FLYING SIMULATORS

NEWSLETTER OF THE AF/D SOCIETY   VOLUME 1 NUMBER 5&6

Okay guys, I know this is late. Now for the excuses (I know you'd be disappointed if I didn't have some). Summer is the busiest time of the year for my company and of course, me. We've had a lot of very enjoyable company and I have had a hard time getting motivated to sweat out. this issue when the temperature is 100+. In view of all this I decided to make this a "Summer Special". That is, a double issue. This will probably become a permanent thing for summertime. The June - August issue will be combined into a double issue. Hope you all enjoy it.

Len Mumbower's new series "Hangar Talk" begins this time. I'm sure you will all enjoy it. Let Len know sign up for his game if you're, interested. There are several new games being announced this issue. Some of you have written me about wanting to get into some more games. Here is your chance.

Some of the other regular features are here too. Some have been put off an issue so that I could get everything in. Don't despair if your favorite article isn't in this issue, it'll be back.

Okay, enough rambling. On with the issue.

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GAME ANNOUNCEMENTS;

1) Robert Riconda;
        I am planning to run an Italian Campaign Game, 1943. The players must have the Expansion Kit, SPI's Cassino mapboard and Mike Telson's MC 205 card (In this issue. JM). Train Bustin', HS-29) glide bombing and airfield attacks are some of the scenarios that are scheduled.

2) Tucker Fleming;
        I'm planning a 1942' carrier strike scenario. The Japanese will fly the A6M2 Zero, Vals, and Kates. The Americans will fly F4F's on CAP. The target will be the CV Saratoga.

3) Len Mumbower;

Organizing two multi-games somewhat similar in concept to John Ratzenberger's "Night Fighter" but will utilize new AF/D tactics and maneuvers introduced in my new F S column "Hanger Talk". You can join any time and playas many games as you like. Games will be realistic - you alone against the enemy of your choice. The games are:

1. Mass Bomber: You will have four fighters against nine or 12 bombers in mass formation. See page 22 (III-A-3) of Dauntless rules for suggested aircraft. You run the fighters and I'll run the bombers and their defensive fire, resolve combat and comment on your tactics. Each game will go one or two boards to allow you to make at least four runs.

   I'll start you off with a mission briefing and bomber formation positions. You then pick your start position, formation and first move (suggest start in "Echelon" and in position to begin peel off for first run. See FS article in "Hanger Talk".). There will also be new tactics and rules for attacks against massed bombers.

2. Interdiction: You will have four fighter-bombers or dive bombers against ground targets with light flak protection. This scenario will use some new AF/D tactics and maneuvers on bombing (dive/glide) strafing, etc. and new flak rules. On the ground will be trains running, vehicles moving, an armored division concentration, supply depot, bridges, and terrain obstacles to avoid. I'll run the trains and vehicles, fire the light flak and resolve all combat. I'll start you with a mission briefing, terrain map and locations of fixed targets, suspected flak and enemy force concentrations. There will be limited visibility due to haze, terrain and some camouflaged targets. You then pick your entry point, type mission and first move. Suggested sides are German-ground, Allied-Air; Japanese ground, U.S.-air; Russian-ground, German air; German-ground, Russian-Air.

If interested in either or both of above, send me your name, address, SASE and choice of aircraft and nationalities. I'll then get you started with information outlined above, rules and procedures.

4) John Ratzenberger;

It is becoming obvious from letters/comments I have received that the campaign game format is becoming very popular, and I would like to respond to this by starting one in the fall. I am seeking players, as many as I can get, so if you know an AF/D/X fan that isn't in FS (make him sign up. JR) pass the word along. Battleline (ie, original) rules will be used with additions/ changes as needed. The game will be a one-day campaign simulating 18 AUG 1940 during the Battle of Britain, The primary source for this is Alfred Price's book, The Hardest Day (Scribners 1979), although others will be used.

The game will be played on both a "strategic" as well as "tactical- (ie AF/D/X) level. A "strategic rules book" will be published which accounts for movement on a strategic map, radar stations, forming up, patrolling, fueling, fuel limits, range, pilot and a/c availability, a/c repair, rearming, etc. strategic hex maps will be prepared. AF/D/X boards will be used for tactical combat-if needed, reduced hex maps showing terrain, etc. will be distributed. Admittedly much of this is sketchy (I don't want to take up too much space).

Using Price's book, and other sources, I am tailoring the OOB for each side - that is reducing it to manageable proportions. I envision that each player will command one or more squadrons/Gruppe - the exact number will depend on the scaling and number of players. These

will be permanent assignments - ie, by squadron number. The number of a/c and pilots in each squadron/gruppe will depend on scaling, etc. but I envision 2-6. By "command", I mean the player flies the a/c of the sq/gr he "commands".

