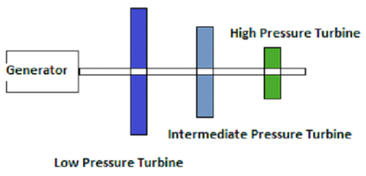
STEX ADVANCED DESIGN BUREAU - ATTITUDES IN ADVANCED ENGINEERING

POWER SYSTEMS DESIGN APPROACH USING VOLUME ANALYSIS

Alternative Turbine Blade set Design By Volume/Pressure Analysis

Conventional Power system Design upto - Upto year 2015 - 2017 ERA [A comparison]



The TOTAL POTENTIAL Energy of Coal = 100 Units of Power. The Super critical steam gets converted to Kinetic Work at the Turbines stages A. B, C. The Overall efficiency of Power Turbines is roughly 40+ %.

That means that 100 Units of Coal Steam power leads to about 40 Units of Electrical Energy. Lets Break down the work load of the Turbine set into the two simple parameters < Load Bearing and RPM >.

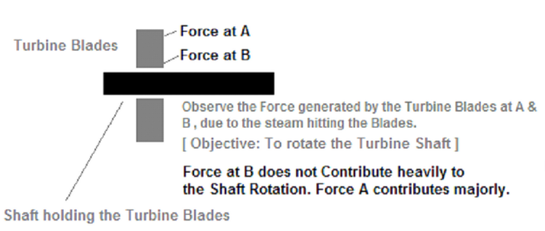
The Generator creates Electro magnetic resistance, which is called the load. This load must be borne by the Turbine Set. The Load consists of two Factors - Rotational Load (how much load is rotating) and RPM (how fast it rotates).

An analysis reveals that the [large] Low Pressure turbine completes one Rotation and contributtes to only 1 Rotation of the Turbine shaft. (1 Rpm). Similarly the HP Turbines which are much smaller contributes to High Load (but With inefficiency, because of the Force distance - E.g. Force B as showr Below).

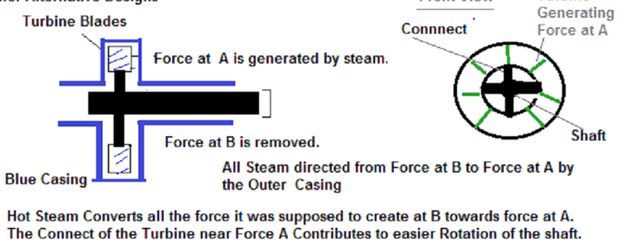
In the proposed next generation Systems - The HP Blades are made larger, contributing to Higher Load bearing Capactity, and the LP Turbines are made smaller contributing to RPM of the power system. The LP Small Turbines are enclosed with low volume casings to achive maximum conversion of Potential Energy to Kinetic Energy.

