The Bay Area Engine Modelers Club, Branch 57 of EDGE&TA

The Crank Calls

February 2005

President…....Ken Hurst…..……...(707) 257-2481....icengine@mcihispeed.net
Secretary…….Bob Kradjian……...(650) 343-7585…....bkradjian@aol.com
Treasurer…....Lewis Throop……...(650) 941-8223…….....lthroop@aol.com
Events Coordinator...Dick Pretel…….(408) 732-6507…RPM10K@SONIC.NET
Editor……..…Bill Nickels…..…..…….(408) 739-2407…….whnickels@aol.com
Tech Topics….Pat O'Connor……..……...(408) 733-3710…...pat1650@yahoo.com

NEXT MEETING

February 19, 2005 At
Robert Schutz's Shop
366 40th St. Oakland, CA

Doors open at 9AM
Meeting Starts at 10 AM

FLASH!

A generous contribution of $100 was received on Feb 2 from Paula Bermingham in Middletown, Ca. No specific program was mentioned, however, the newsletter, which reaches all members, does require replacement equipment from time to time so this contribution is very welcome. Lew Throop

DUES ARE DUE
EXPIRED MEMBERSHIPS WILL NOT RECEIVE THE MARCH THRU DECEMBER NEWS LETTER

TO JOIN THIS CLUB OR RENEW YOUR MEMBERSHIP
Contact Lewis Throop at
27272 Byrne Park Ln.
Los Altos Hills 94022-4324
Phone 650-941-8223
Email: lthroop@aol.com
MAKE YOUR $25.00 CHECK PAYABLE TO LEWIS THROOP

MEETING NOTES
1-15-05
Carl Wilson

Guests: President Ken Hurst had the pleasure of introducing his son Ken, Jr. and granddaughter Paige. Bob Marks met some of our club members at Pleasanton. Welcome to BAEM.

Treasurers Report: Dues is Due! Please make payment ($25) to Lew Throop. The treasury is still solvent but a change in our insurance may require an assessment in mid-year. Stuff some extra money into a sock and put it under the mattress so you'll be prepared.

Our next club event will be the Hillsborough Concours on May 1st. Jonathan Spiro of the Hillsbrough Concourse wants BAEM to attend. We need to know how many people will attend so we can have enough tables and chairs. If you are interested contact Dick Pretel

Tom Armstong reported that the NAMES show will be moving to BowlingGreen, Ohio next year. This will be the last show in Detroit.

We sorta had a re-election of officers, that is, Ken asked if anyone wanted his job. No one jumped up and said "Me! Me!" so Ken declared that the officers would serve another year.

Bits and Pieces:

Ken Hurst brought the cylinder block and oil pan castings for an in-line 6-cylinder engine. The castings are from

Sweden.

Dwight Giles showed this ball turning tool. The outer yoke clamps to the lathe toolpost and the inner yoke pivots on bearings in the outer yoke. Swing the handle around and presto, a ball. There are several tool adapter blocks of different lengths that are bolted to a flat surface on the inside of the inner yoke. These adapt the tool for making different diameters balls. The micrometer setting bar is held to the tips of the inner yoke by magnets taken from Sonic toothbrushes. The final adjustment of the cutting tool is by holding its tip against the micrometer and clamping in place.

Dwight and Ken are making three Wall 4 engines converted to overhead valve. Some of the details:

1. New heads sporting 10.5 to 1 compression ratio & 140 psi compression pressure

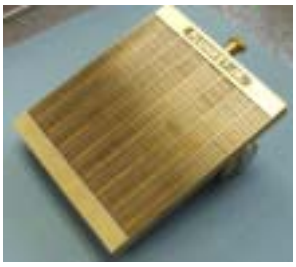
2. Walbro carburetor pressure fed from stainless fuel tank in the base
3. Pistons are 2024 aluminum carrying 2 compression and 1 oil-control rings
4. Rods and rocker arms are 7075 aluminum
5. Flat crank
6. Hall effect ignition system

Al Vassallo made this concentric piston rod, tandem cylinder hot air engine. The power and displacer pistons are each operated individually by ball bearings on a double "Z"crank. It runs quietly and with a surprising amount of power.

