NEWS RELEASE NMPRA

NATIONAL MINATURE PYLON RACING ASSOCIATION INC

FORMULA I — QUARTER MIDGET

MARCH 1978 — A M A AFFILIATED — SINCE 1965

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• PRESIDENT'S PAGE •

My congratulations to Bill Helms of South Central East, Tom Christopher of South West, and Vince Caluori of North West districts for being elected as Vice-Presidents of the N.M.P.R.A. The four remaining districts (South Central West, North Central West, North Central East and North East) are to vote in this issue. I am planning on keeping in contact with the V.P.'s throughout the year to keep up on the point standings in their areas.

We have two district changes this year. Ohio is now part of North Central East, and British Columbia is part of North West. A complete map of all the districts is enclosed.

I am happy to report through recent correspondence with Vince Calouri that the racing in the North West is alive again. At a recent district meeting, 50 racers from four different states gathered to elect their V.P. and organized seven races for this year. We're looking forward to having the North West represented at the Championship Race.

The Championship Race will be in Texas this year, with Ed Rankin as Contest Director. Ed and local club members are organizing the race now to make it a big success.

This year, there will again be qualifying at the Nationals. In recent years there hasn't been any means of distinguishing the Nationals from other contests. By reinstating qualifying, it will again become a more prestigious contest. The thirty-two fastest times will qualify. Each flier will be given five attempts. The finals will consist of a complete rotation of eight rounds.

PRESIDENT'S PAGE (CONT.)

Membership as of February 18 is two hundred fifty one (251), consisting of 138 Formula I only, 28 Quarter Midget only, and 95 both. This is an increase in totals from last year at this time, but the Formula I to Quarter Midget ratio is about the same. I'm really hoping that the Q.M. participation will increase in future weeks.

In order to afford a larger Newsletter this year, we are adding another page of advertisement. We encourage all districts to send in race results and photographs so we can include them in the newsletter.

LET'S GO RACE !!

Bob Smith

NORTH WEST PYLON RACING ASSOCIATION

1978 RACE SCHEDULE

Date	Club	Location
April 9th	RCFCBC	Boundry Bay, British Columbia
June 4th	BARCS	Boise, Idaho
June 18th	RCFCBC	Boundry Bay, British Columbia
July 9th	PROPS	Tenino, Washington
August 20th	BARRONS	Spokane, Washington
Sept. 10th	HAWKS	Kent, Washington
October 7th	RCFCBC	Boundry Bay, British Columbia

- Formula One and Quarter Midget
- Quarter Midget in Morning, Formula I in Afternoon

FROM THE NATIONAL SECRETARY

Memberships are rolling in at a fair rate. It seems the envelopes have helped get some of your dues in. Remember, this is the last notice on '78 dues, so DO IT NOW!

I will remind you again that there is a $2.00 penalty, and the possibility of losing your present racing number if your dues are not in my hand by March 31, 1978.

On the last page of this newsletter is a reprint of the membership application. If you don't need it, pass it on to a new racer. Needless to say, we can always use new members!

For those of you who have sent in your renewals and haven't yet received your cards, it's running about two weeks behind. My wife, Jeannine, is doing the lettering and it's difficult for her to find the time to do more than 30 or so in one sitting. So hang in there, they are on the way.

Gary McPike

National Secretary

FROM THE EDITOR # #

I would like to take this opportunity to welcome all first time members, and you old-timers too, to the N.M.P.R.A. We are beginning our fourteenth year of leadership and assistance to the Pylon racer. During these years, the N.M.P.R.A. has been your direct link with the A.M.A. All of us are looking forward to the biggest and best year of racing yet!

This current issue (March) will be your last if you have not yet joined. If you do join by March 15th, you'll be assured of receiving your Newsletter.

