measured at ride height.

Front suspension must be beam of any width but arms can be no longer than 2.5" longer than stock.

Rear suspension can be no greater than 3x3 over stock.

The maximum shock diameter is 2" (OD). No coilovers. No bypass shocks (internal or external).

The maximum tire diameter is 33".

Bugs are allowed in this class if they do not meet the Legend bug rules but do meet the Legend buggy rules.

9.2 Legend Bugs

The spirit of this category is to provide a home for VW Beetles that raced in the 1976-1982 era.

Engines can only be VW Type 1 but can be built to any size.

Transaxles must be VW but can be IRS (091, 002, or swinger).

The maximum wheelbase is 95", measured at ride height.

Front suspension must be beam of any width but arms can be no longer than 2.5" longer than stock.

Rear suspension can be no greater than 3x3 over stock.

Car must use a stock VW pan from rear bulkhead to front bulkhead.

The maximum shock diameter is 2" (OD). No coilovers. No bypass shocks (internal or external).

The maximum tire diameter is 33".

9.3 Legend Trucks

The spirit of this category is to provide a home for production based Trucks that raced in the 1976-1982 era.

The body style must have existed in this era.

The chassis must be stock.

The suspension must be of stock concept for the chassis.

Leaf springs must be of a semi elliptical design and must have a single fixed pivot (single shackle).

The maximum shock diameter is 2" (OD). No coilovers. No bypass shocks (internal or external).

The maximum tire diameter is 35".

A maximum of 2 rear links are allowed.

9.4 Legend 4x4s

The spirit of this category is to provide a home for production based 4x4 Trucks / SUVs that raced in the 1976-1982 era.

The body style must have existed in this era.

The chassis must be stock.

The suspension must be of stock concept for the chassis.

Must have solid front axle 4 wheel drive.

Leaf springs must be of a semi elliptical design and must have a single fixed pivot (single shackle).

The maximum shock diameter is 2" (OD). No coilovers. No bypass shocks (internal or external).

The maximum tire diameter is 35".

A maximum of 2 rear links are allowed.

10 Challenger Categories (1983 – 1988)

10.1 Challenger Buggies

The spirit of this category is to provide a home for non-production based Buggies that raced in the 1983-1988 era.

Any air cooled engine to a max of 3.5L including type-4 or Porsche 6 cylinder 3.2L based (3.5L allowed so rebuilds may use 3.6L crank), or any make of water cooled 4-cylinder engine to a max of 2.5L.

Any brand or make of non-sequential transaxle, no live axles.

Front suspension must be a beam design.

Rear suspension must be IRS.

The maximum shock diameter is 2.5" (OD). Coilovers are allowed but no bypass shocks (internal or external).

The maximum tire diameter is 35".

10.2 Challenger Bugs

The spirit of this category is to provide a home for VW Beetles that raced in the 1983-1988 era.

Any 4 cylinder air cooled engine to a max of 3.0L, or any VW water cooled 4-cylinder engine to a max of 2.5L.

Non VW water cooled engines are prohibited in this class but may enter Challenger Buggies.

Any brand or make of non-sequential transaxle, no live axles.

Front suspension must be a beam design.

Rear suspension must be IRS.

The maximum shock diameter is 2.5" (OD). Coilovers are allowed but no bypass shocks (internal or external).

The maximum tire diameter is 35".

10.3 Challenger Trucks

The spirit of this category is to provide a home for production based Trucks that raced in the 1983-1988 era.

The body style must have existed in this era.

The chassis must be stock.

The suspension must be of stock concept for the chassis.

Leaf springs can be quarter elliptical or dual shackle, links allowed but no rear coilovers.

The maximum shock diameter is 2.5" (OD). Coilovers allowed on front only. No bypass shocks (internal or external).

Secondary suspension including air shocks are allowed but ride height must not drop more than 1.5" with secondary suspension removed.

The maximum tire diameter is 35".

3 or 4 links are allowed, however spring method must still be leafs.

10.4 Challenger 4x4s

The spirit of this category is to provide a home for production based 4x4 Trucks / SUVs that raced in the 1983-1988 era.

The body style must have existed in this era.

The chassis must be stock.

The suspension must be of stock concept for the chassis.

Must have solid front axle 4 wheel drive.

Leaf springs can be quarter elliptical or dual shackle, links allowed but no rear coilovers.

The maximum shock diameter is 2.5" (OD). Coilovers allowed on front only. No bypass shocks (internal or external).

Secondary suspension including air shocks are allowed but ride height must not drop more than 1.5" with secondary suspension removed.

The maximum tire diameter is 35".

3 or 4 links are allowed, however spring method must still be leafs.

11 Vintage Categories (1989 – at least 20 years old)

11.1 Vintage Open Buggies

The spirit of this category is to provide a home for open class Buggies that raced in the 1989-20 year old era.

Vehicle must be 20+ years old.

Vehicle can be a buggy or a VW Beetle body style.

Any naturally aspirated engine may be used.

Any brand or make of transaxle may be used, no live axles.

Front suspension design is restricted to a Beam type except for documented cars that had A-arms 20 years ago.

Rear suspension must be IRS.

Shock and spring package is unlimited.

The maximum tire diameter is 37".

11.2 Vintage 6-Cylinder Buggies

The spirit of this category is to provide a home for limited displacement Buggies that raced in the 1989-20 year old era.

Vehicle must be 20+ years old.

Any naturally aspirated engine up to 6-cylinders with a maximum displacement of 4.5L may be used.

Any brand or make of transaxle may be used, no live axles.

Front suspension design is restricted to a Beam type except for documented cars that had A-arms 20 years ago.

Rear suspension must be IRS.

Shock and spring package is unlimited.

The maximum tire diameter is 37".

11.3 Vintage 4-Cylinder Buggies

The spirit of this category is to provide a home for limited displacement Buggies that raced in the 1989-20 year old era.

Vehicle must be 20+ years old.

Any naturally aspirated engine up to 4-cylinders with a maximum displacement of 2.5L may be used.

Any brand or make of transaxle may be used, no live axles.

Front suspension design is restricted to a Beam type except for documented cars that had A-arms 20 years ago.

Rear suspension must be IRS.

Shock and spring package is unlimited.

The maximum tire diameter is 37".

11.4 Vintage Open Trucks

The spirit of this category is to provide a home for Trucks and SUVs that raced in the 1989-20 year old era.

The body style must have existed in this era.

The chassis must be based on a 20+ year old production truck, the back half of the frame may be removed.

Any naturally aspirated engine may be used.

The front suspension must be of stock concept for the chassis. Rear may be linked on coilovers.

Shock and spring package is unlimited. IRS not allowed.

The maximum tire diameter is 37".

11.5 Vintage 6-Cylinder Trucks

The spirit of this category is to provide a home for Trucks and SUVs that raced in the 1989-20 year old era.

The body style must have existed in this era.

The chassis must be based on a 20+ year old production truck, the back half of the frame may be removed.

Any naturally aspirated engine up to 6-cylinders with a maximum displacement of 4.5L may be used.

The front suspension must be of stock concept for the chassis. Rear may be linked on coilovers.

Shock and spring package is unlimited. IRS not allowed.

The maximum tire diameter is 37".

11.6 Vintage 4-Cylinder Trucks

The spirit of this category is to provide a home for Trucks and SUVs that raced in the 1989-20 year old era.

The body style must have existed in this era.

The chassis must be based on a 20+ year old production truck, the back half of the frame may be removed.

Any naturally aspirated engine up to 4-cylinders with a maximum displacement of 2.5L may be used.

The front suspension must be of stock concept for the chassis. Rear may be linked on coilovers.

Shock and spring package is unlimited. IRS not allowed.

The maximum tire diameter is 37".

11.7 Vintage Open Trucks with Rear Leafs

The spirit of this category is to provide a home for Trucks and SUVs that raced in the 1989-20 year old era.

The body style must have existed in this era.

The chassis must be based on a 20+ year old production truck. Full frame required.

Any naturally aspirated engine may be used.

The front suspension must be of stock concept for the chassis. Rear must use leafs as primary suspension.

Shock package is unlimited. IRS not allowed.

The maximum tire diameter is 37".

11.8 Vintage Open Trucks with 4 Wheel Drive

The spirit of this category is to provide a home for Trucks and SUVs that raced in the 1989-20 year old era as well as for IFS 4x4's from earlier eras but with Vintage era shock packages.

The body style must have existed in this era.

The chassis must be based on a 20+ year old production truck. Full frame required.

Any naturally aspirated engine may be used.

The front suspension must be of stock concept for the chassis.

Shock and spring package is unlimited. IRS not allowed.

Must have 4 wheel drive and be operational at start of rally.

The maximum tire diameter is 37".

11.9 Vintage Short Wheelbase Trucks with 4 Wheel Drive

The spirit of this category is to provide a home for short wheelbase 4x4 Trucks and SUVs with solid front axles but modified suspensions and big shocks from the newer Eras.

The body style must have existed in this era.

The chassis must be based on a 20+ year old production truck.

Any naturally aspirated engine may be used.

The maximum wheelbase is 108"

Shock and spring package is unlimited. IRS not allowed.

Must have solid front axle 4 wheel drive.

The maximum tire diameter is 37".

11.10 Vintage Military Vehicles

The spirit of this class is intended to be stock military 4-wheeled vehicles as delivered to the US or a foreign military produced in quantities greater than a limited prototype production. Tech inspectors must approve that vehicles comply with this class regulations.

Suspension must remain stock concept as delivered on the vehicle as determined by the frame/chassis (solid axle, a-arm, etc). Spring and shock method and type are open. Front springs (leafs, coils, or torsions) may be replaced with coilovers. If originally equipped with rear torsion or coils, these may be replaced with coilovers. If originally equipped with rear leaf springs, rear suspension must use one set of leaf springs per rear wheel as the primary spring method. Semi-elliptical or quarter elliptical leafs are acceptable. Transverse leafs cannot be used as the primary spring method. Secondary suspension is allowed however with secondary suspension removed, the primary suspension must maintain static ride height +/-1.5". Engine must be based on originally installed size and displacement.

11.11 Vintage Production Cars

This is a vintage category for production based passenger vehicles (sedans, coupes, and convertibles). Trucks and SUVs are not permitted in this category. Vehicles in this category must be at least 20 years old.

