This cover sheet can be discarded after reading notes below fully :-

- **Keep any commercial and system information confidential at all times.**
- **Is there a valid NDA in place and lodged with HCT head quarters ?**
- This is a comprehensive questionnaire designed to capture as much information about potential and existing systems from the customer so we get the design right.
- Make as many notes as possible during the discussion with the customer on all aspects of the visit.
- Ensure you get business cards from all meeting participants including HCT personel.
- Get market information such as quantities, position in market, new products e.t.c.
- During the conversation, Try to identify what is the most urgent situation the customer is trying to solve – it may not be just fan drives but also something connected to it !.

This questionnaire is to help High Country Tek, Inc personnel understand the details of the hydraulic fan cooling being discussed.

All of the information contained on this questionnaire is considered as commercially sensitive and company confidential and will not be shared with any person outside the High Country Tek, Inc organization or third party at any time.

Remember to attach all extra relevant notes sheets at time of sending.

HCT Fan Drive Solutions

Customer No.:	**Date:**	**Name:**	
Customer:	**Prime Contact:**		
Phone:	**Fax:**	**E-mail:**	
Project Name:	**Project No.:**		
Projected system price:	$	Current system Price:	$
Projected annual quantity:	Year 1	Year 2	Year 3
System Details :			
Min fan speed req.: RPM	Max fan speed req.: RPM		
Is fan max speed req. at less than max engine RPM ? NO / YES	If YES, what engine. Speed ? RPM		
Is ZERO fan speed req. ? YES / NO	Is fan REVERSE req. ? YES / NO		
Fluids cooled:			
Engine Details:			
Make:	Displacement:	HP:	
Idle RPM:	Max RPM:		
Transmission Details:			
Make:	Model:		
PTO Details:			
Make:	Ratio:	Coupling: Male / Female	Max Torque available: Ft/lbs
Hydraulic Pump Details :			
Make:	Model No:		
Type: Piston / Vane / Alu. Gear / Cast Iron Gear.	Disp: GPM / CC / In^3	Rotation: LH / RH	
Shaft details: Male / Female	SAE standard:	Other:	
Keyed / Spline	Diameter: mm / In	Tooth count:	
Mounting type: Direct PTO / Pulley	Flange Type: 2 bolt /4 bolt	DIN/ISO or SAE std:	
Pulley ratio:	Fitting type: SAE straight thread / NPT pipe / 4 bolt flange / Other		
Inlet hose Dia:	Outlet Hose Dia:	Drain line dia:	
Connection material: Hose / solid pipe	Make:		
Pump for:- Fan Only / Fan + Power steering / Other…please specify :			
Power steering flow: GPM / CC / In^3	Power steering Pressure: PSI / bar	Relief Vlv. Setting: PSI / bar	
Internal Valving / external manifold.	Pump mounting constraints……please add info. to ‘comments & notes’ section.		

HCT Fan Drive Solutions

Hydraulic Motor Details :		
Make:	Model No:	
Type: Piston / Vane / Alu. Gear / CI Gear.	Disp: CC In^3	Rotation: LH / RH
Drain line : Internal / External	Drain line dia:	Drain line fitting:
Shaft details: Male / Female	SAE standard:	Other:
Keyed / Spline	Diameter: mm / In	Tooth count:
Mounting type: Direct PTO / Pulley	Flange Type: 2 bolt /4 bolt	DIN/ISO or SAE std:
Pulley ratio:	Connection material: Hose / solid pipe	Make:
Inlet hose Dia:	Outlet Hose Dia:	Fitting type: SAE straight thread / NPT pipe / 4 bolt flange / Other

Fan Speed control Details - Hydraulic Valve / manifold:		
Make:	Model No.:	Size : 06 / 08 / 10 / 12 / Other….
Location: In pump / In Motor / in-line / Remote	Manifold Mat.:	

Electronic system controller:		
Make:	Model No.:	System supply voltage: 12 / 24vdc / Other
Temp. Signals: ECU / J1939 / CAN / Sensor / Other	No. of channels: 1 / 2 / 3 / more…	

Fan Details :		
Maker:	Model No.;	Dia:
HP:	Max Speed:	
Axial load: lbs	Radial load: lbs	HP Curve on file: Yes / No

Filtration Details :		
Make:	Model No.:	Type: Spin on / in-line / other
Filtration level: ISO 4406 17/14 or NAS 1638 (class 8) or SAE 749 (Class 5) or BS5540/4 or Other….specify:..		

Reservoir Details :		
Make:	Capacity: Gall(US) / Liters	Distance from pump:
Location relative to pump: Above / below / Other…specify:		

Fluid Details :		
Name:	Number:	
Min oil temp.:	Max oil temp.:	Viscosity: @ °C

Radiator Details :		
Make:	Model No.:	
Connectors :		
Make:		
Power Steering Details :		
Is PS needed on this apl.? YES / NO	SteeringFlow:	Steering Pressure:
Fluid type:	Is fluid separate from Fan drive sys ?	Trim Orifice size:

Notes, Special Instructions…

Glossary of terms used in this document:-

DERV : Diesel Engined Road Vehicle.

ECU : Engine Control Unit, also known as EMU (Engine Management Unit).

SAE J1939 : This is a method of signal communication used typically on mobile machinery and is mainly concerned with signals (temperature, speeds e.t.c.) coming from the engine and takes the form of physical wires that connect to all the various electrical engine parts, ending at the engine ECU.
Plugging into this cable and listening to the signals will allow the controller electronics to be integrated onto the vehicle and respond as needed.

C.A.N. : Controller Area Network.
This is another method of signal communication similar to J1939 but NOT specifically concerned with just the engine well being. These physical wires are connected to any C.A.N. compatible device to share information and typically terminate at the master controller.

PWM : Pulse Width Modulation.
This is a description of a pulsed signal that is created by a controller to give a variable output. The most important factor of the pulses is the **duty cycle** - it's the ratio of how much time the pulse is "on". For example, 50% duty cycle means the pulse stream spends equal times on and off. 75% duty cycle means 3/4 of the time it's on, and 1/4 of the time it's off. And so on - obviously, 0% means it's OFF all the time, and 100% means it's full ON all the time.