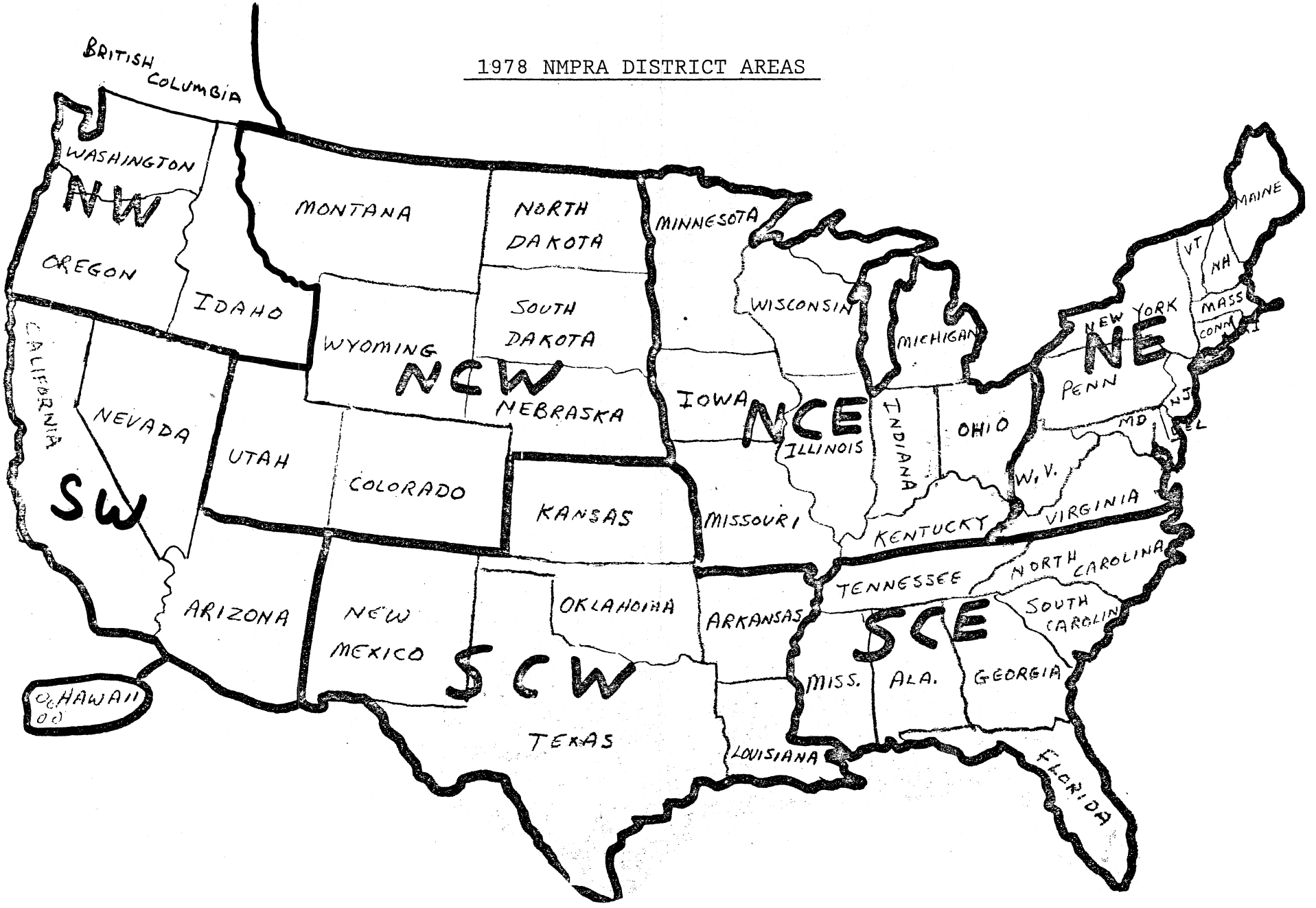
With the racing season coming upon us, I would appreciate the race results from each district being forwarded to me. You can't see your name in print if we don't have the results!!!

