Super Productive Stationary Prototype Systems.

Following the design , fabrication and successful testing of the 400 kilowatt prototype stationary system , it is quite possible that designers might wish to consider the potential for large scale productivity. One approach to achieving this objective is suggested and illustrated in the Schematic Diagram in Figure 60 on page 241.

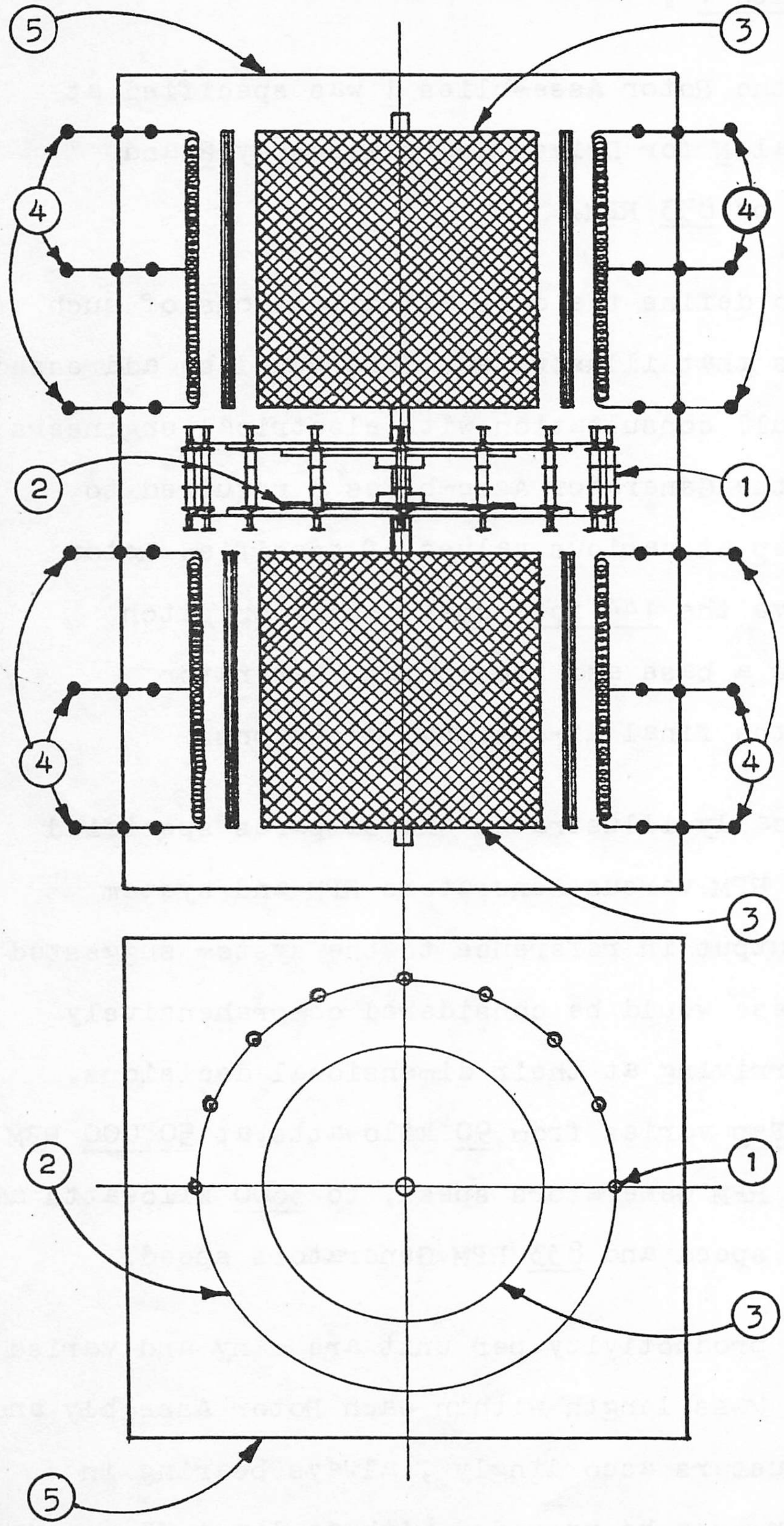
Basically , it consists of multiple Rotor Assemblies , nine in the schematic diagram of Figure 60 , similar to those of the proposed two-thruster 400 kilowatt prototype , spaced radially on , and interfacing to , the upper half of a large diameter Driven Gear Assembly , which , in turn , is coupled to two appropriately large Generator Assemblies. It is assumed that the Driven Gears Assembly , and each of the two Generator Assemblies would have its own set of Bearings and central axis Shaft . The inner end of each Generator Shaft would be connected by flexible coupling to the adjacent outer end of the Driven Gears Assembly. As with the smaller 400 kilowatt prototype , Rotor Assemblies 1 , Driven Gears Assembly 2 and Generator Assemblies 3 , would all be housed within the large Environmental Control Vessel 5 and function in the Environmental Pneumatic Pressure Ep which it contains.

