

INSTALLATION MANUAL

Model 2004/06



Pony Pack Inc.
Albuquerque, NM
(505) 243-1381

FOR YOUR IDLE TIME.....

DATE:

FILTER AND BELT INFORMATION

Washable Air Filter	
Wash and Re-oil	As Needed
Pony Pack	105-0515-0

Drop-In Fuel Filter	
Replace	600 Hours
Pony Pack	105-0507-0
Kubota	15231-43560

In-Line Fuel Filter	
Replace	6 Months
Pony Pack	105-0508-0
Baldwin	BF840
NAPA	3389
Kubota	12581-43012

Main Drive Belt Model 2004	
Pony Pack	2004-0110-0
Gates Rubber Co.	K060465

Main Drive Belt-Model 104 & 105	
Pony Pack	105-0113-0
Gates Rubber Co.	K060435
Goodyear	4060435
Dayco	435K6

Oil and Filter	
Replace	150 Hours*
Pony Pack	105-0115-0
AC	PF1127
Baldwin	B179
Carquest	85334
Donaldson	P550162
Fleetguard	LF3462
Fram	PH3593A
Kubota	15853-32430
Lubefiner	PH2802
Mobile	MO4459
Shell	SH521
STP	SO2808
Transcold	2535206
Wix	51064
Yanmar	124450-35100

Water pump Belt	
Pony Pack	2004-0114-0
Gates Rubber Co.	7250
Goodyear	13251
Dayco	15250

*Change oil filter after first 50 hours of use
Oil capacity with filter change is 2.33 quarts
Do not use synthetic oil during first 500 hours

ABOUT THIS MANUAL

This manual is intended for mechanics and shop personnel who install and service Pony Packs. The complete set of Pony Pack Unit Wiring schematics, Pony Pack Panel Wiring schematics, truck specific Switch Four wiring schematics, and Engine Plumbing Guidelines are included. Save this manual. Pony Pack maintains a record of all distributed documentation so we may supply updates as needed. Additional Pony Pack technical assistance is available by calling 505-243-1381.

This manual is not an owner's manual. Each Pony Pack is shipped with an owner's manual that details routine maintenance procedures and simple troubleshooting which a mechanically inclined owner could undertake. If you are installing a new Pony Pack, please leave the owner's manual in the truck.

California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to cause cancer, birth defects, and other reproductive harm.

TABLE OF CONTENTS

<i>Content</i>	<i>Page</i>
WARRANTY	v
APU Warranty Claim Form	ix
Introduction, Safety Inspection	1
Pony pack installation checklist and record	5
Mounting Frame Installation	7
Fuel Supply Plumbing	11
Coolant Plumbing	13
Air Conditioner Plumbing.....	17
Auxiliary Evaporator for Peterbilt.....	27
Electrical Installation.....	29
Freightliner Auxiliary Air Compressor.....	41
Initial Start-Up and Test.....	43
Parts and Service	49
Schematic Overview.....	53
Model 2004/06 Unit Wiring Schematic	3 pages
Model 2004 Unit Wiring Schematic	3 pages
Model 105-2004 Upgrade Wiring Schematic	3 pages
Model 104 Unit Wiring Schematic	1 page
Model 104 Panel Wiring Schematic	1 page
Switch Four Schematics	
Plumbing Options for Specific Engines	

WARRANTY

Pony Pack, Inc. ("Pony Pack") provides the following warranty which defines the extent of protection and assurance to the owner of a Model 104, 105, or 2004 Pony Pack Auxiliary Power Unit ("APU").

THIS WARRANTY HAS BEEN DELIVERED TO THE FIRST OWNER OF THE APU AT THE TIME OF INSTALLATION. IF THERE ARE ANY TERMS, PROVISIONS OR CONDITIONS OF THIS WARRANTY WHICH ARE NOT CLEARLY UNDERSTOOD AT SUCH TIME BY THE FIRST OWNER, THEN THE FIRST OWNER SHOULD OBTAIN SATISFACTORY WRITTEN CLARIFICATION OF THE WARRANTY SIGNED BY AN AUTHORIZED REPRESENTATIVE OF Pony Pack PRIOR TO PLACING THE APU IN SERVICE.

COVERAGE

BASIC COVERAGE:

Pony Pack warrants (subject to all terms, provisions, conditions, and limitations of this Warranty) that each APU will be free from defects in material and workmanship under normal use and service for a period of one year from the date of installation for first use, or 2,000 hours of operation, whichever comes first, with a possible longer period of Warranty for specified components of the APU as set forth below.

PONY PACK'S WARRANTY OBLIGATION:

Pony Pack's sole obligation under this Warranty shall be to repair or replace, at Pony Pack's option, any defective component or material ("Defect") constituting a part of the APU. Upon determination by Pony Pack of the existence of a Defect, such repair and replacement shall be without cost to the first owner of the APU ("First Owner") when performed by Pony Pack at Pony Pack's location or at a qualified, authorized repair facility.

ENGINE, AIR CONDITIONING COMPRESSOR AND ALTERNATOR:

Pony Pack will assign the benefit of any assignable warranties provided by the manufacturers of components of the APU. Copies of all written warranties on the components are attached as an exhibit to this Warranty and each should be read and complied with fully in order to obtain the maximum benefit from any such warranty. Pony Pack makes no warranties or representations concerning the extent or enforceability of any warranty from a manufacturer of components or about any requirements imposed by the manufacturers of components of the APU.

