

# 2010 ASA MIDWEST TOUR RULES

The Guidelines and/or regulations set forth herein are designed to provide for the orderly conduct of racing events and to establish minimum acceptable requirements for such events. These guidelines shall govern the condition of events and participation therein. They are intended as a guide for the conduct of events and are in no way a guarantee against injury or death to a participant, spectator, or official. The Director of competition, or his authorized designate, shall be empowered to permit minor deviation from any of the guidelines and or regulations herein, or impose any further restriction, which, in his or her opinion, does not alter the purpose of the organization. Deviation of these guidelines and or regulations will be the responsibility of the ASA Midwest Tour series officials, whose decisions are final.

## A. Eligible Cars and Bodies

1. All competing cars will be full-sized, stock American manufactured passenger car bodies that conform to the current A-B-C body rules are allowed, 2004 or newer. Current A-B-C Body Rules apply unless otherwise specified herein. Refer to A-B-C Rulebook Body Guidelines will be posted at [www.asamidwesttour.com](http://www.asamidwesttour.com)

Spoilers- 5 x 60 required.

103 min. wheelbase plus or minus 2" 64 inch's plus or minus 1 inch. 65 inch's to 66 inch's ADD 25 lbs. You must declare this at pre-tech and your car sticker must show the plus 25 lbs. Over 66 inch's DQ.

## B. Engines

2. Statement- It is in the best interest of the ASA Midwest Tour to allow various engine combinations to compete in series events. Providing, your engine combination is approved for competition by the ASA Midwest Tour office if otherwise not stated in the rules and regulations. There will be Two (2) engine combinations approved for all events at all times. (9 to 1 Aluminum, A.C.E. are the (2) preferred choices) "Other" types of engine packages will be approved for competition and listed in this section. Weights for all engines will be listed below.
3. Block must be cast iron. (Exception: Schwanke and Wegner Spec engines only)
4. No 18 degree or SB2 Chevrolet Heads
5. Minimum Crank Height is 10 inches measured from the center of the forward crank bolt.
6. All GM V-8 engines must be located so that the centerline of the forward most spark plug hole is no more than 2 inches back from the center of the upper ball joint. Ford and Mopar engines may be located so the center of the forward most spark plug hole of the engine is a maximum of 4 inches rearward of the centerline of the upper ball joint.
7. Antifreeze is strictly prohibited

## C. A.C.E. Head Engine

Must be able sell Heads, complete for \$2500.00 (hardware, valves, valves springs, retainers, keepers and guide plates.) Heads must be stock out of box.

Valves 11/32 Valve Stem or 5/16 Valve Stem may be used

Approved valve part numbers

<u>GM-Ford</u>	<u>Intake</u>	<u>Exhaust</u>
BRODIX	BR81019	BR81621

Engine Tech BR810198 BR81621  
FERREA F1121P F1476P  
MANLEY 11818 11595  
REV CL-1643 CL-1604 CL-8003 CL-1171

## **Mopar**

BRODIX BR60029 BR60037

All valve spring sizes must be 1.55 MAX

No shaft rocker arms allowed except on Mopar engines

Steel or Titanium Valve Spring Retainers are permissible

Maximum 4 stage oil pump

May have one extra water line per head

Valve job may be blended into combustion chamber 3/8 inch from seat.

### **1. ACE Engine MANIFOLDS**

Any production type intake manifold allowed - provided it is readily available to all competitors from local race part suppliers. (Maximum cost \$375.00) Maximum height of manifold is 7.25" (including any carb spacer and gaskets) the manifold height will be measured from the base of carb to top of cylinder block. Only one flat gasket with a maximum of .120 may be used between intake manifold and cylinder head - no spacer or wedge type gaskets allowed. No additional material may be added to manifold. No grinding or polishing of any part of the manifold - except you may match port the runners a maximum of 1".

