Monitoring Military Flight Demonstration Groups
MT’s Annual Air Show Guide

By Larry Van Horn, MT Milcom/Assistant Editor, N5FPW

Air show! Nothing stirs up excitement more for the aircraft enthusiast than those two magical words. Bottom line: there is nothing quite as thrilling as going out to one of the many public air shows across the country any given weekend and watching one of the military or civilian demonstration teams strut their stuff in front of thousands of airplane fans. But, if you add to the visual drama in front of you the element of monitoring the team’s radio communications, you will experience a whole new perspective of the show that few attendees can realize or enjoy.

Since the new 2006 air show season starts in the second week of March, we present our seventh annual Milcom Air Show column in this issue. You will get the frequencies to monitor, air show radio equipment list, and the military flight demonstration team schedules for the upcoming air show season. (See page 52 for the continuation.)

FREQUENCIES

Where do you hear the action? 2005 did provide air show monitors with a few challenges, especially following the frequency changes of the Navy’s Blue Angel team communications. But when changes were made by the teams and our annual list didn’t have the new frequencies, seasoned veterans knew the right bands to search to find the new frequencies being used.

So what bands do veteran radio monitors search for new frequencies? You should concentrate on the bands listed below to locate air show activity in your area.

Milair Search Bands (MHz)

118.0-137.0 AM mode (AM) 25 kHz steps

Note: We have reports of a lot of new air show activity in the new portion of the civilian aero band: 136-137 MHz. Be sure to check out this frequency range out for civilian and military demo aircraft communications.

- 122.7-123.575 AM 25 kHz steps
- 138.0-144.0 AM/Narrowband FM (NBFM) 12.5 kHz steps
- 148.0-150.8 AM/NBFM 12.5 kHz steps
- 225.0-389.0 AM 25 kHz steps
- 389.0-400.0 AM/NBFM 25 kHz steps
- 406.1-420.0 NBFM 12.5 kHz steps

U.S. Navy Blue Angels

The U.S. Navy (USN)/Marine Corps (USMC) military team is represented on the air show circuit by the Blue Angels flying their F/A-18 Hornet aircraft. The other major piece of hardware in the squadron is their C-130 Hercules transport aircraft, affectionately known as “Fat Albert.” It is the only Marine Corps aircraft permanently assigned to support a Navy squadron and is flown by an all-Marine Corps crew of three pilots and five enlisted personnel. “Fat Albert” flies more than 140,000 miles during the course of a show season.

After a wild 2004 season of searching for new Blue Angel team frequencies, the 2005 season was somewhat quieter in this regard. The primary UHF frequencies monitored during 2005 season included (MHz):

- 237.800
- 251.600
- 255.200
- 264.550
- 265.000
- 275.350
- 284.250
- 289.800
- 299.650
- 302.100
- 305.300
- 346.500
- 389.0-400.0 AM/NBFM 25 kHz steps

Aerial Refueling

289.800

Cross Country Air-Air

143.600 (AM) 237.800

238.150 284.250

Tower-Comm Cart

173.825 (NBFM) May no longer be used

Tower Observer

143.000 (AM)

Other frequencies reported in past years, but not heard in the last year include:

- 236.450 238.150 249.625 254.500 256.250
- 262.850 263.350 264.350 273.300 286.000
- 302.150 307.700 381.000 MHz

U.S. Air Force Thunderbirds

The premier U.S. Air Force (USAF) flight demonstration team is known as the Thunderbirds. This team uses six F-16C Fighting Falcon aircraft, performing formation flying and solo routines. The four-aircraft diamond formation demonstrates the training and precision of Air Force pilots, while the solos highlight the maximum capabilities of the F-16. The pilots perform approximately 30 maneuvers in a demonstration. The entire show, including ground and air, runs about an hour and 15 minutes.

The frequency list below has been used by the teams over the last seven air show seasons. It should be noted that since this list does not include the 143.850 and 235.250 MHz roles are reversed from what is published below.

Frequency Usage

- 140.400 Support/Cross country air-to-air (AM)
- 141.850 Pre-take/Four ship/Diamond formation linked to PA system (AM)/Cross country air-to-air <Channel 2>
- 142.575 Program audio/Air-Ground communications (NBFM)
- 143.850 Diamond formation/Cross country air-to-air (AM) <Channel 1>

It has been reported that a new ground cart was in use by the team in 2005 and two new ground frequencies made their appearance last year - 139.8125 <Alpha> and 142.6125 <Bravo> MHz. The old 162-174 MHz frequencies are apparently no longer used and we have deleted all but one of them from our list. I encourage those of you with Signal Stalker and Close Call capability to watch the 138-144 MHz closely for new additional 12.5-kHz splinter frequencies being used by the team’s ground crews.
Military Parachute Demonstration Teams

A new addition to our Military Parachute Demo teams list is the U.S. Special Operations Command Parachute Team based out of MacDill AFB in Florida. They were heard on the following frequencies: 122.450, 123.450, and (no, this is not a misprint) 151.625 MHz, a nationwide business itinerant frequency.

