APU (AUXILIARY POWER UNIT)
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1 REQUIREMENT

Operationally it has been found that the CVR(T) Scorpion main engine is often only used to propel/move the vehicle for a small percentage of the time that it is turned on.

The majority of the time, when the vehicle is static, the engine is set to run at about 2,000 RPM to charge the vehicle batteries.

The vehicle batteries have to be kept charged to power the radio (approx 15 A) and the cooking pot (approx 60 A).

Experience has shown that since the standard vehicle only has 2 (two) 100 Amp hour batteries for main engine starting it is very easy to run them flat. The main engine is therefore run almost continuously to charge them.

2 PROBLEMS

2.1 High fuel consumption of main engine.

2.2 Short life of main engine.

2.3 Reduced gearbox life.

3 SOLUTION

Main battle tanks and aircraft have for many years had Auxiliary Power Units (APU) fitted as standard equipment to enable the main engine to be turned off when the vehicle is stationary so reducing main engine operational running costs.

Therefore, Repaircraft PLC have developed the S 2000 Auxiliary Power Unit Secondary Generator.

i.e. Use the main engine to propel/move the vehicle and use the APU to charge the batteries to power the radios and cooking pot etc when the vehicle is stationary.

4 BENEFITS

4.1 Increased Operational Endurance (APU will run for 24 hours on 20 litres of fuel).

4.2 Longer Main Engine life.

4.3 Increased gearbox life.

4.4 Increased life of cooling fan unit.

4.5 Increased generator life.

4.6 Increased life of cooling fan and alternator drive belts.

4.7 Because the APU has a completely independent battery for starting itself, if the main vehicle batteries are flat the APU can be used to charge the vehicle batteries to start the vehicle (no need for any other vehicle or power supply).
5 OPTIONS

5.1 Armour protection for APU.

5.2 110 Vac or 240 Vac output socket.

6 SPECIFICATIONS

6.1 Engine

- Perkins 103-07 vertical in-line, three cylinder, four stroke naturally aspirated.
- Liquid cooling system with water pump and radiator
- Isolated electronics/independent 12 V power source
- 12.5 bhp @ 2,800 RPM
- 67 mm bore
- 64 mm stroke
- 700 cc
- Diesel fuel

6.2 Alternator

- Brushless 24 V
- A1-105
- Nominal Output: 65 Amps @ 10,000 RPM

6.3 Enclosure (including independent fuel tank)

- 920 mm (l) x 580 mm (w) x 650 mm (h)
- 260 kg
- External noise level: Maximum of 83 dB (A) at 1 metre normal to measuring plane outside vehicle.

6.4 Star Features:

6.4.1 Servicing

- All service points accessible from the front hinged door.

6.4.2 Operation

- Runs on standard Diesel and Avtur fuels.
- Low-level automatic turn off feature (to avoid requirement to bleed air from injection system on refuelling).
APU ENCLOSURE

STANDARD S 2000 APU FITTED TO SCORPION
S 2000 AUXILIARY POWER UNIT CONTROL BOX

AUXILIARY POWER UNIT 65 AMP GENERATOR
APU VEHICLE LOCATION