We need a chain of command for both sides, so I need a volunteer for Goering and Dowding. Likewise, I need volunteers for Group/Fleet commanders and sector/geschwader commanders. All commander slots will be extra duty slots - everybody, whether commander or not "commands" sgfgr and Flies! Nor do I intend that commander duties be a burden - the strategic rules will layout much of your work in chart/graph form and you will be required to come up with a basic plan, instruction and pass it on to the next in the chain who will add his own detail and pass it on. Once plans are made (and in my hands) the game will start and commanders will have little to do but act in accordance with them. The Germans will have the least flexibility due to the nature of their mission. The RAF has a lot of flexibility, but will soon find that "strategic" rules/considerations limit them somewhat. Thus the bulk of the work is in the start of the game. In case you haven't gathered from previous games I have run, I strongly believe in forcing planning, etc on the players, rather than giving them canned scenarios.

The game will flow "by the clock" - I will use the orders etc and the strategic plots to determine encounters/possible encounters (nothing is guaranteed) and then action will devolve onto the tactical level. If possible, I will run essentially concurrent/unrelated actions simultaneously - but that may not happen.

Using this method/format means several things - a lot of work on my part to get it all set up; a very long time to play the thing; and possibly many months of inaction for some players. This cannot be avoided - so I ask that you not sign up if you cannot do this and hang in until (if) you get into action.

Because I recognize this danger, I will also run about six smaller multi-games at the same time - that should give you something to do while the campaign game is running. I do not supply females as an alternative!!!!!!!

These games will run on a fee basis - SASE will not be needed. This will give me considerably more freedom in producing game reports/messages/etc. The fee will be fixed during the final announcement late this summer. The fee will

WILD BLUE YONDER Part 3
John Ratzenberger
This should have been in the last issue, but the post office decided it couldn't be bothered with delivering the letter, despite the fact that I had paid their exhorbitant rates..... I, too, have a new typewriter - hasn't learned how to spell yet, so.....

WBY#2 had a short discussion on Air Corps preparedness. The P-36 (ExpKit) best illustrates the problem - compare it to the Bf 109, Spitfire and Hurricane - all four were designed in 1934.

When the Air Corps accepted the Boeing P-26, Curtiss lost its position as the leading supplier of fighter a/c to the Air Corps. They responded to this by designing the P-36 to a 1934 specification issued by the Air Corps. Problems with engine reliability and availability plagued the initial effort and when the fly-off was finally held in 1936, the contract went to Seversky (soon to become Republic) and their P-35. A consolation prize was awarded to Curtiss in an order for 3

service test versions - the Y1P-36. When the P&W twin Wasp became available, Curtiss was able to meet specs and the Air Corps followed up with an order for 210 P-36 in 1931. The first 111 ale were P-36A, with 1 x .50 and 1 x .30 cal mg in the nose - typical biplane armament of an era long gone. The last 30 were P-36C, and had an additional .30 cal mg in each wing. The 3 missing from the totals became test beds for armament trials and a few other airframes were taken for other testing - one of them becoming the basis for the p-40. No others were ordered by the Air Corps after the first 2100

US service: At max strength (end 1940), the P-36 could be found in 6 Pursuit Groups, but not as sole equipment. At best it can be considered a transition a/c, in that events had produced a demand for newer and better. By the time of Pearl Harbor, they were obsolete and being replaced. The only combat seen by the pure F-36 in the Air corps was over Pearl Harbor, although some were stationed in Alaska and the canal Zone at the time. Of the 39 P-36 in Hawaii, most were destroyed on the ground, but a few got airborne and records indicate that the first official aerial victory of the war was scored by a P-36. After Pearl, the remaining P-36's were relegated to training and defense of the mainland. They saw no more combat in US service, and although records indicate they were completely withdrawn by late 1942, I have pictures which purport to show them on Alaska duty as late as 1944.

Game a/c: The ExpKit has the basic P-36A data, although I have found no record of the "Alternate Armament" variant shown. Since P-36C versions were probably at Pearl, you can create them by changing the armament to 1M-1M-1C-1M.

Foreign service: War clouds over Europe made countries turn to the "arsenal of democracy" for a/c - the criteria was quantity not quality - as many countries did not have the industry capable of producing large numbers of a/c in a short time. Although the Air Corps, itself trying to expand, raised all sorts of hell, US firms were quite glad to "help out" and Curtiss developed two basic export versions of the P-36 - the Hawk 75A (similar to the P-36) and the Hawk 75H (fixed landing gear). The plane was popular due to its simple construction, easy maintenance and handling qualities. It is these export versions that provide the most interesting uses of the basic P-36 for games and I shall run thru the variants and their operational record. Recognize that as countries fell, orders were diverted, a/c were seized, etc and the "accounting" can get a bit flaky - in fact P-36's have the dubious distinction of serving on both sides.