Fenders are required for all four wheels. Maximum tire size is 37"

Vehicles in this category must be readily recognizable as the vehicle upon which it is based, at the discretion of NORRA. This is a home for the original Class 6.

11.12 Vintage Class 12

This is an open class for open wheel air cooled buggies.

Front Suspension

Front suspension must be a VW twin beam trailing arm type 1 configuration. Beam and dimensions are open. Spindles are open.

Engine

Engine must be a VW type 1 with 2 valves per cylinder. Max displacement for single seater is 1776cc. Two seat cars may have a displacement up to 1835cc. Engines must be air cooled and are limited to a single carburetor with a maximum of 2 venturies. The maximum venturi size is 42mm. The carburetor must be an automotive type but any make is allowed. The engine must be located behind the rear axle centerline.

Minimum weight is 1500 lbs.

11.13 Vintage Class 5

This is an open class for open wheel baja bugs including vehicles based on VW sedan Type-1 hardtop or convertible, 181 Safaris, 900 series Porsches, Karmann Ghias, VW Type-2 and VW type-3.

SUSPENSION

Front and rear suspensions must be of stock concept. Torsion bars and leaf springs are optional.

STEERING

Center mounted steering wheel is not allowed.

ENGINE

Any make of 4-cylinder air cooled engine may be used. Displacement is open for air cooled engines. No forced induction.

Any make of 4-cylinder water cooled engine may be used. Maximum displacement for water cooled engines is 2.5L. Water cooled engines must retain OEM cast block and OEM cast heads. No forced induction. OEM is defined here to mean engines that were available in production automobiles and at least 10,000 copies of this engine were sold to the general public.

SEATING

One or two seats may be used and position within cage is open but steering wheel may not be in center.

VEHICLE

Sheet metal firewalls are required front and rear. Doors must be in original stock location and shape but may be welded or fastened closed. Front fenders must be used. Rear fenders must not measure less than 6" from body when measured from the top center but mounting height is open. Rear fenders may be of metal or fiberglass but must have rolled edges. Fenders must resemble a VW Baja Bug.

CHASSIS and BODY

Front ends may of a single piece. Any body may be used and may be made of metal or fiberglass as long as it resembles a Baja Bug at the discretion of NORRA. If a convertible body is used, the windshield frame must be retained and the rear crossover piece forward of the engine cover may be removed. Windshield and window glass is optional but must be shatterproof if used.

WHEELBASE

Wheelbase may be modified but must not exceed 105" at ride height. The sum of both sides of wheelbase measured at ride height must not exceed 211". Wheelbase measurements shall be from front wheel centerline to rear wheel centerline.

11.14 Class 1/2-1600

This class is for limited suspension open wheel cars based on 1600cc VW type 1 parts. Tech inspectors must approve that vehicles comply with this class regulations.

Suspension Components

FRONT SUSPENSION

Front suspension may only use either VW type-1 ball joint or link pin. Any manufacturer's beam of two (2) steel tubes may be used but must maintain stock width. Centers may be cut, rotated and welded or torsion adjusters added. Any manufacturer torsion bars are permitted. Tube spacing is open. Front trailing arms may be reinforced or replaced as long as stock VW width and length are retained. Suspension limiters are allowed. Spindles, link pins, ball joints, and shock mounting locations are open. Front track width will be measured from wheel mounting surface to wheel mounting surface, with a maximum allowed width of 55.75"

REAR SUSPENSION

Rear suspension is based on VW Type 1 IRS or swing axle. IRS swing arms may be modified or replaced for strengthening purposes as long as stock VW IRS swing arm length is retained +/-1". The stock VW dimension between the centerline of the rear torsion housing to the centerline of the rear stub axle (16.250") must be retained +/-1". Outboard bus reduction gears are allowed. Rear torsion tubes may be additionally supported or replaced but must remain steel and retain stock VW width. Center torsion adjuster is allowed. Any manufacturer's axle assemblies are allowed as long as original VW type suspension is retained, this includes the use of "micro stub hubs". A single torsion bar per wheel of any manufacturer is allowed. Torsion bars must remain inside the torsion housing. Torsion bars must be connected to the trailing arm with steel spring plates of any manufacturer. Rear suspension track width must not exceed a maximum of 58.25" as measured wheel mounting surface to wheel mounting surface. CV joint mounting face to CV joint mounting face must not exceed 47.375" and measured at ride height. The entire CV must remain inboard of the trailing arm inner bearing.

SHOCK ABSORBERS

No limit on number or size of shocks however no coilovers and no air shocks allowed. No secondary suspension.

WHEELS and TIRES

Any rims that directly mount to VW drums are allowed. No wheel spacers allowed.

STEERING

Steering is open. Any tie rod and tie rod end may be used.

BRAKES

Brakes are open as long as all other rules are followed.

Electrical System

Battery ignition only, no magnetos. Any distributor may be used. Any 6- or 12-volt VW type alternator or generator in the stock location may be used.

FUEL TANKS

Fuel cells are required.

ENGINE

Engine must be based upon a VW series type-1, 1600cc. The maximum displacement is 1600cc as delivered from the factory.

ENGINE CASE

Any VW type-1, 2, 3 or universal case is permitted. The following stock case modifications are permitted:

- A. May be align bored.
- B. May be drilled and tapped for oil and temp sending units.
- C. May be machined for crank pulley seal.
- D. Installation of case savers.
- E. Cylinder seating surface may be machined.
- F. Oil galleries may be enlarged to 10mm
- G. Threaded oil gallery plugs permitted.

OIL PUMP

Any manufacturer's oil pump is allowed. No deep sumps, dry sumps, or sump alterations. Windage trays are allowed. The use of any oil-bypass pistons and springs are allowed.

FUEL PUMP

Any combination of stock fuel pump or electric fuel pump may be used. Any fuel filters and fuel pressure regulators may be used.

PISTONS

Pistons must be stock 3 ring only. Pistons and cylinders may be of any manufacturer as long as original stock dimensions are maintained. Any type of wrist pins retainers may be used. Piston assemblies may be statically balanced to the equivalent weight in grams of the lightest original non-balanced piston, wrist pin, etc.

CRANKSHAFT

Crankshaft must be stock VW. Crankshaft may be balanced. Crankshaft maximum journal re-sizing is limited to .030" undersize. No polishing or lightening of crankshaft is allowed. Any crankshaft gear is allowed. Any manufacturer engine bearing may be used as long as the stock dimensions are maintained. Power pulleys are allowed. Pulleys may be balanced. Sand seals may be used. Any VW flywheel may be lightened and balanced. Flywheels may be eight dowel pinned and any gland nut and washer may be used. No aluminum flywheels may be used. Any manufacturer's clutch disk or pressure plate allowed but must retain original stock VW diameter. Clutch and pressure plate may be balanced. Connecting rods may be statically balanced, but not polished or profiled. Balanced weight of the connecting rods in grams should be equivalent to the lightest original non-balanced stock rod. Connecting rods may be of any manufacturer but must retain stock dimensions. Minimum rod weight is 580 grams.

HEADS

Heads may be U.S. sedan stock single port or dual port or their equivalent. Heads may be fly cut for cleanup. No polishing or porting is allowed. Only dual port heads from Brazil, part number 040 101 375 2 or 040 101 375 13, 040 101 375 19, or stock OEM heads are allowed. Intake manifold is restricted to a stock 34mm original equipment center section or its replacement. A 1 ½ inch (1.500) long by ½ inch (.500) diameter tube may be welded two inches below the carburetor flange. A maximum of a ¼ inch (.250) may be removed from each end of the center section for clearance. A slip tube with a 1 5/8 inch (1.625) diameter, two inches (2.000) long may be welded to the end of the runners to allow the use of a better hose connection. No porting or polishing. End castings must be original equipment VW, with VW logo and part numbers. No porting, polishing or matching of ports allowed. Balancing slot may be welded closed. Vacuum hole may be plugged. A 34mm to 30mm carburetor adaptor must be used. The only carburetor adaptor that is allowed is the EMPI part number 98-1293-B.

CAMSHAFT, VALVETRAIN

Any camshaft, camshaft gear, valve spring retainers, valve springs, and lifters are allowed. Valve spring seat diameter, in head, must remain stock VW. Valves must be stock 45 degrees. One piece valves are allowed. Valve guides may be steel, bronze, or cast iron. Valve guide seals are allowed. No grinding or polishing in the port including valve guides. Any camshaft may be used which will allow the use of the standard stock VW 1600cc rockers arms. The rocker arm(s) may be resurfaced to permit the use of swivel feet or similar devices. No other grinding or changes to the rocker arms are permitted. No roller or needle bearings will be allowed as part of the camshaft or as an interface between the rocker arms and the camshaft. Push rods and push rod tubes may be of any manufacturer. Rocker arm valve adjustment screws and wave washers may be of any origin. Clips on rocker arms may be wire tied. Valve covers may be of any type and manufacturer.

FAN SHROUD

Aftermarket fan shrouds are allowed. Heater tubes are optional.

CARBURETOR

Air cleaner location is optional and may be of any manufacturer. Velocity stacks may be used as long as they are not welded or bonded to the carburetor. Stock VW carburetor 30 pict 1, 2, or 3 or the Solex H-30-PIC replacement must be used. Maximum venturi size of the carburetor is 24.10mm. No internal modifications in the carburetor venturi or throttle blade are allowed. This includes no removing of parts, no grinding, polishing or filling. Intake manifolds must be stock VW. Intake manifold may be cut to allow for head modifications. No chemical milling of manifold or carburetors. Automatic choke housing may be removed. Choke plate and shaft may be removed. Electric needle valves are optional. The stock float bowl vent may be moved and/or plugged. An external float bowl vent may be incorporated. Any air and main jet may be used.

RESTRICTOR PLATES

Restrictor plates are required unless using the Optional Engine Rule. Single seat restrictor plates are 21.5mm. Two seat

restrictor plates are 24.0mm.

OPTIONAL LOW COMPRESSION ENGINE RULE

1600cc maximum displacement with no more than 8:1 static compression ratio, stock replacement heads with no porting and the same valve and spark plug rules as above with stock end castings with no polishing may be used with an Empi or Webber 40 or 44 carb and any intake manifold. For this optional engine package, the maximum venturi is 24mm for single seat and 25mm for two seat cars. The restricted venturis must be made by PUM. Contact NORRA if you need contact info to purchase PUM special venturis. No restrictor plate is required if using this Optional Engine Rule.