### **2. ACE Engine PISTONS**

Flat top pistons only - no part of piston may protrude above top of cylinder. (Maximum) compression ratio 10.5 to 1 (10.510 is illegal). Maximum Engine displacement for GM and Ford is 358 C.I. inches, Dodge will be 360 C.I. and Minimum 350 C.I. for GM, 346 C.I. for Ford.

### **3. ACE Engine CAMSHAFT**

The max lift on any roller cam is .625. Duration rule is 270 at 50 thousandths. No mushroom type lifters. Inlayed cams are prohibited. The maximum rocker ratio is 1.6 to 1. Rev kits of any type are prohibited. Only steel push rods (Titanium, aluminum or graphite are prohibited). No roller bearing camshaft journals. Magnetic steel lifters no ceramic.

### **4. ACE Engine CONNECTING RODS**

Only ASA approved steel rods allowed. No titanium, aluminum, graphite or stainless steel. Rods using 3/8" bolts are allowed.

### **5. ACE Engine BLOCKS**

Must be standard factory production cast iron. (Only 010 or bowtie approved). No aluminum blocks permitted. No altering of Engine block permitted..\* Absolutely NO Grinding or lighting of blocks . The use of aftermarket blocks will be allowed in ACE engines. The engine builder must be on the Approved Engine Builder List and a bond must be on file. No big bore short stroke ACE engines will be allowed.

### **6. ACE Engine CRANKSHAFT**

Standard steel type only, Minimum allowed weight of 43 Lbs. Stock angle crankshaft allowed. Light weight, undercut counter weight crankshaft are prohibited.

No Honda journal crankshafts.

Stroke 3.400 Min to 3.500 Maximum.

Minimum 1.980-rod journals or any under sized journals under factory dimensions.

## **7. ACE INSPECTION**

A 1.5" plug must be installed in the oil pan for inspection purposes. This hole must be directly under or side of the rod journal. If a windage tray is used, a hole must be provided in line with the hole in the oil pan. Cylinder head removal after any race may be required for inspection purposes.

## **D. 9 to 1 Aluminum Head Engines**

### **1. ENGINE BLOCK**

Must be standard factory production cast iron.

Stock appearing

No aluminum blocks permitted.

### **2. CRANKSHAFT**

Standard steel type only, minimum allowed weight of 38 lbs., stock angle crankshaft allowed.

### **3. PISTONS**

Flat top pistons - no part of piston may protrude above top of cylinder.

9 to 1 aluminum headed motors will have a 9.5 to 1 compression ratio (a ratio of 9.6 to 1 or higher will not be allowed).

Maximum engine displacement of 358 C.I. and minimum 347 C.I.

Aluminum headed motors may use dished or inverted dome pistons.

### **4. CONNECTING RODS**

Only ASAMT approved steel rods allowed.

No titanium, aluminum, graphite rods or Stainless steel are allowed.

### **5. CAMSHAFT**

Only steel push rods (titanium, aluminum or graphite are prohibited).

9 to 1 Aluminum headed engines are allowed roller cams and rev kits.

### **6. HEADS**

All cylinder heads must be approved by ASAMT and all modifications must be submitted to ASAMT before any proposed modifications will be approved. All cast in part numbers must remain unaltered.

Painting and /or coating of the heads will not be permitted.

No 18-degree Chevrolet heads.

Heads that are already approved are:

#### General Motors

- a. air flow research      AFR 215 and 220
- b. all pro                      AP227
- c. brodix                      3941075
- d. Chevrolet                10051101
- e. Edelbrock                7755
- f. Pontiac                    10033867

#### Ford

- a. Brodix                      3941078
- b. Ford                        M-6049-C302 with 4 degree valve cant

Mopar: Call for approval

All other heads must be approved prior to any competition by ASAMT.

For all 9.5 compression motors the cylinder heads must be acceptable to ASAMT officials and meet the following requirements:

- Only steel or titanium valves will be permitted
- Only magnetic steel valve springs will be permitted
- Only 2 valves per cylinder will be permitted
- There are no valve size restriction
- Internal polishing and porting will be permitted
- Spark plug holes must remain in stock location
- Valve angle must remain within 2 degrees of stock angle
- Valves must remain in the stock location in relation to the cylinder bore centerline

## **7 INTAKE MANIFOLDS**

No Fabricated Intakes

Only one flat gasket with maximum of .120 may be used between intake manifold and cylinder head

No spacer or wedge type gaskets allowed..