INSTALLATION AND MAINTENANCE:

At the time of installation of the APU, its operation shall be inspected and adjusted. Such inspections and adjustments include but are not limited to checking engine performance, performance of fuel system, coolant pump function, air conditioning system integrity and performance, performance of controls, and electrical system integrity and performance. Proper use of the APU requires that all such inspections and adjustments shall be properly maintained at all times according to the schedules of recommended maintenance outlined in the instruction manual of the APU. As a condition of claiming benefits under this Warranty, Pony Pack reserves the right to require written proof, satisfactory to Pony Pack, in the form of receipts for maintenance on the APU and other service records to establish that all such maintenance and service has been performed as required by this Warranty and as recommended in the instruction manual of the APU.

TERMINATION OR VOIDING OF WARRANTY:

Repair or replacement, other than routine maintenance using approved parts and supplies, or modification of the APU by anyone other than Pony Pack representatives or employees of a qualified, authorized repair facility using authorized parts and materials shall void this Warranty. This Warranty also shall be void if the Defect or necessity for replacement or repair, in Pony Pack's opinion, is due in whole or in part to improper installation of the APU by some entity other than Pony Pack, improper maintenance or service of the APU, modification or alteration of the APU after installation, damage due to accident and/or any other misuse or abuse of the APU. Following expiration of the warranty period, Pony Pack's obligation hereunder shall terminate. Repair and replacement of components of an APU under this Warranty shall not extend the warranty period for the APU or for any component, material or part thereof except as noted in assigned warranties from manufacturers of components of the APU.

EXCLUSIONS FROM WARRANTY

THIS WARRANTY DOES NOT INCLUDE THESE ITEMS:

To better understand our warranty, the following is a description of some conditions which are not covered by this warranty.

NORMAL MAINTENANCE AND REPLACEMENT SERVICES:

Pony Pack is not responsible for the cost of tune up of the APU engine or other maintenance, adjustment and inspection services which may be required including repair or replacement of valves, injectors, fuel system, filters (fuel, air, oil, and water), hoses, and tightening of clamps and fasteners which may loosen in service due to vibration, expansion and contraction due to heating and cooling, and road shocks.

INCIDENTAL AND CONSEQUENTIAL DAMAGES AND COSTS:

Pony Pack specifically denies and disclaims any liability or responsibility under this Warranty or otherwise for injuries to persons or property, traveling expenses, road calls, towing charges, accident repairs, loss of revenue, loss of perishable loads, profits and/or anticipated profits, and loss of truck use. Pony Pack shall not, under any circumstances, be liable for special, incidental or consequential damages.

MAXIMUM LIABILITY:

Pony pack's liability on any and all claims under this Warranty and under any and all theories of liability for any loss or damage arising out of, concerning, resulting, arising from or related to the contract of sale, delivery, service, repair or use of an APU manufactured by Pony Pack shall not in the aggregate exceed the original installed price of the APU.

DISCLAIMER OF OTHER WARRANTY CLAIMS:

This written Warranty is exclusive and in lieu of all other warranties, whether written, oral, or implied. Pony Pack makes no other warranty except as expressly stated herein. There are no other express warranties, implied warranties, warranties of merchantability, or warranty of fitness for particular purpose with respect to the APU unless they are specifically stated herein.

WARRANTY PROCEDURES

NOTICES:

Any notice given by the Owner of an APU to Pony Pack shall be in writing, signed by the Owner and shall be personally delivered to Pony Pack or sent by U. S. Mail, postage prepaid, certified, Return Receipt Requested, to Pony Pack at its business office or transmitted in facsimile to Pony Pack at its business office:

**Pony Pack, Inc.
1407 University, NE
Albuquerque, New Mexico 87102
FAX (505) 243-1384**

Such notice shall be effective (a) immediately upon personal delivery to a representative of Pony Pack at Pony Pack office, (b) three days after being deposited in the mail as to notices which are mailed, or (c) two days after delivery of the notice by facsimile.

WARRANTY CLAIM PROCEDURE:

In order to claim benefits under this Warranty, Pony Pack must be notified in writing within the applicable Warranty period of the failure of the APU to comply with this Warranty. Any claim under this Warranty must be promptly followed, at expense of the Owner, by delivery to Pony Pack or its qualified, authorized service facility, of the APU (or of the component or material from the APU which is claimed to be defective). Pony Pack reserves the right to inspect for defects of workmanship, parts and materials and its decision with respect to such matters shall be final.

TRANSFER OF WARRANTY:

Pony Pack extends this Warranty solely to the First Owner. Any unused Warranty time of the First Owner may be transferred to a subsequent owner of the APU only after approval by Pony Pack of a written request for the transfer. Any written request for transfer of this Warranty shall disclose the name and address of the intended subsequent owner and shall verify the date of installation of the APU for first use, the total hours of operation of the APU, the condition of the APU and that all recommended maintenance has been performed by qualified, authorized service facilities using only approved parts and materials (excepting only those items of routine maintenance performed by others in accordance with the instruction manual of the APU).

GOVERNING LAW AND RESOLUTION OF DISPUTES:

This Warranty is extended under the laws of the State of New Mexico, the state in which Pony Pack is incorporated, has its primary place of business and has manufactured the APU. All questions concerning the interpretation or enforcement of this Warranty shall be governed and construed according to the laws of the State of New Mexico. By acceptance of this Warranty, the Owner of each APU agrees that any litigation and the resolution of any dispute between Pony Pack and the owner of an APU shall be conducted solely and exclusively in the state or federal courts of the State of New Mexico. Any action of any kind in any other forum or jurisdiction shall be subject to dismissal or to removal, at the discretion of Pony pack, and the party filing such action shall pay all costs including reimbursement of Pony pack's attorneys' fees in obtaining such dismissal or removal.