Study of Forces Contributing to rotation of the Turbine Shafts

Existing Power Systems Tech

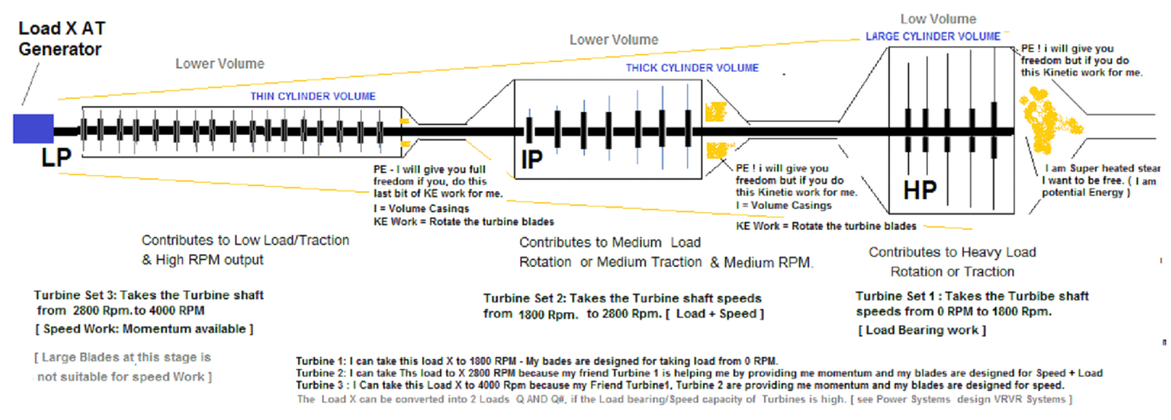


Other Alternative Designs



Hot Steam Converts all the force it was supposed to create at B towards force at A. The Connect of the Turbine near Force A Contributes to easier Rotation of the shaft.

The Proposed Solution or an Alternative design leads us to building Larger HP Turbines, to contribute mainly to the LOAD/TRACTION and lesser to the RPM. Similarly the LP blades are made smaller to contribute to RPM. (1 RPM of low Pressure blades contributes to 1 Turbine Shaft RPM.)



Turbine Set 3: Takes the Turbine shaft from 2800 Rpm.to 4000 RPM
[Speed Work: Momentum available]
[Large Blades at this stage is not suitable for speed Work]

Turbine Set 2: Takes the Turbine shaft speeds from 1800 Rpm. to 2800 Rpm. [Load + Speed]

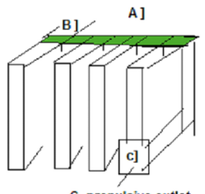
Turbine Set 1 : Takes the Turbibe shaft speeds from 0 RPM to 1800 Rpm.
[Load Bearing work]

Turbine 1: I can take this load X to 1800 RPM - My bades are designed for taking load from 0 RPM.
Turbine 2: I can take Ths load to X 2800 RPM because my friend Turbine 1 is helping me by providing me momentum and my blades are designed for Speed + Load
Turbine 3 : I Can take this Load X to 4000 Rpm because my Friend Turbine1, Turbine 2 are providing me momentum and my blades are designed for speed.
The Load X can be converted into 2 Loads Q AND Q#, if the Load bearing/Speed capacity of Turbines is high. [see Power Systems design VRVR Systems]

ADVANCED MARINE PROPULSION SYSTEMS

Experimental Engg - Design Directions - IN Marine Propulsion

Part 1 - Marine propulsion through Air Propulsion



A] Air Propulsion Systems 4 /5/6 Tubes joined together a the Top.

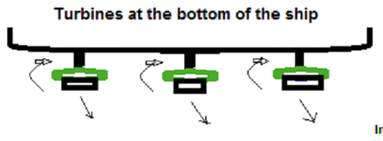
B] One End of the tube is Air In and

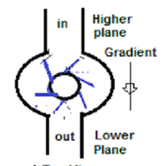
C] other end is air out. (propulsion)

water is not allowed to climb through all the 4 tubes simultaneously, therefore tubes 1,2,3 are predominantely dry.

Part 2 - Turbo Propulsion

Turbines at the bottom of the ship





A Top View

In water Based Systems
Water flows in & Out at Turbine speeds

In Air Based Systems - Air Flows in and out at turbine speeds

Part 3 -Propulsion for Large Ships and Merchant ships

Conventional Technology (Proven)

Engine Drive doing X Units of Work - Transfers power to a Propeller to displace Q amounts of Water with a ship load Z . (Water Displaced = Q Units and helps the ship move at A knots speed .)

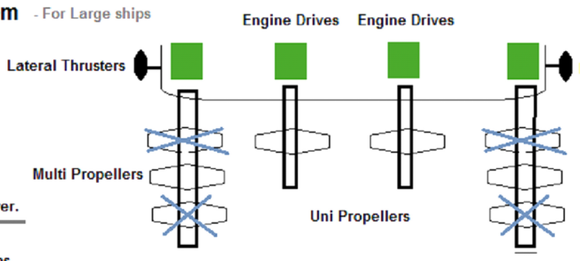
Efficiency of Engine drive converting [Potential Energy Power] to do mechanical drive work roughly 25% to 50%.

