

# *It's on!* **Access**

## **2021 TRAINING EVENT AND TRADE SHOW**



**February 3-6, 2021**

**Rosen Centre, Orlando, FL**

### **THE LEADING FORUM FOR MOBILE A/C & HEAT TRANSFER**

MACS is planning our 2021 Training Event with careful consideration to the current pandemic and is including safety and security measures as we move forward to create a valuable training and networking experience.



## SPECIAL EVENTS

**WEDNESDAY, FEB. 3**

### MACS 2021 GOLF TOURNAMENT

**Shingle Creek Golf Course, Orlando FL**

**START TIME: 12:00 noon**

PRICE: \$120 per person (includes greens fees, boxed lunch and an awards dinner.)

Don't miss this great networking opportunity!

Sponsored by



**THURSDAY, FEB. 4**

### KEYNOTE LUNCHEON

**TIME: 11:30 am – 12:45 pm**

**Meet the new MACS!**

Last year, MACS celebrated 40 years of service to its members and the mobile air conditioning industry. However, the MACS team was not content to rest on its laurels, and at the beginning of last year, directors and staff began an intensive investigation of how MACS can best support and serve its members and the industry far into the future. After a thorough review of many proposals, MACS selected Blue Door Consulting, a firm specializing in guiding such projects, to work with the MACS team. For the past year, work has been ongoing to update and freshen the association's image and appeal, develop a marketing campaign to expand awareness of the benefits of the association and increase membership, and design a new website for improved functionality and user experience. Today Heidi Strand, co-owner of Blue Door Consulting and project leader, will unveil the "new MACS."

Sponsored by

**MAHLE**



### MACS 2021 WELCOMING RECEPTION

**TIME: 6:00 pm – 7:30 pm**

Sponsored by **Honeywell** **ROBINAIR**

Ahoy, MACS mateys! Join the MACS crew outside at the Rosen for a poolside pirate picnic. Wear your mask and our special eye-patch, enjoy some savory treats and your favorite beverage. You might gather some treasure as well.



**FRIDAY, FEB. 5**

### MACS TRADE SHOW • 10 am – 4 pm

Visit the exhibitors in the Rosen Centre Executive Ballroom, refreshments will be served.

**FREE SECTION 609 CERTIFICATION CLASS** TIME: 1:00-3:00pm

Sponsored by



### RED DOT AFTER PARTY

Sponsored by



**TIME: 4:00 pm – 5:00 pm**

Unwind with light refreshments poolside at the Rosen, grab a drink and some snacks and socialize socially distant outside in the Florida sunshine.

**SATURDAY, FEB. 6**

Sponsored by



### LUNCH AND PANEL DISCUSSION

**TIME: 11:30 am – 1 pm**

Each of us knows "that guy" who skips important steps, rushes through a job, sometimes gets it fixed, but usually swaps a bunch of parts that doesn't fix the problem and the vehicle comes back for repairs. Spend time with our expert panel who will discuss what NOT to do and offer advice on the proper way to perform mobile A/C service so you can get the job done right the first time.

**MACS Mobile A/C ~~Best~~ Practices**

**WORST**



# TRAINING EVENT & TRADE SHOW

## THURSDAY, FEBRUARY 4

### HEAVY DUTY TRUCK / OFF-ROAD VEHICLES / TECHNICAL

(Classes are in General Session Format and DO NOT REPEAT)

8:00 am – 8:45 am \* **AEM UPDATE: SNAP APPLICATION FOR OFF-HIGHWAY R-1234yf**

**JOHN WAGNER** \* Association of Equipment Manufacturers (AEM)

A group of dedicated individuals representing equipment manufacturers, air conditioning design and production companies and refrigerant manufacturers have worked together for the past 2.5 years on US EPA application for use of R-1234yf in certain types of Off-Highway work machines. This session will provide an update of the process, the application and the lessons learned as well as the uses of R-1234yf in off-highway equipment in global markets.