LIMITED WARRANTY ON INDUSTRIAL ENGINES AND REPLACEMENT PARTS EFFECTIVE SEPTEMBER 2, 1997

OUR WARRANTY TO YOU

We warrant to you, the original purchaser, that all parts (except those referred to below) of your new Kubota industrial engine, and replacement part purchased from an Authorized Kubota Industrial Engine or OEM Distributor in the United States will be free from defects in materials or workmanship during the following periods. (Refer to Service Policy Book for further details.)

1. Industrial engines excluding any oil field engine or application for 2 years or 2000 hours whichever occurs first.
- 1a. For 3 years or 3000 hours, excluding oil field engines or applications, a Major Component Warranty (M.C.W.) parts only, is offered. See Service Policy Book for details of coverage for M.C.W.
2. Replacement parts for 90 days.

WHAT WE WILL DO

We will, at our option, repair or replace any part covered by this warranty which becomes defective, malfunctions or otherwise fails to conform with this warranty under normal use and service during the term of the warranty at no charge for parts of labor. (Parts only for M.C.W.)

WHAT YOU MUST DO TO OBTAIN WARRANTY SERVICE

In order to obtain warranty repairs, you must deliver the product, together with proof of purchase, to an Authorized Kubota Industrial Engine Distributor or Dealer at your expense. The names and addresses of such Authorized Kubota Industrial Engine Distributors are listed in telephone directories or may be obtained by writing or telephoning us.

WHAT THE WARRANTY DOES NOT COVER

This warranty **does not** cover: (See Service Policy Book for further details.)

1. Defects, malfunctions or failures resulting from accidents, abuse, misuse, modifications, alteration, improper servicing or lack of performance of required maintenance service.
2. Normal maintenance services or replacement of maintenance items such as light bulbs, preheater plugs, indicator and resistant coils, filter elements, lubricants, oils, spark plugs, coolant or belts.
3. Installation of replacement parts, unless originally installed by an Authorized Kubota Industrial engine Distributor.
- 3a. Non-genuine Kubota parts.
4. Nihon CAV injection pumps are covered by separate warranties issued by their manufacturer or distributor.
5. Any engines damaged by use of ether, or any starting aid, or greater than a 50/50% solution of antifreeze-water

6. Injection nozzle wear or any engine damage caused by injection nozzle wear or sticking.
7. Damage caused by water entering the engine due to any cause.
8. Used products.
9. Any damage caused by overheating that is not a direct result of a defect in materials or workmanship.
10. Any engine not application reviewed.

THIS IS THE ONLY EXPRESS WARRANTY ON OUR PRODUCTS

We neither assume nor authorize anyone to assume for us any other express warranty. The Distributor/Dealer has no authority to make any representation or promise on behalf of Kubota Engine America Corporation or to modify the terms or limitations of this warranty in any way.

LIMITATIONS ON OUR RESPONSIBILITY WITH RESPECT TO PRODUCTS PURCHASED AND USED FOR PERSONAL, FAMILY OR HOUSEHOLD USE.

Our responsibility is to repair or replace defective parts as stated above; we will not be responsible for any other expenses, losses or inconvenience which you may sustain as a result of the purchase, use, malfunction or defective condition of our products. ANY IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS OF A PARTICULAR PURPOSE SHALL BE LIMITED IN DURATION TO THE PERIOD SET FORTH ABOVE. Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

LIMITATIONS ON OUR RESPONSIBILITY WITH RESPECT TO PRODUCTS USED FOR RENTAL OR FOR COMMERCIAL, INDUSTRIAL OR AGRICULTURAL PURPOSES.

This warranty is in lieu of all other warranties, express or implied, and of any other obligations or liability on our part. WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. Our responsibility for any and all losses and damages resulting from any cause whatsoever, including our negligence, alleged damaged or defective goods, whether such defects are discoverable or latent, shall be limited to the repair or replacement of defective parts as stated above. IN NO EVENT WILL WE BE LIABLE FOR LOSS OF USE, LOSS OF PROFITS, LOSS OF OR DAMAGE TO CROPS, INCONVENIENCE, COMMERCIAL LOSS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER.

KUBOTA ENGINE AMERICA CORPORATION • 505 Scheelter Road • Lincolnshire, IL 60069



PONY PACK Inc.

APU Warranty Claim Form

DATE: _____ Claim/RMA#: _____
APU Serial Number: _____ APU Hours _____ APU Installation Date: _____
Claimant's Name: _____

Failure Malfunction Description:

(Use additional pages as required)

Corrective Action:

(Use additional pages as required)

Parts/Material Used:

(Use additional pages as required)

NOTE: To receive credit for warranty work and/or parts, **all parts and materials claimed to be defective under warranty action must be returned to Pony Pack Inc. within 30 days of date Claim/RMA number being issued** to: Pony Pack Inc., 1407 University Blvd. NE, Albuquerque, NM 87102, Any claim for warranty will be considered void, including labor, parts, materials, or any other reimbursement request if parts are not returned within the stated time period. Replacement parts issued under warranty actions will be billed to the claimant at regular pricing if not returned within the allotted time period. Additionally, this document must be completed in its entirety, signed and a copy of all maintenance receipts, delivered to Pony Pack inc. within 25 days from the date Claim/RMA number was issued before any claim will be considered for reimbursement. Pony Pack reserves the right to inspect and/or test for defects of workmanship, parts and materials on all claims.

Introduction, Safety Inspection

Read this Manual completely before installing a Pony Pack. Contact Pony Pack if you have questions. Failure to follow the procedures in this manual could void the warranty. Improper installation and usage can cause serious injury to personnel and/or damage to the Pony Pack or the equipment on which it is installed.

This manual covers installation information for most of the class 8 trucks on the road today. Please understand, installation details depend on the truck, engine, and other systems integrated with the truck and engine. We are constantly gathering new model information as we obtain it from the manufacturers. If the information contained herein does not appear to apply to your truck–engine configuration, contact Pony Pack for further assistance.

