

## Summer Break 2007 USM Engines Lab Projects

### General

- \* Paint floor, doors, walls
- \* Paint dyno frame, motor bike frames
- \* Install white board
- \* Wire for power
- Get several new cabinets
- Get radio
- \* Organize nuts/bolts/couplers/hoses... Get bins
- \* Get best case computer to replace the one that's dying
- Get drill and bit set
- \* Make 4x motor working stools
- \* GET BLOWER
- \* Get fone
- \* Get network connection
- \* Get pen drive and drivers up on the computers

### Fuel Measurement

- \* Make better petrol tank (lighter)
- \* Make 1 for Diesel
- \* Cover from wind
- \* Make spring loaded one for LPG tank (or get small lpg tank)

### 2-stroke Direct Injection

- Get smaller LPG Tank, Make LPG Tank Holder on bike
- Get pressure sensor
- Get CNG bottle
- Bore for pressure sensor
- Add indexer
- Up CR on head
- CNC own head
- Add tank holder to frame

### Deisel Generator

- \* Hard wire power connections

### Jaguh

- \* Print up banners/logos for bike
- \* Confirm timing
- Add indexer
- Bore for pressure sensor
- \* Figure out fuel lines
- Up CR
- \* Check piston sealing
- \* Add tank holder to frame

### 2T Deisel

- Search for 2T engine – Yanmar engine bore/stroke matchup

### **Honda EFI**

- \* Paint Frame, Add tank holder to frame
- \* Fuel System
- \* Wiring
- \* Pickups
- \* TPS
- \* Injector Mounting

### **DIY Dyno**

- \* Frame – Paint
- \* Bolt down
- \* Load Cell: add new one
- \* Controller wiring and box fixup
- \* Add emissions analyzer data reading
- \* Add temperature reading
- \* Add air flow reading
- \* Convert speed control for serial com
- \* Improve cooling tank (shorter, wider, professional)
- \* Duplicate Power Supply

### **Air Flow**

- \* Get throttle body for air flow measurements
- \* Check out our air flow sensor, Calibrate with blower

### **Throttle Position Controller**

- \* Make professional Throttle controller (use V to control)
- \* Position Feed Back
- \* Setup to act as TPS as well

### **Small Dyno Demo Unit**

- \* Clean Up
- \* Check out

### **Big Dyno Piggyback Controller**

- \* Torque, fuel, air flow and temperature recording
- \* Check out indexer signal
- \* Check out pressure sensor amplifier in box

### **Pic Controller**

- \* Duplicate
- \* PIC tester circuit
- \* Setup programmer in control room

### **Logger**

- \* Make schematic of logger
- \* Duplicate
- \* Program up for bike logger: Wheel speed, Engine Speed

### **Mechatronics Lab**

- \* Setup 4x computers with A-D, Powersupplies
- \* Make motor-speed lab kits

**KRISS 120cc**

- \* Make frame/chassis generator
- \* Make oil measurement on breather

**Kriss II Euro-4 EFI**

- \* Make solid engine Model
- \* Get EFI fuel line worked up (pump, press reg, return line)

**Small 2T Work**

- Make cyl. Friction measurement bore
- Get fan/Calibrate
- Mount fan

**Contacts**

- Silverstone in Taiping about tire dyno

**OTHER**

- Design Chassis dyno with incoming 20 kW dyno
- X-section small engine for hand-cranking/demo
- Vehicle model: Mass, Losses, rolling/areo friction, engine, gearing
- DIY EFI Controller (N-alpha)
- Schematic – Trace out Power Tracker Circuit for HWAT
- GT Power Modeling: Learn Up and compare with experimental results
- Design better dyno for plastochem
- Demos: sparks, Carb x-section
- Procedures: Wite up for