Efficiency of propeller to Do work - in terms of displacing water, to do work = 15% to 25%

Total Efficiency :
100 Units of Potential Energy drops to 50 Units of Kinetic Energy, drops to 12.5 units of Propulsive Power. (At 25% Prop Efficiency)

Experimental Technology/Design Multi Prop System - For Large ships

A top View of the Propulsion System [Multi Prop System]



Efficiency of Marine propulsion could possibly be increased by Adding Multiple propellers on the same prop shafts.

Total Efficiency : 100 Units of PE converts to 50 Units of KE, drops to (3 * 12.5 Units) of Propulsive power. = 30 TO 37.5 Units of Propulsive Power.

The goal is to Increase Propulsive Efficiency through Multi Propeller Systems.

The Load Bearing capacity or propuulsive Speed of Marine systems could be increased by this technique/design.

Most Engine drives operate at a Range of Load or a Range of Work Output : E.g 40 Units of work output to 100 Units of Work Out put.
Most Marine propulsion propeller systems are Fixed - So they operate with a Fixed average Efficiency for the Entire Engine workload range.
(Some propellers are designed to give maximum efficiency at 70 Units Engine Load. They may not be very efficient at 30 Units load or 100 Units load. which is mostly a design to balance speed vs load bearing capacity. A 3 prop System combined may cover the 30 Units to 100 Units Range more easily.)

Finally the Propeller blade angles from prop 1 to prop 3 may vary - 1 works well at high Load bearing capacity (heavy lifting at low Rpm) and prop 3 works well at high speed, prop 2 works well at mid weight / mid speed conditions.

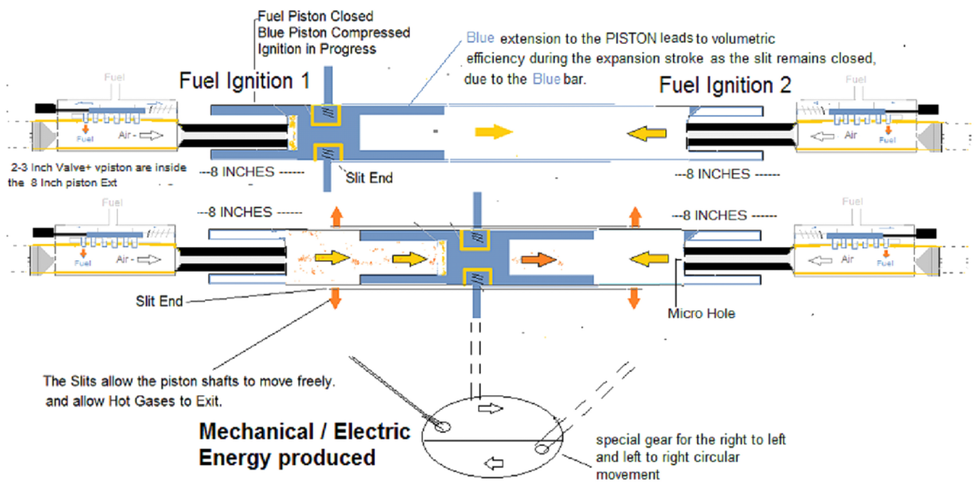
Analogy with Oars - 1 Person Rowing a Boat

[1 person with 2 oars , 1 person with 4 oars, 1 Person with 6 oars] . 1 person with 1 oar may not be very efficient. 1 Person with 8 Oars may be too tough.

