Will Your Safety Harness Kill You?

Workers and emergency response personnel must be trained to recognize the risks of suspension trauma.

*by Bill Weems and Phil Bishop*

I was surprisingly comfortable with my legs dangling relaxed beneath me, and my arms outstretched in a posture that must have resembled a crucifixion. I had no feeling of stress and mused as to why this was considered dangerous. I felt I could stay in this position for a long time. Three minutes later, maybe less, I wondered why I suddenly felt so hot. The next thing I knew, they were reviving me from unconsciousness.

I had just experienced what could be deadly for your workers who use safety harnesses. Fortunately for me, my suspension trauma occurred in the safe environment of the research ward of University of Texas Medical Branch Hospital at Galveston, Texas, where I was the first subject in a NASA experiment studying orthostatic intolerance in astronauts. Your workers won’t be so lucky.

**Harness-Induced Death**

Wide ranges of situations require safety harnesses of various types. Workers requiring fall protection, workers entering many confined spaces, mountain climbers, deer hunters in elevated stands, and cave explorers all try to protect themselves through the use of safety harnesses, belts, and seats.

What is little known however, is that these harnesses can also kill.

Harnesses can become deadly whenever a worker is suspended for durations over five minutes in an upright posture, with the legs relaxed straight beneath the body. This can occur in many different situations in industry. A carpenter working alone is caught in mid-fall by his safety harness, only to die 15 minutes later from suspension trauma. An electrical worker is lowered into a shaft after testing for toxic gases. He is lowered on a cable and is positioned at the right level to repair a junction box. After five minutes he is unconscious—-but his buddies tending the line.

(Continued on page 3)

Mich-A-Con ARC December 13th Meeting Minutes

The business meeting was called to order by President Tom Martin, W8JWN, at 6:30 PM.

**Secretary Report:**

Reading of the minutes of the November 8th meeting was waived.

**Treasurer Report:**

The Treasurer's Report was presented by Tom, W8JWN. As of this meeting we have $103.66 in checking, $1,795.22 ($2.35 interest) in the savings account, $1,369.23 ($5.2 interest) in the repeater account and $25.63 petty cash ($-$.37 stamp). Transactions: Transfer $100.00 savings to checking, WE Energies $21.66, SBC $25.04, U.P. Repeater Assn $5.00, QSL.net $25.00 donation for website

**Repeater Report:**

Lee, N8LT, and Bob, KC8TWG, have done some preliminary engineering for the installation of a temporary 30 foot tower for the 2-meter repeater but have been unable to contact Terry, KB9ZER, about the tower.

**ARES:**

The ARES net has been changed from Sundays to Thursdays at 6:15 PM.

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Words from the President

At this time I would like to wish all of the club members and prospective members a very merry and blessed Christmas and a healthy and safe 2005.

These were my “Words” in last December’s newsletter. Obviously, I was in a “loss for words” mode that month. This year I have a little more to offer.

2005 was a pretty good year for me and for the club.

I started off the year, actually March, by going on the DXpedition to Belize with two fellow hams from the NEWDXA group in the Appleton area. George (W9MDP) and John (NZ9Z) stayed in Placencia, Belize for a week to operate in the ARRL DX Contest. It was a great experience to operate from a semi-rare country on RTTY and 30 meter CW. It was a humbling experience to try to copy CW through the QRM and pick out calls in the pile up. I actually, at one time, threw my cap across the shack because I was so frustrated with my “fist”. It would have been nice to have Mike (K8DDB) in the shack to bring order to the CW operation! HI!

The only negative on the Belize trip was checking luggage and going through security with two carry-on bags full of electronic gear: cables, transceivers, 2 meter hand-helds, lap top computers, etc. We slowed down many a line because of the interesting X-ray shots.

I was also on the No Fly List. Some Thomas Martin in the world must be a bad boy because in every international airport my name is flagged. From what I have read and learned, from talking to airline personnel, is that there is nothing you can do about it. Oh well, Cat Stevens and Ted Kennedy are in the same boat.

June brought Field Day and we had a great time as a club. The new beam worked well but another 10-15 feet of height would be a nice improvement for 2006. It was fun watching some of the “HF challenged” members making contacts on the GOTA station. Our score was also up this year. It will be measurably better next June with the addition of the kilowatt amp hidden under my operating table! HI!