Hawk 75H: The game gives no data for the fixed gear variant, but one could simulate it by applying some permanent "loaded" modifiers of
        0/1-1/-1/-1/-1-1-.1/-.2/+1/+1/+1/+1/+1
Armament is shown below; these versions could also carry 300-500 lbs of bombs, so would need an added loaded modifier for that. The 15H is the basic model, but a different model number was given to these actually built - the 15M and 75N being the only ones of significance:

> Hawk 75M: 30 supplied to China, May-Aug 1938, although records indicate that another 60 were built from spare parts!!!! Armament was 4 x .30 cal, so would be 1M-1M-1M-1M, probably with ammo=4. It appears that only Chinese pilots flew these a/c (and not very well, so use Green pilots), but for how long is unknown to me - at least thru 1941 is a good bet.

Hawk 75N: 25 were supplied to Thailand, although possibly only 12 of them were actually assembled after delivery. Armament was 2 x 7.9mm mg in the nose and a 23mm Madsen cannon under each wing - roughly the equivalent of 3C-1M-1M-3C, ammo being about Cn=3, Mg=6. Very short combat history in 1941 against the French when the Thais invaded French IndoChina (Jan 41) and in Dec 41 when the Japanese invaded Thailand.

Hawk 75A: The game gives some data for this export version which was primarily sent to European countries. Like the 15H, it could carry bombs. Performance was roughly equivalent to the P-36, although there were variations in engines.

A-1, A-2, A-3, A-4: The game has the A-1 and A-2 Variants. The armament for the A-3 and A-4 was the same as the A-2. 100 each of the A-1 and A-2 had been delivered to France by Sep 1939 and they saw extensive combat duty. Records show that the first aerial kill was scored by a Hawk 75, and until the fall of France, Hawks accounted for 1/3 of the German a/c downed by the Armee de l'Air. Only a portion of the 135 A-3 and 285 A-4 had been delivered when France fell - exact numbers being a bit flaky. Surviving Hawks flew with the Vichy forces in North Africa in several actions, including the Torch invasion - thus fighting on both sides.

Mohawk I-IV: These are the designations given the A-1 thru A-4 respectively by the British, who obtained them from diverted orders, or when French pilots flew them to England. They did not serve in Europe, but were sent to the MidEast, India and SE Asia - in the latter two cases they saw fairly extensive combat thru 1942. Armament was the same as the A-versions for game purposes.

A-5: This version was to be license-built in China, but only a few were completed before the plant was destroyed. Armament same as A-2 purposes. Those completed saw service with the China Air Force and possibly the AVG thru mid 1942.

A-6: Shown in the game, this variant reflects an order by Norway - however. Norway fell before they were used and the Germans sold them to the Finns. Along the same lines, Germany sold other captured Hawks (A-1, etc) to Finland, so one could use just about any variant in scenarios pitting the Russians against the Finns from the spring of 1941 thru Sep 1944. The Finns received a total of 44 Hawks although probably never had more than 20 operational at one time. One can create some nifty scenarios, both against Russian a/c and some of the lend-lease US a/c supplied to Russia - among the recorded kills were a B-26 and an A-20!!

A-7: 16 supplied to the Netherlands East Indies and they saw brief action against the Japanese from Dec 1941 to Jan 1942. Armament as A-1 for games. ~:

A-8: Ordered by Norway, but not delivered - the US took them over as P-36G and then sent them to Peru as lend lease. They saw no combat - I include them only to account for the apparent "G" version.

for game

A-9: Delivered to Iran, captured by the British and then sent on to India. Roughly equivalent to the Mohawk IV.

If I seem to have gotten carried away with the P-36 and its variants, it is only because it is one of those interesting aircraft that saw heavy duty early in the war and yet is almost lost in general history. Yet it saw operational duty from 1939 thru 1944, in every theater, both for and against

the Allies. The Hawk can form the basis for a lot of different scenarios, and should be mandatory equipment in any covering the Battle of France.

By all accounts, the Hawk was a pilots airplane - very good flying characteristics and maneuverability - just a bit out of date and out-gunned when it was called on to fight. That the basic design was fairly sound is evidenced by the development of it into the P-40.

Future articles won't get so wrapped up in export/foreign service variants (unless you would like that) - in general, their use and history is much better known. Since we seem to have started with fighters, the next few articles will continue in the same vein.

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GAME ANNOUNCEMENTS:

include costs for xeroxing, envelopes and stamps. It will not include costs for my computer generated reports - you are not paying for the thing. So to cut this off, I need players and I need the following information as soon as you can get it to me:

Campaign Game:

What side do you want to be on? (I will juggle to even mE if I have to) If German, are you violently opposed to flying bombers? (Will never be sole duty unless requested) Will you volunteer for a command slot and which one? (Goering/Dowding, Fleet/Group, Geschwader/Sector) Do you have any ideas, suggestions, comments?

Mini- Multi's:

Would you like to be in a concurrent MM ? (depending on response and number of 'em, probably limit each player to 2 minis at most) Do you have a subject/scenario you would like to be in? (I have plenty of 'em in mind - some a bit "off the wall" but all historical) If you have preferences for sides, type a/c, etc. let me know. (I will attempt to place you as per your wishes, but ...)