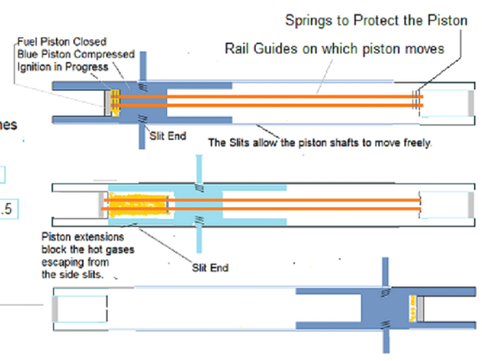
In a Ship - Under Constant Load - 1 Rpm of a Single prop system may be equivalent of 0.6 to 0.7 Rpm of a 3 Prop Systems. Total Volume of water displaced could be 3 x .65 (1.95) compared to 1 x 1 (1).

SYMMETRIC DUAL SIDE IGNITION - ENGINES

Symmetric Dual side Ignition Engine [SDSI Engine]



Compression & Expansion Strokes With Dimensions

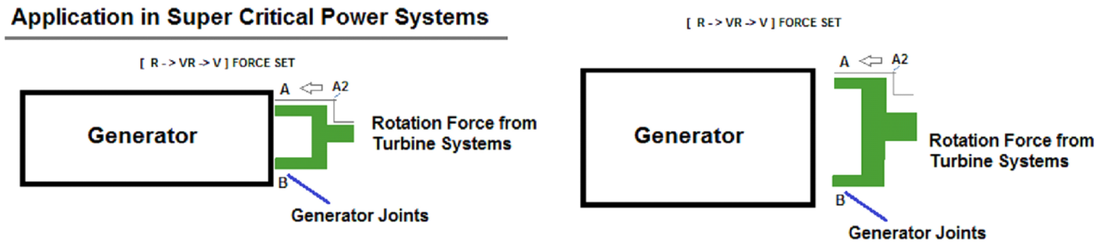


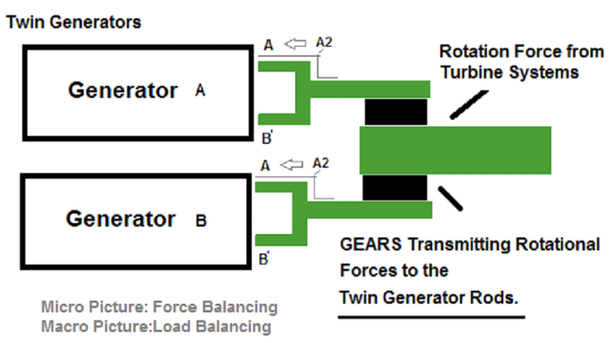
Approximate Dimensions for a Prototype

Bore Length - End to End : 27 Inches + 8 Inches left Ext + 8 Inches Right Ext
Piston length - End to End: 6 Inches + 8 inches left Ext + 8 inch Right Ext = 22 inches
Piston Movement : 21 Inches
Bore breadth : 6.2 Inches, Bore Height: 4.0 Inches to 5.0 inches
Piston Compression stroke 11 Inch(Left / Right) @ 15, 9.5 Inch(Left / Right)@ 18 Inch Slit/Groove (+- Depending on Compression ratio)
Piston expansion (non compressive freeplay Inertia) : 21 -11= 10 | 21 - 9.5 = 11.5
Piston Extensions breadth :0.5 Inches by 0.75 inches
Slit Length: 15 Inch/ 18 Inch
Slit breadth: 0.75 inches
Fuel Nozzle: 0.05 Inch (1.25 mm)
valve + Valve Piston = 2-3 linches

VRVR TECHNIQUE - APPLICATIONS IN POWER SYSTEMS & MARINE PROPULSION

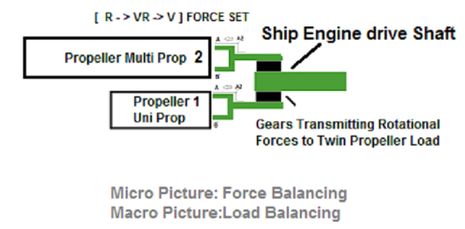
Application in Super Critical Power Systems





Micro Picture: Force Balancing
Macro Picture:Load Balancing

Marine Propulsion — Multi Propeller Systems with Twin Propeller Load



Micro Picture: Force Balancing
Macro Picture:Load Balancing

Pure Rotational forces are not very Efficient in Transmission of Forces. [R -> R] is not as efficient as [R - > VR -> VR -> V] Sequence of Force Transmission.

