KEYSTONE TRANSIT CAREER LADDER PARTNERSHIP

KEYSTONE PARTNERSHIP
STATEWIDE NEWS

Dedicated to those who maintain the safety and dependability of Pennsylvania Public Transportation Spring 2005

Moving ahead of the curve…

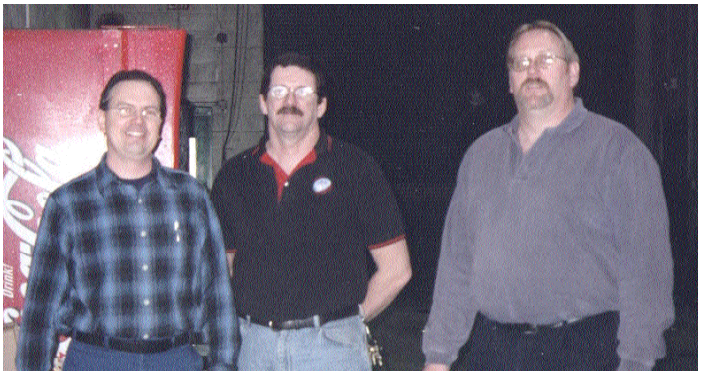
AMTRAN Technicians Grow Knowledge Base in Advanced Electronics

March 2005: Confronting the challenges created by rapid developments in transit bus on-board systems utilizing state-of-the-art electronics, the Altoona-based AMTRAN and ATU Local 801 members advantaged the technical Training staff of Philadelphia's SEPTA for Keystone-PennTRAIN sponsored classes in advanced electronics and use of electronic test equipment.

Sharing knowledge: AMTRAN mechanics John Stoy, Paul Smith and Tim Seymore discuss procedures for the proper assessment of a bus alternator component.

Multiplex: Mechanic Paul Smith checks out the system on one of AMTRAN's low floor Gillig buses. The compact multiplex networking replaces the traditional tangle of hard-wired relays and switches. While more reliable and easier to service, diagnostic skills are necessary to service these advanced systems.

Schematic overview: Mechanics review circuits with SEPTA instructor Kevin Troy (at center).



Time out: SEPTA trainers Kevin Troy and Michael Mills take a moment to pose for a photo with AMTRAN's maintenance supervisor, Gary Williams.

These electronics training courses are only the latest in a long series of skill-building programs supported by the Altoona property and the ATU local union. It is also in line with this central Pennsylvania transit operation's *Focus on Excellence* mission that values employee participation in both strategic planning and decision-making. AMTRAN provides public transit service for central Blair County and was created in 1958 as a joint municipal authority of Altoona and Logan Township. The history of public transportation in Altoona dates back more than 100 years to 1888, when the City Passenger Railway ran a horse-drawn railcar along a one mile track downtown.

Report from the Statewide Coordinator

by Stu Bass

Transit systems in Pennsylvania continue to face an unprecedented challenge from technological change and rapid growth of the transit industry. The new technology includes clean propulsion, new real-time information systems and especially the pervasive penetration of digital systems into all aspects of the industry. This has produced a change in the work place due to the demand for workforce skills. In addition, Close to 40 percent of skilled mechanics throughout the industry are expected to retire over the next five years, with some systems expecting to lose 70 percent by 2010.

In 42 months, the statewide Keystone Transit Career Ladder Partnership has raised over $7 million in training grants from the provided by the PA Department of Labor & Industry to meet this challenge.

• Over 1,500 transit mechanics statewide from 36 transit agencies were surveyed for a skill gap assessment to set training priorities. Of that total, almost 250 mechanics were employed by 34 Class 3 and 4 transit agencies.

• Keystone Transit Partnership organized committees across the state to identify courseware for training. Transit mechanics, management, trainers and labor representatives to meet with Education Data Systems, Inc. (EDSI) to review data from workforce assessments to set training priorities and to develop curriculum outlines.

• Keystone Transit Partnership funded 14 courses that were delivered for Class 3 and 4 transit agencies at locations across Pennsylvania: Advanced Heating, Ventilation, Air Conditioning (HVAC), HVAC Theory, CFC Certification, HVAC Soldering and Brazing, HVAC Preventive Maintenance, Electrical Theory, and Advanced Electricity, Air Systems, Brakes & ABS, Advanced Brakes, Welding, Principles of Engines & Transmissions, Advanced meter reading, and A/C & Testing

• 21 Pennsylvania transit agencies benefited from this ground breaking collaborative labor-management and community partnership.