2005 brought an interest in establishing a station, or at least a radio class for patients in the VA hospital. We have made contact with VA officials and are looking forward to some kind of action after the first of the year.

Pete (K8PT) from Marquette gave an interesting and informative presentation on his annual Jersey Island DXpedition…Mike (N9NBN) passed the Extra Class exam…Dennis (KD8AIT) was

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January Contests
(All dates and times are UTC)
ARRL Straight Key Night
0000 to 2359 Jan 1, 2006
ARRL RTTY Roundup
1800 Jan 7 to 2400 Jan 8
North American QSO Party CW
1800 Jan 14 to 0600 Jan 15
North American QSO Party SSB
1800 Jan 21 to 0600 Jan 22

January Club Activities
ARES Nets are conducted at 6:15 PM Central Time every Thursday evening on our 2-meter repeater (146.850 MHz.)

Please join us for the Tuesday Night Net on the 3rd, 17th, 24th and 31st at 6:30 PM on the 2-meter repeater (146.850 MHz) Dennis, KD8AIT, is our Net Control Operator.

Monthly meeting on Tuesday the 10th at 6:30 PM in the Grace United Methodist Church, 721 Norway Street in Norway. The meeting room is upstairs next to the sanctuary.

Saturday Morning Breakfast, 9:00 AM on the 21st at the Holiday Kitchen in Iron Mountain, on US-2 across from Econo Foods.

VEC Testing at Iron River
The Iron Range Amateur Radio Club VEC makes exams available on a monthly basis on the 3rd Thursday of the month, prior to the start of their club meeting. Examinations must be arranged before hand. Exam time: 6:30 PM (Central), Place: Iron River Lutheran Church (on US-2 next to McDonalds), Contact: Dan Waters, AA9G, (906) 265-4240 dmwaters@ironriver.tv

Club Operating Activity
All club members are invited to use the club callsign to help the club attain WAS and DXCC. If you use the club call, please give information required for the log such as: station worked, date and time (UTC), frequency, RST sent and received, mode and power to Mike, K8DDB. Also give a description of the equipment you were using.

mikebray@chartermi.net

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mikebray@chartermi.net
Will Your Safety Harness Kill You?

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don’t realize it, and 15 minutes later a dead body is hauled out.

The cause of this problem is called “suspension trauma.” Fall protection researchers have recognized this phenomenon for decades. Despite this, data have not been collected on the extent of the problem; most users of fall protection equipment, rescue personnel, and safety and health professionals remain unaware of the hazard.

Suspension Trauma

Suspension trauma death is caused by orthostatic incompetence (also called orthostatic intolerance). Orthostatic incompetence can occur any time a person is required to stand quietly for prolonged periods and may be worsened by heat and dehydration. It is most commonly encountered in military parades where soldiers must stand at attention for prolonged periods. Supervisors can prevent it by training soldiers to keep their knees slightly bent so the leg muscles are engaged in maintaining posture.

What happens in orthostatic incompetence is that the legs are immobile with a worker in an upright posture. Gravity pulls blood into the lower legs, which have a very large storage capacity. Enough blood eventually accumulates so that return blood flow to the right chamber of the heart is reduced. The heart can only pump the blood available, so the heart’s output begins to fall. The heart speeds up to maintain sufficient blood flow to the brain, but if the blood supply to the heart is restricted enough, beating faster is ineffective, and the body abruptly slows the heart.

In most instances this solves the problem by causing the worker to faint, which typically results in slumping to the ground where the legs, the heart, and the brain are on the same level. Blood is now returned to the heart and the worker typically recovers quickly. In a harness, however, the worker can’t fall into a horizontal posture. In a harness, the greater the stress on the body at arrest. Unfortunately, the posture of the falling worker is unpredictable. Depending on the harness attach-
Will Your Safety Harness Kill You?

(Continued from page 3)

ment point and the position of the worker’s body at arrest, different harness attachments offer different advantages. An attachment near the shoulders means that any drag from the lanyard will serve to position the worker’s body in an upright position so the forces are distributed from head to foot. The head is somewhat protected if the legs and body precede it in the fall, but this offers some disadvantages after the fall arrest is completed.