The Next Question ? Can The Gears be designed to Increase or Decrease RPM - Rotations per Minute on the Sub shafts or, Maintain Main Shaft RPM. Higher RPM or Lower RPM in the sub shafts, Depends on the LOAD at the Generator A & Generator B or Propeller 1 or Propeller 2 .

[Generator Load = Elecromagnetic Resistance load]
[Propeller Load - Water Displacement Volue and speed of Displacement]

THE CONCEPT OF Force Transmission, [Vectored Rotation] can be used in Fans, Motor Pumps, Fan Blowers, Rotary Systems, Helicopter blade Systems , Ground Drilling Machines, Screw Drills & Other Drilling Machines.

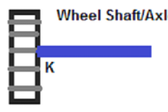
Formula 1 Cars too !

STEX ADVANCED DESIGN BUREAU - ADVANCED ENGINERING PART - II

VECTORED ROTATION] VRVR TECHNIQUES - USED IN WHEEL DESIGN [FOR TRAINS - TRUCKS - AUTOMOTIVES]

[VRVR] Wheel Connects in Automotive or Other Transportation Systems [Analysis of Force TRANSMISSION to the Wheel]

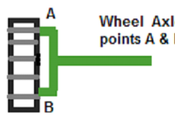
Existing Systems - Proven Tech



Wheel Shaft/Axle bolted to the Wheel (Tyre) at Point K

Transmission of Power from the Wheel Axle to the Wheel
Technique A

Experimental Design



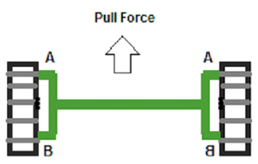
Wheel Axle/Shaft Bolted to the Wheel (Tyre) at points A & B

Transmission of Power from the Wheel Axle to the Wheel
Technique B [VRVR Technique]

Application areas - Train wheels, Trucks, Earth Movers, Buses, Cars and other Automotives, Bikes.

A possible Expected Result: Faster Transport, Larger Load Bearing Capacity.

E.g. Train Bogie and Train Engines - Transmission of forces [VRVR Technique]



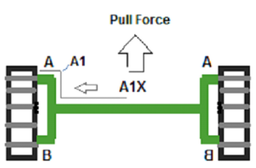
For E.g. A Train Bogie - experiences a Pull Force. The Pull force gets converted to a rotational Force through the wheels. If there were no conversion to a rotational force - the Train Bogie would skid forward.

The Pull Force is channelised through the Axle to the Wheel Joint where the rotational force is applied. If wheel Connects were designed as per Technique B - The rotational force is transferred to the wheel at points A & B, Rather than at the Center.
[VRVR Technique]

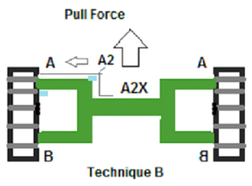
A Test to test this Technique B.

A Threshold Force is USED to pull a Bogie with Regular wheels. It is measured as X. A threshold Force Q is used to pull a similar Bogie with the technique B Wheel Connects. The Difference between Q and X would explain the Efficiency Gained by Technique B.

Advanced Approaches - Technique B advanced Approaches [VRVR Technique]



Technique B
[VRVR Technique]



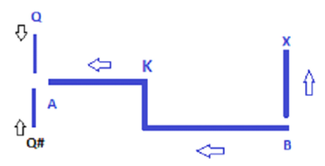
Technique B
Advanced Approach
[VRVR Technique]

Observe the Gray Arrow lines depicting the Way Force transmission takes place through Points A1 to A or A2 to A.

