



BANDRIA AUTO

$$\frac{E_2}{D_2} \rightarrow \frac{E_0}{D_0} \quad C = Q/U \quad I = \frac{dQ}{dt} = C \frac{dU}{dt} = \epsilon_0 \epsilon_r \frac{A}{d} \frac{d}{dt} \left(\frac{D_0 d}{\epsilon_0 \epsilon_r} \right) = \frac{d}{dt} (AD)$$
$$D_0 I = \frac{d(AD)}{dt} = \frac{d}{dt} \oint \vec{D} \cdot d\vec{s} = Q^* I = \epsilon r \vec{r} = \vec{S} \quad \frac{4\pi m_1 m_2}{(m_1 + m_2)} \omega$$

Bandaria Auto is an engineering and consulting company specialized in designing and manufacturing advance off-road vehicles.

Bandaria's R&D team has extensive expertise in providing solutions to complicated engineering issues for off-road vehicles, such as altering system designs and upgrading parts. It reinvented the functioning of suspension systems in a unique way for better dynamics. The use of light and strong aerospace materials to overcome off-road abuse and rough terrain.

The team has offered solutions to many well reputed companies around the world; including NASA.

البندرية للسيارات هي شركة هندسية واستشارية متخصصة في تصميم وتصنيع مركبات برية متطورة.

فريق البندرية للسيارات يمتلك خبرة واسعة في ايجاد حلول هندسية لتطوير المركبات البرية، عن طريق تغيير آلية عمل بعض الأجزاء. كما طورت أنظمة تعليق فريدة تمنح قدرة ديناميكية أفضل. وتستخدم مواد خاصة متينة وخفيفة تستخدم تقنيات الطيران للتغلب على التضاريس الوعرة بكفاءة.

تقدم فريق البندرية للسيارات بالعديد من الحلول المقترحة إلى عدد من الشركات في مختلف انحاء العالم بما فيها شركة ناسا.

The main goal behind manufacturing NASSER & R2F is to present a light weight vehicle with advance engineering capabilities and up to 80% locally made vehicle, a vehicle that can also replace the current military vehicles like Humvee, Toyota land cruiser Pickup...etc. with better abilities & more efficiency.

Some benefits of manufacturing vehicles locally:

- Better & faster approach to spare parts.
- Developing the vehicles' specification to proportionate local environment.
- New experiences in local market & Creating Job opportunities for Saudis.
- Supporting home country finance.

كان الهدف من تصنيع NASSER و R2F هو تقديم مركبات خفيفة الوزن ذات قدرات هندسية عالية بتصنيع محلي يصل إلى 80% بتكلفة مناسبة لإستبدال معظم السيارات العسكرية الحالية مثل هامفي ولاندكروزر تويوتا (شاص) ونحو أكثر وفضل. هابقدر اتتساعد على استخدامات

من مزايا تصنيع المركبات محلياً :

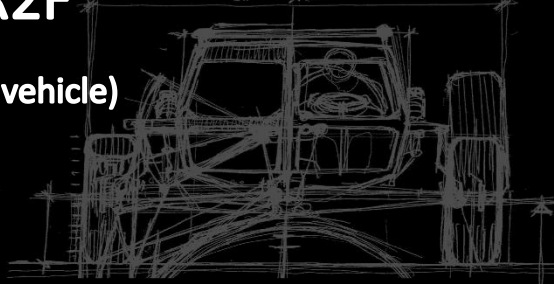
- توفر قطع الغيار بسرعة واستمر رار.
- تطوير المركبة بما يتناسب مع الاستخدام والظروف.
- توفير فرص وظيفية للكوادر السعودية ونقل الخبرة
- الأهم الدعم الاقتصادي لوطننا الغالي.

VEHICLE TYPES

أنواع المركبات

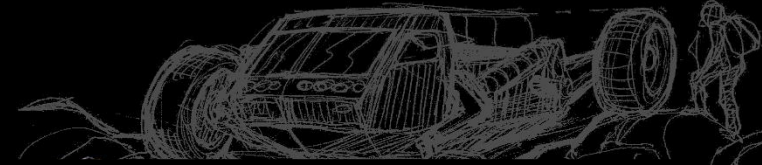
R2F (مركبة لسباقات الرالي)

R2F (A rally racing vehicle)



ناصر (مدرعة مصفحة أحادية الهيكل)

NASSER (A Monocoque armored vehicle)

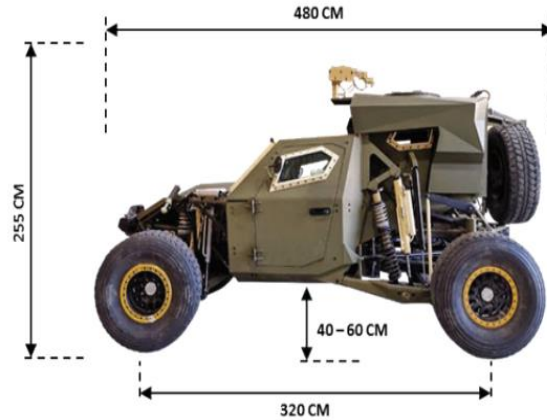
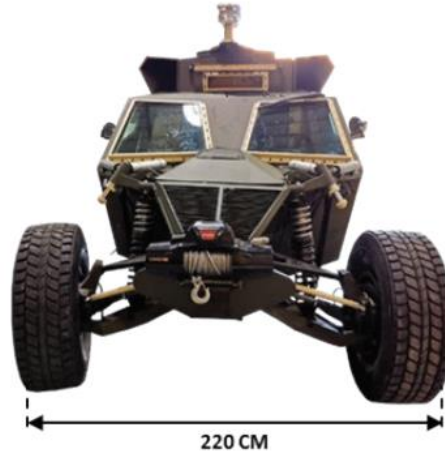