You will notice else-where in this issue an idea for you cold weather modelers. Please don't be afraid to send us your hints. If they've been helpful to you, I'm sure they would be helpful for the rest of us.

Thank you,

Jeff

1978 NMPRA DISTRICT AREAS



1978 RULES

Please keep in mind that this is written just before Christmas. We haven't as yet seen the official A.M.A. rules for our event and we are still optimistic. From what we see in the voting of the Contest Board, it looks as though the rules proposed by N.M.P.R.A. are going to be a major part of the changes in 1978. Moreover, the rules will be more in line with the event as it now is.

The $60.00 price limit for engines was rejected by the A.M.A. on the first ballot. There was no precedent on setting a limit for equipment and they were reluctant to do it. Well, at least there is a precedent now. But even though there is no official ruling from A.M.A., I believe the racing circuits can enforce the $60.00 limit at their own races if they want to. CPC (Chicago) is already doing this and several other circuits are contemplating it too. Agreement among the circuits should be enough to give an engine manufacturer second thoughts about bringing out high-price .15's.

We had proposed a rule to preclude pressurizing fuel tanks. No sooner had we sent it in, than Robart came out with its pump and the fuel tank didn't need to be pressurized to get the benefits at the carb. Needless to say, we went against our proposal and went for one which prevented pressurization of the entire fuel system.

Although our proposals went in to the A.M.A. more than a year ago, we think they represent the current accepted racing practice today. The current exception to this is the "slot in the pipe". We proposed it because of its original popularity in the rules surveys and at the Dayton Nats. meeting. At that time I really wanted another rule. One which left the pipe without a slot, but shortened it well under the 1/4 wave length.

Present competition engines can create a standing wave (1/4 wave) in now legal pipes. At 25,000 rpm, the theoretical length from the edge of the piston to the end of the pipe is 3.86 in. If we just shortened the pipe length to 3 in., the engine would have to run at 32,000 to gain any benefit from the pipe.

With more and more circuits dropping the slot rule, this may be academic anyway, but it may be worth a bit of thought. We figure the pipe to be worth at least 5 seconds at a 1:30 time, but it takes an expert or a lot of luck to make it work. Do we really want tuned pipes in QM?

1978 OFFICERS

Unfortunately, we work with a lead time situation and the time it takes to print information, get the feedback and then get the results of that feedback out takes time and creates problems we shouldn't really have.

Hanging fire is a very important issue, that of picking a QM President for 1978. Much work has already been done in this area, but it couldn't be presented in ballot form before this issue. Len Wiederhoeft contacted all the AVP's and wrote a letter to the Old News Release requesting candidates for office of the President to contact him. Gail Jacobson was the only man to step forward and throw his hat into the ring. This is why we are printing a ballot with Jake and a write-in line.

Needless to say, this situation is not good. Most of a President's work is done in the months before flying begins for most of the country. Len Wiederhoeft is already working with Jake so there can be a smooth transition. But we must start thinking of the transition in 1979 or repeat the troublesome path to election.

Due to the lead time, we must have the names of candidates for President and AVP's in by August. We would like to have one official ballot for all N.M.P.R.A. Officers put out on one page so that voting would be quicker and the transition of office would be smoother. If you are, or know anyone who would like to run for QM office next year, please contact me and please do it soon.

Just because Jake is the only name on the ballot, please don't skip voting. Jake is a top-notch competitor, a real organizer, a fine gentleman and would be a real plus for QM as President. He deserves your support.

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Send To: George Zink
80-28 222 St.
Jamaica, N.Y. 11427

- -

__________ Gail Jacobson - College Park, Ga.

__________ ______________________________ (Your Choice -

______________________________ Name and Address

Name: (Optional) ____

N.M.P.R.A. No. (Optional) ______________________________________

N.C.P.L. 1977 RESULTS

October 9th Race at Brooklyn Park. 16 Exp. 16 Std.