THIS MANUAL

The different sections in this manual discuss all the aspects of a complete Pony Pack installation. Photos and diagrams help provide clarity. Understand that the photos show general installation features and may not depict the exact orientation or appearance of each installation.

Wiring diagrams are included as we understand them. Much of the Pony Pack electrical installation involves understanding the OEM truck wiring. Pony Pack, Inc. makes every effort to provide current electrical information.

SAFETY





Safety is everybody's business and everybody's responsibility. Each truck and Pony Pack installation is different, so assess all safety concerns peculiar to your situation. Be attentive. Watch for hazards and correct them immediately. Use preventative measures. Exercise common sense.

Many of the safety guidelines set forth are applicable to general plant and equipment safety practices. However, this document is specific to Pony Pack products. This information is not a comprehensive shop or equipment safety standard. Pony Pack is not responsible for any accidents that may occur simply because a specific warning has not been made here.

Qualified shops and certified mechanics are familiar with the hazards of working around heavy equipment and diesel engines. Pony Pack recommends that only qualified mechanics install and conduct maintenance and repairs on Pony Packs.

SPECIAL SYMBOLS

Certain special symbols are used throughout Pony Pack documentation to identify potential safety hazards. Pay close attention and read the text carefully whenever you encounter any of these symbols.

	This symbol identifies possible electrical hazards or conditions.
	This symbol identifies possible mechanical hazards or conditions.
	This symbol identifies pinch point hazards. It warns the reader to keep hands and fingers clear of the hazard.
	This symbol identifies situations where the worker may be inclined to take a shortcut or use the wrong tool.

CALIFORNIA PROPOSITION 65 WARNING

Diesel Engine Exhaust and some of its constituents are known to cause cancer, birth defects, and other reproductive harm.

SAFE PONY PACK OPERATION

- Before operating the Pony Pack, read and understand all manuals, including enclosures and insertions for other manufacturer's equipment.
- Always dress for safety. Secure long hair, loose clothing, and jewelry to keep it clear of operating equipment. Have eye protection routinely available and use it when directed or when common sense dictates.
- Disable and discard unsafe components and items that have been removed or replaced during maintenance and repair.
- Follow your company's safety procedures and guidelines at all times.
- Stay clear of the belts on the Pony Pack, even when it is not moving.
- Frequently inspect wires. They must be secured away from moving parts and protected by conduit where possible.
- Frequently inspect the hoses and connections. Look for spots where they may be rubbing. Use cushions and tie straps to protect hoses as needed from abrasion.
- Do not operate the Pony Pack with the cover off, except as needed by qualified maintenance personnel. During such maintenance, all other personnel should stand clear of the unit.
- Do not insert objects, fingers, or tools into the unit. Take extra care to retrieve all tools after working on the unit. Tools and objects left in or on the equipment

may seriously damage the Pony Pack and create a safety hazard for persons working in the area.

- Altering the Pony Pack RPM will void the warranty.
- Modifications are not permitted.
- Read and understand this entire manual before attempting to install a Pony Pack. Call Pony Pack regarding any questions or concerns.
- Read and understand the entire Kubota engine manual before attempting to install and operate a Pony Pack.
- Use proper lifting procedures. When using a hoist, only lift the unit by the loops on the Kubota engine. Take special care to prevent the chain from interfering with components near the lifting loops.



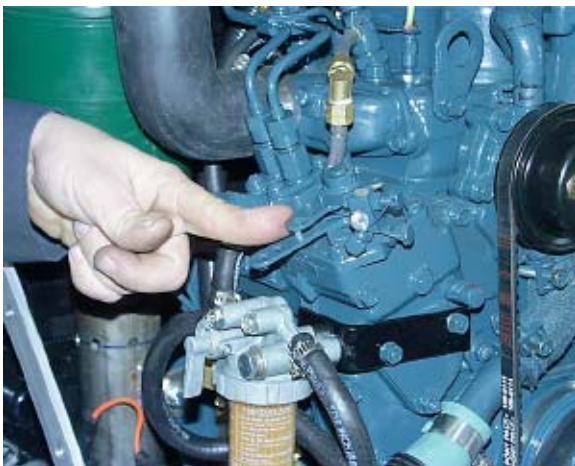
Install a chain hoist to the lifting loops as shown. Notice the bolt to keep the chain off of the load center.

- Some procedures may require operating the unit with the cover off. Never remove or install the cover while the unit is running.
- Be aware that under operation and afterwards, coolant is hot and under pressure. Do not remove hoses or the radiator cap until the truck engine and Pony Pack have had time to cool.
- Do not use compressed air, open flames or hot air dryers when cleaning Pony Pack air filters. Use only the Pony Pack (AFE brand) cleaning solution.

- Use only the Pony Pack (AFE brand) air filter oiling agent on the Pony Pack air filter.
- Avoid skin and eye contact with the air filter cleaning solution.
- Always disconnect the battery or the truck's alternator before installing or removing the Pony Pack. Failure to do so may damage Pony Pack and /or truck electrical components.
- Stay clear of electrical components during installation. Know which wires are hot and avoid damage to electrical components..
- Always use a refrigerant recovery and filtration system when evacuating the truck's AC system.
- Secure loose wires out of the way of moving parts. Install cushions wherever wires may rub.
- Secure hoses out of the way of moving parts. Install cushions wherever hoses may rub.
- Never stand on the Pony Pack or use it as a step.

ENGINE STOP LEVER

The engine stop lever may be used to stop the engine at the unit in an emergency or when the control panel is not readily accessible.



Engine stop lever.