George Gravatt reported his "first pop" from a Bob Shore designed Little Devil.

This "little devil" broke its first crankshaft which was a "Loctite and pin" fabrication. The pin hole was the weak spot. George made the second crank by silver soldering.

Dave Palmer sent a picture of the radiator for his next engine: the Plunket Jr. design by Jerry Howell. Take a look at all the fins: they were milled from the solid. Dave confessed to having made a "few mistakes." Looks "cool."



Ken asked some of our more active builders about their current projects:

John Palmer is restoring a St. Mary's engine: a 5 hp stationary hit-n-miss gas engine. Details: 1500 lb weight, 3 ¾" bore and 5" stroke. An unusual feature is the gas operated exhaust valve: near the end of the power stroke a port is uncovered and exhaust gas flows into a small auxiliary cylinder and drives a piston which engages the exhaust push rod. This unique design uses an eccentric rather than a cam to operate the exhaust valve and does not have timing gears.

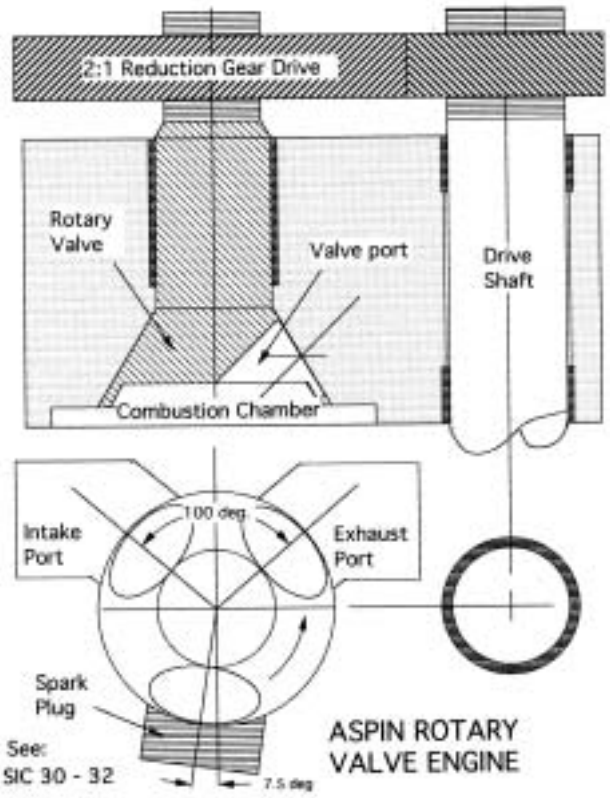
Carmin Adams is working on his 1/8th scale 3-cylinder 50hp Fairbanks engine.

Dick Pretel is building a quad overhead cam conversion of the Challenger V-8. The connecting rod cap bolts hit the oil pan and Dick had to re-machine the pan to obtain the clearance. He mentioned that he is starting to acquire parts to make a model of a Hicks single cylinder marine engine. This will not be an exact scale model but will represent the unique method used by Hicks (see the November Tech Topics report) to control the engine speed via the camshaft.

Pat O'Connor was studying the drawings of a Forrest Edwards 5 cylinder radial engine and decided that a second bank of cylinders could be added to make a 10 cylinder. Adding a bank requires redesigning the center section of the crankcase to facilitate assembly, and changing the heads to relocate the ports and rocker arms. He is also adding a blower and its drive gearbox. This is not a simple conversion.