May be polished and ported

Not permitted will be:

- Added directional devices will not be permitted inside the intake manifold
- Air holes will not be permitted to be opened in the intake manifold
- Painting and /or coating of the intake manifold will not be permitted.

## **8 CARBURETOR**

One carburetor only, must be official approved.

Any 4412 Holley 2 bbl 500 cfm, Carburetor will be permitted stock carburetor with choke tower removed is approved (except 4412 2 bbl.) Must pass ASAMWT inspection.

## **9 MISC**

No engine part maybe composite

All part numbers must remain on all engine parts

No crank fire Ignitions

## **E. Iron Headed Concept**

### **DELETED**

## **F. Carburetors**

Boosters must be stock appearing and as cast for carb style and no extra holes may be drilled, and may not be tapered. Must also be in stock location in body. No modifications of boosters allowed.

Spacers can be 1 1/2 max and bores must be perpendicular to the base. No tapered spacers.

These parts must be ASAMT gauge legal.

Throttle bores

Boosters and booster legs

Throttle plates

Throttle shafts

Main body

Metering blocks must be stock as cast for carb style and no extra holes may be drilled. Block may be plugged and may be machined but must remain stock appearing no aftermarket blocks

## **G. Fuel and Fuel cell**

No oxygen bearing or performance enhancing additives may be introduced into the inductions or fuel supply, either at the fuel cell or upstream in the system. Violations will result in immediate disqualification from the event; forfeiture of Owner and Driver points, and monies/contingencies earned for the event. A Series fuel to be determined will be mandatory at all events. Ethanol (E-85) will be permitted on a test basis only.

Fuel cells with rubber bladders

Fuel cell plates or fuel cell tubs are mandatory.

Fuel cell protector plate 1/8 thick steel must be mounted on outside of frame rails. The plates must cover the sides and rear of the fuel cell and be official approved. Fuel cell minimum height 11 inches. Fuel cell must be banded both ways with two straps each way. 1-inch minimum straps.

Fuel cell tub 1/8 thick steel with one-inch lip. Front, bottom and rear will be one piece. The top of the box will use current 18 or 20 gauge top with 1 inch by 1/8 straps with two in each direction.

All fuel cell cans must be magnetic steel. All fuel cells must have check balls in place. Racing pump fuel only

Any over the axle style rear tail style chassis must use approved 1/8 inch magnetic steel fuel cell can. Any chassis with incorrect fuel cell can will be asked to change or be disqualified. The cell must be bolted in with a minimum of 14-3/8 bolts with flat washers on top and lock washers on bottom. The top for this cell will be 18 gauge steel with straps in both directions. A sonic tester will be used to check fuel cell can thickness. Fuel cell can pictures will follow.

**I. Weight Combinations - (Please note that all weights are subject to change based on performance and track size. Any other engine combinations will need to be approved by the series office prior to entry of any event. The ASA Midwest Tour recognizes two engines as official engines of the series. 9to1, ACE.**

**II. All other engines must be approved for competition.**

**III. All Cars will be 58% Max left side weight.**

**2750 lbs - ACE Engines with 4412 2bbl Holley- 500 CFM**

**2750lbs - McGunegill sealed engine with 4412 2bbl Holley- 500 CFM**

**2750 lbs - Schwanke sealed engine with 4412 2 bbl Holley- 500CFM**

**2750 lbs - Wegner sealed engine with 4412 2 bbl Holley- 500 CFM**

**2800 lbs - 9 to 1 Aluminum Engines with 4412 2 bbl Holley- 500 CFM**

## **H. Mufflers and Headers**

Mufflers are required for competition in the ASA Midwest Tour. Any car not meeting the 95 decibels WILL NOT RACE. All exhaust highly recommended to exit under car to meet this requirement. All exhaust systems must have mufflers that are not tampered with or hollowed. No custom high dollar headers (no lightweight stainless, Titanium or Inconel) allowed. Any collector may be used with out a cone style inserts. No one off custom header allowed.