SPECIFICATION

(Armored Vehicle) NASSER (مدرعة مصفحة)

المواصفات

| | |
|-----------------------------|--|
| Engine: | Diesel: According to the customer's request. Fuel: 8-cylinder LS2 from GM (CC) with supercharge |
| Speed: | Fuel: Top speed of 200 km/h |
| Transmission | TH400 with upgraded internal parts. |
| Transfer Case | 2 Speed Atlas with upgraded internal parts. (High:1.1 – low: 3:1). |
| Fuel | Capacity of 200 L. Optional: self-sealing/armored. |
| Gears & Axles | Designed & made for extreme conditions. |
| Front Shocks | 2.5-inch Coilover. Optional: 3-inch 3 tube ByPass. |
| Rear Shocks | 3-inch Coilover. Optional: 3-inch 3-Tube ByPass |
| Stability System | 360* body rolling control. A hydraulic suspension system |
| Wheel Travel | Front Wheel: 20 inches. Rear Wheel: 33 inch |
| Tires & Wheels | 39 inch (Optional run on flat) -Beadlock |
| Breaks | Aluminum 6 Piston Special pads & Thermal Pistone. |
| Seating Capacity | 3 Crew. |
| Vehicle Curb Weight: | 3300 KG |
| Pay Load | Up to 2 tons, with spring and suspension adjustment |
| Electrical | -Military-grade Wiring -Electronic PDM (Power Distribution Model) - 7-inch Screen |
| Materials | -Structure & mechanical components are high-grade material (Very strong and light) |
| Armoring | -ArmoX Advance 600, Optional: 33 mm spoiler |
| Protection Level | BR6, stagna 2,V-shaped for blast energy distribution |



ديزل: حسب طلب العميل.
بنزين: 8سلندر LS2 (من جنرال موتورز CC)

بنزين: سرعة قصوى 200 كلم/ساعة.

TH400 بأجزاء داخلية مطورة

Atlas مع أجزاء داخلية مطورة ذو سرعتين ((
H:1.1 – L: 3.1

خزان سعة 200 لتر. إختياري: ذاتي الانسداد/مصنوح.

مصممة ومصنعة خصيصاً للظروف الصعبة.

ممتص صدمات 2.5 انش Coilover
إختياري: 3inch 3 tube ByPass.

ممتص صدمات 3 انش Coilover
إختياري: 3inch 3 Tube ByPass

التحكم في دوران الجسم بزاوية @.360 نظام تعليق هيدروليكي

الاطار الامامي: 20 إنش. - الاطار الخلفي 33 إنش

39 إنش) تشغيل إختياري على سطح مسطح(-Beadlock
ألمنيوم 6 صمامات مع فحمت خاصة وأقراص مضادة للحرارة.

3ركاب

3300 كيلوجرام

2 طن، مع تعديل النوابض ونظام التعليق

أسلاك كهربائية عسكرية
وحدة توزيع قوى إلكترونية
شاشة 7 إنش

(بالغة القوة وخفيفة الوزن)

أرومكس مطور 600. إختياري: مكابح 3ملم.

BR6, 2, stagna, على شكل حرف V, لتوزيع طاقة الانفجار

المحرك

السرعة

الغير

الدبل
(مع خيار الدفع الرباعي)

الوقود

التروس والمحاور

نظام التعليق الأمامي
(مساعدات أمامية)

نظام التعليق الخلفي
(مساعدات خلفية)

نظام التثبيت

مدى تحرك الإطارات:

حجم الإطارات

المكابح

سعة المكابح

الوزن

الحمولة

الأجزاء الكهربائية

المواد

التدريع

مستوى الحماية

Engine: According to customer request.
LS GM, Horsepower range (430 - 1000). Torque range (460 - 800) (ft –

Speed: Top speed of 220 km/h

Transmission: Race TH400 with upgraded internal parts.

Transfer Case: Race 2 Speed Atlas with upgraded internal parts
(With 4WD Option)

Fuel: Capacity of 200 L, FIA Race Fuel Cell.

Gears & Axles: Designed & made for extreme racing.

Front Shocks: • Race 2.5 inch Coilover, KING's 3 inch Race 3 tube ByPass,

Rear Shocks: • Race 3 inch Coilover, KING's 3 inch Race 5 Tube ByPass,

Wheel Travel: • Front Wheel: 22 inch. • Rear Wheel: 33 inch.
2WD & 4WD

Tire Size: • 39 inch.

Brakes: • Aluminum 6 Piston Special pads & Thermal Pistons.