TRANSMISSION

Must use a stock VW type 1 or 2 transaxle housing. Any internal or external modifications to housing are allowed. No more than four (4) forward speeds are allowed. Any gear ratio combinations but only VW type gears (helical cut gears) may be used. Any internal modifications are allowed. May use aftermarket side covers.

FLUID COOLERS

Any oil coolers permitted with the location optional. Full flow system is permitted.

VEHICLE SAFETY EQUIPMENT

There are no restrictions for terminal points of the roll cage.
Any manufacturer's racing seat is permitted.

WEIGHT

Minimum weight, 1 seat or 2 seat: 1550 lbs

CHASSIS and BODY

Wheelbase is open.

11.15 Class 5-1600

Vehicles in this category must be VW Sedan Type 1 hardtop or sunroof as delivered from the factory. Vehicle must have the external appearance of a "Baja Bug". No convertibles, Karmann Ghias, 181 Safaris, Variants, or Super Beetles.

Suspension Components

Front and rear suspension components are limited to stock VW production Type 1 parts unless otherwise stated below.

FRONT SUSPENSION

Front suspension may only use either VW type-1 ball joint or king and link pin. Front axle torsion tube must maintain stock width but centers may be cut, rotated and welded or torsion adjusters added. Any manufacturer torsion bars are permitted. Front torsion tubes may be additionally supported by attachment to the floor pan and/or roll cage. Original seams may be reinforced. Front trailing arms may be reinforced or replaced but stock VW width and length must be retained. Suspension limiters are permitted. Spindles, link pins, ball joints and upper shock mounting locations are open. Lower shock mount may be moved or replaced but location must remain on the lower trailing arm. Sway bars may be removed. Stock geometry must be maintained. The maximum track width is 55.75" measured from wheel mounting surface to wheel mounting surface.

REAR SUSPENSION

Rear suspension is based on VW Type 1 IRS or swing axle. IRS swing arms may be modified or replaced for strengthening purposes as long as stock VW IRS swing arm length is retained +/-1". The stock VW dimension between the centerline of the rear torsion housing to the centerline of the rear stub axle (16.250") must be retained +/-1". Outboard bus reduction gears are allowed. Rear torsion tubes may be additionally supported by attaching to the floor pan and/or the roll cage. Center torsion adjuster is allowed. Any manufacturer's axle assemblies are allowed as long as original VW type suspension is retained, this includes the use of "micro stub hubs". Rear shock tower may be removed to body mounting bolt hole only. Suspension limiters allowed. Any manufacturer spring plate may be utilized with additional retainer straps and top and bottom stops removed as long as stock mounting method is maintained. May convert existing swing axle suspension to IRS by welding any manufacturer's tabs to torsion housing in stock location while maintaining stock geometry. Original wheelbase must be maintained. Rear suspension track width must not exceed a maximum of 58.250 inches as measured wheel mounting face to wheel mounting face. CV joint mounting face to CV joint mounting face must not exceed 47.375 inches, as measured at ride height. The entire outer CV must remain inboard of the trailing arm inner bearing.

SHOCK ABSORBERS

Any manufacturers shocks and sizes are allowed. Cooling fins and/or reservoirs are allowed. One shock per wheel allowed in the front. Two shocks per wheel in any location allowed in the rear. No air shocks or coil over shocks are allowed. No hydraulic bump stops allowed. No secondary suspension allowed.

WHEELS and TIRES

Any manufacturers rims allowed that will mount directly on VW drums. To wheel spacers allowed. Any manufacturer tires allowed. Spare tire may be relocated anywhere inside the body.

STEERING

Steering box may be of any origin. Any Manufacturers steering wheel and adaptor may be used in the stock location. Any steering dampener may be used. Any steering shaft is allowed and the sheet metal tube may be removed. Any tie rods and tie rod ends are allowed. Power steering may be used as long as other rules are adhered to.

BRAKES

Any type and manufacturer brake may be used as long as other rules adhered to.

Electrical System

IGNITION

Battery ignition only, no magnetos. Any distributor may be used. Any 6- or 12-volt VW type alternator or generator in the stock location may be used.

BATTERIES

Number of batteries and location are optional.

LIGHTS

Additional lighting is permitted. Any manufacturers stop and taillights are allowed.

Fuel System

Fuel is restricted to automotive pump gasoline only. Automotive pump gasoline will be considered gasoline that is sold to the general public for use in domestic cars.

FUEL TANKS

Safety fuel cells are required. Fuel cell may be relocated from stock location. Any size fuel cell is allowed. A minimum of two (2) additional hold down straps must be installed to support fuel cell in the event of an upset. Straps may be rubber coated steel or nylon webbing. Any combination of stock or electric fuel pump may be utilized.

ENGINE

Engine must be based upon a VW series type-1, 1600cc. The maximum displacement is 1600cc.

ENGINE CASE

Any VW type-1, 2, 3 or universal case is permitted. The following stock case modifications are permitted:

- A. May be align bored.
- B. May be drilled and tapped for oil and temp sending units.
- C. May be machined for crank pulley seal.
- D. Installation of case savers.
- E. Cylinder seating surface may be machined.
- F. Oil galleries may be enlarged to 10mm
- G. Threaded oil gallery plugs permitted.

OIL PUMP

Any manufacturer's oil pump is allowed. No deep sumps, dry sumps, or sump alterations. Windage trays are allowed. The use of any oil-bypass pistons and springs are allowed.

FUEL PUMP

Any combination of stock fuel pump or electric fuel pump may be used. Any fuel filters and fuel pressure regulators may be used.

PISTONS

Pistons must be stock 3 ring only. Pistons and cylinders may be of any manufacturer as long as original stock dimensions are maintained. Any type of wrist pins retainers may be used. Piston assemblies way be statically balanced to the equivalent weight in grams of the lightest original non-balanced piston, wrist pin, etc.

CRANKSHAFT

Crankshaft must be stock VW. Crankshaft may be balanced. Crankshaft maximum journal re-sizing is limited to .030" undersize. No polishing or lightening of crankshaft is allowed. Any crankshaft gear is allowed. Any manufacturer engine bearing may be used as long as the stock dimensions are maintained. Power pulleys are allowed. Pulleys may be balanced. Sand seals may be used. Any VW flywheel may be lightened and balanced. Flywheels may be eight dowel pinned and any gland nut and washer may be used. No aluminum flywheels may be used. Any manufacturer's clutch disk or pressure plate allowed but must retain original stock VW diameter. Clutch and pressure plate may be balanced. Connecting rods may be statically balanced, but not polished or profiled. Balanced weight of the connecting rods in grams should be equivalent to the lightest original non-balanced stock rod. Connecting rods may be of any manufacturer but must retain stock dimensions. Minimum rod weight is 580 grams.

HEADS

Heads may be U.S. sedan stock single port or dual port or their equivalent. Heads may be fly cut for cleanup. No polishing or porting is allowed. Only dual port heads from Brazil, part number 040 101 375 2 or 040 101 375 13, 040 101 375 19, or stock OEM heads are allowed. Intake manifold is restricted to a stock 34mm original equipment center section or its replacement. A 1 ½ inch (1.500) long by ½ inch (.500) diameter tube may be welded two inches below the carburetor flange. A maximum of a ¼ inch (.250) may be removed from each end of the center section for clearance. A slip tube with a 1 5/8 inch (1.625) diameter, two inches (2.000) long may be welded to the end of the runners to allow the use of a better hose connection. No porting or polishing. End castings must be original equipment VW, with VW logo and part numbers. No porting, polishing or matching of ports allowed. Balancing slot may be welded closed. Vacuum hole may be plugged. A 34mm to 30mm carburetor adaptor must be used. The only carburetor adaptor that is allowed is the EMPI part number 98-1293-B.

CAMSHAFT, VALVETRAIN

Any camshaft, camshaft gear, valve spring retainers, valve springs, and lifters are allowed. Valve spring seat diameter, in head, must remain stock VW. Valves must be stock 45 degrees. One piece valves are allowed. Valve guides may be steel, bronze, or cast iron. Valve guide seals are allowed. No grinding or polishing in the port including valve guides. Any camshaft may be used which will allow the use of the standard stock VW 1600cc rockers arms. The rocker arm(s) may be resurfaced to permit the use of swivel feet or similar devices. No other grinding or changes to the rocker arms are permitted. No roller or needle bearings will be allowed as part of the camshaft or as an interface between the rocker arms and the camshaft. Push rods and push rod tubes may be of any manufacturer. Rocker arm valve adjustment screws and wave washers may be of any origin. Clips on rocker arms may be wire tied. Valve covers may be of any type and manufacturer.

FAN SHROUD

Aftermarket fan shrouds are allowed. Heater tubes are optional.

CARBURETOR

Air cleaner location is optional and may be of any manufacturer. Velocity stacks may be used as long as they are not welded or bonded to the carburetor. Stock VW carburetor 30 pict 1, 2, or 3 or the Solex H-30-PIC replacement must be used. Maximum venturi size of the carburetor is 24.10mm. No internal modifications in the carburetor venturi or throttle blade are allowed. This includes no removing of parts, no grinding, polishing or filling. Intake manifolds must be stock VW. Intake manifold may be cut to allow for head modifications. No chemical milling of manifold or carburetors. Automatic choke housing may be removed. Choke plate and shaft may be removed. Electric needle valves are optional. The stock float bowl vent may be moved and/or plugged. An external float bowl vent may be incorporated. Any air and main jet may be used.

OPTIONAL LOW COMPRESSION ENGINE RULE

1600cc maximum displacement with no more than 8:1 static compression ratio, stock replacement heads with no porting and the same valve and spark plug rules as above with stock end castings with no polishing may be used with an Empi or Webber 40 or 44 carb and any intake manifold. For this optional engine package, the maximum venturi is 26mm. This venturi must be made by PUM. Contact NORRA if you need contact info for PUM.

TRANSMISSION

Must use a stock VW type 1 or 2 transaxle housing. Any internal or external modifications to housing are allowed. No more than four (4) forward speeds are allowed. Any gear ratio combinations but only VW type gears (helical cut gears) may be used. Any internal modifications are allowed. May use aftermarket side covers. Any gearshift level allowed. May use any manufacturer's Type 1, 2, 181, or Micros Stub axle. May use any CV joint. Oversized bolts allowed as long as engine remains in stock location. Rear frame horns may be modified for CV joint clearance as long as modification does not exceed below the seam.