Suspension
Many safety professionals naturally assume that, once a fall has been arrested, the fall protection system has successfully completed its job. Unfortunately, this is not the case. A worker suspended in an upright position with the legs dangling in a harness of any type is subject to suspension trauma.

Fall victims can slow the onset of suspension trauma by pushing down vigorously with the legs, by positioning their body in a horizontal or slight leg-high position, or by standing up. Harness design and fall injuries may prevent these actions, however.

Rescue
Rescue must come rapidly to minimize the dangers of suspension trauma.

The circumstances together with the lanyard attachment point will determine the possibilities of self-rescue. In situations where self-rescue is not likely to be possible, workers must be supervised at all times. Regardless of whether a worker can self-rescue or must rely upon others, time is of the essence because a worker may lose consciousness in only a few minutes.

If a worker is suspended long enough to lose consciousness, rescue personnel must be careful in handling such a person or the rescued worker may die anyway. This post-rescue death is apparently caused by the heart’s inability to tolerate the abrupt increase in blood flow to the right heart after removal from the harness. Current recommended procedures are to take from 30 to 40 minutes to move the victim from kneeling to a sitting to a supine position.

Interference Among Phases
An arrest harness attachment on the front of the body facilitates self-rescue after a fall. However, a front attachment means the arresting lanyard may be in the way for many work tasks. An attachment point near the center of gravity (CG) makes post-fall body positioning much easier and increases the likelihood that a fallen worker will not be suspended in an upright vertical position.

Yet a front near-CG attachment point can greatly increase the bending stress on the spine at the instant of arrest, raising the possibility that the arrest itself results in serious injury. The most protective harnesses for suspension can be the least comfortable.

Recommendations
Safety harnesses save many lives and injuries. However, continual vigilance is needed to train and supervise workers to ensure harnesses are used safely.

All phases of fall protection need to be examined for each particular application. Workers and emergency response personnel must be trained to recognize the risks of suspension trauma.

Before the potential fall:
1) Workers should never be permitted to work alone in a harness.
2) Rope/cable tenders must make certain the harness user is conscious at all times.
3) Time in suspension should be limited to under five minutes. Longer suspensions must have foothole straps or means for putting weight on the legs.
4) Harnesses should be selected for specific applications and must consider: compliance (convenience), potential arrest injury, and suspension trauma.
5) Tie-off lanyards should be anchored as high and tight as work permits.

After a fall:
1) Workers should be trained to try to move their legs in the harness and try to push against any footholds.
2) Workers hanging in a harness should be trained to try to get their legs as high as possible and their heads as close to horizontal as possible (this is nearly impossible with many commercial harnesses in use today).
3) If the worker is suspended upright, emergency measures must be taken to remove the worker from suspension or move the fallen worker into a horizontal posture, or at least to a sitting position.
4) All personnel should be trained that suspen-
For harness rescues:
1) The victim should not be suspended in a vertical (upright) posture with the legs dangling straight. Victims should be kept as nearly horizontal as possible, or at least in a sitting position.
2) Rescuers should be trained that victims who are suspended vertically before rescue are in a potentially fatal situation.
3) Rescuers must be aware that post-rescue death may occur if victims are moved to a horizontal position too rapidly.

Recommendations on harnesses:
1) It may be advantageous in some circumstances to locate the lanyard or tie-off attachment of the harness as near to the body’s center of gravity as possible to reduce the whiplash and other trauma when a fall is arrested. This also facilitates moving legs upward and head downward while suspended.
2) Front (stomach or chest) rather than rear (back) harness lanyard attachment points will aid uninjured workers in self-rescue. This is crucial if workers are not closely supervised.
3) Any time a worker must spend time hanging in a harness, a harness with a seat rather than straps alone should be used to help position the upper legs horizontally.
4) A gradual arrest device should be employed to lessen deceleration injuries.
5) Workers should get supervised (because this is dangerous) experience at hanging in the harness they will be using.

Bill Weems (bweems@ccs.ua.edu) and Phil Bishop are at the University of Alabama, in Tuscaloosa, Ala. Dr. Weems is an industrial hygienist. He directs Safe State, the OSHA consultation agency for small business in Alabama. Dr. Bishop is an ergonomist. He teaches and conducts research in the physiology of human performance.