**\*\*\*ANY CAR NOT MEETING THE 95 DECIBELS WILL NOT RACE\*\*\***

## **I. Air Intake**

1. Forward intakes are not allowed. Air boxes are permitted. The back of the air box must be flat **or must be stock five star part.**
2. No devices for directing the flow of the air into the air cleaner are permitted.
3. No additives allowed in air filter.

## **J. Clutch**

1. The 5.5 inch or bigger will be the only clutch allowed. Max price msrp. \$1600
  2. Absolutely no carbon fiber or poly clutches allowed.
- Bell housing must have a minimum 2 1/2" hole at bottom  
(to allow a clear view of clutch).

## **K. Transmissions**

- Bert or Brinn style transmissions ARE allowed.
- No bottom load transmissions.
- Must have two forward and 1 reverse working gears minimum.
- One single lever shifter.
- Must be self starting.

## **L. Brakes**

1. All cars must have functioning brakes on each wheel.
2. No more than 4 piston brake calipers.
3. Fixed mounted or Floating rotors are the only steel rotors allowed.

**Maximum \$500 limit on brake calipers for all SLM'S**

## **M. Shocks**

1. Maximum cost on racing shocks is MSRP \$525 and Canisters are \$275

**N. Suspension** - Coil over or leaf allowed. - No computer or hand operated controlled suspension. - No aluminum axle tubes, no titanium axle shafts, no aluminum rotors, no carbon fiber rotors.

## **O. Roll Cage Construction**

Following are the minimum specification requirements for roll cage construction approved for ASA Midwest Tour competition. ASA Midwest Tour Officials reserve the right to sonic test any or all, structural chassis members at any time during a sanctioned event. Structural chassis member(s) found in violation of minimum requirements render that chassis ineligible for competition until minimum standards are met or exceeded. Drilling holes to lighten any part of the body, chassis, suspension or bolts is not permitted. Only steel round; rectangular or square tube is approved for roll cage or chassis

construction of any main or supporting sub-structures. Wall thickness; size and/or diameters are specified where necessary.

A four-point (4) roll cage structure utilizing a minimum 1.75-inch x .090-inch (1-3/4"x.090") OD D.O.M. steel tubing is mandatory. The entire structure must be welded to the primary frame structure with a minimum of four (4) horizontal driver side door bars.

A minimum of 2" x 3" x .095" wall steel tubing is mandated for main frame rails. Main frame rails are identified as Mid-Section Rails. Main frame rails and side rails must be located within the normal Tread width of the car. A minimum of 2" x 3" x .083" wall steel tubing is optional for Front Clip Rails, Rear Clip or Kick-up Rails. No material substitution permitted.

Roll cage structure must be braced to the front frame stub, with the hoop section surrounding the engine compartment; running rearward with diagonal member's connection to the rear frame section. Nose, right side kick outs and rear bumper cover supporting structures must be a minimum 1.500-inch x .063-inch OD steel tube. No material substitution permitted. **ABSOLUTELY NO Aluminum** allowed on the structure of the chassis.

## **P. Driver Side Door Plates**

Left side driver support bars or plates are mandatory. See Option A or B listed. No material substitution is permitted. All support bars or plate installation is subject to approval. **See Illustration A.1**

Plan - A – 0.125-inch, 1/8" solid steel plate bolted to the left side door portion of the roll cage. Doorplate must be bolted to the roll cage using a minimum of six (6) each 3/8" (.375-inch) aircraft quality bolts and washers. Welding of the plate to the roll cage is prohibited.

Plan - B – Minimum 0.125-inch (1/8") thickness steel plate must be welded to the space between each left-side door bar.