WARNING LABELS

Pay attention to all warnings on the Pony Pack. Never remove or cover warning labels. Never

assume the equipment is safe simply because there is no warning label.

SAFE HANDLING OF FLUIDS AND CHEMICALS

Follow manufacturer's instructions and the regulations in your area for safe handling, usage, and disposal of engine coolant (antifreeze), engine oil, Freon, and any other fluids used in your truck or Pony Pack. Most manufacturers will provide a Material Safety Data Sheet, MSDS, for the materials they sell.

KUBOTA ENGINE MANUAL

The central Pony Pack component is a Kubota two-cylinder diesel engine. Pony Pack includes the *Kubota Diesel Engine Operator's Manual* with every Pony Pack sold. The same manual covers three Kubota engine models. The Pony Pack uses the Z482-E.

The Kubota manual makes references to the engine as if it were used on a tractor or similar application. Consequently, some references in the Kubota manual may not apply directly to the Pony Pack. The drawings and photographs do identify key engine parts. The Operation, Maintenance, and Troubleshooting information is applicable. Be sure to read and understand the comprehensive safety section at the beginning of the Kubota manual.

RECEIVING

Pony Pack ships its units either in a crate or on a small pallet designed to fit the Pony Pack frame. A complete Pony Pack includes the items listed below. The smaller items, fittings etc. are bundled together in a box.

- Unit, cover, and mounting frame
- Muffler, exhaust hangers, and clamps
- Cab wire harness and cab control panel
- Relay harnesses (if needed)
- 12 volt water pump (heater core supply hose)
- In-line fuel filter
- Suction tee and high pressure shunt valve (truck specific as needed)

- Brass plumbing fittings (truck specific as needed)
- Owner's Manual: This manual should stay with the truck.
- Kubota engine manual

PREPARATION

A well equipped shop should be able to install their first unit in about 12-20 hours. More experienced shops can do it quicker, in about 6-12 hours.

A frame drill, portable engine hoist, and A/C Freon recovery system are needed in addition to common mechanic's tools,

Additional parts which may need to be purchased include:

- 1/2" or 5/8" Grade 8 bolts for mounting the Pony Pack frame to the truck frame.
- 3/4" coolant hoses
- Raw air conditioner hose, thick wall preferred, 5/16" or No. 6 for high pressure, 1/2" or No. 10 for low pressure, and crimp-on fittings as needed.
- 5/16" fuel lines and fittings to tap into the fuel distribution tee.
- 2 gauge battery cable for the main power wire. We supply the terminals.
- Brass plumbing fittings. We supply commonly used brass fittings. Shut-off valves are recommended. One valve that works well for our customers is a Kenworth valve, PN D2208-2443.
- Solder and miscellaneous electrical connectors for integrating the Pony Pack electrical system with the truck's electrical system. If we know the truck make and model ahead of time, we will include specific fittings as needed. Each installation is unique. There are usually some fittings in the assortment that do not get used. Likewise, there are always components that must be purchased.

DISCLAIMER

It is very important that the truck's A/C, coolant, and fuel systems be free of leaks and contamination before installing a Pony Pack. Pony Pack, Inc. is not responsible for damage to any truck systems due to faulty equipment, contamination, Freon, fuel, or coolant leaks, or Pony Pack installation not in accordance with this manual.

PRE-INSTALLATION INSPECTION

It is always a good idea to inspect and operate the trucks A/C and heater systems in both the cab and the sleeper.

Complete the first part of the *Pony Pack Installation Checklist and Record* before installing the Pony Pack.

Interview the driver. Inquire how the truck is working. Specifically, ask about the heating and air conditioning performance. Ask if the heating or air conditioning systems have been serviced recently. Write relevant information in the Notes section of the form or on the back.

Record the initial installation data before evacuating the Freon. Be sure to complete the Final installation data when the installation is finished.

Give a copy to the customer and retain the original for your records. Pony Pack encourages installers to provide a copy of this form for our records as well. This information may aid troubleshooting in the future.

PONY PACK INSTALLATION CHECKLIST AND RECORD

INSTALLER INFORMATION

Date _____
 Customer _____
 Installer Shop _____
 Installer Address _____
 Mechanic _____

TRUCK INFORMATION

Year/Model/Make _____
 Engine _____
 APAds system on the truck? YES NO
 Optimized idle system on the truck? YES NO

TRUCK FUNCTIONS

Truck functions working properly? YES NO
 Lights working properly? YES NO
 Air conditioning working properly? YES NO
 Temperature control working properly? YES NO

	BEFORE	AFTER	PONY PACK
INSTALLATION DATA			
Ambient Temperature	_____	_____	_____ °F
Truck Engine RPM	_____	_____	N/A

Vent Temperatures

Air Conditioning - Cab	_____	_____	_____ °F
Air Conditioning - Sleeper	_____	_____	_____ °F
Heat - Cab	_____	_____	_____ °F
Heat - Sleeper	_____	_____	_____ °F

A/C Manifold Gauge Readings

Discharge	_____	_____	_____ psi
Suction	_____	_____	_____ psi

Cooling Fan Cycle Time _____ sec

Alternator Output Voltage _____ volts

Freon (Sticker ____ lbs ____ oz) _____ lbs

Notes

Mounting Frame Installation

There is no single correct way to mount the Pony Pack on the truck. Each installation is different. Common mounting schemes are discussed here. Locate the unit so fresh cool air can enter the cover louvers and hot air blowing out the back can escape and dissipate. Make sure the unit is accessible from the front and the cover is easy to remove. The space below the unit should also be open for air flow and access to the oil drain plug.