The colorful U.S. Navy Seal Parachute Team, the Leap Frogs, is a frequent visitor around the country at various sporting events and air shows. Their team has been regularly reported on 270.000 (AM) and 407.500 MHz (NBFM 131.8 Hz PL tone) nationwide the last several years.

The U.S. Army has quite a few parachute teams that perform on the air show circuit. We have received reports for only two of the teams. We would appreciate reports on frequencies used by the following U.S. Army teams if you catch them performing this air show season.

All American Free Fall Team
Fort Bragg, North Carolina, 82nd Airborne

Green Beret Parachute Team
Fort Bragg, North Carolina

Screaming Eagles
Fort Campbell, Kentucky, 101st Airborne Division

Black Knights
US Military Academy, West Point, New York

Another addition to our list this year is the Silver Wings team. This is the Fort Benning, Georgia, Command Exhibition Parachute Team. They were heard last season using 34.650 MHz. In addition to the VHF low frequency, ground and safety teams were using 467.6125 MHz (FRS channel 10) for communications. There was also one report that the team was using an Intra Squad radio frequency of 397.500 MHz. (See our comments below about programming ISR, GMRS and FRS channels for air show monitoring.)

The U.S. Army Special Operations Command parachute team is known as the Black Daggers (see MT Milcom May 2004). Frequencies discovered for them during the last two seasons include: 123.450, 136.000, 136.650, 138.300, 237.300 and 238.150 MHz.

The premier U.S. Army Parachute Team is the Golden Knights based out of Fort Bragg, North Carolina. The team aircraft used during air shows is either the C-31A Friendship or UV-18A Twin Otter. Look for their communications on frequently reported frequencies of 123.400, 123.475 or 123.500 MHz. You should also keep 32.300, 32.400, 122.575, 124.875, 284.900 and 367.700 MHz plugged in for possible Golden Knight activity.

During 2001 and 2002 seasons I received several reports that the Golden Knights were using GMRS frequencies 462.625, 467.5625, and 467.6125 MHz. In addition to air show demo crews, vendors and other military ground units have also been heard using GMRS frequencies. You should make these frequencies part of your scanner load-out prior to the air show.

March 2006 MONITORING TIMES
U.S. Civil Air Patrol

Frequencies

Finally, you might want to program U.S. Air Force Civil Air Patrol frequencies in your scanner as well. We received several reports in 2005 of CAP frequencies, repeaters and simplex, being used as ground support at several air shows. Below is a starter list of CAP frequencies to load up for air show use.

There are supposed to be new additional VHF narrowband frequencies for CAP, but this civilian auxiliary organization (that was supposed to have a mission of educating young people in aerospace subjects) is now also performing homeland security missions and anti-narcotics surveillance missions, and has therefore classified all of their frequencies FOUO (For Official Use Only).

An even more disturbing fact about CAP is that Congress in February 2003 amended the Omnibus Crime Control and Safe Streets Act of 1968 to make members of the Civil Air Patrol eligible for Public Safety Officer death benefits in case they lose their lives during a homeland security CAP mission.

Civilian/Foreign Air/Parachute Demonstration Teams

The Canadian Forces Snowbird aircraft demonstration team (431 Air Demonstration Squadron) is another regular on the U.S./Canada air show circuit. The following frequencies have been recently reported for this popular aerial team:

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<tr>
<th>Frequency</th>
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A new Snowbird VHF frequency has now been noted in use during the last two seasons – 116.000 MHz (AM), but 272.100 is the only UHF frequency reported in 2005.

At most air shows the military flight demonstration units aren’t the only performers. Civilian organizations, companies, and individuals sponsor a wide variety of aerobatic teams and parachutists to thrill the crowd. A wide variety of frequencies are used by these teams in the civilian aviation band. If you load your scanner with the following frequencies you shouldn’t miss out on communications used by the civilian acts.