Reference

Pull quotes:
All personnel should be trained that suspension in an upright condition for longer than five minutes can be fatal.

Depending on the harness attachment point and the position of the worker’s body at arrest, different harness attachments offer different advantages.

Fall victims can slow the onset of suspension trauma by pushing down vigorously with the legs, by positioning their body in a horizontal or slight leg-high position, or by standing up.

Gerritsen Convicted On All Counts In Radio Jamming Case

A US District Court jury has found Jack Gerritsen of Bell, California, guilty on six counts that included transmitting without a license and willful and malicious interference with radio transmissions. Gerritsen, 69, who briefly held the amateur call sign KG6IRO, will face sentencing March 6, according to the office of Debra W. Yang, US Attorney for the Central District of California. He could receive up to 15 years in federal prison.

"The Federal Communication Commission investigated illegal radio transmissions linked to Gerritsen for four years," said a statement from Yang’s office. "According to court documents filed in this case, the FCC investigation revealed that Gerritsen transmitted his prerecorded messages, as well as real-time harassment and profanity, for hours at a time, often making it impossible for licensed radio operators to use the public frequencies." A federal grand jury indicted Gerritsen last spring.

Turning down the offer of a public defender, Gerritsen served as his own attorney. The government’s case, presented by Assistant US Attorney Lamar Baker, went to the jury December 8, and the jury deliberated for less than an hour before returning its verdict December 9. US District Court Judge R. Gary Klausner revoked Gerritsen’s bond, and the defendant was taken into custody following the verdict.

Gerritsen was found guilty of interfering with a Military Affiliate Radio System (MARS) communication last March and interfering with American Red Cross communications last January—both misdemeanors—and with interfering with US Coast Guard communications in Octo-
Gerritsen Radio Jamming Case

(Continued from page 5)

ber 2004, a felony. He also faced three misde- meanor counts of transmitting without a license. Recordings of radio transmissions attributed to Gerritsen were played for the jury.

Those familiar with this week's court proceedings said Gerritsen tended to focus on freedom of speech issues and sometimes confused those on the stand.

Among those testifying at length on behalf of the government was FCC Senior Agent Steven Pierce, who discussed his use of mobile direction-finding equipment and techniques used to track the source of transmissions.

Just days before the trial began, the FCC affirmed a total of $42,000 in additional fines it had levied on Gerritsen, releasing two $21,000 Forfeiture Orders (NOFs). In affirming the fines, the FCC rebuffed every argument Gerritsen had offered in responding to each Notice of Apparent Liability, including his insistent “freedom of speech” claim.

“His unlicensed operation on amateur frequencies is not protected by the US Constitution as it is well established that the right to free speech does not include the right to use radio facilities without a license,” the FCC said in a footnote in one of the NOFs. The federal court jury in California apparently agreed.

In late November, Klausner denied Gerritsen's motion to dismiss the three unlicensed transmitting counts, turning away Gerritsen's argument that the FCC could not set aside his Amateur Radio license without a hearing.

Klausner declared that the effect of the FCC's 2001 set aside of KG6IRO "was to treat the application as if it had never been granted." Since Gerritsen never held an Amateur Radio license, he never had the right to a hearing, the judge reasoned.

Last March, the FCC upheld a $10,000 fine against Gerritsen for interfering with Amateur Radio communications. The government has yet to collect.

FBI agents, accompanied by FCC staff, arrested Gerritsen without incident last May and seized his radio equipment. Released on $250,000 bond while awaiting trial, Gerritsen remained in home detention, barred from possessing any radio equipment.

Gerritsen's history of radio-related legal problems go back to 2000 when he was convicted for intercepting, obstructing and/or interfering with California Highway Patrol radio communications. In November 2001, the FCC's Wireless Telecommunications Bureau issued, then quickly rescinded, Gerritsen's Technician license, KG6IRO, because of his earlier conviction.

While transmitting on various Los Angeles-area repeaters, Gerritsen continued to identify as KG6IRO, however. Radio amateurs on the West Coast complained for months about the slow pace of enforcement action in the Gerritsen case. Los Angeles-area repeater owners had taken to shutting down their machines to avoid the nearly constant barrage of malicious interference and lengthy political tirades attributed to Gerritsen.