Getting an idea of the number of players is essential to the proper planningof the thing, so I need responses soon. It also will require a lot of work, so please don't ask for more details until I get ready for final announcements late this summer. I will acknowledge receipt of all responses. When (if) you write me on this subject, please use a separate piece of paper, etc from other business - I have a hell of a time keeping things sorted out otherwise.

Remember, pass the word along if you know someone else who might be interested.

HANGER TALK.........

Len Mumbower

PART I. INTRODUCTION

Some time ago the phrase "hanger talk" was coined to refer to the kinds of discussions that pilots would have to trade their flying experiences and how they solved the problem or situation they had found themselves in.

After joining the AF/D Society earlier this year, entering the current Pacific campaign mission and receiving the briefings from Jim, John and Roger, I became most enthused with being able to use some of my old skills, techniques and experiences. Thus, I sat right down and prepared a flak analysis diagram of the Jap island. I had also been experimenting with some AF/D rule and maneuver modifications that would make the tactics and flying more realistic.

You see, I was a Navy carrier pilot in the latter half of WWII and early postwar period (1943-1952). We were in operational training, flying the SBD preparatory to going to our squadron assignments in fighters or dive bombers and on to the planned invasion of Japan when the war ended. In 1952, with the transition to jet aircraft, I shifted to Naval Air Intelligence and Photo Interpretation where I stayed until 1968. Most of this time was in the Naval Air Reserve with active duty tours for WWII, Korea, Vietnam and two weeks each year and one weekend each month in between.

Thus, Jim encouraged me to do a column for the newsletter where we could have a forum for the discussion of combat tactics, new AF/D maneuvers, air intelligence techniques, etc. - all designed to put more enjoyment, realism and color into our games. So, I would like this "Hanger Talk' column to be a forum for exchange of ideas, comments, results of play-testing new rules and similar information.

To get the ball rolling, I'll start off with a series of articles on combat tactics, and intersperse them with ones from air intelligence. Included will be:
> * Squadron formation
> * Fighter tactics against mass bombers
> * Dive/glide bombing tactics
> * Low level tactics
> * Fighter section, escort, combat & CAP tactics
> * Bomber defensive tactics * Mission briefings
> * Search and photo reconn missions
> * Flak analysis

With each there will be a discussion of the tactics I learned and experienced followed by suggested new AF/D maneuvers to better simulate the tactics. In addition, I will be starting two new multi-games to go with the first four and the last subjects above.

PART II. SQUADRON FORMATIONS
The single engine aircraft of WWII used three basic formations for going into combat. (figure 1.)

> *VEE -   used by all squadrons primarily in navigation to and from the target area and by all
>   bombers for defense against enemy fighters (including multiengine level bombers).
> *ECHELON - used as a preliminary to attacking bombers, dive and glide bombing of ground targets and

ships, strafing, etc" as well as for join-up after the attack. (Not used by multi-engine level bombers.)

*SECTION -   used by fighters in combat against other fighters, during bomber escort and in flying combat air patrol (CAP).

In all cases, the wingmen were stepped down from their leaders. In the case of VEE they were fairly close-in to their lead aircraft. For ECHELON they were very close before "peel-off". The SECTION formation called for teams of two and four fighters to fly a much looser formation for each two plane section. (Navy, Marine' Army Air Corps fighters used the same tactics as the Luftwaffe "SCHWARM").

For the VEE each section was made up of three aircraft and the squadron flew in a"V of Vee's" - with each section stepped down and to the right and left of the lead sections. When the leader called for shift to. Echelon formation, he would also signal by raising his arm for right or left Echelon. For instance, to shift to left Echelon from the Vee, those sections on the left would fall back slightly and the sections on the right would "skid" over to the left. At the same time, the right wingmen of each section would skid over behind their respective left wignmen. The end result would be for all aircraft to be stepped down to the left on the leader in section sequence. They would then close up on the plane to their right. Right Echelon was the same, but the directions were reversed. (figure 2.)

The Echelon formation was used for "peel-off" to the attack and for "join-up" after the attack. The peel-off was done in the direction opposite to the echelon formation e.g.: peel-off right from a left echelon. For attacks against bomber formations, the squadron would be flying straight and level generally. For ground targets, the leader would usually put the formation into a gently bank and turn in the same directions as the peel-off. This latter maneuver tended to bring the planes into the target from slightly different angles to give the ground defensive fire a hard time and also to facilitate "join-up" after the attack.

To peel-off, the leader would wag his wings as a signal, then make a brisk, steep bank and dive away from the formation. Each plane, in succession, would follow the plane ahead in approximately five second intervals for his target run. For attack against bombers, each fighter after his attack would climb out to the opposite side of the bomber formation and join-up in echelon. If he peeled off from left echelon, join-up would be in right echelon to be ready for another run.