8:45 am – 9:30 am \* **CATERPILLAR UPDATE: NEW DESIGNS, FEATURES, DIAGNOSIS AND TROUBLESHOOTING; NEW INTERNATIONAL STANDARD FOR MINING EQUIPMENT**

**DAN SPURGEON and ERIK NJOS** \* Caterpillar

The Caterpillar training session will begin by covering the latest system design and field service improvements, which are the result of extensive design and validation activities completed this past year. Then Erick Njos, an electrical engineer from the Caterpillar climate systems team will conduct an in-depth exploration into A/C diagnosis and troubleshooting using real time machine data. Lastly there will be a presentation of a new international standard for cabin air quality for mining equipment, which has implications that can impact heavy equipment OEMs, owners, operators, and service providers.



9:30 am – 10:15 am \* **AGCO EQUIPMENT HVAC SERVICE AND REPAIR**

**SHERWOOD WHEELER** \* AGCO Corporation

Sherwood's program will feature product updates on AGCO built products including TSB information, product improvements, refrigerant capacity updates for new models and approved revisions. Additional topics to be covered will be useful A/C service tech tips and rule-of-thumbs, along with things to consider when troubleshooting and diagnosing A/C performance complaints.

10:15 am – 11:15 am \* **WORKING WITH MINING EQUIPMENT A/C SYSTEMS**

**PAUL KRUG** \* Komatsu

Using the Komatsu Mine air product line as a backdrop, and the Komatsu P&H shovel as a subject machine, we will talk through the process of selecting a proper HVAC system for an older mining shovel during an upgrade project. We will cover design, unit selection, processes and skills required, and special challenges for a remote mining market. We will further step back and talk about why we designed it the way it is made and how we accomplish this in the factory. Finally, we will step forward and talk about training, parts planning, and troubleshooting in a remote mining situation.



## 11:30 AM- 12:45 PM \* KEYNOTE LUNCHEON



1:00 pm – 3:45 pm \* **SCHOOL BUS AIR CONDITIONING SYSTEMS AND SERVICE**

**Jerry Lemon** \* Lemco Consulting

The presentation will cover the basics of school bus air conditioning for most applications. It will cover performance requirements and basic system arrangements. It will reference some of the State-required performance standards in place. The presentation will also include service requirements for some of the more common A/C systems being used on school buses around the country; upgrades that can be performed to increase performance during services, things to look for, failure characteristics, important service processes, and other items related to the servicing of School Bus A/C systems.

## 2:30 PM – 2:45 PM \* BREAK

## SATURDAY, FEBRUARY 6

### HEAVY DUTY TRUCK / OFF-ROAD VEHICLES / TECHNICAL

8:00 am – 11:30 am \* **UNDERSTANDING AND TROUBLESHOOTING DATA LINES ON HEAVY DUTY TRUCKS**

**Larry Turay** \* LETCO Enterprises

Components and subsystem inputs and outputs can influence HVAC operations. In this class, Larry will highlight diagnostic and testing tips and pointers, along with a featured look at how the HVAC system communicates between the vehicle's data lines and powertrain systems. Information will include temperature testing, accessing DTCs when a scan tool is not available, system recalibration, and common problems found on long haul rigs.



## 11:30 AM – 12:45 PM \* LUNCH AND PANEL DISCUSSION



# TRAINING EVENT & TRADE SHOW



## THURSDAY, FEBRUARY 4

### PASSENGER CAR / LIGHT TRUCK / TECHNICAL / MANAGEMENT



**Peter Orlando • 8:00 am – 9:30 am • 1:00 pm – 2:30 pm**

#### Cooling Fan Circuit Analytics

What began decades ago as a mechanical fan attached to the water pump with and without a fan clutch, has evolved into a very efficient complex electrical motor control of cooling the modern internal combustion engine. Technicians must be prepared to analyze, evaluate, and diagnose any electric cooling fan circuit deficiencies that are in the bay.

This seminar will discuss cooling fan control and monitoring methods, circuit evaluation using wiring schematic diagrams, and cooling fan electrical circuit troubleshooting. Remember, if we have a cooling system malfunction, we may automatically have an A/C system complaint!

**Peter McArdle, Four Seasons • 8:00 am – 9:30 am • 1:00 pm – 2:30 pm**

#### HVAC Technology, Diagnosis & Repair

Air-conditioning systems design and operation has changed dramatically over the past 10-15 years. This can make diagnosing and repairing a modern air conditioning system especially difficult. Join Peter for this class where he will explain some of these changes in detail and their impact on system operation and diagnostics. He will look at some of the issues and failures associated with these technologies and how best to cut to the diagnostic chase.