• Over 2,370 transit mechanics across Pennsylvania were trained in courses ranging from a one day introduction to computers to a one week computer circuit board repair course.

The Keystone Transit Partnership model for workforce development strengthens Pennsylvania's Public Transit industry. As the Keystone Transit Partnership enters the final quarter of its fourth year, the training program has grown from an "initiative" into a fully functioning program.

A Statewide Keystone Transit Partnership Policy Steering Committee meets bi-monthly to review regional reports, the budget, and training development proposals. At the February 23, 2005 meeting, Eric Wolf, General Manager of AMTran, expressed his approval of the program, "AMTran did more training in the last three years than in the previous twenty."

The Keystone Transit Partnership formed a Policy Steering Committee for the Class 3 and 4 transit agency training program work with the transit agencies to provide the highest quality of training. The committee members include:

Transit Agency:
Charlie Shilk (ATA) and Gary Williams (AMTran)

Transit Union:
David James (ATU Local 801 Altoona) and Tom Bohner (ATU Local 956 Allentown)

Staff:
Cindy Conaway (PennTrain) and John Remark (ATU)

Keystone Transit Partnership staff have contacted the maintenance managers and mechanics to determine what are the most desired subjects. Courses are designed by transit mechanics and managers with transit trainers with the work and mechanic in mind. Keystone Transit Partnership instructors have to meet the standards established by our statewide committee.

Transit Agencies across PA are offered classes based on the individual needs of that location. The Keystone Transit Partnership is working to bring the training right to the site of operation.

As the new Keystone Transit Partnership Statewide Coordinator, I work with leaders from the Pennsylvania Public Transit Association, Amalgamated Transit Union, Transport Workers Union, PA AFL-CIO, and the PA Department of Labor & Industry to maintain the highest standards in training. We are working with the American Public Transportation Association and the Community Transportation Center in a national initiative to establish training standards.

Get in touch so that you can be part of the Keystone Transit Partnership.

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Forward comments or suggestions to:

Tom Mathews
28 Sunny Side Drive
Schuylkill Haven PA 17972
717.231.2861

The Keystone Transit Career Ladder Partnership is underwritten by federal workforce development funds administered by the Pennsylvania Department of Labor and Industry.

Upgrading Welding Skills at York County Rabbit Transit System

SEPTA Training Enhances Keystone Outreach Program

In the Classroom: Seated in foreground are (left to right) mechanics Gary Seiverling and Richard Rynn. Standing; Rabbit Operations Manager Shirley Shipley, Ed Hogan from SEPTA Welding Technologies Team, Rabbit mechanic Dan Kobonick and Dennis Chronister, Rabbit Maintenance manager.

Out in the Shop: With Dan Kobonick and Richard Rynn looking on, Instructor Ed Hogan discusses stick welding procedures while Gary Seiverling suits up with a flame resistant jacket.

Bottom Right Mechanic Jerry Bankes pauses briefly for a snapshot while on his way out on an emergency road call. Jerry is Maintenance Shop Steward for Teamsters Local 776, which co-sponsors Keystone/PennTRAIN training along with Rabbit.

Welding in place: The very size and weight of large transit buses will not allow work piece turnovers, a constraint familiar to welders working on naval vessels or heavy construction vehicles. This fact mandates that a mechanic/technician be skilled in horizontal, vertical and even overhead welding when repairing or modifying the structure of a heavy vehicle.

In the photo below, Hogan reviews the capabilities of a small Miller welding machine.

Technology Change

Time Warp

Today's riders generally give little thought to the enormous transformation in transit bus technologies since this 1948 GMC was delivered to the old Johnstown Traction Company 57 years ago.

Exact change not needed

1948 GMC TDH "old-look" powered by a two stroke inline 4-71 diesel with a two-speed hydraulic transmission. Absent, along with the electronic fare box is air conditioning, (a feature today's riders would notice) as well as a laundry list of now fairly common sub components.