For attack against ground targets, each plane after hitting the target would climb straight out from the target area. The leader, after he figured the last plane had crossed the target area would go into a bank and turn in the same direction as prior to peel-off. Each aircraft upon seeing the plane ahead go into a turn, would do the same and because they had peeled off from a turn they were now in position to quickly join up. The join-up was done into the same echelon formation as prior to peel-off. (If the leader turned the wrong way, the last group of planes would have trouble joining up and become sitting ducks for enemy fire.) If they still had weapons to drop or use, they were in formation to accomplish it, or if it was now time to return to the carrier or base they would shift back to the Vee formation (or section) as appropriate.

In flying formation, it was the leader's responsibility to use gradual throttle/ speed changes and to avoid steeped banked turns. (In Vee and Echelon, they, of course never flew inverted!!!). If the leader did not fly smoothly, other planes in the formation had difficulty holding position without resorting to drastic speed and bank corrections. Planes on the outside of the turn had trouble keeping up and those on the inside ran the danger of stalling out. Sometimes due to poor flying, some pilots would straggle, lose position or even collide with others in the formation. The Vee formation was particularly demanding in this regard since aircraft were more spread out than in the Echelon. Therefore, the Vee and Echelon formations should be flown at maneuver speed most of the time, level speed when needed and dive speed rarely.

For the AF/D game, the section formation can he handled mostly with the current rule of one plane per hex. (By the way, all my new rules and maneuvers assume a game scale of 10 seconds real time per turn and each hex is 500 feet deep and 500 feet wide.) Most of the current game rules are also ok for multi-engine bombers in Vee formation and for single-engine aircraft, too, if you desire. However, for the latter, I recommend the following rules:

1. Formations (figure 3):
   a. Section - each wingman should stay from one to three hexes behind and to the right or left of his leader and within 500 ft. altitude. For the four plane team, the two sections would normally go into combat separated by the equivalent of two to four hexes between sections.
   b. Echelon - for this formation, the AF/D game mechanisms are completely inadequate as well as the shift to or from the Vee and Section formations. Echelon peel-off and join up are also not accommodated. Therefore, in echelon, all aircraft will be in the same hex (in real life, the separation of aircraft was only 15-30 ft.). Suggest use a marked blank counter to signify (or use the formation counter from Battleline Flattop game). Echelon can only be entered from the Vee or Section (and vice versa).
   c. Vee - each three plane section will also be in one hex for single engine aircraft. Other three plane sections will be in adjacent hexes normally and no more than two hexes apart. These latter sections of the squadron should be stepped down between 100 and 500 feet in altitude from the lead section. This simulates the fact that the Vee was flown in a looser formation than the Echelon,which was an attack formation. For multiengine bombers, although the 500 foot separation is a little unrealistic, the game mechanisms for these bombers defence against fighter attack are best handled as one plane per hex where each plane of a three plane section are in adjacent hexes and same altitude while other sections are one or two hexes away and 100 to 500 feet below. d. Aircraft in Vee or Echelon formation flying purposely in one hex are not subject to the collision rules.

2. Formation flying
   a. All aircraft fly according to their data cards and log sheets until they join a formation.
   b. No aircraft in Vee or Echelon may fly inverted and the roll, loop and slip maneuvers are prohibited (can only climb, dive, bank and turn). Special rules for Section formations will be presented in subsequent articles.
   c. All aircraft in Echelon will be flown identically with the moves, speed and altitude changes plotted for the squadron leader. All aircraft in Vee will be flown the same way for each section - that is, the wingmen move with their section leader. For the other sections of single-engine formations and for all multi-engine bomber formations and Section formations you have two options:
      l. When the leader makes a plotted turn, you automatically shift wingmen and other sections of the flight to maintain the same relative position. This simulates experienced pilots
      2. Optionally, if you want to get the feel of formation flying, you may use the following rules: .
         1. For Section formation, each aircraft is flown according to its data card and must hold position.
         2. For Vee formation, each single-engine section or multi-engine bomber and it's sections must fly according to their date cards and try to hold position.
            For the above when the squadron leader banks and turns, all other planes in the flight must do the same. This means planes on the outside of the turn must apply power and those on the inside must brake so that all planes and sections keep the same relative positions after the turn as they were before the turn. Straggling may occur and evasive maneuvers taken to avoid collision. If any aircraft ends up in another plane or sections hex within 500 ft. it must roll for possible collision.
   d. Damaged aircraft if they cannot stay with the formation should retire (with escort??) till the flight

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back. Remaining aircraft will join up on other planes in the flight for mutual protection.