FLUID COOLERS

Any oil coolers permitted with the location optional. Full flow system is permitted. No deep sumps or dry sumps allowed.

Vehicle Safety Equipment

There are no restrictions for terminal points of the roll cage.

SEATING

Any manufacturer's racing seat is permitted but must remain in stock location. If stock seat mounts are to be used, they must be reinforced using at least two U-bolts per seat runner.

DRIVERS COMPARTMENT

It is highly recommended that flammable items such as the rear seat, upholstered panels, headliners and carpets be removed. Removal of dash and firewalls is prohibited. Dash may be covered with aluminum to install gauges. Pedals must remain in the stock fore and aft location.

DOORS and LATCHES

Doors must remain functional and in original stock location with original hinges and working latches. Secondary positive latching devices are mandatory.

FLOORBOARDS

No alterations to pan permitted except for heating, bending or cutting of pan to a maximum of 1-inch to allow for tie rod and CV joint clearance. Frame head may be interchanged from early to late or late to early.

BUMPERS

Nerf bars may be added to the sides in front of the rear wheels. The supporting bar hole should not have more than 0.125" clearance between the bar and the body where it enters the body.

SKID PLATES

Any type of front and rear skid plate permitted. Any engine guards are allowed.

FENDERS

Fenders must be stock baja bug kit fenders. Rear fenders may be of any manufacturer. Metal fenders require rolled edges. Rear fenders may be mounted a maximum of 1.5" above the body line as measured at the top of the fender. Minimum width of 6" as measured at the center line of the rear wheel. Rear fender wells may be modified or removed 0.5" below stock fender mounting holes. Rear package trays must remain in stock location and remain stock size. If fender well is removed the resulting hole must be covered air tight with metal of the same thickness and the metal removed.

CHASSIS and BODY

Original wheelbase must be maintained. Body must be VW Type 1 Bug or Sunroof Bug. No convertibles, Ghias, 181 Safaris, Variants, or Super Beetles. Main body shell must be all original. Sunroofs must have metal covering. No fiberglass body or doors. Front and rear sheet metal may be removed far enough to allow installation of baja bug kit. Running boards may be removed. Single piece front fiberglass baja bug hood allowed. No canvas hoods allowed. No lift kits allowed.

11.16 Class 9

This class is for 100" wheelbase open wheel cars based on VW type 1 parts. Tech inspectors must approve that vehicles comply with this class regulations.

Suspension Components

FRONT SUSPENSION

Front suspension must only use VW type-1 ball joint. Front axle torsion tube must maintain stock width but centers may be cut, rotated and welded or torsion adjusters added. Original seams may be welded (not reinforced) on front beam. No additional material may be added. Torsion adjusters allowed. Filling of speedometer hole is permitted. Steering arm on spindle may be reinforced by welding a 0.25" gusset from the top of the upper ball joint mount to the end of the steering arm. A single tube may be welded from one shock tower to the other as a reinforcement member. Suspension limiters are allowed.

REAR SUSPENSION

Rear suspension is limited to stock VW type 1 components. Rear suspension torsion bars may be of any origin. The torsion housing must retain stock dimensions, aftermarket housing is allowed. Torsion bar grommets may be of any manufacturer as long as stock dimensions are retained. Torsion adjusters are allowed. Rear suspension limiters and spring plate retainers are allowed. Rear spring plates may be of any origin.

SHOCK ABSORBERS

Only one shock per wheel is allowed. Shock mounting bolts may be enlarged a maximum 1/2" diameter. Any manufacturer shock allowed with a 65mm maximum outside diameter and a maximum shaft diameter of 0.875". Cooling fins and/or reservoirs allowed. Secondary suspension is not allowed. Front shocks must mount in stock location, rear shocks may be mounted in any location. Rear shocks may not have an extended length greater than 31.5" No air shocks. No coilovers. No bypass shocks.

WHEELS and TIRES

Any steel 5"x15" wheel that bolts to a stock VW brake drum may be used. Bolted hubs may be replaced with studed hubs. Any manufacturer tire and size allowed up to 32" tall and 10" wide as mounted and inflated on a 5" wide rim with 18 lbs of air. Spare tire is mandatory but may be mounted any place within the body shell or trunk.

STEERING

Steering box may be of any origin. Power steering is not allowed. Any Manufacturer's steering wheel and adaptor may be used in the stock location. Any steering dampener may be used. Any steering shaft is allowed and sheet metal tube may be removed. Any tie rods and tie rod ends may be used.

BRAKES

Original VW types drum brakes must be used on all wheels. Drums may be studed but not reinforced. Any combination of brake linings and any combination of VW master and wheel cylinder are allowed. Dual master cylinders are allowed.

Electrical System

Battery ignition only, no magnetos. Any distributor may be used. Any 6- or 12-volt VW type alternator or generator in the stock location may be used.

BATTERIES

Batteries may be relocated.

LIGHTS

Additional lighting is permitted. Stock headlights may be replaced with any brand so long as original mounting location is used. Pre 1967 model headlight lenses may be removed. Tail and stoplights must remain functional. Front and rear turn indicators are optional. Backup lighting may not be directed towards the engine compartment or in any gear but reverse.

Fuel System

Fuel is restricted to automotive pump gasoline only. Automotive pump gasoline will be considered gasoline that is sold to the general public for use in domestic cars.

FUEL TANKS

Fuel cells are required and may be no larger than 22 gallons. Any type fuel shutoff valve may be used.

FUEL FILLERS, LINES, VENTS, and CAPS

Fuel fillers may penetrate and extend through the hood but must have a drain/catch boot or grommet system to prevent fuel spillage in front compartment. Fuel cell filler may be located in center of tank and have a maximum 2.25" internal diameter neck.

ENGINE

Engine must be based upon a VW series type-1, 1600cc. The maximum displacement is 1584cc as delivered from the factory.

ENGINE CASE

Any VW type-1, 2, 3 or universal case is permitted. The following stock case modifications are permitted:

- A. May be align bored.
- B. May be drilled and tapped for oil and temp sending units.
- C. May be machined for crank pulley seal.
- D. Installation of case savers.
- E. Cylinder seating surface may be machined.
- F. Oil galleries may be enlarged to 10mm

G. Threaded oil gallery plugs permitted.

OIL PUMP

Any manufacturer's oil pump is allowed. No deep sumps, dry sumps, or sump alterations. Windage trays are allowed. The use of any oil-bypass pistons and springs are allowed.

FUEL PUMP

Any combination of stock fuel pump or electric fuel pump may be used. Any fuel filters and fuel pressure regulators may be used.

PISTONS

Pistons must be stock 3 ring only. Pistons and cylinders may be of any manufacturer as long as original stock dimensions are maintained. Any type of wrist pins retainers may be used. Piston assemblies may be statically balanced to the equivalent weight in grams of the lightest original non-balanced piston, wrist pin, etc.

CRANKSHAFT

Crankshaft must be stock VW. Crankshaft may be balanced. Crankshaft maximum journal re-sizing is limited to .030" undersize. No polishing or lightening of crankshaft is allowed. Any crankshaft gear is allowed. Any manufacturer engine bearing may be used as long as the stock dimensions are maintained. Power pulleys are allowed. Pulleys may be balanced. Sand seals may be used. Any VW flywheel may be lightened and balanced. Flywheels may be eight dowel pinned and any gland nut and washer may be used. No aluminum flywheels may be used. Any manufacturer's clutch disk or pressure plate allowed but must retain original stock VW diameter. Clutch and pressure plate may be balanced. Connecting rods may be statically balanced, but not polished or profiled. Balanced weight of the connecting rods in grams should be equivalent to the lightest original non-balanced stock rod. Connecting rods may be of any manufacturer but must retain stock dimensions. Minimum rod weight is 580 grams.

HEADS

Heads may be U.S. sedan stock single port or dual port or their equivalent. Heads may be fly cut for cleanup. No polishing or porting is allowed. Only dual port heads from Brazil, part number 040 101 375 2 or 040 101 375 13, 040 101 375 19, or stock OEM heads are allowed. Intake manifold is restricted to a stock 34mm original equipment center section or its replacement. A 1 ½ inch (1.500) long by ½ inch (.500) diameter tube may be welded two inches below the carburetor flange. A maximum of a ¼ inch (.250) may be removed from each end of the center section for clearance. A slip tube with a 1 5/8 inch (1.625) diameter, two inches (2.000) long may be welded to the end of the runners to allow the use of a better hose connection. No porting or polishing. End castings must be original equipment VW, with VW logo and part numbers. No porting, polishing or matching of ports allowed. Balancing slot may be welded closed. Vacuum hole may be plugged. A 34mm to 30mm carburetor adaptor must be used. The only carburetor adaptor that is allowed is the EMPI part number 98-1293-B.

CAMSHAFT, VALVETRAIN

Any camshaft, camshaft gear, valve spring retainers, valve springs, and lifters are allowed. Valve spring seat diameter, in head, must remain stock VW. Valves must be stock 45 degrees. One piece valves are allowed. Valve guides may be steel, bronze, or cast iron. Valve guide seals are allowed. No grinding or polishing in the port including valve guides. Any camshaft may be used which will allow the use of the standard stock VW 1600cc rockers arms. The rocker arm(s) may be resurfaced to permit the use of swivel feet or similar devices. No other grinding or changes to the rocker arms are permitted. No roller or needle bearings will be allowed as part of the camshaft or as an interface between the rocker arms and the camshaft. Push rods and push rod tubes may be of any manufacturer. Rocker arm valve adjustment screws and wave washers may be of any origin. Clips on rocker arms may be wire tied. Valve covers may be of any type and manufacturer.

FAN SHROUD

Aftermarket fan shrouds are allowed. Heater tubes are optional.

CARBURETOR

Air cleaner location is optional and may be of any manufacturer. Velocity stacks may be used as long as they are not welded or bonded to the carburetor. Stock VW carburetor 30 pict 1, 2, or 3 or the Solex H-30-PIC replacement must be used. Maximum venturi size of the carburetor is 24.10mm. No internal modifications in the carburetor venturi or throttle blade are allowed. This includes no removing of parts, no grinding, polishing or filling. Intake manifolds must be stock VW. Intake manifold may be cut to allow for head modifications. No chemical milling of manifold or carburetors. Automatic choke housing may be removed. Choke plate and shaft may be removed. Electric needle valves are optional. The stock float bowl vent may be moved and/or plugged. An external float bowl vent may be incorporated. Any air and main jet may be used.