Offset chassis right side door bars commonly called The Outrigger or The Kick-Up Bar, must be constructed of a minimum 1.250-inch x .065-inch wall round or square steel stock. All supporting Sub-structure must be constructed of 1-inch x .063-inch wall round or square steel stock. No material substitutions permitted.

## **Q. Driveshaft**

The driveshaft shall be made of steel or aluminum. Carbon-fiber driveshafts are not permitted. Containment hoops (2 required), constructed of a minimum 0.1875-inch thick steel, are mandatory and must be 4-5 inches minimum behind front yoke.

## **R. Front Suspension**

Independent front suspension with articulated upper and lower control arm(s) is mandatory. The type of shock absorbers and suspension springs are optional. One (1) shock absorber per corner of the car is permitted. Front suspension adjustment must be done from under the car or by lifting the hood. No holes in the hood, fenders or other body parts from the windshield forward to adjust front suspension component(s) are permitted. No suspension adjustment devices are permitted in the driver's compartment area. Knob-type brake bias adjusters are recommended. Weight transfer or suspension adjustment devices, adjustable while the car is under way are prohibited. Spring rubbers are permitted and must be removed manually. No removal devices may extend out side the body of the car or be accessible in the driver's compartment.

## **S. Rear Suspension**

Non-independent, live axle type rear suspension is mandatory. Rear ends may be Quick-change (no 8") with full-floating hubs or 9-inch Ford type. Rear axle tubes must be steel. No open tube rear ends permitted. Maximum rear camber is + or - 1 degree measured with the rear axle level. Material used for rear end center section is at the discretion of the team, but hub pins must be steel. Rear end coolers are recommended. Remote rear suspension adjusters are permitted when accessible through the rear window. A maximum of three (3) one-inch (1") diameter holes are permitted in the rear window. Each hole can allow access to one adjustment device only. No adjuster may extend forward of the rear window area. All pumps used to circulate fluid for the purpose of cooling the rear end, must be mounted in the center of the car.

## **T. Wheels**

Approved wheels must be 15-inch diameter; five-lug (5) steel; 5" x 5" hub or wide 5 patterns; 10-inch rim width. Bleeder and/or pop-off valve devices are not permitted; alteration or defacing of wheel identification numbers; labels; code numbers or serial numbers is not permitted. Wheel(s) failing this criteria will be ineligible for competition. A minimum weight of 17lbs is required

## **U. Wheel Studs and Spacers**

A minimum of five (5) lug nuts per wheel, minimum 0.625-inch (5/8") solid steel nuts, showing a minimum of two (2) threads through the nut, must extend through the lug nut when clamping the wheel to the hub. Wheel Spacers, if used, must be made of steel or aluminum and a minimum 6.75 inches in diameter. Shims are not permitted when mounting wheel studs to hubs.

## **V. Safety**

In all matters pertaining to safety, Car Owners, Drivers and Crewmembers must review and educate themselves in all safety standards. It is the responsibility of the Car Owners, Drivers and Crewmembers to install, wear and maintain all safety equipment as specified by manufacturer's instructions. This includes, but is not limited to, helmets, fires suits, racing suits, gloves, shoes, flame-resistant underwear, flame-resistant head sock, head and neck restraint systems, driver's racing seat and safety belts. Any Safety infraction will deem the car ineligible for competition until the infraction has been repaired or corrected and the car re-inspected. Drivers wearing dental plates or dentures are required to remove them for any hot-track activity

**NEW 2010- All Cars must have tow hooks installed (2 in front on bay bars and 2 in back on fuel cell protector bars. Wehrs Machine Part #WM-207 recommended**

## **W. Driver Seat**

All driver seats must be manufactured by a recognized manufacturer of seat and safety equipment, multi-layer aluminum seat and approved by ASA Midwest Officials. Seats must remain "as purchased and produced", no holes or other modifications made for weight reduction. Homemade seats or sprint car type seats are not permitted.