Missing on this old Jimmy: Power Steering, ABS, engine and transmission harnessed electronics, wheel chair lift, kneeling capability, multiplex system, circuit boards, GPS and wireless communications, public address system, microprocessors, on-board monitoring and diagnostics, electronic destination signs, transmission retarder, 12/24 volt system, fire suppression system, voice-stop annunciation, cradle-mounted power train, EGR/VNT based emission controls, modular body structure, automatic traction control and a few dozen more that we forgot about.

Confronting Change

Transformation: In fact, it's not at all necessary to look way back to Johnstown's General Motors antique. Fast-forward from 1948 and well into the 1970s, and one finds that improvements in operating equipment tended to be more measured and less than overwhelming. For the past 25 years, technology change within in these same vehicles has near exploded: Not only has this change been continuous, but it has actually accelerated rapidly from year-to-year right into 2005.

This ongoing transformation of the transit bus has produced more comfortable and cleaner running fuel-saving vehicles that are both safer and more reliable.

This also signals our urgent need to continue a vigorous training schedule. Riders might not take much notice of technology change but we have to.

1948: The bus was purchased by Johnstown Traction Company for $16,000 as No. 408. It sustained a major accident in the 1970s and was put into storage. In 1979,

Johnstown: This restored GMC TDH was first put in service in April, 1948. Pictured above are *CamTran's* Larry Parks and Dave Azar. Not shown is cleaner Missy Cole, who worked hard to get the bus next to spotless.

technicians went to work on a restoration. The Detroit 4-71 engine and Spicer 90 transmission were o.k. as was the frame. There was extensive damage to the right front all the way to the rear of the wheel box.

Parts for this restoration were gleaned from other old and out of service vehicles or manufactured by these same technicians in CamTran's shop as "spare time work." Harold Jenkins, then executive director of CCTA, was amazed at the men's work but concerned as the title was junked. This was solved by transferring the manufacturer's plate from Bus 402 to Bus 408, then changing the numbers on each vehicle.

This near 60 year-old GMC had logged more than *one million* miles over many years through the streets of Johnstown. The expert restorers were all members of ATU Local 1279: David Woodside, Robert Licht, Joe Dougherty (all deceased), as well as Jim Woodside and Doug Greenwood. The vehicle was painted in original Johnstown Traction Co. colors by Joe Fecko.

In 2004, this valuable public transit antique was donated by CamTran's current Executive Director, Irving Cure, to the Pennsylvania Transportation Museum.

Tracing trouble on line:

Bus and Coach Electrical Training Pays Dividends

Weather and long service make transit vehicle electrical components increasingly prone to malfunction or outright failure.

By Doug Greenwood, Director of Maintenance, CAMTRAN

It is a well-known fact in our industry that over 70 percent of all driver write-ups are electrical in nature.

That said, maintenance supervisors know it is also one of the most costly and labor intensive repair types we have. Additionally, when the extremes of weather hit our region, these problems are compounded for all our technicians.

My own experiences have taught me that many Pennsylvania transit technicians, while extremely talented, either lacked or overlooked many of the basic principles of electricity that could be used, often on a daily basis, to more easily diagnose and repair many common electrical problems. Unfortunately, we cannot choose the quality of the climate or environment our vehicles are forced to operate in and harsh weather conditions will soon play havoc with electrical components by way of corrosion.

Training can prevent failures and reduce costs

I have been fortunate enough to be able to provide many Pennsylvania transit technicians with a program designed to offer solutions for the many basic electrical problems found on larger urban buses, as well as with cut-a-ways and vans. As a direct result, properties are better able to reduce the cost of replacement parts along with the time vehicles are out-of-service.

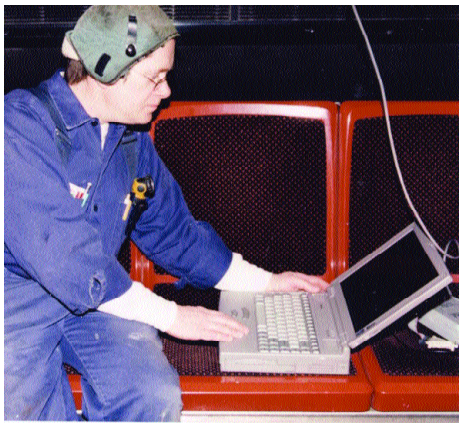
This course shows each technician exactly how these electrical components work on their buses; why they work together with other systems; how they can easily fail and the reasons why they fail. Most important of all, how we can prevent these failures from occurring again.