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<td>132.200</td>
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</tbody>
</table>

Some specific frequencies reported to us for other foreign military and US civilian flight demonstration teams include:

**Civilian Flight Demonstration Teams**

- **Aerobeech Aerobatics Team**
- **Air Force Reserve Biplane (Ed Hammill)**
- **All American Firebirds Flight Demonstration Team**
- **Bud Light Air Force (ex-Coors Microjet)**
- **Firecat (Rick Perkins)**
- **Flying Colors Hang Glider Aerobatic (Dan Buchanan)**
- **French Connection Air Show**
- **Geiko Extra 300 – Tim Webber**
- **Jan Grooms’ FedEx Red Bull Aerobatic Team**
- **Jim LeRoy Bulldog Team**
- **Lima Lima Flight Team**
- **Manfred Radius Glider Aerobatic Team**
- **North American Jet Air Show Team**
- **Northern Lights Aerobic Team**
- **Oreck Vacuum Cleaners Aerobic Demo (Frank Ryder)**
- **Otto the Helicopter**
- **P-51 Mustang Flight Team**
- **Patty Wagstaff Air Shows Inc**
- **Pitts Special U.S. Air Force Reserve**
- **Rayban Gold Aerobatics Team**
- **Red Baron Stearman Squadron**
- **Red Eagles Flight Demo Team**
- **Sean Tucker Power Aerobatics**
- **Sky Soldiers Demonstration Team (Army Aviation Foundation)**
- **Skytypers Team**
- **Swift Magic Aerobatic Team**
- **Terra Tora Tora Warbirds Team**
- **Trimaran Marian Air Force**
- **Valiant Wings Air Show**
- **Vulcan Airplane Demo**
- **Wing unemployed**

**Foreign Military Flight Demonstration Teams**

- **Asas de Portugal, Esquadra 103 (Wings of Portugal 103 Squadron) Flight Team**
- **Blue Eagles Royal Army Corps Flight Team (UK)**
- **Blue Tang Helicopters 123.600**
- **Brazilian Air Force Team (Brazil)**
- **Canadian Forces Skyhawks Parachute Jump Team (Canada)**
- **Falcons Royal Air Force Parachute Jump Team (UK)**
- **Frecce Tricolori Military Flight Team (Italy)**
- **Grasshopper Helicopter Team (Netherlands)**
- **Halcones Military Flight Team (Chile)**
- **La Patrouille Adecco Air Force Flight Team (France)**
- **La Patrulla Aguila Military Flight Team (Spain)**
- **Le Royal Jordanian Teams (Jordan)**
- **Les Breitling (Switzerland)**
- **Les Iskry (Poland)**
- **Marche Verte [Green March] (Morocco)**
- **Military Stars Flight Team (Turkey)**
- **Piloti di Cerro (Italy)**
- **Red Arrows Royal Air Force Flight Team (UK)**
- **Red Eagles Flight Demo Team**
- **Roter Adler Fliegertrupp (Germany)**
- **Royal Air Force (ex-Coors Microjet)**
- **Royal Canadian Air Force**
- **Royal Jordanian Air Force**
- **Russian Knights**
- **Royal Air Force (Turkey)**
- **Royal Air Force (UK)**
- **Schlachtflieger**
- **Spetsnaz**
- **Spanish Air Force**
- **Stingrays**
- **Swiss Air Force**
- **Viper Air Show Team**
- **Vulcan Airplane Demo**
- **Wing unemployed**

In closing, it is always difficult to predict what a new season will bring so I strongly encourage readers to watch the Monitoring Times website (www.monitoringtimes.com) for new frequency information. We will publish updates on our air show web page as we get new information from field reports during the season.

Finally, I would like to extend a sincere thanks to a record 97 contributors who shared their post show reports with us last year. I want to especially thank several overseas reporters who added new material to our foreign teams section. I deeply appreciate the time and effort each of you took to let us know what you heard at many of the air shows.

If you find this list useful and attend an air show in 2006, please pass along any frequencies that you monitor, whether it is on our list above or not. This will greatly help us keep this annual MT listing up-to-date. You can reach me via e-mail at yorkvanhorn@monitoringtimes.com or by our snail mail address MT Milcom, 7540 Highway 64 West, Brasstown, NC 28902.

For 2006 air show SCHEDULES and recommended monitoring EQUIPMENT, please turn to Milcom on page 52.
Monitoring Military Flight Demonstration Groups

Equipment and Schedules

The forepart to this guide for monitoring airshows starts on page 10 and addresses how to find the frequencies to monitor. Now we turn to two more critical requirements for successful monitoring — Where can you find an airshow, and what equipment will you need to listen in?