Tech Topics
Carl Wilson

Pat O'Connor continued the November Tech Topics: Sleeve and Rotary Valve Engines. Take a minute and re-read the report on that Tech Topic, especially the advantages and disadvantages of these various systems. I did a little web browsing and learned that in the 1920's and '30's the sleeve and rotary valves looked more promising than poppet valves. This justified the large expenditure of engineering time and resulted in very successful designs of large aero engines in WWII and immediately thereafter. Sleeve valve engines were



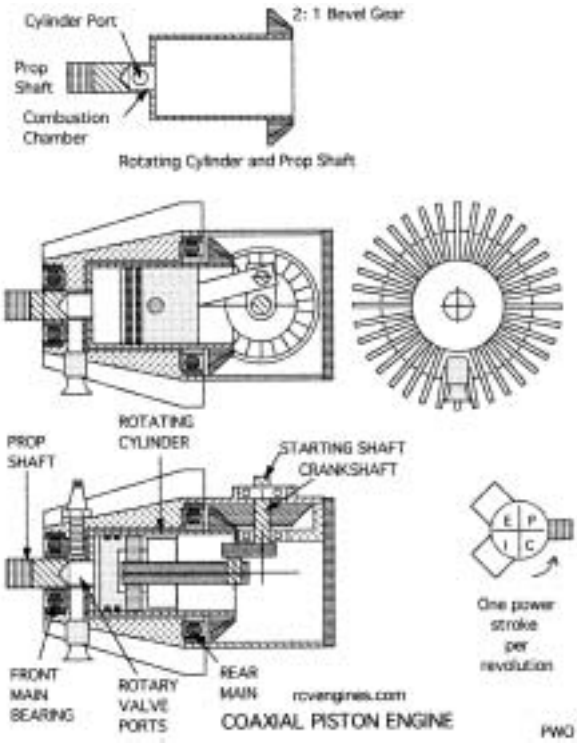
designed to produce more horsepower than any equivalent poppet valve engine. These large and very complex engines were completely superseded by turbojet engines in the late 1940's.

The rotary valve systems were never very successful in any application. Today there are scarcely any sleeve or rotary valve engines being produced. This Tech Topic will look at the Aspin rotary valve, an unsuccessful design originating in the 1920's, and the Rotating Cylinder Valve (RCV) engine, a contemporary design that is in production.

The upper drawing is a section through the cylinder head of the Aspin engine design published in Strictly IC Magazine issues #30 through 32. The valve drive shaft for this 4-stroke engine operates at crankshaft speed, and runs parallel to the cylinder to the 2:1 ratio timing gears. The valve runs in a sleeve bearing in the head, but also bears on the head at the conical area. It is this cone that is difficult to seal: during the intake stroke oil is drawn both into the port and directly into the cylinder around the valve. During the compression and power stroke the high cylinder pressure squeezes the oil film out of this area leading to increased wear and tendency of the valve to seize.

The valve is ported by a through hole that aligns in turn with each of the 3 ports in the head. The lower drawing is a view looking into the head from the cylinder with the valve removed. It shows the disposition of the ports in the head and you can imagine the valve rotating CCW and connecting each port in turn with the cylinder. Note that the spark plug is not in the cylinder, but in a port in the head that is open to the cylinder only during ignition. The spark plug is not heated by the combustion gases and tends to run cold and to foul.

Pat made these section drawings of the Rotary Cylinder Valve (RCV) engine that is currently being manufactured for a variety of applications ranging from model aircraft and hand-held power tools to motor scooters and motorcycles. The top drawing is a section through the cylinder, timing gear and intake port that is at the "head" end of the cylinder. The middle drawing shows the cylinder port aligned with the intake port and carburetor. The layout of the ports and sparkplug is the small drawing at the lower right. The rotating cylinder port aligns successively with the intake port, sparkplug, and exhaust port. This is quite similar to the Aspin porting system. The piston, connecting rod and crankshaft are a normal design. Bevel timing gears rotate the cylinder sleeve at one half the crankshaft speed, i.e., this is a 4-stroke engine. This drawing has the power take off from the propeller shaft at the port end of the rotating sleeve. Other models



take power off from the crankshaft in a more familiar manner.