K7QO Morse Code Course

Mike, KD8DB, still has free CD ROMs of Chuck Adams' K7QO Morse Code Course. Any member desiring a copy should contact Mike at mkebray@chartermi.net or (906) 563-7020.

Negaunee Swap 'n Shop in Feb

The Negaunee Swap 'n Shop will be held on the first Saturday of February (Feb 4, 9 AM to 2 PM Eastern time) Sponsor: Hiawatha ARA. Location is Negaunee Township Hall, 42 Hwy M-35, midway between Negaunee and Marquette; turn S at blinking light (intersection of US-41 and M-35), go 1/4 mile to Township Hall on right. Swap and Shop, refreshments. Talk in: 147.27 (100 Hz). Admission: $4. Tables: $6. Contact: Robert Serfas, N8PKN, 1600 Bayview Dr., Marquette, MI 49855; 906-225-6773 n8pkn@aol.com, http://www.qsl.net/k8lod/
Stroke Recognition

During a BBQ a friend stumbled and took a little fall - she assured everyone that she was fine (they offered to call paramedics) and just tripped over a brick because of her new shoes. They got her cleaned up and got her a new plate of food - while she appeared a bit shaken up, Ingrid went about enjoying herself the rest of the evening. Ingrid’s husband called later telling everyone that his wife had been taken to the hospital - (at 6:00pm, Ingrid passed away.) She had suffered a stroke at the BBQ - had they known how to identify the signs of a stroke perhaps Ingrid would be with us today.

It only takes a minute to read this.

----- A neurologist says that if he can get to a stroke victim within 3 hours he can totally reverse the effects of a stroke...totally. He said the trick was getting a stroke recognized, diagnosed and getting to the patient within 3 hours which is tough.

RECOGNIZING A STROKE

Thank God for the sense to remember the "3" steps. Read and Learn!

Sometimes symptoms of a stroke are difficult to identify. Unfortunately, the lack of awareness spells disaster. The stroke victim may suffer brain damage when people nearby fail to recognize the symptoms of a stroke.

Now doctors say a bystander can recognize a stroke by asking three simple questions:

1. *Ask the individual to SMILE.
2. *Ask him or her to RAISE BOTH ARMS.
3. *Ask the person to SPEAK A SIMPLE SENTENCE (Coherently) (i.e. . . It is sunny out today) If he or she has trouble with any of these tasks, call 9-1-1 immediately and describe the symptoms to the dispatcher.

After discovering that a group of non-medical volunteers could identify facial weakness, arm weakness and speech problems, researchers urged the general public to learn the three questions. They presented their conclusions at the American Stroke Association's annual meeting last February. Widespread use of this test could result in prompt diagnosis and treatment of the stroke and prevent brain damage.

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Member Profile - Mike Boileau, N9NBN

Mike was first licensed in 1991 at the age of 29. He became interested in Ham radio in the early 80s while enjoying the CB hobby. He had made a delivery to the home of Andy, KB9UE, and noticed his antennas. Andy gave him a tour of his shack and helped him to get started. Mike studied for his license exam with a friend and fellow CBer, Brian, N9NBL. They took the exam on the same day and both passed. Mike’s first rig was an Alinco DR 570 dual band mobile radio, which he used to make his first QSO, via repeater, with his buddy Brian.

Over the years, Mike has upgraded to Tech Plus and General class and as of August 2005, holds an Amateur Extra class license.

Mike is currently the vice president of the Mich-A-Con Amateur Radio Club. He has also served as president and vice president of the Washington County (Wisconsin) ARC. He has been involved in several repeater projects over the years, and has a 220 repeater in operation now. In his earlier Ham radio days, when the band was good, he spent a lot of time on 10 meters. Now, he is involved in MARS and listens quite a bit on the bands, and enjoys projects and building.

The operating console for his impressive station was built by himself out of solid oak. He has an Icom 756 Pro II and a Kenwood TS 850 on HF, an all mode Yaesu on 6 meters and several dual band radios on VHF and UHF. Also, radios for 220 and packet. His antenna farm consists of a 45 foot tower with dipoles on HF, beams on 6 meters, 2 meters, 440 and 220 MHz. A 10 meter beam (soon to be tri bander), 6 meter vertical, packet and scanner antennas round out his antenna farm.