Not Just Any Old Scanner

I am frequently asked which scanner I recommend for air show monitoring. While I don’t have a favorite in this regard, I have prepared the list below as a purchase guide for receivers that meet all the requirements. Some scanners currently being marketed and almost all older scanners on the used market are not suited for air show monitoring. There are certain requirements your air show radio has to meet in order to successfully listen to the two major military aerial demonstration teams — the Blue Angels and the Thunderbirds.

If you are going to a Thunderbird show, you will need a scanner that can monitor the 138-150 MHz military land mobile band in the AM mode. Most of the older Uniden scanners cannot be used for air show monitoring due to their lack of independent transmission mode selection.

You will also need a scanner that has the 225-400 MHz military aeronautical band in it. Most of the action (especially for the Blues) will be heard in this military UHF portion of the spectrum. Adding this criterion to the mix of possible radios narrows down our choice for air show scanners even further.

The information below includes current Grove Enterprises stock codes/prices (if carried by Grove) for the items indicated, but does not apply and nothing is worse than having your batteries die halfway through the show with no replacements.

Handheld Listening Tip: If you are going to use a handheld scanner at the air show, there is another purchase you should consider — an extra set of charged batteries. Murphy’s Law applies and nothing is worse than having your batteries die halfway through the show with no replacements.

Base/Scanner Unit Grove # Price
AOR AR-3000A-B SCN26 $1062.95
AOR AR-5000A-B+3B RCV44P $2569.95
JRC NRD-545 RCV21DS $1799.95
APCO-digital/trunk capability

Computer Hosted Receivers

WinRadio WR-1550e RCV47-E $549.95
WR-1550i RCV47-I $499.95
WR-3150e RCV48-E $1849.95
WR-3150i-DSP RCV48-I $1849.95
WR-3500i-DSP RCV49-I $2395.95
WR-3500i-DSP RCV49-I $2395.95
WR-3700e RCV50-E $2895.95
WR-3700e RCV50-I $2895.95

* Per our MT review (November 2004), this unit has a lack of sensitivity from 280-295 MHz which does affect UHF military aircraft monitoring.

** Includes APCO-digital/trunk capability

Base Abbreviations
AB — Air Base
ACC — Air Combat Command
AFAF — Air Force Auxiliary Field
AFB — Air Force Base
ARB — Air Reserve Base
CFB — Canadian Forces Base
JRB — Joint Reserve Base
MCAS — Marine Corps Air Station
NAF — Naval Air Facility
NAS — Naval Air Station
TBD — To Be Determined

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The information below includes current Grove Enterprises stock codes/prices (if carried by Grove) for the items indicated, but does not include shipping or taxes (if applicable). Prices are subject to change without notice, so be sure to call the Grove order department at 800-438-

2006 Performance Calendar

Note: If security levels increase in a base to Threat Condition “Bravo” or above, many military installations will not have public air shows. Consequently, demonstration schedules dates listed below are subject to change or cancellation without notice.

Demonstration Group Abbreviations:
BA — Navy Blue Angels
BD — Army Black Daggers
CF18 — Canadian Forces CF-18 Hornet Demo Team
F15W — ACC F-15 West Coast Demo Team
F16W — Viper West F-16 Demo Team
GR — Army Golden Knights
SB — Canadian Snowbirds
SW — Army Silver Wings
TB — Air Force Thunderbirds