Pl.	Pilot	Aircraft	Eng.	Pts.	Best T
1	Denis Bielick	Toni	R	20	1:26
2	Dick Steine	Shark	C	19	1:37
3	Al Swartz	Shark	C	16	1:34
4	Lyle Larson	Mid. Mus.	C	15	1:30
5	Roger Schlenker	P-63	R	15	1:31
6	Don Granlund Jr.	P-39	C	15	1:34
7	Bob LaBrash	De Ja Vu	C	14	1:46
8	Jack Clark	P-63	C	13	1:50
9	Bob Nelson	Firecracker	C	12	1:31
10	Dave Sears	Ballerina	C	12	1:33

(STANDARD CLASS)

1	Roger Wilson	LR1A	C	16	1:40
2	Al Pooley	Shark	C	15	1:54
3	Don Martinson	Ballerina	C	14	2:06
4	Dennis Hoffman	Miss DARA	C	11	1:52
5	Larry Liskowski	P-51	R	10	1:41

(Ed.) These are some awful fast times, but since the history of the NCPL is to fly the short course, I have to assume this race was flown on the 1.7 mi. course. Still nice times, though.

* * * * * * * * *

West Coast Championships 1977

QMRC

October 30 18 Racers

Pl.	Pilot	Aircraft	Eng.	Best T.	Av. T.
1	Dale Yaney	Cobra	C	1:33	1:46
2	Nick Nichols	Cobra	R	1:41	1:51
3	Ron Russell	Cobra	R	1:37	1:41
4	Eloy Marez	Cobra	R	1:44	1:47
5	Bob Root	Cobra	C	1:36	1:43
6	Bob Nickle	P-51	R	1:42	1:50
7	John Creagh	Toni	C	1:42	1:56
8	Bob Adams	Cobra	R	1:42	1:50
9	Bobby Gilespie	LR1A	R	2:21	2:45
10	Bob Gilespie	LR1A	R	1:47	2:05

* * * * * * * * *

Unless the size of the meet demands more space, we will limit the results to the top 10. If there is a Standard Class with over 12 entries, we will report the top 5. I know these results seem like pre-WWII, but the time and engine/aircraft breakdown is interesting, no?.....

MILE SQUARE RACE RESULTS

QMRC

November 27, 1977

Pl.	Pilot	Aircraft	Eng.	Best T.
1	Bob Nickle	Cobra	R	1:39
2	Lonnie Roberts	Toni	C	1:40
3	Eloy Marez	Cobra	R	1:45
4	Kent Thomas	Cobra	C	1:48
5	Nick Nickols	Cobra	R	1:44
6	Dale Yaney	Cobra	C	1:38
7	Bob Root	Cobra	C	1:40
8	Bob Gillespie	LR1A	R	1:53
9	Bob Novak	Rickey Rat	C	1:45
10	Ron Russell	Cobra	R	1:45

Fastest time of the meet: Tom Christofer - 1:37
Tom flew a Toni powered by a Cox.

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1978 DUES

Just a quick reminder that you can send your dues for 1978 to me. (Make the check payable to the NMPRA.) If you have already sent in your '78 dues, and haven't put anyone on notice that you are interested in QM, fill out the form below and send it anyway. It will register you for awards in the QM Season Point Standings.

Send To: George Zink
80-28 222 St.
Jamaica, N.Y. 11427

- -

Name: ______________________ NMPRA No.: ____________

Address: ______________________ AMA No.: ____________

______________________ Racing Interest:

______________ ZIP ________ QM Only ______

Home Phone: ( ) ______________ QM & F-I ______

F-I Only ______

ROUGH RIVER 1977

53 racers from 12 different states, Shorty Holsclaw and the Louisville RC Club and the State of Kentucky made Falls of Rough Mecca once again for QM racers. Many of the racers have already signed up for '78 and if you plan on being there, get your reservations in early. It's a really great race in a really great place!