Applied knowledge

Course attendees learn how to read and understand wiring diagrams, then by applying this knowledge to work out how a particular circuit works they can quickly locate the most common source of failures. Maintenance supervisors will see their technicians completing electrical wiring repairs or component changes more rapidly, with a measurable savings in overall costs.

Reflecting on the courses I teach, Electrical Training 1 would have to be my favorite. I am a believer in transit worker camaraderie and having a few laughs as we learn. I relish the pride and caring expressed by our Techs about their work. I am always pleased to meet new technicians in our business, as well as veterans with many years of experience, all of whom I can relate to.

Role of the Partnership: My thanks go to Keystone and PennTRAIN for working hard to provide meaningful training to so many of Pennsylvania's transit workers. Without this Partnership, our maintenance repair costs would surely escalate and this is an outcome none of us wants to see.



The failure of electrical components is one of our most costly and labor intensive repairs.

Trainees will gain the ability to locate the most common source of failures with measurable savings in overall costs.

Engine Rebuild 101

By Kevin Barrett, Local 85 -
Keystone Coordinator,
Port Authority of Allegheny County

For the purposes of clarity, this arti - cle is being written from the view point of building from new or as new [rebuilt] parts. The method and steps are my personal preference and not intended to dictate a "must use" type of procedure.

"Unassembled pre check" is the way we receive our parts. These are cleaned, checked, and determined if useful for a rebuild.

If you are not familiar with the process it will be helpful to get acclimated to the parts you will be using. The definitions and terminology used for your given application, and the correct use of any fixtures, and tools to be utilized.

Beginning the Process

My first step is to create a kit for the job at hand, which will aid in verifying that all needed parts are present, or may need to be ordered. Begin the process of inspecting the components for defects, as this may save you valuable time down the road, eliminating the need for removal and replacement during the testing period. Steps for inspecting would include examining gasket surfaces for flatness, scores or other damage.

Detroit Diesel 50 Series camshaft: Camshaft placed in head assembly with end play checked and gear lash set.

If the component being used includes bearings of any type you should roll the shaft and feel [and listen] for any grinding and / or roughness. These should be smooth and quiet. It will prove helpful to inspect any cast parts for bad castings, look for holes due to sand pockets, and oil galleys for any blockage or missing plugs, as well as cracks. Pressed-in bushings need to be cleaned of their protective coating. Also, make sure these are completely pressed into position by either using a depth gauge or flat edge. This should be an ongoing process as you build: Do not install a component without checking it for any problems or defects.

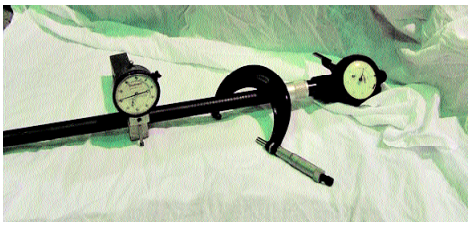
6V92 crankshaft out of the box

Develop a Pattern of Work

In building your engine, keep in mind the hazards of what you are working with. Sharp edges and turning gears could wreak havoc on your hands and before you know it *you're leaking*. It is a good idea to develop a pattern in your building for three good reasons: (a) you are prone to pick up on any problems quicker; (b) Realize you may have missed something and; (c) reduces the length of time to complete the build.

Most Careful Inspection

Inspect your bores for correct bearing use, whether standard or oversized. End play must be checked when installing crankshafts, cam shafts, and gears [lash]. The need for maintaining proper end play and gaps in this process reduces wear, premature breakdown and ensures the durability of your product. During the installation of each different component [crank, cams, gears, piston assemblies] "turn-over" or rotate your crankshaft, this will tell you everything remains free and a component has not caused a "seized" problem.