Mike is involved in his church. He is a drummer and is involved in recording using his digital recording studio. He also enjoys hunting and fishing and riding his motorcycle.
December 13th Meeting Minutes

(Continued from page 1)

Old Business:
Tom has contacted Glen Martin Engineering for a brochure for their safety belts/harnesses but hasn’t received it yet.

Tom has contacted Gary Weiss at the VA hospital about running a Tech license class at the hospital in January for patients and others. Gary will try to get approval from Mark Frazee and get back to Tom. Tom will contact Bob, WA8FXQ, about a starting date if the class is approved by the hospital.

New Business:
None

The meeting concluded with a Good Of The Order discussion.

Adjournment:
The meeting was adjourned at 8:05 PM

Submitted by: Mike Bray

Attendees:
Mike Bray, K8DDB (Secretary)
Mike Boileau, N9NBN (Vice President)
Lee Michaud, N8LT
Bob Uren, KC8TWG
Tom Martin, W8JWN (President)
Steve Skauge, KD8CCP

Words from the President
(Continued from page 2)

named the AEC (ARRL Emergency Coordinator) for Dickinson County and runs an ARES Net on Thursday AND was elected treasurer of the club…Mike,(K8DDB) continued to make our newsletter a top notch publication…Lee (N8LT) provided us with superb technical articles…Bob (KC8TWG), showed his welding skills through various tower and antenna projects.

Well, that is about it from this end of the coax. There were other events throughout the year but I just touched on a few. Hopefully, in December 2006, my “Words” will reveal even more exciting adventures and activities of members of the Mich-A-Con ARC.

Merry Christmas and Happy New Year

Tom W8JWN/V31TR ex: K9SNX

Buy-Sell-Trade

For Sale
Ten Tec 6-meter FM Transceiver, model 1260, 5 watt output, microprocessor controlled w/15 memories, digital frequency display - $100.00

ARX-2B Ranger II Cushcraft, 135-170 MHz - $55.00

Motorola 25 amp 13.8 volt Micor Power Supply - $35.00

Bob Uren, KC8TWG
rjuren@chartermi.net
(906) 779-1708

Wanted
H.F. Rig - Looking for something like a Kenwood TS-940, TS-430, etc.; Yaesu FT-890, FT-990; most anything to use as a second rig. Would also consider a Tube Type transceiver.

Hallicrafters sx-101 receiver (might consider National 300 receivers series also)
Hammarlund HQ-170-180
Collins KWM2 or 2A, or Collins receivers

Monte, K9DZD
Channing, MI
(906) 542-3802
k9dzd@ispwest.com

For Sale or Trade
Two 2-meter beams. Will trade or ?

Pat, KC8EMF
pservia@norwaymi.com
(906)563-9685

Wanted
2-meter handheld with 5 watt output. Dual or Tri-band VHF/UHF vertical antenna. Will trade or ?

Pat, KC8EMF
pservia@norwaymi.com
(906)563-9685

For Sale
Dentron 160-10 AT antenna tuner. It will handle 600 watts easily. No meters. Radio Shack 10-meter 25 watt mobile/fixed transceiver HTX-10. Like new condition, works great. $75.00

Tom Martin, W8JWN
(906)774-5463

Club Apparel:
Our club apparel is supplied by:

Shirt Tails
408 S Stephenson Ave.
Iron Mountain, MI 49801

Phone: (906)774-3370
or
finleyd@up.net

Prices:

Jacket with liner $45
(Tall add $5, 2X or 3X add $5,
to add your name or call sign
on the front is $5)

T-Shirt - $10
(2X or 3X add $1)

Sweatshirt - $16
(2X or 3X add $2)

If you wish to have the club logo printed on an item of clothing that you have purchased elsewhere, there is charge of $6.

Club patches are available from:

Tom Martin, W8JWN
812 West B Street
Iron Mountain, MI 49801

They are 3 inches in diameter and sell for $3.00 each. If ordering by mail, please include a SASE along with your payment.