More information on the RCV engines can be found on their web site: www.rcvengines.com

Other sources:
Day, John, Engines: the Search for Power, St. Martins Press, New York, 1980

Web Sites:
http://www.obitet.gazi.edu.tr/Ydokuman/aspin.htm
http://www.dself.dsl.pipex.com/MUSEUM/POWER/RotaryValveIC/RotaryValveIC.htm

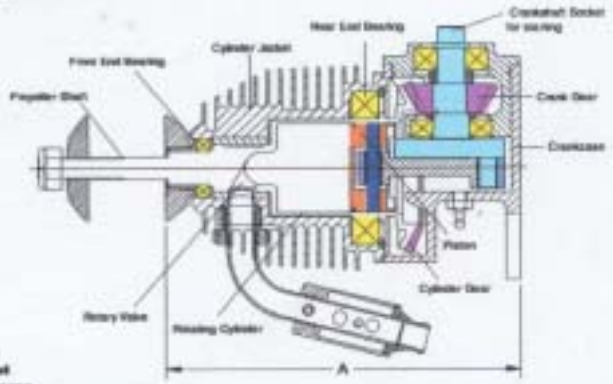
TECH TOPIC AT THE FEBRUARY 2005 MEET BY PAT O'CONNOR

Continuing with our theme of examining the major areas of building an engine, Ken Hurst will discuss cams, cam grinding and give a demonstration using his new combination cam/crank grinder if it is completed in time.

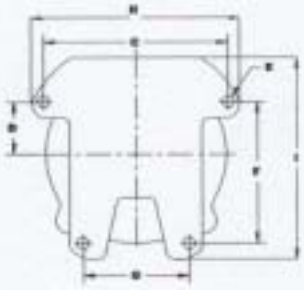
RCV SP Series Dimensions

Designed for Scale Aero-Modelling:
Requires above average skill level

RCV60-SP
RCV90-SP
RCV120-SP



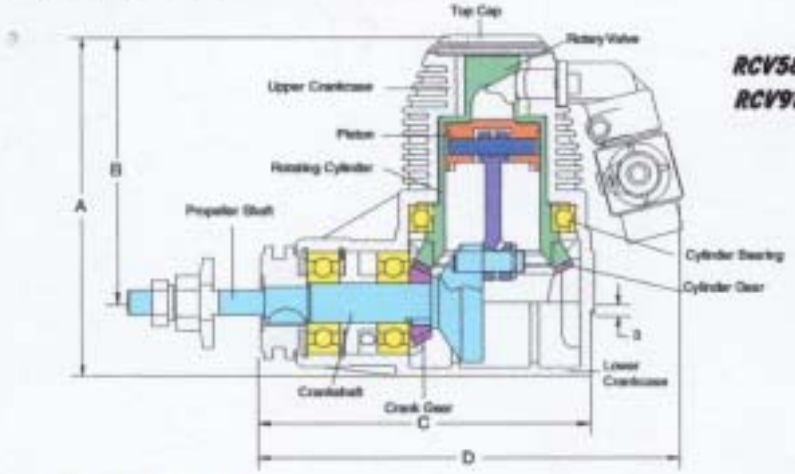
	60-SP	90-SP	120-SP
A	104.4 mm	120 mm	125.4 mm
B	R30	R30	R30
C	52 mm	59 mm	70 mm
D	16 mm	16 mm	20 mm
E	4.5 mm	4.5 mm	4.5 mm
F	41 mm	44 mm	54 mm
G	32 mm	32 mm	40 mm
H	63 mm	67 mm	78 mm
I	58 mm	63 mm	77 mm