**Dave Hobbs, Delphi Technologies • 8:00 am – 9:30 am • 1:00 pm – 2:30 pm**

#### F.R.E.D. Wears a Mask – Advanced Data Bus Diagnostics

2020 was a tumultuous year but you may not know it also was the year F.R.E.D. (Frustrating Ridiculous Electronic Device) turned 40 years old! (GM's ECM with UART began in 1980!) Unlike most of us when we hit the "big four O", F.R.E.D. became better and faster than ever thanks to the evolution of data buses. Senior technical trainer Dave Hobbs will help you 'unmask' the F.R.E.D.s on your customer's vehicles, giving you practical information on SGM bypasses and aftermarket scan tool OEM registrations, MOST data buses (fiber optic and wired), bus termination resistors that "hide" from the DLC (active and switching methodologies) and diagnostic tips for today's complicated bus networks.

**Rick White, 180BIZ • 9:45 am – 11:15 am • 2:45 pm – 4:15 pm**

#### The Fail-Safe Path to Profit

Finally, you understand your financial statements and maybe even how to calculate the metrics. Now what? This class will take you to the next level of detail showing you a foolproof road to profitability. We will talk about the metrics, what they mean and how to use them to manage your business understanding that these numbers are simply a ruler to evaluate the health and success of your shop(s). Too often shop owners focus so much on the numbers that the customer gets ignored in the process. Your financials are merely a measurement of how well you are servicing your customer. Learn how to use your financial metrics in conjunction with standards and customer success factors to achieve a surefire path to profitability.



**Richard Hawkins, MACS Technical Contributor • 9:45 am – 11:15 am • 2:45 pm – 4:15 pm**

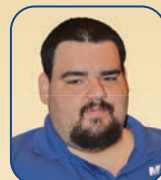
#### Behavioral Characteristics of Various Compressor Types

There is a multitude of compressor designs being used across the vehicle fleet, and even some certain models could be fitted with different compressors. That is why it is important for technicians to know their differences and how they operate. Pistons and scrolls, electronic and mechanical controls, will all be covered in this comprehensive class designed to increase your knowledge of compressor behavior.

**Tim Iezzi, Iezzi's Auto Service • 9:45 am – 11:15 am • 2:45 pm – 4:15 pm**

#### Electrical Functions for MVAC

Sensors, switches, control modules, relays, and actuators are just a few of the electrical components used in mobile A/C systems. Tim Iezzi will provide an overview of these and other MVAC controls, and how they play an increasingly important role in the operation, diagnosis and troubleshooting of A/C systems.



## SATURDAY, FEBRUARY 6

### PASSENGER CAR / LIGHT TRUCK / TECHNICAL / MANAGEMENT

**Al McAvoy, Fiat Chrysler • 8:00 am – 9:30 am • 1:00 pm – 2:30 pm**

#### FCA Update & 2021 Jeep New Model HVAC systems

Al McAvoy provides an update on the current merger between FCA and Peugeot (anticipated to close with a new company name early in 2021), along with HVAC information about several new Jeep vehicle models. Refrigerant type and lubricant requirements will also be covered, along with hybrid A/C systems and components.





# TRAINING EVENT & TRADE SHOW

## SATURDAY, FEBRUARY 6

### PASSENGER CAR / LIGHT TRUCK / TECHNICAL / MANAGEMENT

**Jerry Mungle, ACDelco • 8:00 am – 9:30 am • 1:00 pm – 2:30 pm**



#### **Refrigeration, Diagnostics and Service Procedures (S-AC07-07.01SEM)**

Designed for technicians with prior understanding of the refrigerant cycle and system operation, this seminar will provide technicians with techniques and strategies required to isolate the root cause and perform repairs of failures in R-134a and R-1234yf equipped Air Conditioning (A/C) systems. The use of pressure-temperature and humidity readings as a diagnostic aide will be the foundation of the course. Specific component diagnosis includes variable displacement compressors, electrically driven compressors, expansion valves, Internal Heat Exchangers (IHX), enhanced evaporators and condensers. This course will include simulated diagnostic exercises to apply the principles learned.