TRANSMISSION

Type 1 bug, 4-speed transaxle only. Heavy duty side plates and differential allowed. 8:33 ring and pinion and drive gears must be used only. No close ratio gears. Axle over tubes are not permitted. Other internal mods are optional. Rear transaxle mounts may be supported by a maximum of two (2) vertical straps of 0.25"x1" dimension. Adjustable straps are optional. Any gearshift is allowed. May use any manufacturers Type 1, 2, or 181 stub axle. May use any VW CV joint. Oversized bolts allowed.

THROTTLES

Stock pedals with no other modifications must be used.

EXHAUST

Any exhaust system may be used.

This category is exempted from 4.6.3 Driveshafts.

FLUID COOLERS

Any oil coolers permitted with the location optional. Full flow system is permitted.

VEHICLE SAFETY EQUIPMENT

There are no restrictions for terminal points of the roll cage.

Any manufacturer's racing seat is permitted.

WEIGHT

Minimum weight, 1 seat: 1550 lbs

Minimum weight, 2 seats: 1350 lbs

CHASSIS and BODY

Maximum wheelbase is 100".

11.17 Class 11

This class is intended to be stock VW type-1, hardtop or sedan, as delivered from the factory. Tech inspectors must approve that vehicles comply with this class regulations.

Stock combinations of irs/ball joint OR swing axle/link pin must be maintained. Conversion from one to the other is not allowed. This is a stock production class and all components must remain stock except for modifications specified in these rules. The definition of stock combinations shall be determined by the VW of American Booklet.

Suspension Components

FRONT SUSPENSION

Front axle tube centers may be cut, rotated, rewelded to increase ground clearance or front torsion adjusters may be used. Original seams may be welded (not reinforced) on front beam. Shock tower may be additionally supported by the adding of a single gusset, gusset may not extend more than 2" above top torsion tube. Stock front spindles and trailing arms must be retained. No additional material may be added. Sway bars may be removed. Filling of speedometer hole is permitted. Steering arm on spindle may be reinforced by welding a .25" gusset from the top of the spindle to the end of the steering arm. Front snubbers may be of any manufacture but must retain stock VW dimension and mounting methods. Suspension limiters allowed.

REAR SUSPENSION

Rear suspension torsion bars may be of any origin. Rear suspension spring plates may of any origin. Torsion bar adjusters are allowed. Torsion bar grommets may be of any manufacture but must retain stock VW dimensions. Rear torsion housing may be additionally supported only by the attachment of a terminal end (support member) of the roll cage. Rear Trailing arms must retain stock, (shape, size, and configuration), but may be reinforced by adding material..

SHOCK ABSORBERS

Only one shock per wheel is allowed. Shock mounting bolts may be enlarged a maximum 1/2" diameter. Any manufacture shock allowed with a 2" maximum outside diameter. Cooling fins and/or reservoirs allowed. Secondary suspension is not allowed.

WHEELS and TIRES

Any steel 4.5"x15" wheel that bolts to a stock VW brake drum may be used. Bolted hubs may be replaced with studded hubs. Any manufacture tire and size allowed up to 31" tall and 10" wide as mounted and inflated on a 4.5" wide rim with 18 lbs of air. Spare tire is mandatory but may be mounted any place within the body shell or trunk.

STEERING

Steering box must be stock VW type 1 but shims may be used between pitman arm and box. Any Manufacturers steering wheel and adaptor may be used in the stock location. Ball joints and steering arms must remain stock. Tie rods may be manufactured or reinforced but must use stock rod ends. Steering column is open.

BRAKES

Original VW type 1 drum brakes must be used on all wheels. Front and rear drums may not be interchanged. Any combination of brake linings allowed as long as stock dimensions are maintained. Any combination of VW master and wheel cylinder are allowed. Emergency brake is optional but if removed the resulting hole must be covered.

Electrical System

Battery ignition only, no magnetos. Any distributor may be used. Any 6- or 12-volt VW type alternator or generator in the stock location may be used.

BATTERIES

Batteries may be relocated.

LIGHTS

Additional lighting is permitted. Stock headlights may be replaced with any brand so long as original mounting location is used. Pre 1967 model headlight lenses may be removed. Tail and stoplights must remain functional. Front and rear turn indicators are optional. Backup lighting may not be directed towards the engine compartment or in any gear but reverse.

Fuel System

Fuel is restricted to automotive pump gasoline only. Automotive pump gasoline will be considered gasoline that is sold to the general public for use in domestic cars.

FUEL TANKS

Fuel cell may be relocated from stock location. Any size fuel cell is permitted. Stock tank may be used in the stock location. Any type fuel shutoff valve may be used.

FUEL FILLERS, LINES, VENTS, and CAPS

Fuel fillers may penetrate and extend through the hood but must have a drain/catch boot or grommet system to prevent fuel spillage in front compartment. Fuel cell filler may be located in center of tank and have a maximum 2.25" internal diameter neck.

ENGINE

Engine must be based upon a VW series type-1, 1600cc. The maximum displacement is 1600cc.

ENGINE CASE

Any VW type-1, 2, 3 or universal case is permitted. The following stock case modifications are permitted:

- A. May be align bored.
- B. May be drilled and tapped for oil and temp sending units.
- C. May be machined for crank pulley seal.
- D. Installation of case savers.
- E. Cylinder seating surface may be machined.
- F. Oil galleries may be enlarged to 10mm
- G. Threaded oil gallery plugs permitted.

MOUNT

The rear engine mount may be reinforced.

OIL PUMP

Any manufacturer's oil pump is allowed. No deep sumps, dry sumps, or sump alterations. Windage trays are allowed. The use of any oil-bypass pistons and springs are allowed.

FUEL PUMP

Any combination of stock fuel pump or electric fuel pump may be used. Any fuel filters and fuel pressure regulators may

be used.

PISTONS

Pistons must be stock 3 ring only. Pistons and cylinders may be of any manufacturer as long as original stock dimensions are maintained. Any type of wrist pins retainers may be used. Piston assemblies may be statically balanced to the equivalent weight in grams of the lightest original non-balanced piston, wrist pin, etc.

CRANKSHAFT

Crankshaft must be stock VW. Crankshaft may be balanced. Crankshaft maximum journal re-sizing is limited to .030" undersize. No polishing or lightening of crankshaft is allowed. Any crankshaft gear is allowed. Any manufacturer engine bearing may be used as long as the stock dimensions are maintained. Power pulleys are allowed. Pulleys may be balanced. Sand seals may be used. Any VW flywheel may be lightened and balanced. Flywheels may be eight dowel pinned and any gland nut and washer may be used. No aluminum flywheels may be used. Any manufacturer's clutch disk or pressure plate allowed but must retain original stock VW diameter. Clutch and pressure plate may be balanced. Connecting rods may be statically balanced, but not polished or profiled. Balanced weight of the connecting rods in grams should be equivalent to the lightest original non-balanced stock rod. Connecting rods may be of any manufacturer but must retain stock dimensions. Minimum rod weight is 580 grams.

HEADS

Heads may be U.S. sedan stock single port or dual port or their equivalent. Heads may be fly cut for cleanup. No polishing or porting is allowed. Only dual port heads from Brazil, part number 040 101 375 2 or 040 101 375 13, 040 101 375 19, or stock OEM heads are allowed. Intake manifold is restricted to a stock 34mm original equipment center section or its replacement. A 1 ½ inch (1.500) long by ½ inch (.500) diameter tube may be welded two inches below the carburetor flange. A maximum of a ¼ inch (.250) may be removed from each end of the center section for clearance. A slip tube with a 1 5/8 inch (1.625) diameter, two inches (2.000) long may be welded to the end of the runners to allow the use of a better hose connection. No porting or polishing. End castings must be original equipment VW, with VW logo and part numbers. No porting, polishing or matching of ports allowed. Balancing slot may be welded closed. Vacuum hole may be plugged. A 34mm to 30mm carburetor adaptor must be used. The only carburetor adaptor that is allowed is the EMPI part number 98-1293-B.

CAMSHAFT, VALVETRAIN

Any camshaft, camshaft gear, valve spring retainers, valve springs, and lifters are allowed. Valve spring seat diameter, in head, must remain stock VW. Valves must be stock 45 degrees. One piece valves are allowed. Valve guides may be steel, bronze, or cast iron. Valve guide seals are allowed. No grinding or polishing in the port including valve guides. Any camshaft may be used which will allow the use of the standard stock VW 1600cc rockers arms. The rocker arm(s) may be resurfaced to permit the use of swivel feet or similar devices. No other grinding or changes to the rocker arms are permitted. No roller or needle bearings will be allowed as part of the camshaft or as an interface between the rocker arms and the camshaft. Push rods and push rod tubes may be of any manufacturer. Rocker arm valve adjustment screws and wave washers may be of any origin. Clips on rocker arms may be wire tied. Valve covers may be of any type and manufacturer.

FAN SHROUD

Aftermarket fan shrouds are allowed. Heater tubes are optional.

CARBURETOR

Air cleaner location is optional and may be of any manufacturer. Velocity stacks may be used as long as they are not welded or bonded to the carburetor. Stock VW carburetor 30 pict 1, 2, or 3 or the Solex H-30-PIC replacement must be used. Maximum venturi size of the carburetor is 24.10mm. No internal modifications in the carburetor venturi or throttle blade are allowed. This includes no removing of parts, no grinding, polishing or filling. Intake manifolds must be stock VW. Intake manifold may be cut to allow for head modifications. No chemical milling of manifold or carburetors. Automatic choke housing may be removed. Choke plate and shaft may be removed. Electric needle valves are optional. The stock float bowl vent may be moved and/or plugged. An external float bowl vent may be incorporated. Any air and main jet may be used.

OPTIONAL LOW COMPRESSION ENGINE RULE

1600cc maximum displacement with no more than 8:1 static compression ratio, stock replacement heads with no porting and the same valve and spark plug rules as above with stock end castings with no polishing may be used with an Empi or Webber 40 or 44 carb and any intake manifold. For this optional engine package, the maximum venturi is 26mm. This venturi must be made by PUM. Contact NORRA if you need contact info for PUM.