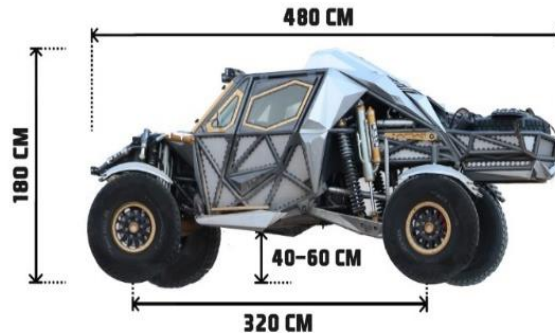
Seating Capacity: • 2 Crew.

Vehicle Curb Weight: • 2.3 Tons.

Electrical: • Military grade Wiring.
• 2 Electronic PDM 30 (Power Distribution Model), (MOTEC. Or equivalent).
• 7" – 12" Screen, (MOTEC. Or equivalent).

Materials : • Body Panels Made of Carbon Fiber.
• Structure & mechanical components are aerospace grade material and heat treated (very strong and light).

Interior Finishing: • Race Luxury Interior Finishing.



جيب طلب على عميل.
ال ايس جي ام نطاق قوة الحصان (430 - 1000). نطاق عزم الدوران (460 - 800) (قدم –

سر عقصى 220 كم/ساعة.

Race TH400 بأجزاء داخلية مطورة.

Atlas ريليزي مع أجزاء داخلية مطورة نوس ريليزين
(H: 1:1 - L: 3:1).

خزان ريليزي سعة 200 لتر، (FIA).

جسم مطور وجنحة تجهيز للبيانات في ظروف قاسية.

• مهمتص صدمات ريليزي 2.5 إنش Coilover، KING's 3 inch Race 3 tube ByPass،

• مهمتص صدمات ريليزي 3 إنش Coilover، KING's 3 inch Race 5 Tube ByPass،

• الإطار الأمامي: 22 إنش. • الإطار الخلفي: 33 إنش.

• 39 إنش.

• أل بيهوم 6 صمادات مع خدمات خصه وقرص مضاد لحرارة.

• ريليزين.

• 2.3 طن.

• لملاك لوسبياني على اوي.
• وحتي يوتيوتيف إلكترونية PDM 30، (MOTEC، أو مبي عتله).
• شاشة 7 – 12 إنش، (MOTEC، أو مبي عتله).

• المصمم مصنوع ملالي افسال لليبون.
• الأجزاء الملالي لليبون نوال ليلد مصنوعه من مواد مطلحة حراها على ال جود والحق بمتوى تقيها ال خيران (مبلغه القوة وخفيف الوزن).

• بيكورد داخل ريليزي فاخر.

لمحرك:

لسرعة:

لقير:

للبيل:

(م عتار الرفع لبياعي)

لقود:

لتروس ولحم اور:

نظام تقي تقي الأمامي
(من اعدا تاأامي):

نظام تقي تقي الخلفي
(من اعدا تاأامي):

مد تقي تقي الإطارات:
فعل لبي أو فاع عياعي

حجم الإطارات:

لمكتيب:

سعة لقي اعد:

لوزن:

الأجزاء لكه بيوي:

لمواد:

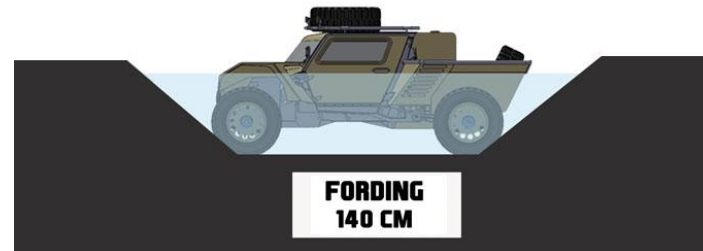
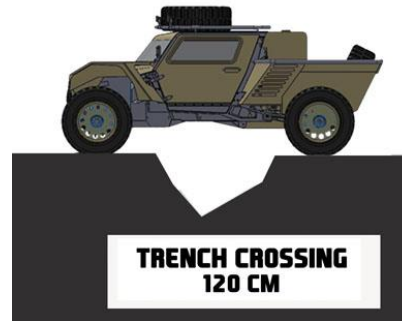
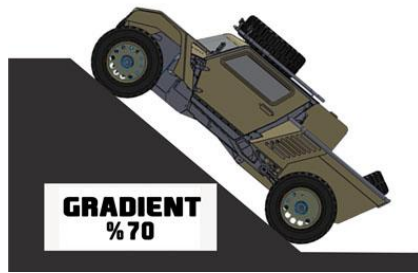
الأجزاء كداخلي:

VEHICLES CAPABILITY

قدرات المركبة

- it can jump from 4m high cleft & land stabile, comfortable & safely.
- It can go through a series of 1 meter high bumps in a high speed (100 KM/H) with amazing comfort, handling and control.
- Great control in handling & cornering at high speed.
- Climb Rough Mountains.
- Extreme durability due to the special material and design used to build our vehicle.