Pl.	Pilot	Aircraft	Eng.	Best T.	Av. T.
1	Bill Weesner	Toni	R	1:34	1:39
2	Bob Reuther	Cos Wind	R	1:35	1:39
3	Greg Doe	Minnow	R	1:40	1:46
4	Bob Nelson	Bugatti	C	1:34	1:43
5	Ron Bressler	LR1A	C	1:41	1:46
6	Gail Jacobson	Toni	R	1:36	1:43
7	Bob Blouch	Orig. P51	R	1:38	1:41
8	Al Grove	Toni	R	1:39	1:45
9	Denis Bielick	Toni	R	1:36	1:39
10	Dr. Bill Adams	Cos. Wind	R	1:45	1:50
11	Paul Zink	Rickey Rat	R	1:35	1:38
12	Roger Schlenker	P-63	R	1:39	1:46
13	Dr. Charles Cosy	Ballerina	C	1:57	2:01
14	Floyd Fitsgerald	Toni	R	1:42	1:45
15	Len Wiederhoeft	Shoe String	R	1:49	1:57
16	Dave Latsha	Toni	R	1:40	1:49
17	Don Anderson	Ballerina	C	1:39	1:42
18	Bob Waechter	Minnow	R	1:43	1:51
19	Jim Allen	Cos. Wind	R	1:46	1:51
20	Jack Clark	P-63	R	1:44	1:57
21	Dan Kane	Toni	R	1:35	1:41
22	Mark Wolf	Toni	R	1:46	1:58
23	Bob Camarata	Fire Cracker	C	1:51	1:58
24	Tom Moore	Cos. Wind	R	1:39	1:49
25	Tom Dudan	Toni	C	1:37	1:50
26	Lynn Stevens	Toni	R	1:36	1:42
27	Forest Whitson	Cos. Wind	C	1:56	2:08
28	Lew Hipkins	Toni	R	1:44	1:50
29	Cary Helton	P-51	R	1:52	2:03
30	Bob Edwards	Toni	R	1:58	2:14

12 of the fastest were eligible to run in the Jimmy Doolittle Trophy Race held immediately after the official race ended. Cut off time for this "grudge" style race was 1:39.

JIMMY DOOLITTLE RACE

The racers from the CPC dominated this race. They had 5 of the 12 best times. Bill Weesner, Denis Bielick, Dan Kane, Tom Dudan and Lynn Stevens who was the eventual winner.

CPPRA and MARA, who often fly together and came out to Kentucky in a group, put 3 in the top 12 and 2 in the final heat. Bob Blouch, Al Grove and Paul Zink.

Iowa can be very proud of Bob Nelson and Roger Schlenker, who made the top 12.

Perennial Champions Bob Reuther and Gail Jacobson rounded out the field of 12.

There was no second place here, the winner got the trophy and a check for $100. Second place got nothing but experience.

Paul Zink was away early and building a lead. By lap 3, he had the field by 2 seconds, but his engine started to sag. His course tightened as the plane slowed, but he could only hold off the group for 4 more laps. The group was tight before, but you could cover them all with a blanket as the finish line came ever closer. Al Grove went inside at #1. He was ahead of the pack, but one lap down. Lynn Stevens, who came back again and again, lead the way to the flag with a low time of the meet: 1:31.2. It was a great race and a fitting end to a great meet. There were no official standings, but we had Lynn Stevens, Paul Zink, Gail Jacobson and Al Grove. Paul was the only one not flying a red and white Toni.

George Zink

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O.P.R.A. FINALS

Bill Hager sent us word of Ohio Pylon Racing Association's results in their Championships and season point totals:

September 24, 25, 1977 Championships: 22 Entries

1. Dan Kane
2. Dave Keats
3. Ben Martin
4. Tom Hottell
5. Bill Weesner
6. Bill Hager
7. John Fotiu
8. Russ Dewitt
9. Tom Dudan
10. Joe Cohan

• Season Point Total -- Top 10

1.	Russ Dewitt	159	6.	Gary Villard	127
2.	Dave Keats	153	7.	Bill Hager	104
3.	Bill Weesner	152	8.	John Fotiu	100
4.	Mike Lasker	139	9.	Ben Martin	89
5.	Wayne Yeager	128	10.	Dennis Sumner	88

AERODYNAMIC DRAG

CHAPTER 2 - TYPES OF DRAG

Chapter 1 probably taught you more about metallurgy in the middle ages than aerodynamic drag. We are about to remedy that situation right now.