TRANSMISSION

Type 1 bug, 4-speed transaxle only. Heavy duty side plates and differential allowed. 8:33 ring and pinion and drive gears

must be used only. No close ratio gears. Axle over tubes are not permitted. Other internal mods are optional. Rear transaxle mounts may be supported by a maximum of two (2) vertical straps of 0.25"x1" dimension. Adjustable straps are optional. Any gearshift is allowed. May use any manufacturers Type 1, 2, or 181 stub axle. May use any VW CV joint. Oversized bolts allowed.

THROTTLES

Stock pedals with no other modifications must be used.

EXHAUST

Any exhaust system may be used.

This category is exempted from 4.6.3 Driveshafts.

FLUID COOLERS

Any oil coolers permitted with the location optional. Full flow system is permitted.

Vehicle Safety Equipment

There are no restrictions for terminal points of the roll cage.

Any manufacturer's racing seat is permitted but must remain in stock location. If stock seat mounts are to be used, they must be reinforced using at least two U-bolts per seat runner.

DRIVERS COMPARTMENT

It is highly recommended that flammable items such as the rear seat, upholstered panels, headliners and carpets be removed. Removal of dash and firewalls is prohibited. Dash may be covered with aluminum to install gauges. Pedals must remain in the stock fore and aft location.

DOORS and LATCHES

Doors must remain functional and in original stock location with original hinges and working latches. Secondary positive latching devices are mandatory.

FLOORBOARDS

No alterations to pan permitted except for heating, bending or cutting of pan to a maximum of 1-inch to allow for tie rod and CV joint clearance. Frame head may be interchanged from early to late or late to early.

BUMPERS

Original stock bumpers and over-riders must be retained. Stock VW bumper stiffeners are allowed. Brush guards may be added to stock bumpers.

SKID PLATES

Any type of front and rear skid plate permitted. Front skid plate may be attached to lower torsion bar tube with a maximum of two (2) 0.375" U-bolts or two (2) U clamps with a maximum width of 1.5" attached to the skid plate. Skid plate may be extended forward and upward to but not above the top of the front bumper.

FENDERS

Stock VW type 1 Fenders must be used. Fender lips on the underside may be flattened to prevent cutting of tires. A rod of 0.25" maximum diameter may be welded under the outside edge for additional strengthening.

The vehicle must retain full stock chassis and body with no modifications allowed. Rear apron may be removable to facilitate engine removal but must retain stock external appearance. Body must be VW type 1 bug or suntop bug. No convertibles, Ghias, 181's, Variants, or Super Beetles. Running boards may be removed. Front and rear hood latches may be modified or replaced. Hinges must remain stock. Front, rear and side glass is optional. Chrome strips, outside mirrors, antennas may be removed.

12 Historic Categories (at least 20 years old)

12.1 Historic Trucks and Truggys

This is a vintage category for unlimited vehicles that are at least 20 years old.

13 Evolution Categories (up to present day)

13.1 Unlimited

Unlimited 4 wheel vehicles of any age including Class 1 and unlimited trucks. Forced Induction allowed.

13.2 Rally Raid AWD

Vehicles that fit the following dimensions can be classified in Rally Raid AWD category subject to inspection:

- Max Width: 86.5
- Max Travel: 10" front 12" rear
- Max tire: 33"

13.3 Rally Raid 2WD

Vehicles that fit the following dimensions can be classified in Rally Raid 2WD category subject to inspection:

- Max Width: 94.5
- Max travel: Unlimited
- Max Tire: 37"

13.4 Rally Raid Production

Vehicles that fit the following dimensions can be classified in Rally Raid PROD category subject to inspection:

- Max Width: Stock
- Max Travel: Stock suspension type and pickup points, reinforcement allowed.
- Shock mounting free (2 shocks per wheel max).
- Max Tire 33" or stock tire size that was offered on the vehicle as new, whatever is greater.
- Forced induction only allowed if factory equipped

13.5 Modified UTV

This is an unlimited UTV category. All entries must meet the same safety requirements as cars and trucks, specifically full cages, side protection, window nets, fuel cells, racing seats, 5-point harnesses, first aid kits, fire extinguishers, horns, amber lights, etc.

Vehicles in this class must be based on a production UTV and must use a stock concept transmission and final drive system. Aftermarket or OEM forced induction is allowed. Maximum wheel diameter is 15", maximum tire diameter is 32". Maximum wheelbase is 124". Suspension is open. Maximum engine displacement is 1000cc, may not use automotive engines.

13.6 Stock UTV

This category is for showroom stock UTVs, as factory delivered, but with the addition of window nets and 5-point harnesses. Side doors are required to be added if not originally equipped with such. Stock cages, stock gas tanks, stock seats are all acceptable in this class. Basic safety items as required for all cars are also required such as first aid kits, fire extinguishers, horns, rear amber lights, etc.

- Vehicles in this class must retain stock width and stock length front and rear suspension arms and stock shock mounting locations. Wheelbase must remain stock. Track width may only be modified via wheel/tire changes. Maximum wheel diameter is 15", maximum tire diameter is 32". The following performance items may be replaced: wheels, tires, shocks/springs, exhaust, ECU/tune, lights. Suspension arms may be aftermarket as long as stock width/length is maintained. No other performance mods are permitted. Non-performance upgrades are allowed including items such as cage upgrades, seats, fuel cells however these are optional. Note that a fuel cell larger than the stock tank is a performance upgrade and is therefore not allowed. Aftermarket fuel cell, if used, must maintain the same capacity as stock in this class.

This class may be split into Stock Turbo UTV and Stock Naturally Aspirated UTV.

13.7 Class 10

Class 10 is an open wheel class with unlimited suspension and limited engine.

ENGINE

Any engine may be used as long as it conforms to the displacement limits and rules in the following list of options and:

- 1) Series produced production engine with at least 5000 copies available to the general public
- 2) Engine did not displace more than 2.4L in stock production (as sold) form
- 3) No more than 4 valves per cylinder
- 4) It is not a rotary piston engine
- 5) Must be naturally aspirated
- 6) If carbureted option is used:
 - a. it must have a max of 2 venturis
 - b. the max venturi size is 42mm
 - c. must be a production automotive type carburetor
- 7) If fuel injection option is used:
 - a. Intake manifold must remain as delivered by the manufacturer. It must retain its stock shape, size, and configuration. No porting or other modifications. Ports may be matched to the heads, but matching may not exceed .250" (1/4 inch) deep. Manifold must be the unit that was installed and delivered on the engine by the original manufacturer. Only U.S.A. delivery fuel injection is permitted. Manifold must be installed and sold on production vehicles for street use in the U.S.A. and be readily available to the general public.
 - b. Throttle body must be production (OEM) type readily available to the general public in the U.S.A.

Displacement Limit Options

- 1) Water cooled, 8-valve, single 2 barrel carb, single seat: 1800cc
- 2) Water cooled, 8-valve, single 2 barrel carb, two seat: 1900cc
- 3) Water cooled, 16-valve, single 2 barrel carb, single seat: 1750cc
- 4) Water cooled, 16-valve, single 2 barrel carb, two seat: 1850cc
- 5) Water cooled, 16-valve, stock fuel injection with max throttle body of 58.5mm, single seat: 1750cc
- 6) Water cooled, 16-valve, stock fuel injection with max throttle body of 58.5mm, two seat: 1850cc
- 7) Air cooled, 4-cyl pushrod, 2 carbs or stock fuel injection, single seat: 2200cc
- 8) Air cooled, 4-cyl pushrod, 2 carbs or stock fuel injection, two seat: 2400cc
- 9) GM Stock Production Engine: 2.2L or 2.4L GM Ecotech, stock fuel injection, DI or IDI, single or two seat
- 10) Ford Stock Production Engine: 2.0L 16-valve, stock DI, stock ignition, I4-DI-TIVCT single or two seat

Options 9 & 10 above (Stock Production Engines) must be sealed by Turnkey Engine Supply, Oceanside CA

13.8 Class 6100 – Now part of Heavy Metal Class

Class 6100 is an unlimited truck class with a limited engine and a few other limitations listed below. Vehicles in this class must look like a Truck or SUV and have fenders on all four wheels.

Maximum tire diameter is 37"

Transmission must be a T-400 and have 3 forward gears and a working reverse gear. No under drives, no over drives.

Rear suspension must be a straight live axle type equipped with a standard Ford 9" style removable third member, standard type bearings, floating hubs and drive plates. Gear reduction hubs are prohibited. Engine must be mounted in the front of the vehicle with pulleys facing forward. Mid-engine configurations are prohibited.

ENGINE

Engine is limited to a sealed 8 cylinder. Only those engines listed here are permitted. See below list.

- 1) Ford 5.0L V8 engine kit part number M-6007-M50S with wire loom and control pack
 - a) part number M-6017-A504V
- 2) Ford 5.0L V8 engine kit part number M-6007-S374W
- 3) 2. General Motors LS3 V8 engine kit part number 19301326 (Rev 5/19/14) with wire loom and control pack
 - a) part number 19258270

Billet fuel rails are allowed. Engines must be naturally aspirated. No dry sump oiling systems. Ford engines must use unmodified wet sump stock oil pan. GM engines must use stock wet sump oil pan but may be modified by Turnkey. No external oil pumps. GM must use OEM water pump. External oil coolers and filters are allowed provided the only change is to use an external filter adaptor. A 3-quart oil accumulator is allowed. GM engines may use aftermarket high volume oil pumps and harmonic balancers however both must be installed by Turnkey. GM engines may use a race quality harness.

13.9 Class 8 – Now part of Heavy Metal Class

Production based open truck / SUV. Entries in this category must be based upon a production truck or SUV.

Suspension Components

Front suspension must remain stock concept as delivered on the vehicle as determined by the frame/chassis (solid axle, a-arm, I-beam, etc). Spring and shock method and type are open. Front springs (leafs, coils or torsions) may be replaced with coilovers.

Rear suspension is open.

Engine must be mounted in the stock location as delivered from the manufacturer, for the frame used, +/-1". This will be measured from the centerline of the front spindle to the back of the block. Height will be measured from the top of the frame rail to the centerline of the crank. Engine is open to any manufacturer regardless of chassis make.

Forced Induction is allowed.