- بإمكانها القفز من ارتفاع 4متر والهبوط بسلام ومرونة، بأمان وراحة.
- بإمكانها عبور مطبات وفي قضيبيها بارتفاع 1 متر بسرعة عظمى (تصل إلى 100 كم/ساعة) مع تحكم موزون وطوامة مع فتح راحة فلقطالمدالمركبعة.
- تحكم عظيم في الارتفاعات والهبوط بسرعة انعطاف.
- تسلق مطبات وعرة.
- متينة وقوية فمعلقها أفضل التصميم والمواد المستخدمة في صنعها عالمركبعة.



ABOUT THE ENGINE

We work closely with one of the best engine builder company to ensure high quality engines and up to date with all new technology to get the best engine packages. Our goal is to answer the customer needs and help him achieve his dream power, yet very reliable. We work with the LS engine family and we upgrade them according to the customer need to reach up to 1500hp 1200lb of torque. For race applications, we build the racer a different special engine to meet his need.

CUTTING / WELDING

Has been cut using SPICAL LASER machinery Then constructed in a SPICAL way with multiple fixtures to assure high accuracy in the .production line
Cold Welded in a SPACIAL way via highly skilled people with the best welding machinery that uses our special gas mixtures. All that to insure high accuracy and no movments or stress point was coused from the welding heat

CHASSES

We have taken all of the years experience in off road, racers feedback, loading point and forces that a chassis could be introduced to...then with engineering science, mathematical calculations, computer simulation and finite element analysis...resulted with our highly engineered chassis that overcome the abuse of the off-road rough terrain and achieve the optimum performance with high safety and deliver an indestructible off road beast

SHOCK ABSORBING SYSTEM

R2F uses: 3" race series coil over shock and 4" race series bypass with a length if 14" in front and 18" in the rear

Our custom masive special Performance Race series shocks are brimming with technological breakthroughs conceived during strenuous testing in the harshest environments. The understanding of fluid dynamics and piston design has created unmatched levels of ride quality and superior control. Our shock technology configuration & specific design was made to assure complete control of high speed and low speed oscillations with our position sensitive damping

The bypass tube quantity and location are based on our time tested standard locations. The valve design and superior tube flow capacity provides accurate flow control over the whole range of adjustment. Our shocks manufacturer processes and strict adherence to quality standards makes this possible. Our bypass valve springs are made out of the same material we use for our valve shims to reduce the possibility of heat induced fade compromising your settings

Shock tubes are honed after plating to assure a tight piston seal and all bypass ports are CNC drilled and hand deburred then polished. This commitment to quality and attention to detail creates enhanced flow control and unparalleled levels of precision adjustment. When you combine this level of functionality with our depth of knowledge setting up your valving and bypass settings you will enjoy enhanced car control, reduced driver fatigue and sustained peak performance

In addition to our busy field-testing, preliminary designs are quantified using a state of the art, electro-magnetic, shock dyno capable of inducing shaft speeds up to 120 inches per second with a drive position resolution of 1 micron. It can play back racecourse data collected from a number of commonly used onboard, automotive data acquisition systems and uses a non-contacting Infrared style transducer to monitor temperature readings. It's the closest thing to real world conditions

TOURQ CONVERTER

You can't buy a stronger or more well built converter, anywhere, for any price. 100% Furnace Brazed, 100% Completely Heli-Arc Welded Fins, Anti-Ballooning Cover, Mechanical Diode, Custom Fin Angles, Heavy Duty Thrust Bearings, Hardened and Ground Pump Hub, Billet Steel Front Cover, Dynamic Hi-Speed Neutral Balanced. More oil capacity for less heat for better offroad racing performance

TRANSMISSIONS

R2F uses completely rebuilt Turbo-400 with aerospace material and re-engineered parts to take up to 1000hp and all the long races abuse

TAIL HOUSING

Then we place our special 7075T6 aluminum tail housing that offers more degree of travel with higher safety by re introducing the connection between the transmission and rear-end

RACK & PINION STEERING SYSTEM

Driving on wet or very harsh race roads can be difficult and so tricky. With our engineering design has zero bump steer. The steering wheel and you, will not feel any thing the tier hits. We also use A "2.5" rack and pinion" steering system that gives you better "road feel", which makes this type of driving a much easier and smother. It gives you quicker and better feedback and control than a standard system. Therefore, its better handling, lighter, more durable. our performance power steering manufacturer are one of very few that can meet the demands of this harsh race environment

BANDRIA ENGINEERED PARTS

Invented special parts and design it for a better performance, strength and durability. Utilizing only the highest aerospace quality materials and machined with strict precision tolerances then treated with great processes to assure life time expectancies and durability

BANDRIA DYNAMIC MECHANISM

R2F wheeltravel is huge!! It has 24 inches in the front and 33 inches in the rear. That is a lot of degree of freedom to control and to direct it to get the best performance. It has effect on everything in the car. From macanasim parts, chasses design, material selection, and to the car performance and dynamics. Simply they behave and work together with the same harmony and in a special way to ashore high level of dynamics and stability and offers a great comfort and handling in the most complex and ruff terians

FULL FLOATER REAREND

Our 91" width, 4130 chromolly custom built rear-end housing is made special-ly for extreme off road racing conditions. It's so strong that it can brake a rock before even bend. Its independent axles are made from 300M and heat treated to insure high strength and undertake all the torsion load and abuse. Even for any reason it brakes!!! the tiers will keep spending at its location. That what we mean by full floater rear end