Compare Force generated at A1, with Force Generated at A2. (Think of the Distance Parameter /Factor).

The Technique of Force Balancing can be Enumerated or depicted through the following Function Set

[Point of Force start , Point of Force End , [Transmission of Forces through a Channel or Material Structure]



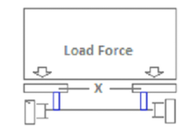
Freescale
Type of Force Start ,

1) Load/Weight Force
2) Vector - Pull Forces
3) Vector Rotational Force of (Revolution)
4) Rotational Forces
5) Negative Frictional Forces
6) Torsion Forces..
7) Others if any..

Freescale
Type of Force End , Value, Magnitude]

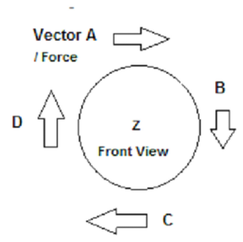
1) Load/Weight Force
2) Vector - Pull Forces
3) Vector Rotational Force of (Revolution)
4) Rotational Forces
5) Negative Frictional Forces
6) Torsion Forces..
7) Others if any..

Truck Chassis or Train Chassis Design depicting transmission of Forces



Load Force transmitted to the Wheels through a VR Connect. Pull force transmitted through X.

Analysis of VECTOR Force Transformations in a Wind Mill/Wind Turbine System



[Existing Wind Mill Technology]

Existing Tech Side View

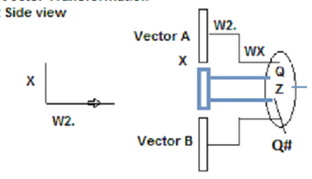
[Center]

Vector A is a Force created by the Wind Turbine.

It consists of 2 parts
Part X - Used to convert to Rotation at Z
Part W - Lost due (Does not Contribute significantly to Work or Load Rotation)

[High Efficiency Wind Mills]

Force/Vector Transformation
Step 2 Side view



Blade Set 2 in Blue contributes a V Force at Q#, thus contributing to Wheel Rotation.

Vector A is now converted to 2 parts.

The Part X - is the original Vector/Force Contributing to Rotation (VR) - Intermediate VR (i.e. Part X Contributes to Overall Force at Q)

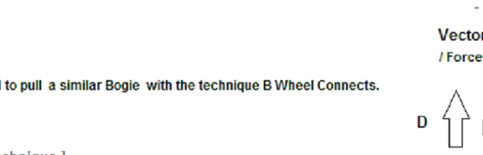
The Part W is not lost. It is converted to a Vector, 90 Degree to the plane of the Blade and is called W2.

W2 contributes as a Vector WX at Point Q. (V)

This force is not Rotational, although it contributes to the Wheel Rotation.

GEAR LOAD BALANCING FOR - HIGH EFFICIENCY POWER DELIVERY

Engineering design version 2



Two Hemispheres - leading to a wheel rotation
(Latitude, longitude styled grooves for gear engagement)

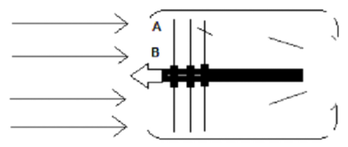
Bevel+spur Fixed gears used for gear summation **fitted to grooved axles**
eg. 2000 Engine rpm transforms to Gear
A1+ B1+ C1 + D1 + E1 = 8000 Rpm (effective 5000- 6000 Rpm) = Summation of Work Done by all gears together in serial.