Fenders are required for all four wheels. Independent rear suspension not allowed unless factory equipped on the chassis from which the vehicle is built.

Must look like the truck or SUV from which it was built, as determined by the frame/chassis, at the discretion of NORRA. The original wheelbase for the frame/chassis used must be within +/-2" from stock. Frames may be strengthened by adding material but must retain original stock configuration. Removal of frame material is not allowed. The frame length and width cannot be altered from stock however the front 8" of the bottom of the frame may be removed for ground clearance as long as the top of the frame is left intact. The rear of the frame may be notched at the axle centerline. The notch cannot extend more than 4" fore or aft of the axle centerline nor can it extend more than 3.75" up from the bottom of the frame rail or to the bottom of the top frame rail, whichever is shorter.

13.10 Heavy Metal

Heavy Metal is a grouping of several classes designed to create larger fields. The following classes are included in the Heavy Metal class: Class 8, Class 6100, Pro Truck, Class 1450, Class 6, Class 7200, Class 3, Spec TT. The rules for Spec TT are to be the same as are in use by other premier race series. As this is a grouping of cars from various classes, NORRA reserves the right to allow any vehicles into the class that NORRA deems to be within the spirit of "Heavy Metal".

13.11 Class 7100

This is a limited category for mini and mid-sized trucks with rear leafs. Restricted items follow:

Front suspension must be of the same configuration as was originally produced. Suspensions may be strengthened and reinforced or fabricated in any manner as long as stock original concept (a-arm, I-beam, etc.) is retained. Lower A-Arms must retain stock pivot points but maybe reinforced. Upper A-Arm pivot points are open. No J-Arms. I-beams must mount in factory pivots in the stock location, pivots can be reinforced. Radius arms can be custom and pivot point location is open. Pivots can be custom, reinforced and/or gusseted. Ball joints may be of any manufacturer. Spindles may be of any manufacture and may be reinforced. After market suspension kits and components are allowed. Pivot mounts may use spherical bearings in place of the stock rubber. Spring buckets maybe clearanced to provide room for shocks and coilovers, only minimum frame material may be removed for the purpose of mounting shocks or clearance for steering. Front and rear track width is open.

Rear suspension must utilize an automotive style differential. Rear springs may be relocated to the side of the frame. Frame may not be modified or notched in any manner. Springs may be mounted above or below the axle. Spring rates and capacities are open. Two single point rear differential anti-wrap bars or a single wishbone may be used. Rear wheel travel limit is 18" axle to frame rail. Stock sway bars may be removed. Hydraulic bump stops are permitted. Air shocks are not permitted. Secondary suspension is not permitted except as provided above.

Maximum tire size is 35".

Steering box must remain stock and original concept as produced by the mini or mid-sized truck manufacturer. Steering box mounting may be reinforced by adding material but must remain in the stock location. Aftermarket steering column mounted "steering quickeners" may be utilized. Steering components (tie rods, tie rod ends, idler arms, relay rods and turning arms) may be specially made providing they mount in stock location and operate in the original manner. Pitman arms must be stock and original but may have material added. Any manufacturer steering wheel may be used. A maximum of three inches fore or aft may be made in the steering wheel location.

Vehicles with 3000 - 4300cc engines must retain the vehicle manufacturers stock CPU / ECU computer and ignition as delivered by the factory.

Engine must be one delivered in the vehicle or one that is available from any truck from same manufacturer (with the provisions listed herein) from the manufacturer / importing distributor with a maximum of six cylinders. Engine must be available to the general public of the U.S.A. Maximum engine displacement is a) Stock production 3000cc - 4300cc or b) modified 2999cc and smaller (187.5ci). Rotary piston engines are not permitted. Engine block must be of the same type of material as that of the block originally delivered in that particular chassis body combination. Water and vapor injection is not permitted. Engine location must be the stock mounting location as delivered from the manufacturer plus or minus 1-inch. Engine mounts are open. This will be measured from the front spindle centerline to the back of the block.

2999cc and smaller engine rules:

Alternate manufacturer's/importing distributor's engine provisions:

- A. It retains a maximum of six cylinders as originally produced by the manufacturer.
- B. It does not displace more than 2999cc.
- C. It has a manufacturer's stock number.

Any head may be used providing it is offered by the manufacturer as an option or as a replacement. Head may be used as long as the following apply:

- A. Retains the same number of camshafts.
- B. Retains the same number of valves per cylinder.
- C. Has manufacturer's stock number.
- D. Is available to the general public of the U.S.A.

Unrestricted engine items include:

- A. Strengthening and balancing
- B. Valve train and camshaft
- C. Pistons
- D. Blueprinting
- E. Oil and water-cooling systems. Radiator must be in stock location.
- F. Air cleaners
- G. Fuel pumps
- H. Exhaust system

Any make of carburetor or fuel injection may be used but must maintain a maximum of one venturi per cylinder.

3000cc - 4300cc engine rules:

Engine must be stock production as produced by the vehicle manufacturer for that model of vehicle. Engine must remain stock with no modifications made to the block, internal components, or heads. All engine components must bear the part number as that of a stock engine as available from the vehicle manufacturer. Engine may not be a high performance engine as available from the vehicle manufacturer for replacement of the stock performance engine that is normally installed in a mass produced vehicle.

Restricted items:

- A. Intake manifold. (Must remain stock vehicle manufacturers factory intake manifold)
- B. Fuel injectors
- C. Mass air flow sensor
- D. All internal components IE: pistons, cam, crank etc.
- E. Block and heads

Unrestricted engine items include:

- A. Oil and water-cooling systems. No Dry sumps.
- B. Air cleaners - open
- C. Fuel pumps - open
- D. Exhaust system – open

Stock production vehicle manufacturers factory fuel EFI must be maintained as delivered.

TRANSMISSION

Any OEM style transmission may be used T400, T350, C4, C6, etc. No underdrives allowed. Any shifter may be used.

DIFFERENTIAL

Front differential must remain original stock as delivered by the manufacturer, with the exception of gear ratios. Materials may be added for strengthening purposes only. Front differentials, including traction beam type, may be reinforced. Rear axle assembly must use standard automotive style. Housings are open. Gear ratios, carriers, axles and floating hubs are optional. No gear re-ducted rear ends allowed. Only a single ring and pinion rear end is allowed. Axles are limited to a maximum of an industry standard 40 spline 1.750" diameter axle. Knock-off hubs are not permitted.

DOORS & LATCHES

Doors must be full doors and must operate on stock hinges and latches. Doors must have a secondary latching device.

FIREWALLS

Firewalls must remain stock, complete and in original location. Firewall clearance is permitted only to make room for transmission. Holes left in stock firewall must be covered with metal and sealed. Firewall maybe modified for tire and shock clearance and replaced with sheet metal.

Alterations to floorboard, for the routing of exhaust to rear of vehicle, are permitted but floor must remain stock.

CHASSIS & BODY

Specified year chassis and cab combinations of manufacturer must be retained. Front fenders hood, grill and rear fenders open.

CHASSIS

Original wheelbase must be maintained plus or minus 1-inch. Frame may be strengthened by addition of material but must retain stock configuration. Lengthening or narrowing of frame is not permitted. Removal of material is not permitted. Frames may not be altered.

Frame rail exceptions:

- A. The front end of the frame rail may be notched a maximum of 7 inches from the end for ground clearance. Top of frame rail must remain stock.

BODY

Original body shape, size, configuration and appearance must be maintained. Additional body strengthening mounts or parts may be added. Original stock mounting location (vertical, horizontal, and lateral) in relation to the frame and mounting methods must be retained. The measurement from the spindle centerline to the back of the b-pillar post must remain stock plus or minus 1-inch. Body mounts may be modified for tire clearance. Internal body structural members may be removed. Clearance holes may be cut or drilled for roll bars, supports, shocks, etc. Hoods, trunk-lids, doors fenders and bedsides are required to be in original stock locations. Hoods, front fenders and bedsides may be of any material. Tailgates and pickup bed front panels are optional. Stock front grill assemblies are mandatory. Safety glass windshields, side and rear glass is optional.

WEIGHT

Vehicle must weigh dry 3250 lbs. minimum

13.12 Ultra 4x4

Unlimited 4 wheel drive vehicles.

Vehicles in this category must be able to be driven by all wheels at the start of the event.

Forced Induction allowed

13.13 Trophy Lite

This is a Spec category for TrophyLite vehicles.

Competition Rules

This is a spec category and all components are considered to be specified by the TrophyLite specs unless restricted herein. Contact TrophyLite for details.

13.14 Meyers Manx

This category is for any model of genuine Meyers Manx vehicle. Meyers Manx vehicles of any age (including new) may enter this vintage category.

13.15 Modern Military Vehicles

This is an open category for any stock military 4 (or more) wheeled vehicles produced for the US or a foreign military. Limited production prototypes are allowed. Forced induction allowed.

13.16 Prerun Trucks

This is a category for prerunner trucks/suv's defined as vehicles with operational hinged doors. No buggies in this category. Front and rear suspension is open. Forced Induction allowed.

13.17 Prerun Buggies

This is a category for prerunner buggies defined as buggies with back seats such as "4-seaters" (or 3-seaters). No trucks/SUV's in this category. Front and rear suspension is open. Forced Induction allowed.

13.18 RV (Recreational Vehicles)

This is an open category for any vehicle designed to have overnight sleeping quarters. 4x4 is allowed. Typical vehicles in this class would include VW Westfalia and van conversions such as Sportsmobiles, Quigleys, and others. The bed should be built into the interior as a permanent installation such as a folding dinette or sofa sleeper or bed in the pop-up, etc. An air mattress in an empty cargo van would not qualify for example. Entries in this class are subject to approval by NORRA. Safety items such as seats and harnesses subject to NORRA approval as well.

14 Motorcycle and ATV Categories

14.1 Modern Open

Motorcycles of any age, size, or type are allowed.

14.2 Modern Lites

Motorcycles of any age with a maximum 2-stroke displacement of 250cc or a maximum 4-stroke displacement of 400cc.

14.3 Vintage Open

Motorcycles made in 1993 or older of any displacement or type.

14.4 Vintage Lites

Motorcycles made in 1993 or older with a maximum 2-stroke displacement of 250cc or a maximum 4-stroke displacement of 400cc.

14.5 Super Vintage

Motorcycles made in 1984 or older of any displacement or type.