Two coolant hoses, two air conditioning hoses, a fuel line, and a wire harness all exit the rear of the unit and integrate with the various systems on the truck. Look for good routing locations (away from moving parts, hot exhaust pipes, etc.) for all these lines when choosing a mounting location.



Plumbing and electrical connections at the rear of the unit:

1. A/C Discharge
2. Coolant Out
3. A/C Suction
4. Electrical Power
5. Fuel Supply Hose
6. Electrical Ground
7. Electrical Control
8. Coolant In

REMOVE BASEPLATE

The Pony Pack engine and components are mounted on an aluminum base plate which is bolted to shock absorbing feet on the steel mounting frame. The Pony Pack is shipped this way.



Pony Pack installed on the frame for shipping

Before installing the steel mounting frame on the truck, remove the four bolts that attach the aluminum base plate to the mounting feet. Use a hoist to lift the Pony Pack off the frame and set it aside.



Always remove the unit cover before lifting the Pony Pack. Use only the two hoisting loops on the Kubota engine for lifting.



Proper hoist location



DO NOT SET THE BASEPLATE ONTO A FLAT SURFACE. This will damage the heat exchanger outlet tube (muffler inlet) which protrudes an inch below the base plate. It is best to set a couple of 2 x 4's on the floor and set the base plate on them.



Unit set on boards to prevent damaging the heat exchanger outlet

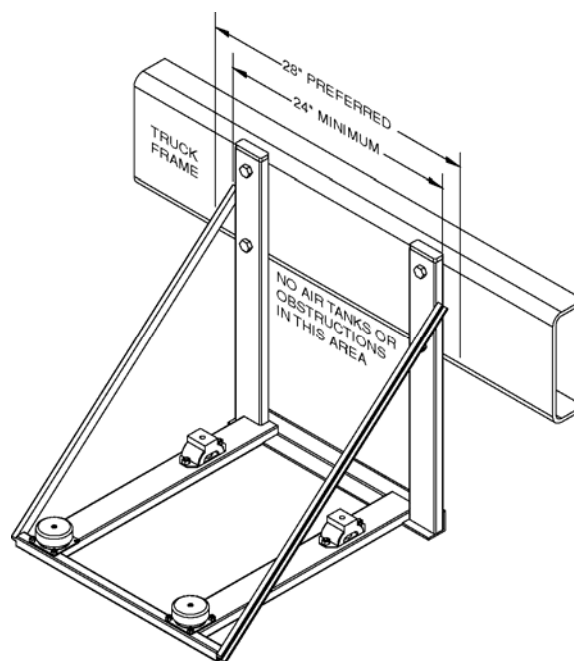
FRAMERAIL MOUNT

The ideal Pony Pack mounting location is on the passenger side, behind the sleeper and out from under any overhanging equipment. On many trucks, the unit fits well between the fuel tank and quarter fender.

A minimum of 24 inches along the frame is required for the unit. Access and installation are simplified if more space is available.



Use only Grade 8 fasteners or equivalent to bolt the Pony Pack frame to the truck frame.



Pony Pack frame orientation on the truck's frame


The Pony Pack cooling fan pulls air in through the unit base plate and louvers on the cover, across the condenser and radiator, and blows it out the rear of the unit. Obstructions behind the unit prevent hot air dissipation and reduce A/C system performance.

The unit mounting frame uprights should be even with or slightly above the truck's frame rails. Never mount the frame below the upper flange on the frame rail. It may be necessary to remove the aluminum stiffeners and shorten the frame for ground clearance.

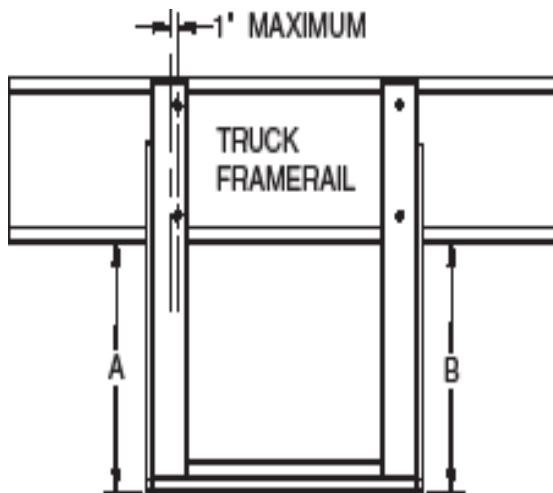
Install the Pony Pack frame to the truck frame with four 1/2" or 5/8" bolts (Grade 8 or equivalent). Aluminum inserts extend 12 inches into the upright rectangular tubes on the steel mounting frame. Be sure the inserts are installed when drilling the unit frame.

Occasionally, existing cross member or bracket holes in the truck frame may be used to attach

one leg of the unit frame. Replace the existing bolts with bolts that are one inch longer.

	<p>Never simultaneously remove all the bolts that hold a cross member in place and never move the truck when any cross member bolts are out. It may be difficult to realign the holes and replace the bolts.</p>
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When using existing bolt holes, it may be impossible to perfectly center the holes side to side on the Pony Pack mounting frame uprights. The bolt-hole centerline may be a maximum of one inch away from the frame centerline.



Upright centerline in relation to the bolt centerline. The unit is square with the truck when dimensions A and B are the same.



Ideal mounting location on a truck. The wide open area facilitates air flow. The arrows point to existing bolts that can be used to mount the Pony Pack.



Pony Pack frame mounted on truck. The top of the frame is slightly above the level of the rail.

INSTALL THE UNIT ON THE FRAME

Once the frame is set on the truck, install the Pony Pack on the frame and install the muffler.

1. Set the base plate back on the frame and align the slots in the base plate with the holes in the mounting feet.
2. Finger tighten all four bolts (3/8 in the front feet and 1/2 in the rear feet).