3. Change formation
   a. Any aircraft (single-engine) flying in formation with other aircraft of the same type can shift formation from Vee or Section to Echelon, between right and left echelon or back to Vee or Section at the cost of one hex and no loss of speed. The change is effective at the end of the movement portion of the turn. b. To change formation (or enter a formation), the planes must all be in adjacent hexes at the same speed, altitude and bank. Planes may not be inverted nor changing altitude more than 200 feet per turn. No power or brake factors can be applied till next turn after they join formation. c. When going to Echelon, all aircraft will be moved to the same hex with the squadron leader. When going to Vee single-engine aircraft will be moved to the same hex as the section leader. d. For the move notation on the log sheet, use VEE, SEC, ECHL (left) or ECHR (right) to signify this move. e. When going from echelon to vee or section formations, each plane in the flight will be placed in adjacent hexes (Vee section wingmen will still be with their sections leaders) to the squadron leader in the appropriate formation and will be at the same bank, speed and altitude as the leader till the next turn.

4. Peel-off (figure 4)
   a. Planes must be in echelon at maneuver or level speed, not climbing or diving and not inverted.
   b. One or two aircraft are allowed to peel off each movement turn from the formation and their counters are returned to the board as they do so while the rest of the squadron continues the formation flight path. One can peel off at any hex in the path it would have taken if it had stayed in formation. If two aircraft peel off, then the two peel-off hexes must be separated by ~ the movement factors for that turn. All subsequent peel-off's must follow the same hex separation established by the first one or two aircraft till all have peeled off.
   c. After the first aircraft peels off, power or brake factors cannot be applied to the planes still in echelon. They continue at the speed, bank, turn pattern and directions established by the leader.
   d. Aircraft peeling off this turn may apply power or brake factors as provided by their data cards. In addition, the aircraft peeling off must execute a 60 or 120 degree shift in facing and shift forward and to the right (from left echelon) or left (right echelon) one hex. Cost will be one hex and one speed for 60 degrees and one hex and two speeds for 120 degrees shift in heading. Write "peel" in your log sheet to signify this maneuver.
   e. After entry into the peel-off hex and shift in movements of this and subsequent turns will be rules (unless modified in subsequent rules for attack, dive bomb, glide bomb, etc.) until the facing all remaining according to the regular combat tactics - bomber join-up procedure.

5. Join-up (Figure 5)
   a. All individual aircraft will fly their attack per the regular rules (some modifications to be made) and after the attack will fly their aircraft to a hex adjacent to the lead aircraft and at the same altitude.
   b. When adjacent they must move into the same hex as the leader in the same echelon formation they were in previously if they just attacked a ground target, and in the opposite echelon formation if they just attacked bombers. Cost is one hex and zero speed. write "join" on your log sheet for this maneuver.
   c. To join formation planes already in formation, those joining must not be inverted, must be in the same bank attitude at time of join-up and may be adding or losing altitude and apply power or brake factors to facilitate join-up at the same altitude, speed and attitude.

6. Combat in Formation
   a. Fighters in Section formation may freely engage in combat per the regular rules. (Some modifications to come later.)
   b. Multi-engine bombers flying Vee may be attacked per the regular rules and may fire defensively,

but must try and hold position.
c. If a squadron is attacked while in Vee or Echelon formations, (3 or more a/c in same hex) the attacker may choose any 1 plane in that hex to fire at. However, all defensive fire of all the planes in that hex will be from that hex.
d. If a squadron changes formation in the same turn in which it is attacked then the following will apply:
   1. If changing to Echelon it will be attacked in Echelon.
   2. If changing from Echelon to Vee or Section, it will be attacked in the new formation. In exchanging counters to depict the new formation, if a hex is then occupied by both the attacker and the plane(s) in formation then no collision occurs and the attacker is moved back One hex. (If the attacker is a two plane section, then both are displaced in relative position.)
e. No flight of aircraft in Vee or Echelon may attack or fire its guns offensively. They may fire defensively.
f. Aircraft peeled off or not yet joined up can be attacked individually per the regular rules.

7. Spotting
Aircraft flying in formation are more easily spotted by other planes. Multi-engine aircraft formations are easier to spot than single-engine aircraft. Also, formations above the altitude of the spotting aircraft are more easily seen than formation flying below the spotting aircraft's altitude. Use the following table to determine ability to spot:

			Number of Hexes		
Type Aircraft	Formation Size	Relative Altitude	10,12,2 Sector	4, 8 Sector	6 Sector
Multi-engine	4 or more	above	45	30	20
		below	40	20	18
	3 or more	above	36	18	15
		below	32	15	10
Single engine	4 or more	above	30	14	8
		below	24	8	6
	3 or more	above	20	6	4
		below	18	4	3

note: for spotting below subtract one hex for each 500' the formation is below the spotting aircraft.
b. In attacking a bomber formation, if an aircraft spots a formation, he will not lose visual contact while maneuvering into a position to attack.
c. If a formation is leaving contrails (see expansion rules) then it can be seen from anywhere on one board if multi-engine and 40 hexes if single engine.
d. Additional spotting rules for sighting of ground targets during interdiction and other selected low level missions will be presented later.

These new rules and maneuvers should be tried and tested in our games to iron out any wrinkles. However, you will better appreciate their use when you see my new tactics and rules for fighter attack against bombers as well as dive and glide bombing to appear in the next few issues of FS. (They are already typed and ready for my two new multi-player games.)
        NOTE: All figures appear on" page 13.