CRITICAL MEASUREMENT: Bore gauge, 4 inch micrometer and deck flatness dial gauge are three tools used for pre-assembly measurements. Bore gauge is used to measure journals of the block to insure correct main bearings are used. The micrometer is used to check proper size of crankshaft throws. The dial gauge is used to check liner height and determine inserts to be used.

While not everyone may agree on what lubricant to use during a build, a good rule of thumb is "lube with what lubes it". However, there are many good products out there and it could be a matter of what is supplied at your property, or personal preference. Regardless of what is used, proper lubrication is imperative for correct break in, and is potentially the most important part of the job. If parts are not clean and pre-lubed, it will cause damage and premature wear.

Once you have completed your engine you need to run it in. This allows you to inspect for potential leaks, settings, and component failure prior to installing into a coach, thus giving the builder an opportunity to make right any errors. Once the engine is installed you are severely limited in terms of both working space and access.

A rule of thumb

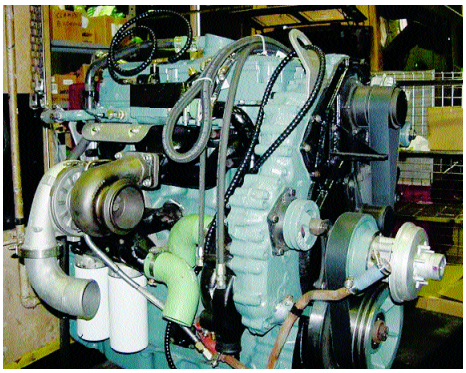
Run until thermostats open and beyond that point. This will reveal quite a few things, such as the engine has reached operating temperature and has not incurred any malfunctions, any common leaks will appear, the condition of internal components [cylinder o-rings; coolant not leaking into oil, no fuel in oil; injectors not leaking, etc.]. Once the engine pack has had a chance to cool down you will need to finalize the build. Determined by the property, our procedure includes stamping the block with the engine number, as well as adding fixtures and separate components prior to the engine being installed into the coach by the hoist mechanics.

Follow the Book

This is a *very brief* overview of Engine Building, including some of the responsibilities involved in it. For a more detailed description and procedure I recommend obtaining the manuals and documentation for your specific application and following the manufacturer guidelines for proper measurements, torques and component limits. The best rule is "follow the book." Don't try to wing it…if you do not know it, *look it up*.

Major Advantages

There is a lot to be said for rebuilding your own engines. Savings in time, money and less operating equipment off line, as well as not being forced to pay for a rebuild vendor's overhead. While initially there may be some expense for fixtures and needed tooling, in the long term it will reduce down time as you are now your own repair facility. Once the process is established, it can provide a transit property with major returns by reducing and eliminating down time, while at the same time giving its maintenance operation the satisfaction of a job well done. Mechanics will take renewed pride in realizing they now have the ability to handle any job out on the shop floor, no matter how major… no matter how complex.



COMPLETED REBUILD: A series 50 engine awaits its cradle assembly before being mounted into the bus.

City Bus /River Valley:

Williamsport hosts A/C Certification

Spring, 2005: The Keystone Partnership and PennTRAIN, along with the Williamsport Bureau of Transportation and ATU Local 1496 sponsored a series of four classes in Air Conditioning Training & Certification at Williamsport's City Bus* Transit Center. Shown seated from left to right around table are: Joe Ritter and Dennis Chronister of Rabbit Transit in York; Bob Rymsza of City Bus in Williamsport; Edward Grassa and Richard Everly of Camtran in Johnstown and Tom Gregory of Camtran Plus in Ebensburg. Standing in the background are Doug Greenwood, Instructor and Dennis Hahn, City Bus Fleet Manager.

An intensive course based on the EPA Section 608 and 609 Certifications with a strong focus on better, safer and less-costly repair work of air conditioning systems. Class participants who complete the course successfully receive official certificates as well as a wallet-sized card that must be carried when servicing A/C units.

***Effective June 1, City Bus becomes "River Valley Transit" to better reflect its extended service area into the broader Lycoming County region.**

For further training . . .