You should realize how important drag is to the racing aircraft by now, so let's pull it apart and see what makes it tick.

Boundary Layer

As a fluid (air) flows past a solid object (your aircraft), some of the fluid particles tend to cling to the skin of the object. In a region very close to the object, the fluid flow varies from remaining with the skin of the object to the flow's normal velocity a short distance away. This effect is due to the viscosity of the fluid. In effect, what we have is a comparatively thin layer of fluid on the skin of the object which is influenced by the fluid's viscosity. Once outside this layer, you can consider the fluid as having no viscosity. That fluid layer on the skin of the object is called the Boundary Layer, or "B" Layer. It is the direct cause of the first two types of drag we will consider.

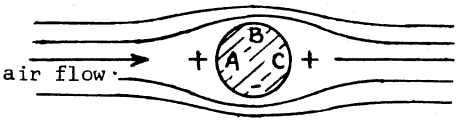
Skin Friction Drag

That very same viscosity which caused the "B" Layer is responsible for skin friction drag. Science defines viscosity as a molecular resistance which fluid particles exhibit on being moved with respect to each other or a solid object. In the same manner that friction is developed between two solid objects sliding against each other, a force is developed between the fluid and the object. This force is called Skin Friction Drag.

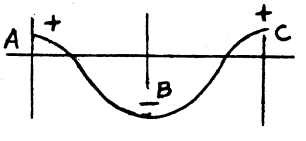
Imagine cutting through a piece of cream cheese with a wide blade knife. Think of the knife as the solid object and the cheese as the fluid. There is a substantial resistance to the cutting knife and this resistance is the skin friction drag. A thin tight wire cuts through the cheese with much less resistance because the drag force is acting on a much smaller area.

Pressure Drag

Pressure Drag is the result of differences in pressure along the surface of a solid object. Those pressure differences are caused by the "B" Layer. For example, let's take a look at a cylinder in a flow of air. In the first case, we'll assume that the air has no viscocity and hence, no "B" Layer.



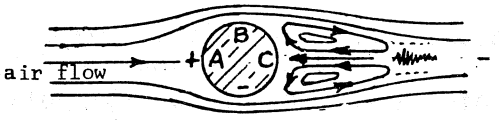
Cross Section of Cylinder



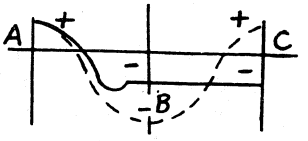
Pressure on Surface

Note that there is a difference in pressure from A to B to C. Notice also that the pressure is balanced around B, which means that the forces due to pressure on each side of the cylinder are balanced and cancel each other out. Consequently, there is no pressure drag.

Now let's take the same cylinder and air flow and introduce viscosity to the fluid. We find that the flow for a Reynolds Number of 40 looks like that below. (More on Reynolds Numbers next chapter.)



Cross-Section of Cylinder



Pressure on Surface

The first thing to notice is that the flow has separated from the cylinder just behind B. This separation is triggered by frictional forces within the "B" Layer. After separation, the fluid has a loss of momentum, which shows itself as a loss of pressure. Looking at the pressure distribution now, we see a greater total pressure ahead of point B than behind it. This pressure difference results in an overall force in the direction of the fluid flow and we call it Pressure Drag.

Induced Drag

The word "induced" here has the same meaning as it has in electricity where magnetic forces are induced around a conductor carrying electrical current. The drag is induced by the generation of lift. Wherever lift is generated, you have induced drag. Induced drag is often associated with the vortex systems left behind the wing.