Seat construction must be solid aluminum sheet material from the seat bottom to above the driver shoulder area; must be fully padded, with padded pelvis, rib and shoulder supports on both the left and right side. Exception – LaJoie seat where construction is such that rib supports are not required. A head restraint system, manufactured by a recognized manufacturer of seat and safety equipment, is mandatory and subject to ASA Midwest Tour Officials approval. Bolt on systems are approved for competition.

Seats must be equipped with left and right leg extensions, fully padded, running from the edge of the seat to the entrance of the foot box area.

Recommendation – a minimum 1/8" (.125-inch) thick steel plate be mounted on the front of backside of the rear hoop of the mid-section in front of the left rear wheel. Plate should extend from the horizontal shoulder bar downward the height and width of the driver seat.

## **A.1 Seat Belt and Shoulder Harness Installation**

All seat belt and shoulder harness systems must meet SFI Specification 16.1, type 1. Y-type shoulder belts are not approved for use. Seat belts and shoulder harness systems must have a production date within three years of the event date. A minimum five-point harness system is mandatory.

Competitors using the HANS Device may use a standard three-inch (3") or the Schroth Racing two inch (2") wide shoulder strap. The Schroth Racing shoulder strap system has been specifically designed for use with the HANS Device. Schroth part numbers are Profi III-6FH; Hybrid III-H; Profi III-6H.

Shoulder harness belts shall not be mounted lower than the shoulder line of the driver or 10 degrees. All lap belt and shoulder harness mounting must be done with aircraft-quality bolts and washers. See **Illustration A.2 and A.3**

### **B.1 Driver Helmet**

Effective with the 2010 season, all driver helmets must reflect a Snell 2005 certification **minimum**. SFI or Snell approval sticker must be visible for ASA Midwest Tour Officials inspection. Eye protection is mandatory at all times.

### **C.1 Left Side Window Net**

Left side driver window net is mandatory. Construction may be either wide-mesh or web-type safety net with mechanical release.

Net bar must be a minimum of .1875-inch (3/16") flat steel or .375-inch (3/8") round stock and run the entire length of the window net between mounting points. Mechanical release must be welded to the front or "A" pillar end of the bar. Spring-loaded releases are not approved for competition. Driver net must be secured in place and centered in the door area and must be secured to the upper roll cage horizontal member.

### **D.1 Fire Suppression System**

A minimum five-pound (5) on-board fire suppression system, with multiple discharge points is **highly recommended** for series traveling competitors.

Cold Fire recommended for cockpit usage.

### **E.1 Driver Head/Neck Restraint System and Driver Uniform**

Use of head and neck restraint devices is **HIGHLY RECOMMENDED** for all hot-track activity. Approved devices are the HANS Device, LFT Technologies R3, Simpson and the Hutchens II Device. Driver uniform must be a multi-layer, full-coverage, one-piece fire-retardant uniform specifically designed for racing; fire retardant gloves; socks; underwear; and shoes.

### **F.1 Tires**

Hoosier Tires are the official tire of the ASA Midwest Tour. The Hoosier F 40 left side and the Hoosier F 50 right side will be required at all tracks under ¾ of a mile unless otherwise recommended by Hoosier Tire Company.

Alteration of a tire(s) is not permitted and defined as changing the physical and/or chemical composition of the tire by cutting; grinding; buffing; warming; cooling or the use of chemicals whereby the tread area or the interior surfaces of the tire is changed from the manufacturer's specifications; alteration or defacing of tire identification numbers; labels; code numbers or serial numbers. Any violation of this nature causes the tire(s) to be deemed ineligible for competition.

### **G.1 Traction Control and On-Board Computer or Analysis Equipment.**

No equipment of this nature is permitted on any car or located in the pit area of any event and will subject the team(s) to confiscation of equipment and penalties by the ASA Midwest Tour.

### **H.1 Ignition**

All ignition systems must be 12 volts.

MSD boxes may be switched by ASA Midwest Tour from car to car or swapped with Tour's house MSD box.