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Computer Hosted Receivers

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2006 Performance Calendar

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** Includes APCO-digital/trunk capability
May 31  TB: US Air Force Academy, Colorado Springs, CO
Jun 3-4  BA: Davenport, IA; TB/GK: Beale AFB, CA; F16W: McGuire AFB, NJ; SB: Portage Le Prairie, MB Canada; CF18: Southport, MB Canada
Jun 4  F15W: Malmstrom AFB, MT
Jun 7  SB: Thunder Bay, ON Canada
Jun 9-11  GK: Janesville, WI
Jun 10-11  BA/SB/CF18: Quebec City, PQ Canada; TB: Hill AFB, UT; F15W: Rochester, NY
Jun 14  TB: Riv du Loup, PQ Canada
Jun 16-17  BA: Leeuwarden AB, Netherlands
Jun 16-18  F15W: Muncie, IN
Jun 17-18  TB: NAS/JRB Willow Grove, PA; SB/CF18: Ottawa, ON Canada; GK: Whiteman AFB, MO
Jun 21  SB: TBD
Jun 22-25  F16W/GK: Evansville, IN
Jun 23-25  CF18: Borden, ON Canada
Jun 24  SB: Oshawa, ON Canada
Jun 24-25  BA: Barnes ANGB, Westfield, MA; TB/GK: North Kingston, RI
Jun 25  SB: Borden, ON Canada
Jun 25  SB: Cobourg, ON Canada
Jul 1  TB/GK: Kirtland AFB, NM; SB: Ottawa - Canada Day
Jul 1-2  BA: Traverse City, MI; F15W: Tinker AFB, OK
Jul 3-4  TB: Battle Creek, MI
Jul 4  SB: Battle Creek, MI
Jul 8-9  BA/F15W: Pittsburgh, PA; TB/GK: Duluth, MN; F16W: Fargo, ND
Jul 15-16  BA: Pensacola Beach, FL; TB/GK/F16W: Milwaukee, WI; F15W: Dayton, OH
Jul 20  SB: Meadow Lake, SK Canada
Jul 21-30  SW: Rantoul, IL
Jul 22  TB: Grand Forks AFB, ND; SB/CF18: Yellowknife, NT Canada
Jul 22-23  BA: Sioux Falls, SD; GK: Muskegon, MI
Jul 23  TB/GK: Casper, WY; CF18: Peace River, AB Canada
Jul 24  SB: Ft Smith, NW Canada
Jul 26  TB: Cheyenne, WY; SB: Dawson Creek, BC Canada
Jul 29  SB: Lethbridge, AB Canada
Jul 29-30  BA: Dayton, OH; TB: Fairchild AFB, WA; F15W: McChord AFB, WA; F16W: Oswego, NY; CF-18 Lethbridge, AB Canada
Aug 2  SB: Williams Lake, BC Canada
Aug 4-6  BA: Seattle, WA; GK: Portland Hillsboro, OR
Aug 5-6  SB/F16W: Comox, BC Canada
Aug 6  GK: Buckley ANGB, CO
Aug 11-13  SB/CF18: Abbotsford, BC Canada
Aug 12-13  BA/GK: Elmendorf AFB, AK; TB: Scott AFB, IL; F15W: Minot AFB, ND; F16W: Klamath Falls, OR
Aug 15  CF18: Rocky Mountain House, AB Canada
Aug 16  SB: Rocky Mountain House, AB Canada
Aug 18-20  BA/GK/F15W: Chicago, IL
Aug 19-20  TB/GK: Burlington, VT; SB/CF18: Saskatoon, SK Canada
Aug 23  TB/GK: Atlantic City, NJ
Aug 25-27  F16W: Santa Maria, CA
Aug 26  F15W: Ellsworth AFB, SD
Aug 26-27  TB: Mt Comfort, IN; SB: St Catharines, ON Canada; CF18: Niagara Falls, ON Canada
Aug 30  F15W: Atlantic City, NJ; SB: Brantford, ON Canada
Sep 2-4  BA/GK: Cleveland, OH; TB: Gary, IN; SB/CF18: Toronto, ON Canada
Sep 9  F16W: Cannon AFB, NM
Sep 9-10  BA: NAS Oceana, VA; TB/GK: McConnell AFB, KS; SB/CF18: Halifax, NS Canada; F15W: Clarindo, IA
Sep 13  SB: Gander, NF Canada
Sep 15-17  TB/GK: Kansas City, KS; SB: Summerside, PE Canada; CF15W/F16W: Hohn AFB, ID
Sep 20  BA: LaTuque, PQ Canada
Sep 23-24  BA/GK: Lincoln, NE; TB: Rockford, IL; SB/CF18: Sarnia, ON Canada; F15W: Fort Worth, TX; F16W: Martinsburg, WV
Sep 30-Oct 1  BA: Nantucket, MA; TB: Fort Worth, TX; SB: Redding, CA; F15W: Salinas, CA
Oct 4  SB: Mojave, CA
Oct 7-8  BA/F16W: San Francisco, CA; TB: NAS Pax River, MD; SB/GK: El Paso, TX; F15W: San Angelo, TX
Oct 13  SB: Moose Jaw, SK Canada
Oct 14-15  BA/GK/F16W: MCAS Miramar, CA; F15W: Travis AFB, CA
Oct 15  TB: Seymour Johnson AFB, NC
Oct 21-22  BA/GK: Goodyear, AZ; TB: Houston, TX; F16W: Edwards AFB, CA
Oct 26  F15W: La Aurora, Guatemala
Oct 28-29  BA/GK: Toronto, ON Canada; F15W: Acapulco, Mexico
Nov 1  F16W: Keesler AFB, MS
Nov 4  BA: Little Rock AFB, AR; TB: Lackland AFB, TX; F15W: Randolph AFB, TX
Nov 10-11  BA: NAS Pensacola, FL
Nov 11-12  TB/F16W: Nellis AFB, NV; F15W: Stuart, FL

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