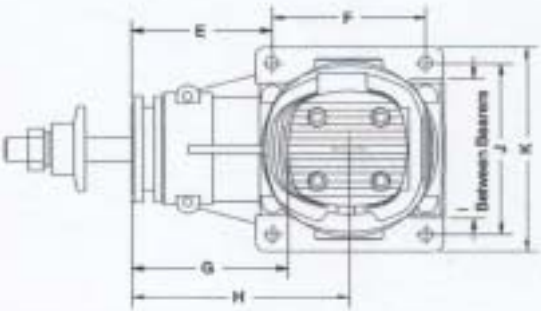
RCV CD Series Dimensions

Designed for General Aero-Modelling:
Requires average skill level

RCV58-CD
RCV91-CD



	58-CD	91-CD
A	90 mm	103 mm
B	80 mm	91.4 mm
C	83.5 mm	95.7 mm
D	108 mm	119.7 mm
E	37.5 mm	47 mm
F	41 mm	43 mm
G	41.5 mm	46.5 mm
H	56 mm	66.5 mm
I	36 mm	46 mm
J	46 mm	56 mm
K	55 mm	65 mm



Check out the BAEM Web Site at
www.baemclub.com
Send your project photos to the
Web Master Jim Piazza.
Phone: 408-446-4825
Email: jpiazza@ix.netcom.com

Check out these web sites. The first one is on a magnetic oil filtration setup that appears to really work.

www.magnom.com

The second is the location of an article on coolants for automobiles (and our engines).

http://www.machinerylubrication.com/

Recommended by
Mike Rehmus
Editor, Model Engine Builder magazine
www.modelenginebuilder.com

FOR SALE

Lathe for Sale. Rockford 1930's 14" lathe. 6' between centers. Heavily tooled including 8" 6-jaw chuck, quick-change toolholder, taper attachment, 4-jaw chuck, 3-jaw chuck, and backing plates. It is old and worn but still capable of good work. 2-speed backgear. Overhead motor conversion from flat-belt drive. Overhead motor has 4-speed gearbox and is 220 Volt, single phase. $1,500 for everything. Can be transported in a sturdy ½ ton pickup.

Mike Rehmus

mrehmus@byvideo.com

707-643-1970

FOR SALE
Iron Fever 2004 videos now available
Call 707 643-1970 or email
mrehmus@byvideo.com
if you want a video delivered to the next meeting. $20 for DVD or VHS tape, 94 minutes run-time.
Mike Rehmus

FOR SALE
Graziano Sag 12 Lathe
12" Swing 17" Swing in gap 30" Between centers
D1-4 Spindle Nose
3 Jaw Chuck
4 Jaw Chuck
Face Plate
Steady Rest
5C Collet Closer
Dorian quick change tool post, with 5 tool holders.
$4000.00

Tree Journeyman 310 – 3 Axis CNC Mill
DynaPath - Delta 10M Control
Table 10" X 44"
Spindle Taper 30NMTB With some tooling & manuals
$4500.00

David Palmer 707-938-2181
Brian Palmer bdpalmer@sonic.net

FOR SALE JAPANESE ENGINES
I have been given the responsibility of selling a dozen or so engines belonging to a friend. All engines are new, in the original box, never been opened. They are all Japanese, Saito or OS and range from single cylinder to 9 cylinder radial.

I will bring a few at a time to the club meeting where an offer may be made for the purchase. Sale will be consummated when the owner has approved of the offer.

Chris Leggo.

Upcoming 2005 Events

By Dick Pretel,
Events Coordinator

West Coast Engine Exhibitions For 2005

3nd Annual Men, Metal, & Machines!
Visalia Conventions Center. Visalia, CA
October 22 & 23, 2005. Phone: 1-800-789-5068.
Web Site: www.cabinfeverexpo.com/MMM

East Coast Engine Exhibitions For 2005

NAMES 16th Annual Expo

Date: April 23-24, 2005

- Saturday - 9 a.m.- 6 p.m.
- Sunday - 9 a.m.- 4 p.m.

Location: Southgate Civic Center

- 14700 Reaume Parkway, Southgate, MI

GEARS 2005

September 24-25, 2005
in Portland Oregon

Attention Model Engine Builder subscribers. CA tax does not apply to subscription for this magazine. If you've already subscribed, we've sent you a refund for the tax. If you are subscribing, the price of a subscription is $29.95 anywhere in the U.S.
Best regards,
Mike Rehmus
Editor, Model Engine Builder Magazine™
www.modelenginebuilder.com - Tell a friend