Pony Pack base plate installed on frame

INSTALL THE MUFFLER

Once the frame is set on the truck, install the Pony Pack back on the frame and install the muffler. The muffler on model 2004 Pony Packs is remotely mounted. The install kit contains the following items for remotely mounting the muffler.

4 ft of 1-1/2 in. ID stainless steel flex tubing

(3) 1-1/2 in muffler clamps

(2) Universal exhaust hangers

Use one clamp on the heat exchanger outlet and two with the exhaust hangers. Install the hangers to the Pony Pack mounting frame or truck frame.



Model 2004 remotely mounted muffler.

ALTERNATIVE MOUNTING SCHEMES

RAIL MOUNT

Some owners elect to mount the Pony Pack on the top of the rails behind the sleeper. This type of installation does not utilize the steel mounting frame. The shock absorption feet are mounted to brackets on the truck rails. Slotted holes in the unit base plate accommodate some side-to-side variation in the mounting feet location.



Unit mounted on the rails behind the sleeper. Open airflow around the unit and the white truck maximize this Pony Pack's cooling output.

	Before installing a Pony Pack on top of the rails, make sure the trailer swing will clear the Pony Pack location.
	It is crucial that the Pony Pack sit below the water level in the truck radiator to prevent cavitation in the Kubota water pump.

ON A CAR HAULER TRAILER



Driver side on the trailer (car hauler) Note: removing the Pony Pack cover requires first removing the car.

INTEGRATED WITH FAIRINGS



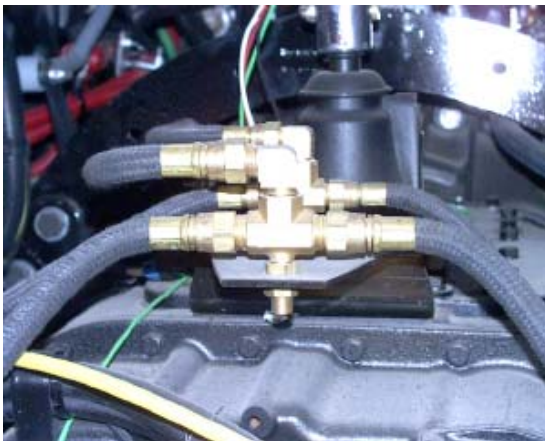
Mounted on a truck with fairings. The Pony Pack cover can be removed without removing the fairing. However, some maintenance and repair procedures would require fairing removal.

Fuel Supply Plumbing

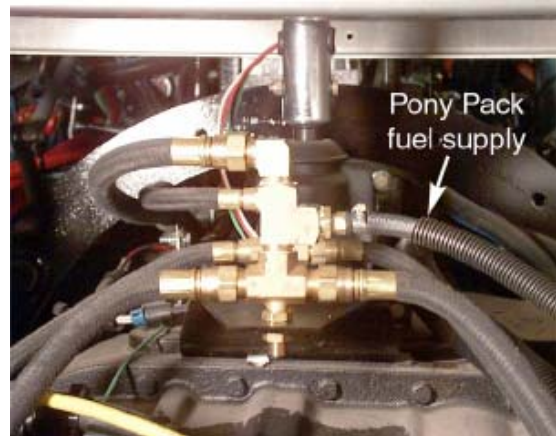
The Pony Pack gets its fuel from the truck's tank(s). A single 5/16 fuel line must be installed from the truck fuel system to the rear of the Pony Pack.

FUEL DISTRIBUTION TEE

The most common place to plumb the Pony Pack fuel line is at the supply side of the fuel distribution tee between the tanks.



Fuel tee plumbing before installing the Pony Pack fuel supply line.

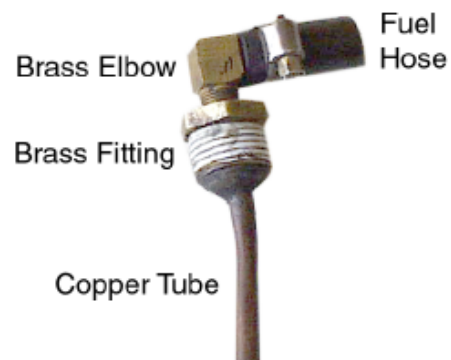


Fuel tee plumbing after installing the Pony Pack fuel supply line. The street tee, bushing, and adapter are added by the installer.

If the distribution tee is inaccessible or the truck has only one tank, trace the fuel lines and try to find another supply location.

SUCTION TUBE

If there is no distribution tee use a suction-tube arrangement. This may require removing the tank-access cover, drilling a hole, and welding or brazing a threaded bushing in place to receive a suction tube. The suction tube should be long enough to where it extends two to three inches above the bottom of the tank.



Components of a suction tube fuel plumbing arrangement.



Suction tube installed

Coolant Plumbing

Integrating the Pony Pack with the trucks coolant system involves four tasks:

1. Installing the SUPPLY hose (coolant flowing from the truck engine to the Pony Pack)
2. Installing the RETURN hose (coolant flowing from the Pony Pack to the truck engine).
3. Installing a temperature sensor (thermistor) in the truck engine block.
4. Installing the 12 volt coolant pump in the cab heater core supply line.

A coolant loop includes a coolant hose from the truck engine to a component—like a heater core, and a return hose from the appliance back to the engine. Your truck already includes coolant loops for at least one and probably two heater cores. It may include additional coolant loops for a fuel warmer or a transmission cooler. A Pony Pack requires an additional coolant loop. Because the Pony Pack is usually installed after all the other coolant related devices are plumbed, the optimum or most obvious access ports on the truck engine may have been used. Furthermore, a block temperature thermistor (to monitor the truck block temperature) must also be installed in the block.