M. C. 205 V by Mike Telson To all of you who have used the M. C. 202 from the expansion kit and found that it is a nice little aircraft, but just under powered here is a solution. In early 1942, Fiat built a version of the German DB 605A engine that powered a modified M. C. 202 airframe. With the added power factors this plane is close to even in maneuverability to the P-51B. Besides the engine, the only modifications to the airframe was some local strengthening for the additional weight of the power plant and additional ammo for the cannon armament. The card for this aircraft appears on page 14.

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General Info: To the best of my knowledge, the "new" Air Force has not been released. If any of you need another copy or know anyone who needs a copy, all copies in the store are the original version that was reprinted by Avalon Hill. It is also my understanding that the CRT card from AF is in both the AF and the D game. That means-that you won't have all the modifiers and torpedo/skip/dive bombing tables. If someone knows this to be wrong, let us know.
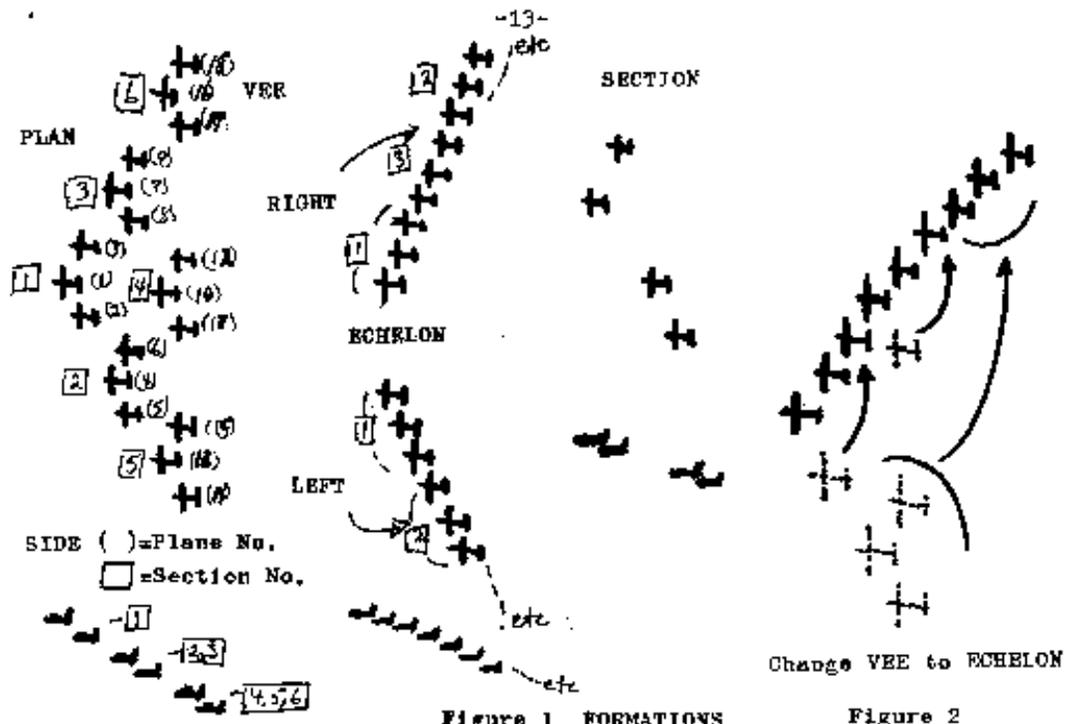
Figure 1   FORMATIONS

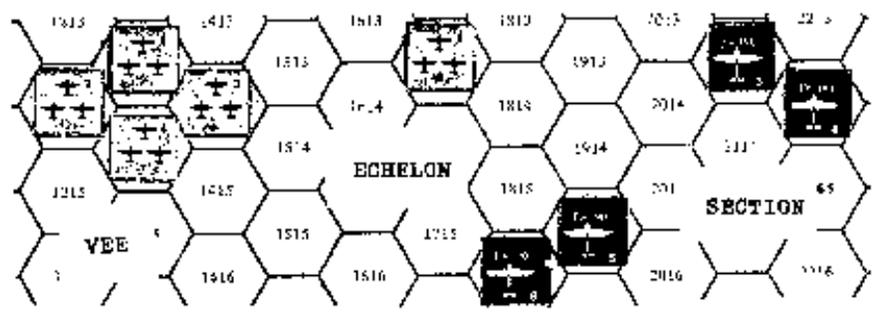Change VEE to ECHELON
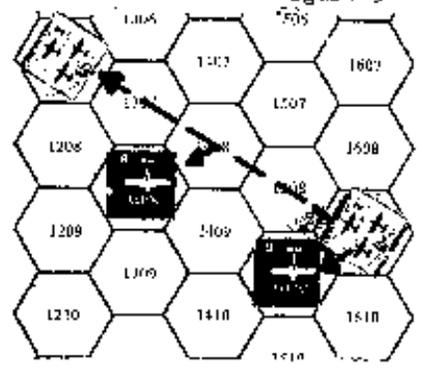
Figure 2