WHEEL

Beadlock is the premier wheel in off road racing. These light weight, raw machined wheels are beefed up in all the right places to give you the ultimate in strength. The beadlock ring is forged from 6061-aluminum and fastens using grade 8 zinc plated bolts. The Beadlock is the natural choice for the best off road vehicles

TIER

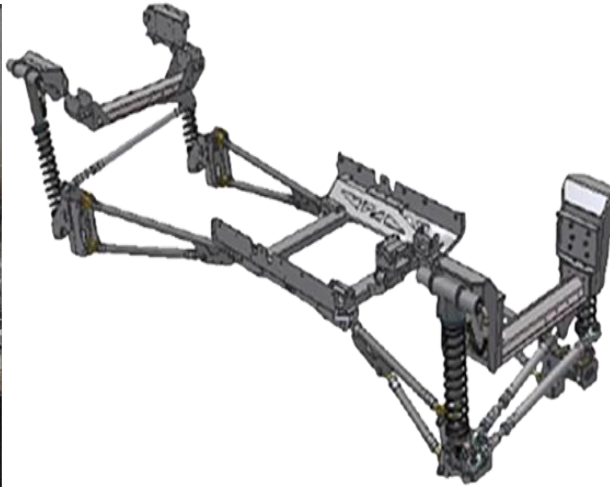
our 39" tiers is specifically made for baja racing. Confident high-speed performance and excellent off-road soft surface traction. More tread element edges, great side bite and lateral traction in off-road situations. Built for the toughest conditions on earth. Exceptional strength, bruise resistance, sidewall puncture resistance and structural integrity

UPGRADE DYNAMIC SYSTEM

تطوير ديناميكي

- Studying the vehicle dynamics geometrically to determine the required customization upgrades, matching rough terrain and environments, and preparing a report about its requirements.
- Install a lift kit systems to raise the vehicle to the required levels and adjust the geometry to the required levels to maintain the best performance from the vehicle.
- Installing the right shock absorbing system and calibrate it to provide the best stability, flexibility & performance.

- دراسة المركبة هندسياً وتقديم تقرير بالإحتياجات لمواكبة الإحتياجات التي تواكب الظروف البيئية.
- رفع المركبة على المستوى المطلوب وتعديل هندسة السيارة لتتماشى مع ذلك للحفاظ على أفضل أداء للمركبة.
- تركيب نظام التعليق وأنظمة امتصاص الصدمات المناسبة و موازنتها لجعل المركبة أكثر ثباتاً ومرونة وأداء بمستويات عالية.



- Upgrade the Tyres & Rims:
 - Special for tough environments for better performance.
 - Strong & capable to bear high weight & Shocks.
 - It contains Bead locks to prevent the tire from slipping.

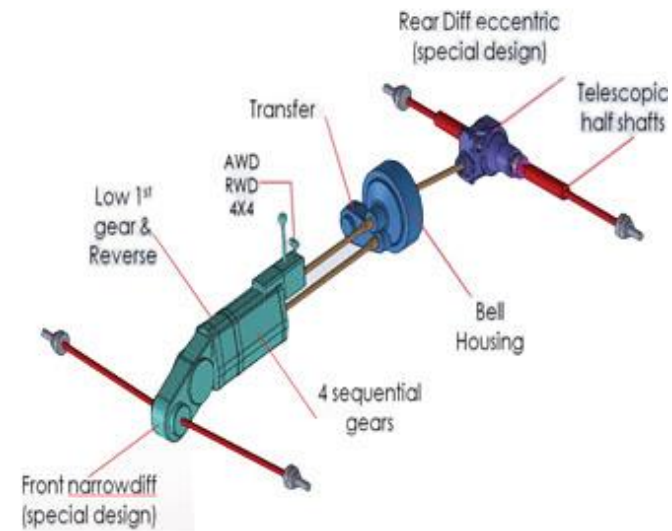
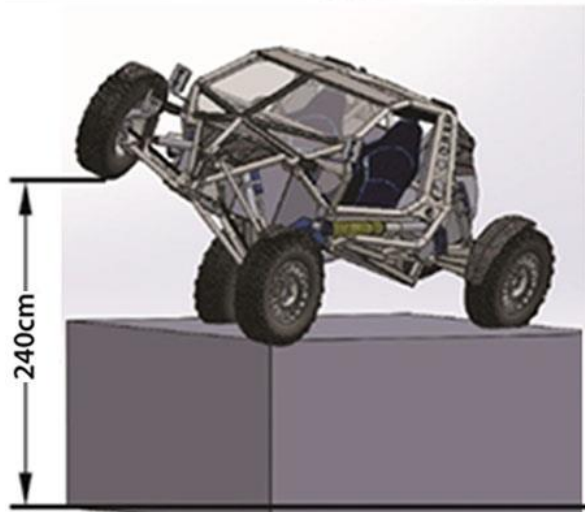


- إستبدال العجلات والإطارات:
 - خاصة للظروف البيئية المطلوبة لأفضل أداء.
 - متانة وتحميل للصدمات والوزن.
 - مزودة ببراعي Bead Lock لتثبيت الإطار بالجنط.