**Pete Meier, Motor Age • 8:00 am – 9:30 am • 1:00 pm – 2:30 pm**

#### **To Catch A Thief - Electrical Testing Techniques That Work!**

Join Pete Meier for this informative presentation focused at helping technicians overcome a common weakness - troubleshooting electrical faults. Pete has helped hundreds of technicians become comfortable tackling electrical problems. How? By helping them master fundamental electrical principles and testing techniques. In this session, Pete will help you shore up any holes in your understanding of electrical circuit operation as well as the factors that affect their function. Then, he will share essential testing techniques you can apply your first day back in the shop!



**Rick White, 180BIZ • 9:45 am – 11:15 am • 2:45 pm – 4:15 pm**

#### **Discovering Your Competitive Advantage**

What is holding you back from discovering your competitive advantage? In this class you'll learn the power of perspective in helping you define your differentiators, and how to pepper everything you say and do with your differentiators that will get you seen in a very crowded market. When you have completed this course, you will know why a potential customer should drive by three of your competitors to do business with you!

**"G" Jerry Truglia, Dorman Products • 9:45 am – 11:15 am • 2:45 pm – 4:15 pm**

#### **Understanding and Diagnosing Air Conditioning**

This course goes beyond minimum requirements for recovery, evacuating, recharging, and recycling by offering real world examples in diagnosing and repairing A/C electrical, computer / BCMs, climate control and electronic components. Most of today's vehicles come equipped with electronically controlled A/C systems. Auto A/C systems have become more difficult to diagnose using the repair strategies learned from years of servicing R-12 and R-134a systems. This class/seminar will cover operation and service of today's and tomorrow's air conditioning systems including R-1234yf.



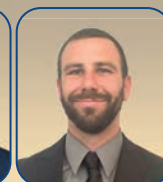
## THURSDAY, FEBRUARY 4

**GENERAL SESSION • 4:00 pm – 4:30 pm**

**Mark French & Jon Clements, Experian**

#### **North American Vehicle Trends, Registrations and A/C Consumption by Channel**

No one could have predicted how the events of 2020 would affect the automotive industry, and all the while Experian has been compiling the data. Attend this session to get an update on what took place during the last few years, and an idea of what may happen down the road. The presentation will include the latest IMR A/C replacement rates and channel consumption data.



## FRIDAY, FEBRUARY 5

**GENERAL SESSION • 8:30 am – 10:00 am**

**Chenise Farquharson • U.S. Environmental Protection Agency (EPA)**

Chenise Farquharson, coordinator of the Significant New Alternatives Policy (SNAP) Program, will update attendees on the Agency's current and proposed regulations issued by EPA's Stratospheric Protection Division related to mobile air conditioning manufacture, service, and repair.



**Rick Winick • Honeywell International**

The automotive industry is undergoing significant change as the world moves toward more environmentally friendly technologies driving reduced emissions from light vehicles. One of the easier things that carmakers and governments can do to achieve emission reductions is to replace R-134a refrigerant in the production of new cars with a lower global warming potential (LGWP) alternative. R-1234yf refrigerant has become the globally adopted solution for R-134a replacement by OEMs around the world. In this presentation Winick will discuss OEM and regional conversion rates, regulations driving conversions as well as vehicle performance and reliability data collected over the last few years for the new refrigerant. With almost 100 million R-1234yf cars on the road globally, many new workshops are servicing R-1234yf cars every year. Winick will discuss the expanded product availability and lower pricing for the product in the U.S., the new service accessories that have come to market and give feedback from technicians who use the product every day.



# SCHEDULE & CLASSES



Use the information below to help you plan which classes to attend.

Thursday morning, Feb. 4

## PASSENGER CAR / LIGHT TRUCK / TECHNICAL / SHOP MANAGEMENT

8:00 am - 9:30 am		
<b>PETER ORLANDO</b> Cooling Fan Analytics	<b>PETER McARDLE</b> HVAC Technology, Diagnosis & Repair	<b>DAVE HOBBS</b> Data Bus Diagnostics

9:45 am - 11:15 am		
<b>RICK WHITE</b> Path to Profit	<b>RICHARD HAWKINS</b> Compressor Characteristics	<b>TIM IEZZI</b> Electrical Functions

## HEAVY DUTY / OFF-ROAD TECHNICAL SESSIONS

8:30 am - 11:15 am	
Please see Thursday Heavy Duty / Off-Road Training on page 2 for seminar descriptions and times.	