Triple New Concept AUTOMOTIVE TECHNOLOGY
1) Hemisphere Gears - for Wheel Rotation
2) Serial Helical Gears, leads to Gear summation
(Rather than **Disjoint gears**)
3) **One Axle for forward and second axle for reverse.**

VR VR - TURBINE INNOVATIONS FOR AIRCRAFT JET ENGINES

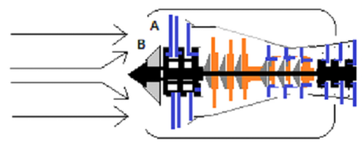
A brief Outline - JET Turbo Fan Engine Propulsion - Evolutionary Advancements

Turbo Fan Engines : 2016 -2017 Era



B - Section
Not very Effcient in Providing a force to the Turbine shaft.

Alternative Design Directions



B - Section
Deflects Air to Section A.

A Section Blades Have higher Angle of Attack to the Air Flow

Designed to Allow Higher Volume of Air to Flow in through Section A.

[Due to VRVR Principle]

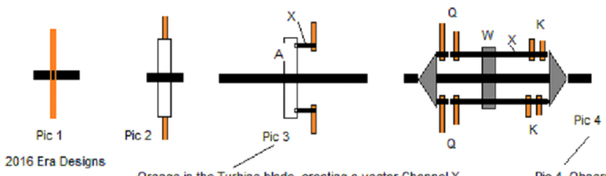
Turbine Rotational Speeds are increased - Increasing Air compression.
Higher Compression leads to Increased Combustion and Higher Thrust

[Note: Orange & Black, both the Turbine Shaft Speeds are increased]

Blue Blades facilitate Vectored Rotation [Revolution Forces]

i.e Revolving the turbine shaft from a distance , rather than rotating the Turbine shaft at the Root.

The Gray Traiangles deflect air to the outer section of the Blades



2016 Era Designs

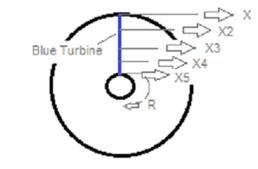
Orange is the Turbine blade creating a vector Channel X. (Though X is a Short Vector). Observe the turbine Forces acting from a Distance, from the ROOT A. Pic 3

This is more efficient than - a Turbine Blade placed directly on the Root as shown in Pic 2 .

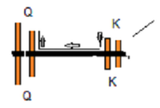
Pic 4 Observe the Compression Blades Q and Exhaust Baldes K . X is a Long vector Channel allowing Transmission of Forces to W. Also note the Vectored Rotation [Revolution] type Shaft Design. W facilitates Vectored Rotation [Revolution]

[The Vector Channel X is to be of the Right Length and Strength]

CONVENTIONAL SYSTEM - Force Conversions a Picture.



Conversion of X,X1,X2,X3,X4,X5 Forces to R



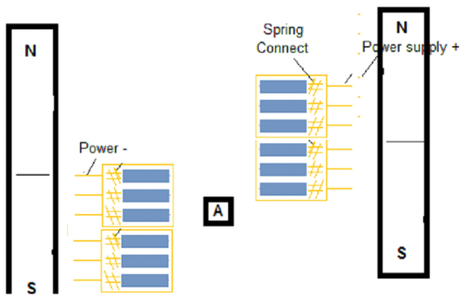
Force Transmission Analysis of Existing Turbo Engines.

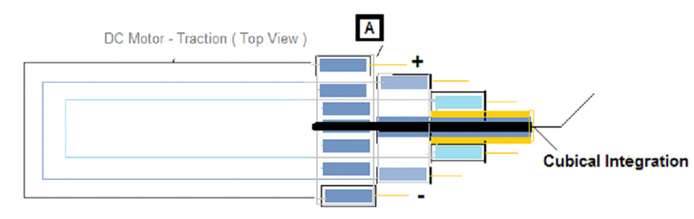
The Force generated by the K - Exhaust Turbines is transmitted to the Shaft a Rotational Force [R Force]. This R force Reaches the Q of the shaft. Then This R force drives the Q - Compression Turbines.