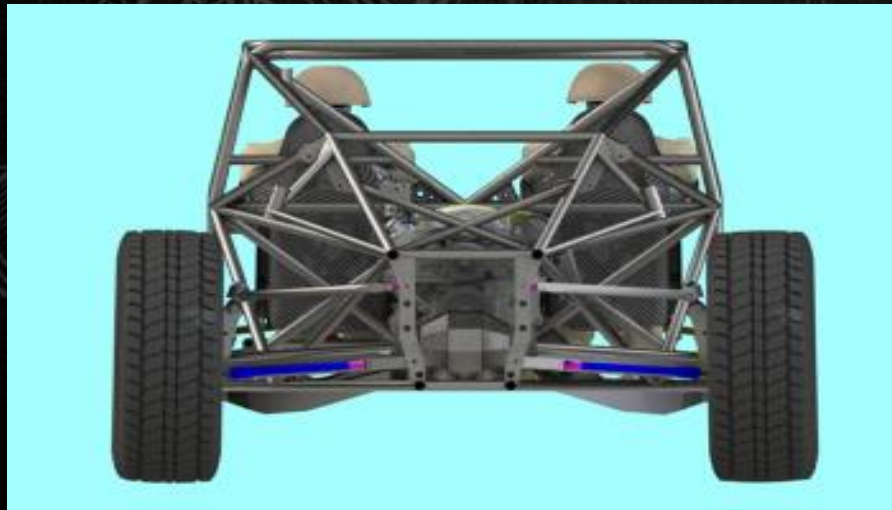
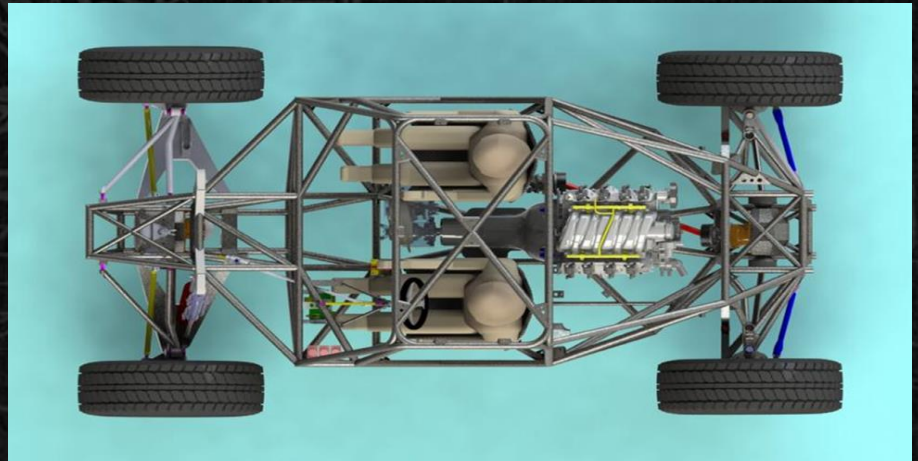
- تطوير مايلزم من أنظمة الدفع أفضل لقيود وأجزاء الداخلية أفضل لتروس وغيره التحمل لقوة لمحرك، الإستخدام المتكرر، الارتفاع أداء وقوة الحركة.
- تدعيم بيكل ألفنر لتحمّل وزن المركبة وظروف تليق اسرية.
- تغيير نظام لتبني ذلك حفاظاً على أداء وعمر الأجزاء الداخلية.
- تغيير نظام المكابح بما يتناسب مع وزن وقوة المركبة.

- Developing the drive terrain parts, change the gear set and upgrade internal parts to withstand the engine power, tough usage under high temperature & Improve vehicle power & performance.
- Adding stifiers to the differential housing to bear extreme terrain & weight.
- Changing cooling systems to maintain better performance and longer life.
- Changing vehicle breaks to suit vehicle weight & power.



DAKAR VEHICLE

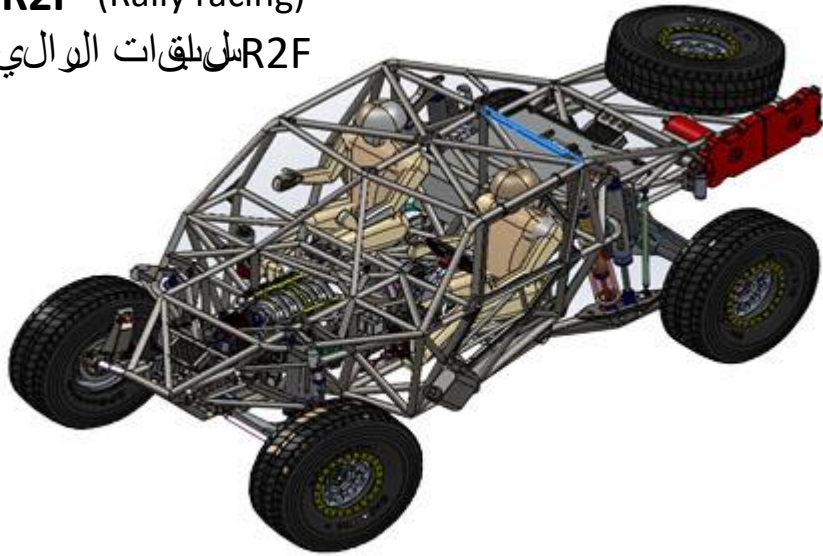
مركب بقباق داكار



- # Dakar vehicle is a mid-engine, light weight and medium sized vehicle.
- # Was designed specifically for Dakar race T1 class.
- # It is an all-terrain vehicle and perfect for sand