Thursday afternoon, Feb. 4

## PASSENGER CAR / LIGHT TRUCK / TECHNICAL / SHOP MANAGEMENT

1:00 pm - 2:30 pm		
<b>PETER ORLANDO</b> Cooling Fan Analytics	<b>PETER McARDLE</b> HVAC Technology, Diagnosis & Repair	<b>DAVE HOBBS</b> Data Bus Diagnostics

2:45 pm - 4:15 pm		
<b>RICK WHITE</b> Path to Profit	<b>RICHARD HAWKINS</b> Compressor Characteristics	<b>TIM IEZZI</b> Electrical Functions

## HEAVY DUTY / OFF-ROAD TECHNICAL SESSIONS

1:00 pm - 4:15 pm	
Please see Thursday Heavy Duty / Off-Road Training on page 2 for seminar descriptions and times.	

## EXPERIAN

4:00 pm - 4:30 pm	
<b>MARK FRENCH &amp; JON CLEMENTS</b> North American Vehicle Trends, Registrations and A/C Consumption by Channel	

Saturday Morning, Feb. 6

## PASSENGER CAR / LIGHT TRUCK / TECHNICAL / SHOP MANAGEMENT

8:00 am - 9:30 am		
<b>JERRY MUNGLE</b> GM HVAC Diagnostics & Service	<b>AL McAVOY</b> 2021 FCA Update	<b>PETE MEIER</b> Electrical Testing Techniques

9:45 am - 11:15 am	
<b>RICK WHITE</b> Competitive Advantage	<b>G. TRUGLIA</b> Diagnosing A/C

## HEAVY DUTY / OFF-ROAD TECHNICAL SESSIONS

8:00 am - 11:15 am	
Please see Saturday Heavy Duty / Off-Road Training on page 2 for seminar descriptions and times.	

Saturday afternoon, Feb. 6

## PASSENGER CAR / LIGHT TRUCK / TECHNICAL / SHOP MANAGEMENT

1:00 pm - 2:30 pm		
<b>JERRY MUNGLE</b> GM HVAC Diagnostics & Service	<b>AL McAVOY</b> 2021 FCA Update	<b>PETE MEIER</b> Electrical Testing Techniques

2:45 pm - 4:15 pm	
<b>RICK WHITE</b> Competitive Advantage	<b>G. TRUGLIA</b> Diagnosing A/C





## REGISTRATION & HOTEL

### Rosen Centre Welcomes MACS Feb. 3– 6, 2021

MACS Worldwide has made every effort to secure the best group room rate for you at the 2021 Training Event and Trade Show at the Rosen Centre Orlando. The MACS negotiated rate for a single/double occupancy room is \$195 plus tax, per night. **There is no resort fee!** For reservations, please go to the MACS 2021 Training Event page on our website, [www.macs.org](http://www.macs.org), for the reservation link or call (800) 204-7234 or (407) 996-9840.



Please remember to mention you are part of the MACS Training Event & Trade Show. Room reservations must be made by January 8, 2021, after which, reservations and substitution request will be accepted only if hotel space is available. Please remember to keep your confirmation number. Please advise the hotel regarding any disabilities or special requirements.

**NOTE: Beware of bogus hotel reservation companies:** MACS and the Rosen Centre are NOT affiliated with any third party for booking hotel rooms. Should you be contacted to book your hotel room through a third party, please know this is likely a scam. Please report any suspect activity to MACS. Thank you.

**Another thing to watch out for:** Please ignore any unsolicited emails you may get from list brokers offering the full MACS 2021 registration list available for purchase through their organization. Please be aware that MACS never sells conference registration and contact lists to any brokers or third-party entities.

## Thank you to our sponsors!

### PLATINUM



### SILVER



### GENERAL



ContiTech

GALAXY™ HOSE



### GOLF



# TRAINING EVENT & TRADE SHOW



Save \$\$\$ and avoid long lines by pre-registering and pre-paying for your registration package(s)!

To register: E-mail: [info@macsw.org](mailto:info@macsw.org), Fax: (215) 631-7017 OR Phone: (215) 631-7020 – ask for MACS Worldwide Registration OR register on-line.

