








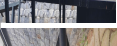






















































BILL OF MATERIAL																
CHASSIS																
S N	Group	Level	Part Name	Part Description	Unit Weight (Kg)	Validity (Qty)	Material	Manufacturing Proce	Fasteners (Y/N)	Part Picture	Make or Buy (M/B)	Supplier/Make	Click Picture	Maker	Checker	Approver
1	A	1	Chassis Frame	It's the supporting frame in which all Vehicles' parts mounted		1	Mild Steel	Welding	No		Make	Make				
		1.1	Middle Rod	It's the supporting frame in which all Vehicles' parts mounted		2	Mild Steel	Welding			Make	Make				
		1.2	Back small rod	It's the supporting frame in which all Vehicles' parts mounted		2	Mild Steel	Welding			Make	Make				
		1.3	back middle rod	It's the supporting frame in which all Vehicles' parts mounted		1	Mild Steel	Welding			Make	Make				
		1.4	side long rod	It's the supporting frame in which all Vehicles' parts mounted		2	Mild Steel	Welding			Make	Make				
		1.5	Front long rod	It's the supporting frame in which all Vehicles' parts mounted		1	Mild Steel	Welding			Make	Make				
I(i)	A	2	Hand Breaking Support	It helps to connect hand lever		1	Mild Steel	Welding	No		Make	Make				
I(ii)	A	2	Break Linkage	It links the break with the rear break lever		1	Mild Steel	Welding	No		Make	Make				
I(iii)	A	2	Break Support	It's a break support		3	Mild Steel	Welding	No		Make	Make				
I(iv)	A	2	Suspension Spring Support	It holds the suspension.		2	Mild Steel	Welding	No		Make	Make				
I(v)	A	2	Leaf Spring Support	It holds the leaf spring.		4	Mild Steel	Welding	No		Make	Make				
2	A	1	Rear Compartment	It's the driver compartment		1	Mild Steel	Welding	Yes		Make	Make				
3	A	1	Driver Seat	Place where driver sits, It's frame		1	Mild Steel	Welding	Yes		Make	Make				
4	A	1	Roof Members	It's the supporting frame of roof.		1	Mild Steel	Welding	Yes		Make	Make				
5																
DRUM BRAKE																
S N	Group	Level	Part Name	Part Description	Unit Weight (Kg)	Density (Kg/mm3)	Validity (Qty)	Material	Manufacturing Process	Fasteners (Y/N)	Part Picture	Make or Buy (M/E)	Supplier/Make	Maker	Checker	Approver
1	C	1	Brake drum	The brake drum houses and protects the inner brake parts. The inner rim of the drum is the braking surface.			3	Cast iron	Casting	yes		Make	Make			
2	C	1	Backing plate	The backing plate is attached to the axle housing and does not rotate. It holds the wheel cylinder, anchor pin, and pin.			3	Steel	Machining	Yes		Make	Make			
3	C	2	Brake shoe	Brake shoes contact the drum and cause friction to occur.			3	Synthetic aramid	welding	yes		Buy	supplier			
4	C	2	Retainer pin and spring	pins and retainers keep the hold down springs in place while the Springs allow the brake shoe to move when necessary.			3	Steel	coiling, winding,bending	yes		Make	Make			
5	C	2	Return spring	Returning springs pull the brake shoes off the brake drum when the brake pedal is not being pressed.			3	Steel	coiling, winding,bending	no		Buy	supplier			
6	C	2	Anchor pin	The anchor pin assist the wheel cylinder in keeping the brake shoes from rotating with the drum when the brakes are applied.			3	Steel	forging	yes		Buy	supplier			
7	C	2	Anchor lever	It connect the braking linkage/ rod to the anchor pin in order to give motion to the anchor pin.			3	Steel	forging	yes		Buy	supplier			
DIFFERENTIAL																
S N	Group	Level	Part Name	Part Description	Unit Weight (Kg)	Density (Kg/mm3)	Validity (Qty)	Material	Manufacturing Process	Fasteners (Y/N)	Part Picture	Make or Buy (M/E)	Supplier/Make	Maker		
1	D	2	Axle housing	The casing is the carrier for planetary gear train.			1	Carbon steel	Casting	Y		B				
2	D	3	Flange	A flange is a component with a flush fitting surface which is bolted in place and used to support a shaft.			1	SA-105	Casting and machining	Y		B				
3	D	3	Half shaft	It supplies the power from differential to the wheel.			2	Nickel chromium	Casting and machining	Y		B				
4	D	4	Transmission shaft	It deliver power to the other end of the vehicle			1	Nickel chromium	Casting and machining	N		B				
5	D	4	Driving pinion	Transfer power from the drive shaft to the ring gear.			1	Case hardening steel	Casting and Gear hobbing	N		B				
6	D	4	Crown wheel	It found in a drive wheel of a vehicle in which the pinion is at the end of the propeller shaft driving the crown wheel.			1	Nickel chromium	Casting and Gear hobbing	N		B				