Only the Electric Power Pep production output 4 and the necessary conductors and conduits,required for operational control of the system, would pass through the walls of Environmental Control Vessel 5 .

If the Rotor Assemblies were , indeed , identical to those of the proposed 400 kilowatt prototype system , the two 1.000 inch pitch diameter Driver Gears of each would interface to the 144.000 inch ,

Figure 60

Schematic Diagram - High Productivity Systems.



LEGEND:

1) One Of Nine Rotor Assemblies.

2) Driven Gears Assembly.

3) One Of Two Identical Generator Assemblies.

4) Electric Power Output.

5) Environmental Control Vessel Assembly.

pitch diameter Driven Gears of Assembly 2 , making the speed reduction ratio, from Rotor Assemblies 1 to Driven Gears Assembly 2 and Generator Assemblies 3 , precisely 144 to 1 .

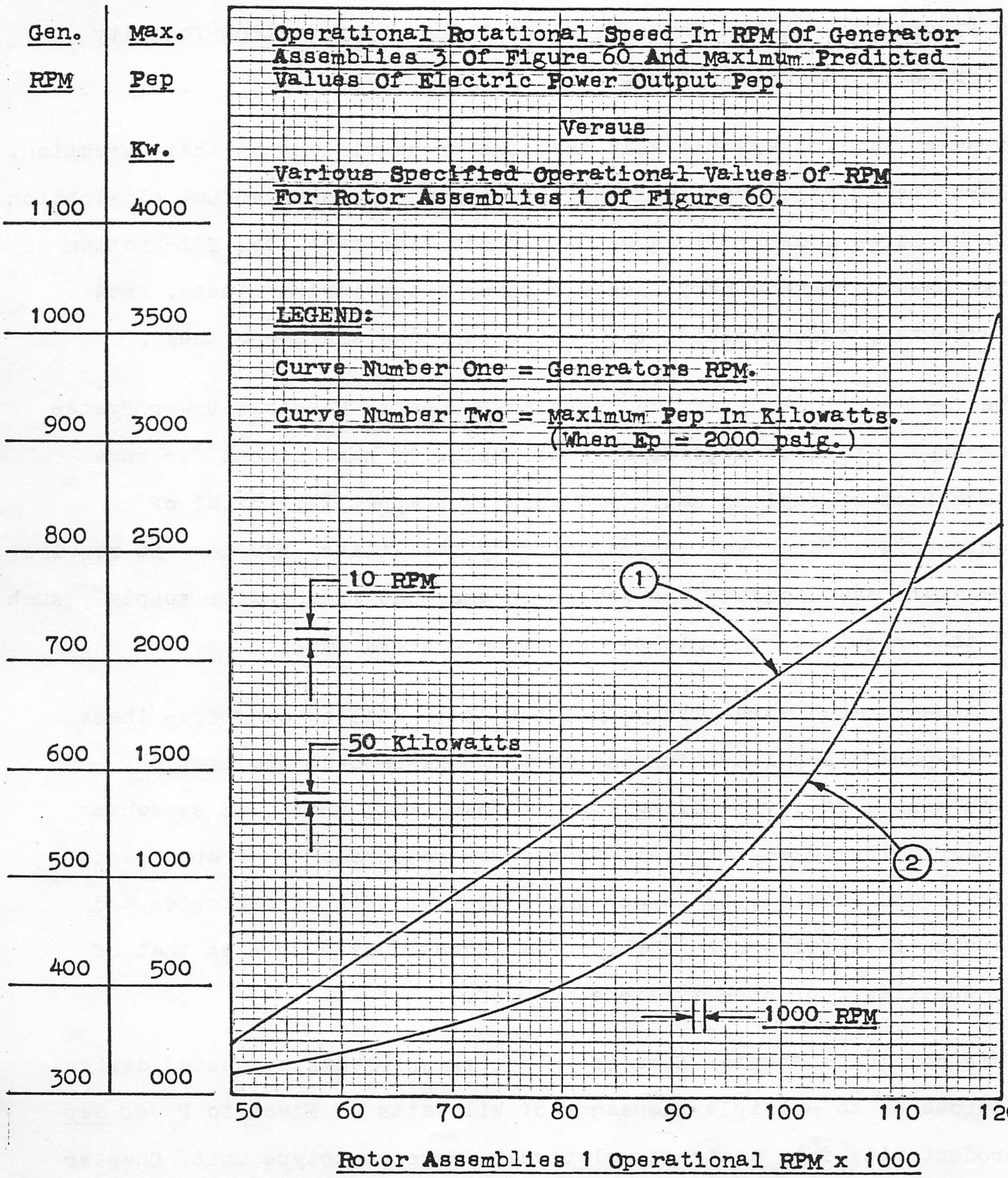
Thus , if operational N for the Rotor Assemblies 1 was specified at 120,000 RPM , then operational N for Driven Gears Assembly 2 and Generator Assemblies 3 would be 833 RPM.