MSD Boxes approved: MSD 6A, MSD 6T, MSD 6AL, MSD 6ALN, MSD 6TN

MSD Connector: The 6 wire harness must be 24" long Maximum and have a female 6 pin, weather pack connector.

## **SIX PIN WIRING DIAGRAM**

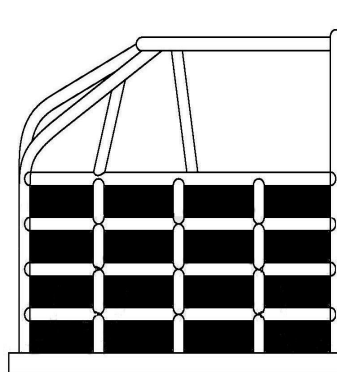
- A- IGNITION Switch 12v (SMALL RED)
- B - POINTS PICK-UP (SMALL WHITE) brown gm boxes
- C - COIL NEGATIVE (SMALL BLACK)
- D - COIL POSTIVE (SMALL ORANGE)
- E - BATTERY POSITIVE (LARGE RED)
- F - BATTERY NEGATIVE (LARGE BLACK)

### **Two pin optional for these two.**

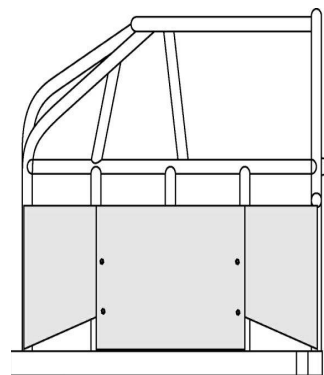
- A - BATTERY POSITIVE (LARGE RED)
- B - BATTERY NEGATIVE (LARGE BLACK)

NON - COMPLIANCE WITH THE SPECIFICATIONS OUTLINED HEREIN MAY SUBJECT THE PARTICIPANTS (OWNER/DRIVER) TO DISQUALIFICATION, LOSS OF MONIES AND POINTS EARNED AT THE EVENT. FURTHERMORE, THE OWNER MAY BE FINED UP TO \$5000 AND ALL NON-COMPLYING COMPONENTS WILL BE SEIZED BY THE SERIES TECHNICAL INSPECTOR. OWNER/DRIVER MUST PROVIDE TOOLS TO REMOVE PARTS

## **Illustration A.1- Proper Driver side door plate installation**

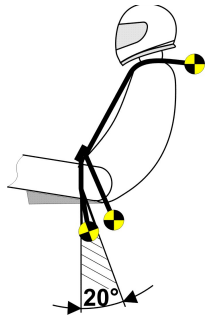


Option B - Individual Plates welded between bars shown in solid black



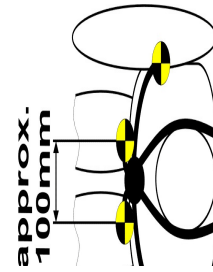
Option A - Bolt-on Door Plate

## Illustration A.2- Proper Mounting Angles of Lap, Shoulder, and Sub-Straps



Lap Belt Angle

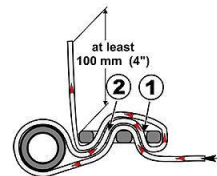
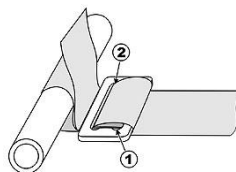
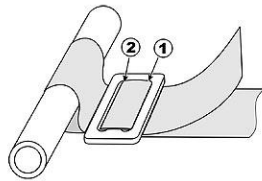
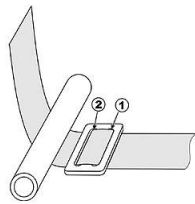
Sub Strap Angle



Shoulder Belt Angle

## Illustration A.3- Proper Wrapping of Belts

## shoulder Harness



3-bar adjuster should be positioned as close possible to harness bar or snap-on/bolt-on bracket. This applies to both lap and shoulder belt points. The final wrap as pictured in Figure 8 is mandatory. At least 4" of webbing material must extend out from the adjuster after this final wrap is completed.