Buy
Sell
Trade
Mich-A-Con Amateur Radio Club
Membership Application/Renewal Form

Please remit dues to:
Dennis Beurjey, KD8AIT
612 Balsam Street
Kingsford, MI 49802

Name: ____________________________________________________________________
Address: ____________________________________________________________________
City, State, Zip: ____________________________________________________________________
Call Sign: ____________________________________________________________________
Email Address: ____________________________________________________________________
Phone: ____________________________________________________________________
ARRL Member? Yes _____ No _____

Annual dues are due in January—Please make checks payable to Mich-A-Con ARC
Annual dues for Full Membership - Single $20 ____ * Family $30 ____ * Repeater-Only - $10 ____**

If family membership, please list additional names and call signs:
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

* The dues for NEW members are prorated - you only pay for the remainder of the year! Please remit $1.67 per month for a Single membership or $2.50 per month for a Family membership.

**If you are an occasional or seasonal user of the repeater, please consider our Repeater-Only-Membership.

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Exam Schedule
City: Iron Mountain
Location: Dickinson County Library
Room: Conference Room
Time: 9:30 AM Central Time
Contact: Mark Lewis, N8UKD
Telephone: (906) 774-6598

Exam Date: Feb 4, 2006
Exam Date: May 6, 2006
Exam Date: Aug 5, 2006
Exam Date: Nov 4, 2006

Examinees should bring 2 pencils, a pen for the official paperwork, the originals AND copies of any previous credit that you have earned (Certificates of Successful Completion or current license), 1 photo id (usually a driver's license) and 1 other id. (usually a birth certificate or SS card), a calculator if needed (make sure your memories are cleaned out), and the test fee (2006 fee is $14).


Items for Mich-A-Con RF should be in the editor's hands by club meeting day (2nd Tuesday of the month) to be included in that month’s edition. Please consider writing an article related to Amateur Radio to share with your fellow members. Send the article in plain text and attach any photos, etc., don’t worry about format, that’s the editor’s job.

Send to:
mikebray@chartermi.net
(906) 563-7020

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Repeaters
The club maintains two repeaters, which are located on Pine Mountain in Iron Mountain, with tower and facilities provided by the Wisconsin Electric Power Co.

Identifier: WA8FXQ/R IMT

<table>
<thead>
<tr>
<th>Output</th>
<th>Offset</th>
<th>PL Tone</th>
</tr>
</thead>
<tbody>
<tr>
<td>146.850 MHz</td>
<td>minus</td>
<td>—</td>
</tr>
<tr>
<td>444.850 MHz</td>
<td>plus</td>
<td>100</td>
</tr>
</tbody>
</table>

Both repeaters have an auto patch with a toll restriction. The auto patch on the 2-meter repeater can be used with permission. The 440 auto patch is for club use only.

A club net is held on the 2-meter repeater every Tuesday at 6:30 PM except the 2nd Tuesday of the month, which is club meeting night.
The Mich-A-Con Amateur Radio Club meets on the second Tuesday of the month at 6:30 PM in the Grace United Methodist Church (upstairs in the room next to the sanctuary), 721 Norway Street in Norway, Michigan. Visitors and prospective members are always welcome!

CLUB OFFICERS

President: Tom Martin, W8JWN (906) 774-5463 tmartin@chartermi.net

Vice President: Mike Boileau, N9NBN (715) 251-3137 n9nbn@netnet.net

Secretary: Mike Bray, K8DDB (906) 563-7020 mikebray@chartermi.net

Treasurer: Dennis Beurjey, KD8AIT (906) 771-1996 dbeurjey@msn.com

The URL for the Mich-A-Con ARC web site is:
http://www.qsl.net/ka1ddb/

Previous editions of Mich-A-Con RF can be accessed by a link on the news page.

The ARRL DX Bulletin on the Upcoming Activities page is updated each Thursday and the contests section is updated on a monthly basis.

Reminders

Club dues for the year 2006 are payable on January 1st. Please use the Membership Application/Renewal form on page 9 of this newsletter. Checks should be made payable to Mich-A-Con ARC and sent to our new Treasurer, Dennis Beurjey, KD8AIT, at the address listed on the form. Thank you for supporting our club!

The monthly meeting for January is on TUESDAY the 10th at 6:30 PM in the Grace United Methodist Church, 721 Norway Street, Norway, Michigan. (Upstairs in the room next to the sanctuary.)