Figure 60 makes no attempt to define the over all dimensions of such a high productivity system as that illustrated. This would be addressed by finalizing designers in full consultation with electrical engineers in reference to the size of the Generator Assemblies 3 required to produce the Electric Power Pep at various values of specified Rotor Assemblies N . They would have the 144 to 1 speed and gear pitch diameter ratio to refer to as a base and incorporate Generator specifications to arrive at the final dimensional decisions.

Figure 61 on page 243 graphically illustrates and compares specified operational Rotor Assemblies RPM versus Generators RPM and system maximum Electric Power Pep output in reference to the system suggested in Figure 60 on page 241. These would be considered comprehensively by finalizing designers in arriving at their dimensional decisions. Note that maximum predicted Pep varies from 90 kilowatts, at 50,000 RPM Rotor Assembly speed and 347 RPM Generators speed, to 3600 kilowatts at 120,000 RPM Rotor Assemblies speed and 833 RPM Generators speed.

The options for even greater productivity per unit are many and varied , such as increasing Pneumatic Mass length within each Rotor Assembly and increasing the number of Thrusters accordingly , always bearing in mind that each added Thruster must be provided with at least 73 standard air cubic inches of Pneumatic Mass volume for 95% compression efficiency.

Figure 61


Gen. RPM
Max. Pep Kw.
1100 4000
1000 3500
900 3000
800 2500
700 2000
600 1500
500 1000
400 500
300 000
Operational Rotational Speed In RPM Of Generator Assemblies 3 Of Figure 60 And Maximum Predicted Values Of Electric Power Output Pep.
Versus
Various Specified Operational Values Of RPM For Rotor Assemblies 1 Of Figure 60.
LEGEND:
Curve Number One = Generators RPM.
Curve Number Two = Maximum Pep In Kilowatts. (When Ep = 2000 psig.)
10 RPM
50 Kilowatts
1000 RPM
1
2
50 60 70 80 90 100 110 120
Rotor Assemblies 1 Operational RPM x 1000

An increased number of Rotor Assemblies interfacing to larger Driven Gears Assemblies and Generator Assemblies, offer another option. Grouping any convenient number of 3600 kilowatt units , such as that in Figure 60 , within the same electric power production facility , offers still another option.

However , it appears unlikely that the trend will be in that direction. There are multiple good and sufficient reasons for eventual elimination of the large , centralized , power production facility. Elimination of high power cross-country electric power transmission lines , area blackouts , vulnerability to hostile sabotage are among them .

The self-sufficiency of the Inertial-Pneumatic Electric Power System makes all of these objectives achievable. It has no need for huge stockpiles of fuel to satisfy a voracious appetite,typical of contemporary large volume productivity facilities. Nor does it require immediate availability and access to enormous fresh water supply , such as that required by contemporary steam powered facilities.

It appears much more likely that the trend will be away from these contemporary sensitivities and toward maximum decentralization. Each single family dwelling,with its own small unit , to somewhat larger units to meet the electric power requirements of apartments , hotels and motels , to larger units to meet that of factories and service facilities , to perhaps the largest units to meet that of communities , or sub-divisions thereof.

This concludes Chapter Nine of this work which has suggested design approaches to multiple thousands of kilowatts of Electric Power Pep productivity from a single relatively large prototype unit. Chapter Ten will suggest design approaches to mobile prototype systems.