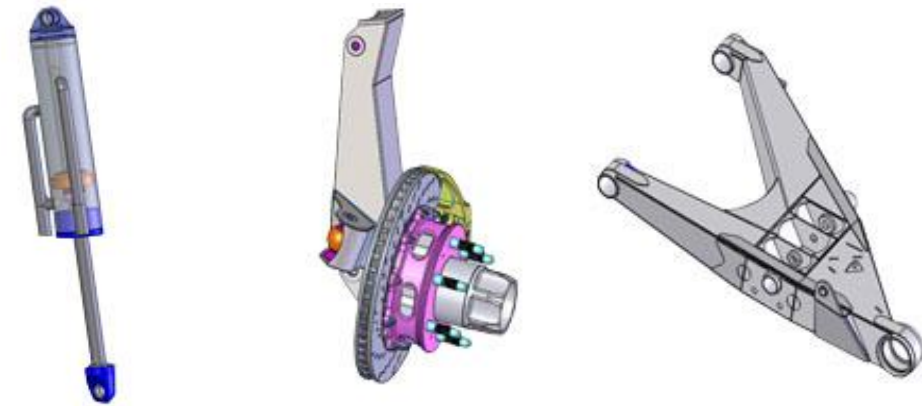
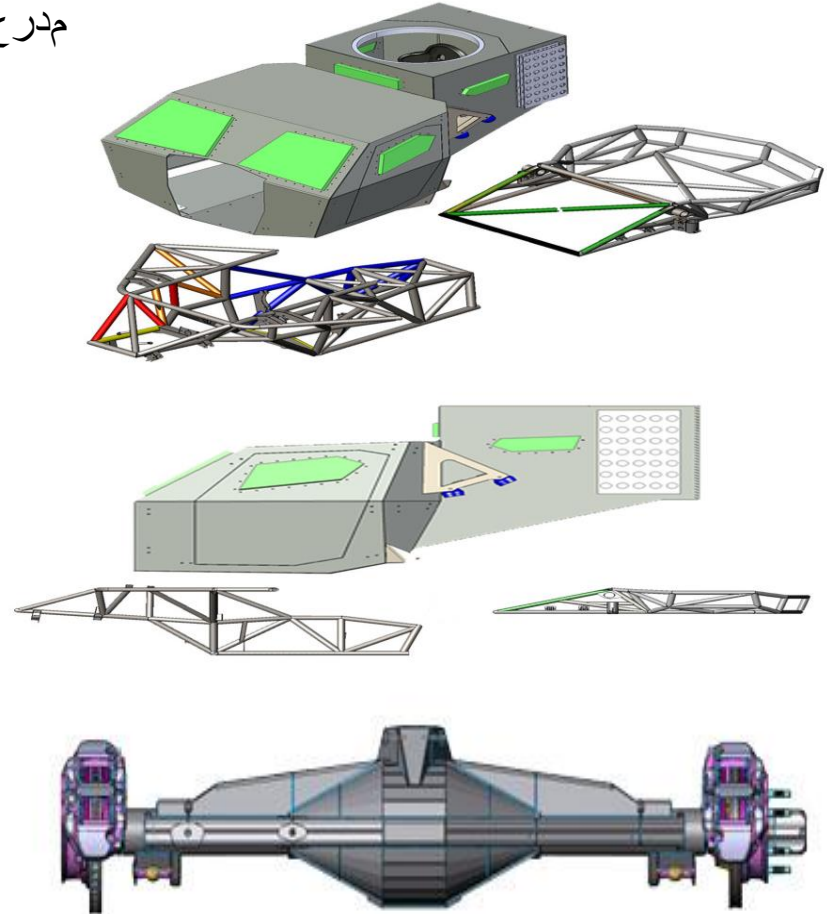
R2F (Rally racing)