Figure 3   FORMATION COUNTERS

Figure 4   PEEL OFF
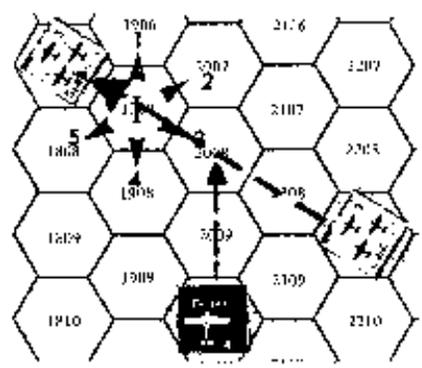
Figure 5   JOIN UP

PLANE TYPE: M.C. 205

Macchi 205V Serie III

Day Fighter

POINT VALUE: 18

TARGET CHARACTERISTICS CHART

SILHOUETTE MODIFIER: +2
FIRE MODIFIER: +2
TYPE ENGINE (OF): I
BLIND SPOTS (BF):

H: 4(-1),12(+2), 2,4,6(-2),8,10
M: 12(+2),2(+1),4(-2),6(-3),8(-2), 10(+1)
L: 6(-2),12(+1),2(-1),4(-1),5(-3), 8(-1),10(-1)

Producer: Italy
Name: "Veltro" ("Greyhound")

MOVEMENT CHARACTERISTICS CHART

ALTITUDE (x1000')	SPEEDS				SPEED CHANGE		ALTITUDE CHANGE		MANEUVERS				
	STALL SPEED	MANEUVER SPEED	LEVEL SPEED	DIVE SPEED	POWER FACTORS	BRAKE FACTORS	CLIMB RATE	DIVE RATE	BANK	TURN	SLIP	HALF-LOOP	HALF-ROLL
0-4.9	0-2	3-5	6-7	8-9	2	2	+6	1.1	2	2	2	4	3
5.0-9.9	0-2	3-5	6-7	8-9	2	2	+6	1.1	2	2	2	4	3
10.0-14.9	0-2	3-5	6-7	8-9	2	2	+5	1.2	2	3	3	5	3
15.0-19.9	0-2	3-5	6-8	9-10	2	1	+4	1.2	3	3	3	5	4
20.0-24.9	0-3	4-5	5-7	8-10	2	1	+4	1.2	3	3	3	6	4
25.0-29.9	0-3	4	4-6	7-10	2	1	+3	1.2	3	4	4	6	5
30.0-34.9	0-3	-	5-6	7-10	1	1	+2	1.2	4	4	4	7	5
35.0-36.1	0-4	-			1	1	+½	1.2	4	5	5	8	6
LEVEL SPEED					-	-			+1	+1	+1	+1	+1
DIVE SPEED					P	-	+.3		+1	+2	+2	+2	+1
LOADING(NP)	+1												P

NOTES: In service July, 1943. About 262 Veltro's were built.

RADIO TRANSMISSIONS IN AF /D
No doubt, combat flying back in the glory days of the early 1940's was a confusing business.
I seriously question the portrayal we commonly see in the movies of clear and precise
communications. In an effort to recreate this confusion I have set together the following rules
with regard to communication between players in monitored AF/D games:

1) All communications to other players must be sent through the monitor once the game has
started. This stipulation creates an extra turn delay in communicating with your fellow
aviators and is a real handicap to tactical coordination; but I feel that it is quite
realistic when you consider the scale of the game.

2) All radio transmissions must be addressed to whom they are directed.

3) The monitor determines how the message gets through Via the following table and the
roll of one die:
       1 - message is not received
       2 - every other word in the message is deleted
       3 - every third word in the message is deleted
       4 - every fourth word in the message is deleted
       5 - every fifth word in the message is deleted
       6 - the message is received intact
4) The die is rolled once for each transmitted message and the sender of the message is NOT
informed of the result.

An example of how this would work is in order.... Suppose the squadron commander of a four
plane group spies enemy aircraft approaching and wants to inform his group. He would send a
transmitted message via the monitor as follows:

To All Pilots: "Bandits! Bandits! Four o'clock high. Slip left, climb, and engage".
The monitor would then distribute this message to the other pilots with his turn report
according to the above chart. If he rolled a '1' no one would receive any message. If he
rolled a '2' he would send the following to each pilot, EXCEPT the sender:

From Group Leader: "Bandits! ....." Four.... high. .... left, ... and... .".
If he rolled a '4' the message would become clearer:
From Group Leader: "Bandits! Bandits! Four.... high. Slip left, ... and engage".

This procedure is repeated for each transmitted message. I must add that I am currently
employing this rule in my current game of 'Team Dogfight'
and I'm really enjoying its effect...

Chris Wendel