ARE YOU A MACS MEMBER? ☐ Service/Installer ☐ Distributor ☐ Manufacturer/Supplier ☐ Educational/Training Facility ☐ Individual

Company/Shop \_\_\_\_\_ Phone \_\_\_\_\_

Name \_\_\_\_\_

Emergency contact name \_\_\_\_\_ Emergency contact cell \_\_\_\_\_

Address \_\_\_\_\_ Fax \_\_\_\_\_ E-mail \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_ Country \_\_\_\_\_ Zip/Postal Code \_\_\_\_\_

QUANTITY	PASSPORT	OPTIONS	TOTAL
1	Thursday, Feb. 4 – Saturday, Feb 6	(Check if Participating)	
	MEMBER PRICE \$385	<input type="checkbox"/> Golf = \$120	
	NON-MEMBER PRICE \$585		

Prices above valid only until January 27, 2021

If you are interested in tickets to individual events, contact the MACS National Office for prices at (215) 631-7020 or e-mail: [info@macsw.org](mailto:info@macsw.org). (Note: Passport prices are designed to provide a savings compared to the price of tickets to individual events.)

Due to the contagious nature of the coronavirus, MACS Worldwide and the Rosen Centre Hotel will be following recommended guidelines during the MACS 2021 forum in Orlando. Attendees of the forum will also be asked and expected to follow those recommendations. There is no guarantee that the precautions being taken will prevent a person from contracting the virus. By registering for and attending the forum, you acknowledge and agree that you are voluntarily assuming the risk of being exposed to or infected by COVID-19. You also understand that the risk of exposure or infection may result from the actions, omissions, or negligence of yourself and others, including hotel and MACS employees, other attendees of the forum, other guests, and families of any of these persons. Accordingly, you release MACS, its employees, agents, and representatives from any personal injury, disability, death, illness, damage, loss, claim, liability, or expense, of any kind, that you (and family members with you) may experience or incur in connection with your attendance at the forum or participation in any programming while attending ("Claims"). This agreement is to be interpreted, governed and enforced by the laws of the Commonwealth of Pennsylvania without regard to its conflict of laws principles.

Any Personal Data (e.g., your name, company affiliation, address, phone number and email) provided to MACS Worldwide is being used to process your requested registration and for contact purposes. Information on persons registered to attend the forum will be provided to the host hotel to ensure that each reservation related to the MACS event is acknowledged and counted by the host hotel. The list of convention attendees is also provided to exhibitors, who may want to follow up with attendees to offer information regarding their products or services. By submitting this registration form to MACS, you are consenting to usage of your Personal Data in the manners described above.

View our privacy policy at [www.macsw.org](http://www.macsw.org) for what is Personal Data and about our use and storage of your Personal Data.

## PHOTO RELEASE:

By submitting this registration to MACS, you give your permission to the Mobile Air Conditioning Society (MACS) Worldwide to use your company/staff image for MACS publications that do not endorse any specific commercial product.

Signature \_\_\_\_\_ Date \_\_\_\_\_

**IMPORTANT! Residents of any of the countries which are part of the EU and the EEA will receive a separate form from our office concerning photo release and Personal Data.**

- 1) Your REGISTRATION FORM and PAYMENT IN FULL \*\*\* must be received at the MACS National Office NO LATER THAN January 27, 2021, to qualify for pre-registration discount. Your badge and function tickets will be waiting for you on-site. You will also SAVE MONEY because ON-SITE registration prices will be 10% HIGHER than those above. (\*\*\*) CANCELLATION POLICY: Cancellations must be communicated in writing on or before January 13, 2021 in order to receive a refund. A \$50.00 cancellation fee will be imposed for all cancellations. Cancellations after January 13, 2021 and "no-shows" will forfeit the full registration amount.)
- 2) All passport prices cover one person only. Spouses who attend will be required to purchase separate tickets. Full passports include admission to training sessions, trade show and meal/social functions. (Spouses who wish to attend training sessions should purchase a full passport.)
- 3) Badges will not be mailed. Please pick up at on-site event registration.

☐ Enclosed is my check for \$ \_\_\_\_\_ SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

☐ Please charge to (check one)

☐ Mastercard ☐ Visa ☐ Discover ☐ American Express CARD NO. \_\_\_\_\_ EXPIRATION \_\_\_\_\_ SECURITY CODE \_\_\_\_\_

Contributions or gifts to MACS Worldwide are not deductible as charitable contributions for Federal Income Tax purposes. Dues payment may be deductible by members as an ordinary and necessary business expense.