Wave Drag

Wave drag is associated with the formation of shock waves which are generated near the speed of sound in the fluid. The closest anything in modeling approaches the speed of sound (Mach 1) is the tip of a Form I prop, and that is about Mach 0.8.

Factors Which Effect Drag

Free Stream Velocity - This is the speed at which the object moves through the air. The unit of measure is miles per hour (mph.) or feet per second (fps or Ft./Sec.)

Air Density - Don't let this throw you, it's the mass of a substance for a given volume. It varies with many factors, but we can assume it to be .00238 lb.-sec^2/ft.^{4}. The ft.^{4} comes in because of the mass, as does the sec.^{2}.

$$\text{Density} = \frac{\text{Weight}}{\text{Volume}} \qquad \text{Mass} = \frac{\text{Weight}}{g}$$

g = Gravitational Constant 32.2 ft./sec.^{2}

Object Area - The area of the object which is subject to dynamic pressure. Generally speaking, it may be either frontal area or planform area. Skin friction drag is associated with planform area and Pressure Drag is associated with frontal area. The unit of measure is square feet ($ft.^2$).

Coefficient of Drag - Many other factors are lumped under this dimensionless number. It may be used as a quick comparison of performance. The lower the Cd, the lower the drag when other factors remain constant.

Cd Factors
- Shape of the Object
- Surface Smoothness
- Angle of Attack
- Reynolds Number
- Mach Number
- Size of the Object

* * * * *

It would be very tough to procede with the subject of aerodynamic drag without an understanding of something called Reynolds Numbers. We cover that subject in the next chapter. If you have some questions about this series of articles, please write and we'll do our best to answer them.

George Zink

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Here's a helpful hint for those of you currently not basking in the Florida or California sunshine !!

If you're like all us "average racers", you build in a garage, after work and on weekends. Its not so bad 7 or 8 months of the year, but in the winter, we bundle up in sweaters or sweatshirts and turn up our hopelessly inadequate little heaters and work - making periodic trips back into the house for coffee and a quick thaw.

During these cold months, most everything works except the epoxy glue; we turn the tube upside down to pour it and the glue decides to defy the laws of gravity - it won't pour. In fact, it won't do anything, even when we chip off the proper amounts it won't mix right. "5 Min." becomes 15 min., and normal slow drying waits for the spring thaw.

Well, I've made a little gadget that will keep epoxy from becoming a frustration. It's a light bulb in a tin can - that's right, a glue warmer (also helps keep coffee warm, too!). All you need is a coffee can and a 25 watt light bulb. You mount the light bulb on a small square of wood (about 6" x 6") and place the tin can over it with little flanges (these flanges can be cut from the lid). Drill a few holes in the sides just above and below the rims, add a cord and a switch (optional) and you have an instant glue warmer!

QUARTER-MIDGET MESSAGE

With 1977 drawing to a close, my term as QM President also ends, and I find myself with the feeling I could have worked harder at the task. Particularly more work in trying to bring in the QM holdouts. Although more people did join NMPRA-QM in 1977, I failed to bring in the full support of al AM racers we need to be the true voice of QM Pylon.

One other disappointment is how few are willing to take on some of the tasks of NMPRA-QM. Thank God for those regulars who are serving as A.V.P.'s, etc. If you will think back, you too will see it's those same few people serving year after year. It is not that they monopolize the organization, it's simply that so few are willing to serve. An example is the ballot for the 1978 QM President. Actually this is not completely due to lack of interest, but along the way somewhere, the request for nominations for 1978 did not appear and we had to resort to direct mail for nominees. A space is provided for write-in votes and you may solicit votes if you have a different choice. With the QM portion of the News Release now in George Zink's hands as Editor, this should not occur again.

1977 has been a hectic year. I want to thank everyone for having made it such an interesting year, and will not try to name individuals as such for fear of overlooking someone. Each and every one of you does deserve some recognition for supporting our organization. I thank you!