14.6 Classic British Thumpers

Four-stroke British motorcycles made in 1976 or earlier.

14.7 Two Strokes Only

2-stroke motorcycles of any age, displacement, or type.

14.8 50+ (aka Vintage Dudes)

All riders must be at least 50 years of age on the day of tech inspection. Any age, size or type of motorcycle is allowed.

14.9 ATV (4 wheelers)

4-wheel ATV of any displacement, type or model year. Side by side UTV not allowed in this category.

14.10 ATC (3 wheelers)

3-wheel ATC of any displacement, type or model year.

14.11 Side Cars (Motorcycles with side cars)

Motorcycles with side cars of any model year, type or engine size.

15 Appendix A – Change History

Version 1.0
October 19, 2011
Initial Release

Version 1.1
January 20, 2012

- Changed category EG, Stock VW, to allow for a wider range of modifications to accommodate full body / fender beetles as raced in CODE and as in common use as prerunners in Baja.
- Created two motorcycle categories for Adventure Riders as defined by a minimum fuel capacity of 5 gallons.
- Changed maximum engine displacement in category VB from 2.0l to 2.2l.

Version 2
November 15, 2012

- Reformatted and condensed rules.
- Switched class codes to more descriptive scheme
- modified rally car rules

Version 2.1
December 28, 2012

- Corrected omission of revised motorcycle category definitions.
- Updated starting order

Version 2.2
January 30, 2013

- Corrected omission that allows for 2.3l type 1 VW engine in category VOB22.
- Added rule to restrict VOT category such that vehicles built without production frames must have been built in 1988 or earlier. Open class trucks built without production frames from 1989 to present are welcome in the Evolution Unlimited category.

Version 2.3
February 7, 2013

- Added Vintage Unlimited category
- Added rules to the VOB category to require independent rear suspension if built in 1989 or newer.

Version 2.4
June 28, 2013

- Eliminated Vintage Unlimited category, Unlimiteds of any age can enter Evolution Unlimited.
- Combined EVWS & EVWL and moved them to vintage under VVW (Vintage VW Beetle).
- Created V108-77
- Eliminated E100 which can run in V108, V108-77, or E108
- Eliminated categories for Evolution leaf sprung trucks which can fit into other categories.
- Increased maximum engine size in vintage leaf spring truck with limited engine from 4.0l to 4.5l
- Clarified that categorizations are based on chassis not body and prohibited IRS in truck categories
- Removed water cooled engines from VOB22
- Created new category VOB30 for air cooled engines to 3.0l or water cooled engines to 2.5l. (Class 5)
- Eliminated EOB24 which can run in EOB45
- Eliminated ELB16 which can run in VOB22
- Added a category for electric vehicles
- Added a category for electric motorcycles
- Added a category for RV's or trailers
- Removed limited engine ATV category
- Merged sidecars and ATC (3-wheelers)
- Reduced Rally Car categories to two: AWD and 2WD
- Reduced number of motorcycle categories (now is Open and Limited, New and Old, plus 50+ and Rally Raid)
- Banned GPS from Rally Raid category and opened category to all motorcycles
- Added category V5-16

Version 2.5

December 26, 2013

- Added Vintage Unlimited category
- Added Super Vintage motorcycle category, for 1984 and older bikes
- Eliminated Snell 2000 helmets, added Snell 2010 (racers to be given 2014 as grace period with warning)
- Added requirement that driving suits be SFI 3-2A/1 (or greater) certified (racers to be given 2014 as grace period with warning)
- Banned GPS from Rally Car categories
- Eliminated the maximum tire size rule

Version 2.6

March 6, 2014

- Reversed decision to ban GPS from Rally Car categories – GPS is now allowed in all cars.
- Added Classic British Thumper category

Version 2.8 (Ver 2.7 was internal work in progress, not published)

December 16, 2014

- Removed Snell 2000, all Snell rated helmets must now be Snell 2005 and up.
- Added requirement for SFI 3-2A/1 (or greater) certified fire suits
- Noted that navigation for Evolution and Moto categories shall be by roadbook only, no GPS file will be provided
- Vintage shall run a different route and will be provided with a GPS file
- Changed requirement for Vintage to be 1992 and earlier with two exceptions, a) beam cars of any age may enter Vintage, and b) production based vehicles later than 1992 shall be allowed in Vintage if the body style of the vehicle was available in 1992 or earlier.
- Added 35" maximum tire size limit for all Vintage categories
- Added 37" maximum tire size limit for Historic Trophy category
- Added 37" maximum tire size limit for all Evolution categories
- Replaced VUNL (Vintage Unlimited) category with HTT (Historic Trophy) category for unlimited vehicles at least 20 years old, this class will run under Evolution rules and on the Evolution route.
- Restricted rear coilovers in VOB22 category to only vehicles that ran rear coilovers in 1992 or earlier.
- Added a Vintage category for genuine Meyers vehicles
- Added an Evolution category for leaf sprung mini/mid-sized trucks
- Eliminated the E108 and RV categories
- Updated rally categories

Version 2.9

January 8, 2015

- Added category for 2-stroke motorcycles

Version 2.10

March 14, 2015

- Increased tire size restriction for all Vintage categories to 37" (unless noted otherwise in category specific rules)
- Removed tire size restrictions from Historic Trophy and Evolution categories (unless noted otherwise in category specific rules)
- Clarified rules on Forced Induction which were inadvertently removed from previous rule book edits.
- Clarified the pre-1980 exception for the VOB22 category, no change in policy nor to VOB22 rules.
- Removed requirement that motos and Evo navigate via roadbook only. GPS files will now be made available to all competitors in the Mexican 1000.
- Modified EOB45 to allow truck/suv bodies to be used on buggy chassis
- Modified EOT and EOT45 to allow IRS if so equipped on the chassis from which the vehicle is built
- Added UTV rules

Version 2.11

March 26, 2015

- Added Pro Unlimited and Pro Moto categories which race for a cash prize (when included in event).

Version 3.0

August 30, 2015

- Major overhaul to create technology Era based classes. Publishing for public feedback, will revise and make final on September 30, 2015 for the 2016 event.

Version 3.1

September 13, 2015

- Removed statement about 1" bigger tires as it was misunderstood. The specified tire size limits are the limits.
- Allow Pioneer and Legend trucks & 4x4s to use 35" tires to avoid track blockages from getting stuck
- Removed a mistaken comment that said solid front axle was required in Vintage Short Wheelbase 4x4
- Clarify that shock reservoirs and shock water cooling is allowed in any era unless specifically restricted by class
- Restricted Pioneer and Legend Buggies to 95" wheelbase and stock pans. Buggies that are eliminated by this can run in the Buggy class for that era (provided they meet the buggy rules)
- Added rule that no rear links are allowed in Pioneer truck and 4x4
- Added rule that a maximum of 2 rear links are allowed in Legend truck and 4x4
- Added rule that 3 or 4 links are allowed in Challenger truck and 4x4, but must still be sprung by leafs.
- Changed name of Vintage Limited Buggy to Vintage 6-Cylinder Buggy
- Added Vintage 4-Cylinder Buggy with a 2.5L limit
- Changed name of Vintage Limited Truck to Vintage 6-Cylinder Truck
- Added Vintage 4-Cylinder Truck with a 2.5L limit
- Reworded class 11 rear trailing arm to insure they are stock but can be reinforced and clarified that stock combinations of irs/ball joint or swing axle/link pin must be maintained.

Version 3.2

September 20, 2015

- Require solid front axle 4wd in Legend 4x4, Challenger 4x4, Vintage Short Wheelbase 4x4 (this was previously required in Pioneer 4x4 and still is).
- Allow for 4WD in Pioneer Trucks, Legend Trucks, and Challenger Trucks so that IFS 4wd trucks have a home.
- Shorten the wheelbase limit in Vintage Short Wheelbase 4x4 to 108" which allows for Jeeps, Blazers and Solid Axle Broncos. Longer wheelbase 4x4's as well as IFS 4x4's are welcome in Vintage Open Truck 4x4.
- Challenger Buggies, limit the water cooled option to VW engines only. Non conformers welcome in Challenger Buggy.
- Challenger Buggy, allow 3.2L Porsche based engines with a displacement limit of 3.5L (allows for rebuild using more common 3.6L crank).
- Added note for racers to expect more restrictive "era correct" engine technology rules in 2017 addressing items such as EFI and engine designs.

Version 3.3

September 30, 2015

- Corrected wording in Vintage Class 11 rules.
- Finalized the UTV rules (no changes other than to remove the request for rule feedback).

Version 3.4

February 17, 2016

- Added class for Stock UTV, renamed existing UTV class as Modified UTV

Version 3.5

July 20, 2016

- Restricted Vintage Era buggy classes to beam front suspension except for cars documented to have had A-arms 20 years ago (tribute cars can no longer run A-arms in Vintage Era)
 - A-arm tribute cars are still welcome in the Historic Era
- Eliminated the Pro Unlimited and Pro Moto classes. (The optional race-for-cash is a side bet open to all classes, not a class in and of itself.)
- Merged Class 8 and Class 6100 into Heavy Metal Class (Evolution Era)
- Updated Helmet rules

Version 3.6

October 3, 2016

- UTV classes allowed to use 2-inch wide harnesses
- UTV classes allowed 32" max tire diameter as marketed by the manufacturer
- Stock UTV class allowed to use aftermarket suspension arms as long as stock width/length maintained
- May split Stock UTV into two classes for Turbo, non-turbo depending upon demand for this.

Version 3.7

October 13, 2016

- All vehicle classes allowed to use 2-inch wide lap and shoulder harnesses if SFI 16.5 certified. UTV categories may use 2-inch belts that are SFI 16.1 certified.
- Announced the maximum harness age will be reduced from 5-years to 3-years in 2018.

Version 3.8

October 29, 2016

- Added note to Stock UTV class that a fuel cell larger than the stock tank is a performance upgrade and is therefore not allowed. Aftermarket fuel cell, if used, must maintain the same capacity as stock in this class.

Version 3.9

January 22, 2017

- Added Spec TT to the Heavy Metal group (which already includes 6100) in recognition that there are now differing rule sets for these classes. Both 6100 and Spec TT will race together in Heavy Metal at NORRA, along with several other limited truck classes.
- Added the RV class back in due to customer request.