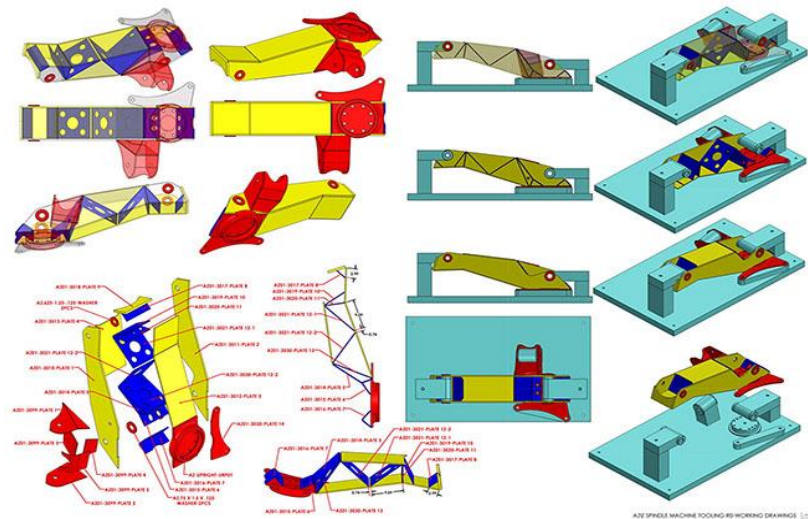
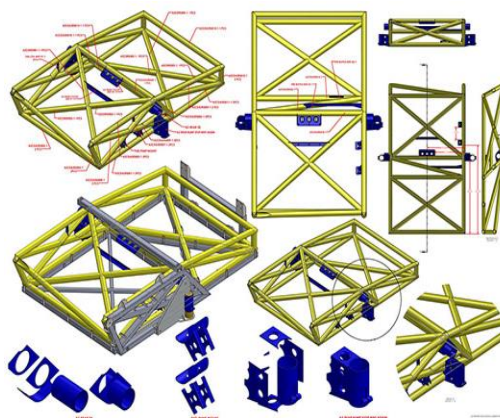
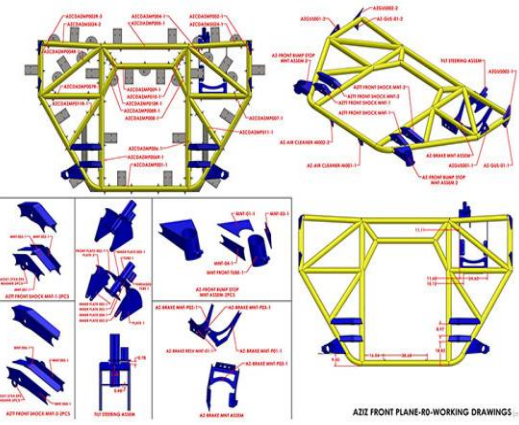
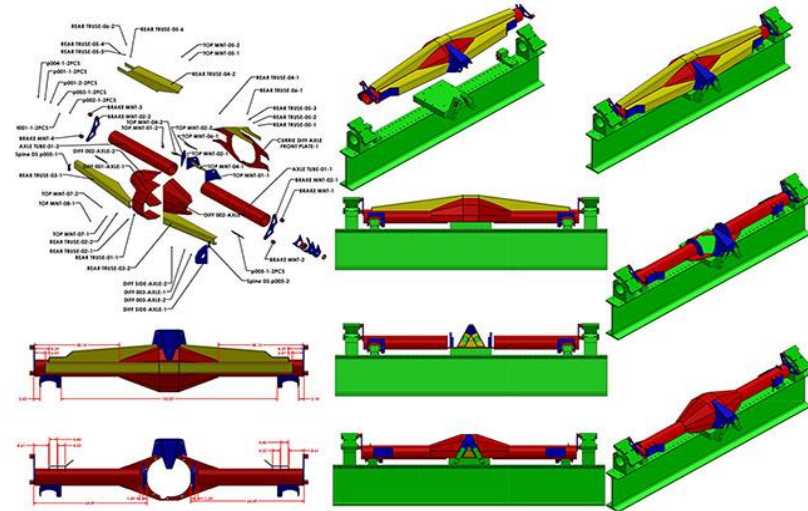
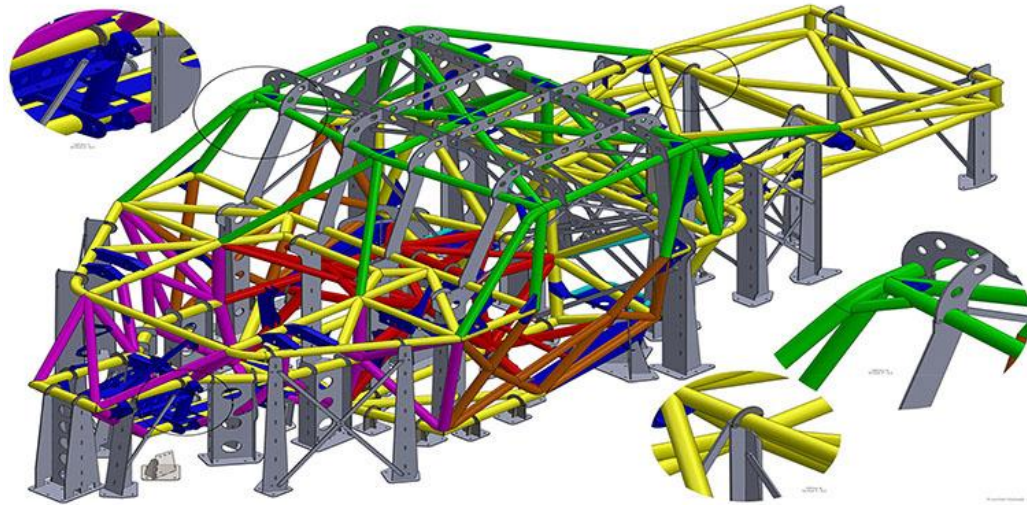
رالي ريفات الوالي



NASSER (Monocoque armored vehicle)

مدرعة ناصر





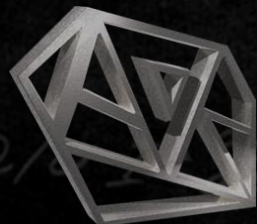
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