Any transit property and/or affiliated union local interested in sponsoring a class or enrolling technicians and mechanics on classes for the servicing or certification of A/C systems or other training needs:

Contact Cindy Conway at 800-847-0333

I/O Multiplex

Endless Mountains Maintenance in Pace With Technology

High-tech skills a priority of Northern Tier Transit System

An increasingly familiar system on newer transit operating equipment, Multiplexing allows for a single wire raceway for networking power to numerous electrical and electronic components throughout the vehicle, eliminating both extensive bundles of hard-wiring and traditional relays. This makes the bus's subsystems much easier to diagnose with the application of ladder logic software within a laptop computer.

Multi-tasking Skills Bridge Transit Technology Gaps

Organized by Endless Mountains Maintenance Director Carl Souder with the cooperation of Teamster Local 229, the classes covered several aspects of the Multiplex systems. These included component operating principles, system diagnosis, and trouble-shooting procedures.

Additional instruction focused on the interpretation of system logic drawings, reading and understanding electrical schematics, as well as the diagnosis and repair of DINEX Multiplex systems.

Yet further training incorporated the interface of I/O systems linked to engines and transmissions.

Endless Mountains Mechanics in training included George Lee, Joe Packard, Dick Roloson and Lee Warner with Charles Rubenstein, Instructor from Technical Training Services in the background.

Want Multiplex or other classes for your area? Call Cindy Conoway at 800.847.0333.

The Keystone Partnership will reimburse a property 50 percent of wages for eligible mechanics while in training.

Lehigh/Northampton TA

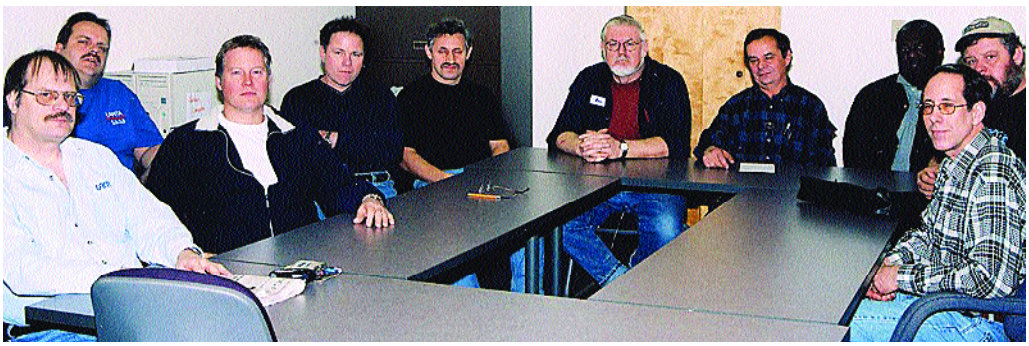
LANTA Hosts Training on Air Systems and ABS

The training courses were sponsored by Lehigh and Northampton Transportation Authority and the Amalgamated Transit Union's Allentown Local 956. The instruction covered broad aspects of the components, operational characteristics and servicing of transit bus air systems, air brakes and ABS.

The class curriculum included instruction in the fundamental operating principles of compressed air systems and air brakes, along with the identification, location and operation of mechanical brake foundation components. Further instruction was given on the operation and mechanical aspects of S-cam type drum brakes (Wand Q+) used on certain coaches and disc brakes (D-Lisa) employed on yet other coaches.

Recommended service, maintenance, trouble-shooting procedures and requirements of the U.S. D.O.T. & CVSA brake adjustment and out-of-service criteria was also integrated within the courseware.

Finally, the three types of ABS units available on coaches (Wabco, Bendix and Eaton) were detailed, including component location and identification, operational aspects of the system, adjustments, as well as diagnosis and trouble-shooting measures, both with and without the use of electronic diagnostic devices.



Allentown: Seated clockwise around table are Werner Polczynski, Ed Sperlbaum, William Kiser, Piotr Derewecki, Ron Dunbar and Walter Welykoicz (all from LANTA) as well as Charles Rubenstein, (Instructor) and Chester Sebring and Gary Berger, both from Monroe County Transportation Authority (MCTA). At far left, seated along wall is Tom Bohner, Financial Secretary of ATU Local 956. Tom also serves as a member of the Keystone Partnership's Statewide Work Group.

LANTA's Executive Director Armand Greco and ATU Local 956 have served as major supporters of the Keystone training and skill-building program since its inception.