Therefore the Pic 4 has a design that the K turbines create a VR force,instead of the R force. The VR forces travel through W to the Q Blades and the VR force from W drives the Q Blades. [Leads to Higher Efficiency]

DC MOTORS FOR TRACTION

DC Motor for Traction

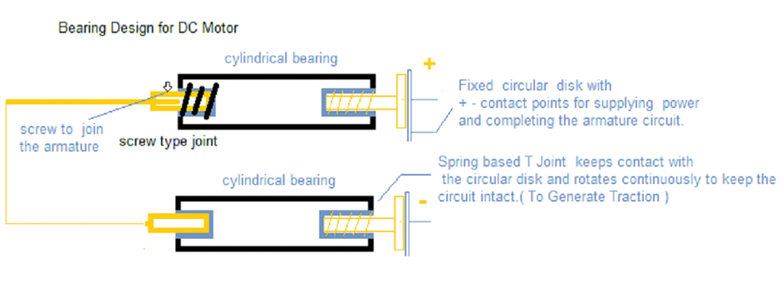


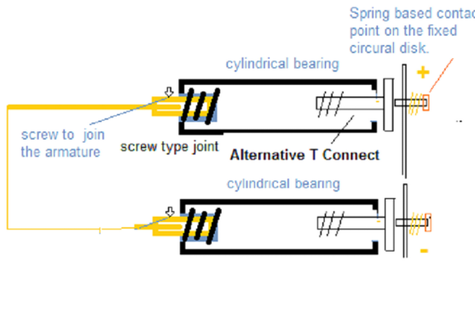


Number of armature windings = nos of Ball Bearings/Roller Bearings

Nos of Spring contact points = Nos of Bearings . Type of contact points is either [+ to - ve] or [-ve to + ve] to and is to be alligned with North south magnets for continuous traction.
circular square magnets are alligned in away to allow armature to gain traction for the **N/2** spring contact Points with current flowing from+ To - ve. Another **N/2** Contact Points have current flowing from -ve to +Ve.
This Helps in creating + to - ve traction in Top Hemisphere and - ve to +ve traction in the bottom hemisphere.

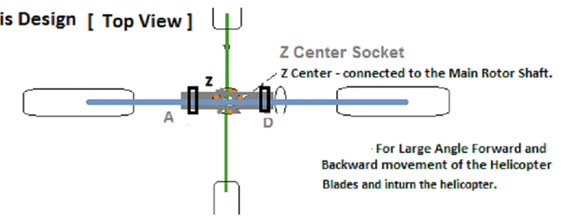
Bearing Design for DC Motor





VRVR TECHNIQUE - APPLICATIONS IN HELICOPETER SYSTEMS

Chassis Design [Top View]



For Large Angle Forward and Backward movement of the Helicopter Blades and inturn the helicopter.

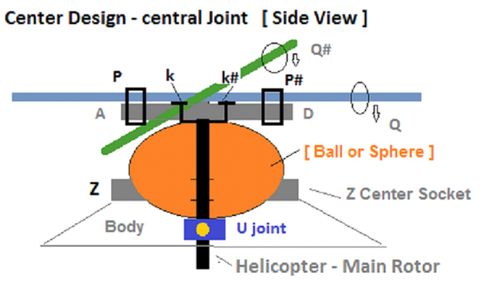
[High Angle of Attack systems]

p p# - Are Two Clamp Points where the Blue Tube is Clampped to the Gray Chassis Bar.

The P, P# Clamps allow the Blue Tube to rotate Inside.

K, K#- NUT Bolt system to fasten the Main Rotor to The Gray Chassis.

Z Center Design - central Joint [Side View]



Large Orange Ball placed on a smaller Diameter Socket.
Main rotor shaft - Held by a Screw/Nut joint on TOP.

When Blue Tube Rotates I.e Q, the Ball joint moves Forward/Backward. When the Green Tube Rotates, i.e Q#, the orange ball Joint moves left/Right.

U Joint to Allow - Spherical Rotation

AD chassis is always at a 50 -90 Degree angle to the Main Rotor Shaft.