7	D	4	Spider gear/Planet pinion	It lies at the heart of the differential and special mention should be made about its rotation			2	Case hardening steel	Casting and Gear hobbing	N		B				
8	D	4	Cross shaft	The shaft about which the spider gear rotate.			1	Nickel chromium	Casting and machining	N		B				
9	D	4	Thrust washer planet gear	Connected to reduce pressure and restrict from surface damage of planet gear.			2	Carbon steel	Forging	N		B				
10	D	4	Locking pin				1	Nickel chromium	Casting and machining	Y		B				
11	D	4	Sun gear/Slide gear	The sun gear converted the vertical motion of a beam driven by a steam engine into circular motion using a planet and it is fixed.			2	Case hardening steel	Casting and Gear hobbing	N		B				
12	D	4	Thrust washer sun gear	Connected to reduce pressure and restrict from surface damage of sun gear.			2	Carbon steel	Forging	N		B				
13	D	4	Cylindrical roller bearing	Used to support and rotate the shaft			2	Chrome steel	Assembling	N		B				
14	D	4	Bearing cap	It hold the bearing			2	Carbon steel	Casting and machining	Y		B				
15	D	4	Gasket	It restrict from wear and tear.			1	Rubber	Hydraulic press	Y		B				
16	D	4	Bolt	Engage two body tightly and safely			6	Alloy steel	Machining	N		B				
17	D	4	Washer	Connected to reduce pressure and restrict from surface damage.			6	Carbon steel	Forging	N		B				

STEERING

S N	Group	Level	Part Name	Part Description	Unit Weight (Kg)	Density (Kg/mm3)	Validity (Qty)	Material	Manufacturing Process	Fasteners (Y/N)	Part Picture	Make or Buy (M/B)	Maker	Checker	Approver
1	B	1	T-Handle Bar	Handle Bar is a part of steering mechanism that is used to give direction to the vehicle.			1	Stainless Steel	Bending	No		Buy			
2	B	1	Upper T Holder	It's the driver compartment			1	Aluminium	Casting	Yes		Buy			
3	B	1	Lower T holder	Place where driver sits, It's frame			1	Aluminium	Casting	Yes		Buy			
4	B	2	Telescopic Suspension	Theses are hydraulic shock absorbers that allow front wheel to react to imperfection in roads.			2	ASTM A228(0.8-0.95% C)	Cutting from Tube	Yes		Buy			
5	B	1	Coil Spring	It is also a part of suspension system that maintains force between 2 contacting surfaces.			2	Spring steel (medium carbon steel)	Coiling ,Winding or Bending	No		Buy			
6	B	1	Front Axle	Front axle carries the weight of the front part of the vehicle and facilitates the steering.			1	Mild steel	Forging,Heat Treatment,Machining	No		Buy			
7	B	3	Head Light	The head light is designed to emit two kinds of light that allows us to see in darkness.			1	Polycarbonate plastic	Plastic injection modelling system.	No		Buy			
8	B	2	Indicators	These are the signalling devices that are used by drivers to communicate with other road users what they intend to do.			2	Polycarbonate Plastic	Plastic injection modelling system	No		Buy			
9	B	1	Speedometers	It is a gauge that measures and displays the instantaneous speed of a vehicle			1	Steel and Plastic		No		Buy			
10	B	1	Handle Holder	These are the small parts which are used to attach the handle bar with the upper v plate			1	Aluminium	Casting	Yes		Buy			
11	B	1	Headlight Holder	It is a part of the steering system that is used to hold the head light with the T-Rod.			2	Stainless Steel	Cutting and Welding	Yes		Buy			

ELECTRICAL COMPONENT

S N	Group	Level	Part Name	Part Description			Validity (Qty)	Material	Manufacturing Process	Fasteners (Y/N)	Part Picture	Make or Buy (M/B)	Supplier/Make	Checker	Approver
1	E	1	Battery	A battery converts chemical energy into electrical energy by a chemical reaction in it. It stores electric charge in it. Battery Type - Lead acid Battery Voltage - 12 v Capacity - 100 Ah			4	Lead acid battery		No		Buy	Supplier		

2	E	2	BLDC motor	A motor converts supplied electrical energy to mechanical energy.Voltage - 48 vPower - 900 w Current - 25-50 Amp Speed - 1440 Rpm (Without Load) - 300-400 Rpm (With Load)			1	Magnet Aluminum,Shaft material		Yes		Buy	Supplier			
3	E	3	Controller	The controller works are to controll the power supplies in the E-rickshaw and to protect the electrical components from over load,voltage,etc. It is heat resistant. Voltage - 48 V Current - 50 Amp Working frequency - Upto 50 Hz			1	Conducting material		Yes		Buy	Supplier			
4	E	4	De-Dc Converter	DC-DC Converter is designed to fulfill DC power requirements of E-Rickshaw vehicle. Its design is very simple and can be operate easily. Voltage - 13.5 V Current - 10 Amp			1	Resistive material		Yes		Buy	Supplier			
5	E	5	Throttle	Throttle is used to increase or decrease the speed of vehicle.			1	Plastic		Yes		Buy	Supplier			
6	E	6	Wire Harness	Wiring harness is a group of wires bundled together and spread throught the vehicle body for electric supplies.			1	Plastic and rubber				Buy	Supplier			
7	E		Connector	It is used for connecting wires and can be easily assemble and disassemble . These are differed by shape and pins.(1 to 5 pins)			11	Plastic		No		Buy	Supplier			
8	E		Ring wire connector	It is used for connecting wires and can be easily assemble and disassemble			13	Copper		No		Buy	Supplier			
9	E	1	Solar Panel	The power supply can be obtained externally by using solar panels to generate electricity or from domestic AC supply.			1	Crystalline silicon		Yes		Buy	Supplier			