In simple terms, when the truck is parked and the Pony Pack is running, coolant flows through a hose from the Pony Pack to a *pressure* location on the truck engine. The coolant flows from the rear of the truck block toward the front. At the front of the block, the coolant exits a *pressure* location and returns to the Pony Pack radiator via a second hose. The coolant flows in this loop, summer or winter, whenever the Pony Pack is running. In the summer, the Pony Pack fan cycles to cool the antifreeze in the Pony Pack radiator. In winter the Pony Pack heat exchanger operates in heat mode to heat the antifreeze before circulating it through the truck engine. If this loop is ever interrupted and the water pump on the Kubota (Pony Pack) engine can't circulate the coolant, the Kubota will most likely overheat and shut down.

Secondly, the Pony Pack is designed to operate while the truck is in transit. Running the Pony Pack and the truck engine simultaneously works only if the Kubota water pump and the truck water pump move coolant through the Pony Pack loop (including the truck engine block) IN THE SAME DIRECTION. If they pump in opposite directions, the truck pump will circulate antifreeze through the Pony Pack coolant loop in reverse and the Kubota will overheat and shut down.

Subsequent documentation defines the SUPPLY hose as the hose which carries coolant from the truck engine to the Pony Pack. The RETURN hose is the hose that carries coolant from the Pony Pack to the truck engine.

SHUT-OFF VALVES

Pony Pack strongly recommends installing shut-off valves where the SUPPLY and RETURN hoses exit the truck engine. This makes it easy to isolate the Pony Pack for maintenance or repair purposes. Shut-off have them and they are available from Pony Pack.

HOSE PROTECTION

Pony Pack also recommends installing some sort of hose protection along the entire length of the hose. Commonly, one-inch diameter or larger convoluted conduit or wire loom is works well for this purpose. As always, secure the hoses away from hot or moving part.



Shut-off valve, recommended at the truck supply and return ports

ENGINE COOLANT

Always drain the coolant from the truck engine before installing a Pony Pack. Use extra care to keep the coolant clean while it is out of the truck.

SPECIFIC ENGINE PLUMBING

Needless to say, some engines are easier to plumb than others. If all the coolant access ports are used, the Pony Pack coolant loop may have to tee into an existing loop. Our experience tells us that while engine plumbing scenarios vary widely, certain engine types offer more choices and options than others.

The list that follows ranks the most common engines according to ease of coolant plumbing.

1. Caterpillar 3406: as many as nine access ports on some engines. There are nearly always unused locations ideal for the Pony Pack coolant loop. (Note: Caterpillar discontinued this engine at the end of 1999. It will be replaced by the C-15 and C-16 engines. Plumbing is similar to a 3406).
2. Detroit Diesel Series 60: six or seven access ports. May need to tee or move existing hoses depending on the factory plumbing.
3. Cummins N14: few choices but the install is straightforward if the only two coolant loops are for the heater cores. Otherwise, the mechanic must tee into existing plumbing.
4. Cummins ISX: the ports on the block are metric and straight thread. Most of them are 27 mm x 2 TPI. Fittings for these ports may be difficult to obtain and should be located ahead of time. They are not standard items in the install kit for ISX engines. However, they may be purchased separately.

Pony Pack has created specific engine plumbing guidelines for each of the engines previously listed. They are included at the end of this section. The plumbing guidelines contain instructions and before and after photos on the front and back respectively.

CAB HEAT PUMP

A simple in-line 12 volt pump, installed in the heater core supply hose circulates hot engine coolant through the heater core while the Pony Pack is running. Most trucks have separate coolant loops for the cab and sleeper heater cores.

The pump consists of a 12 volt motor mounted to a black pump housing. Always secure the pump to something. Do not let it hang loosely in the engine compartment. Make cushions out of heater hose scraps and use them along with tie straps and/or hose clamps to secure the pump.

We recommend always installing the cab heat pump in the cab heater supply hose and not the sleeper heater supply hose.



Freightliners have an electric-over-air valve in the sleeper that may shut off the water flow to the heater core. On these trucks it is imperative that the cab heat pump be installed in the cab heater supply hose.

Some trucks plumb coolant accessories in series. For example, a coolant hose from the engine may supply a fuel warmer which in turn, supplies a heater core. In this instance, install the pump between the engine and the fuel warmer or first component in the series. This decreases the likelihood of an air pocket in the system, causing the pump to cavitate.



Cab heat pump, properly secured.



Cab heat pump, properly secured with a cushion clamp.

CAB-HEAT PUMP WIRING

On Model 2004 Pony Packs, the cab-pump simply plugs into the cab harness. On older units, the yellow cab-heat pump plug is removed and the bare wires are spliced to power and ground as described below.



The cab-heat pump is unusual in that the brown wire is the ground wire and the black wire is the hot wire. Securely ground the brown wire in the engine compartment. It may be necessary to attach a pigtail to the short lead on the pump.

Once the cab wire harness is installed, attach the black wire from the cab-heat pump to the green wire that is coiled outside the convoluted conduit on the cab wire harness. The cab heat pump is turned on and off with a switch on the Pony Pack control panel.



The cab-heat pump will overheat if it is operated with no coolant in the hoses. Likewise, do not operate the cab-heat pump if the heater core supply and return valves are closed.

TEMPERATURE SENSOR INSTALLATION

A thermistor installed in the truck engine monitors the block temperature and signals the

Pony Pack control module to position the Pony Pack exhaust flapper valve in HEAT mode whenever the block temperature falls below a preset temperature.

Placement of the thermistor in the truck block affects its accuracy. Ideally, the switch should be installed as close to the truck engine thermostat as possible. The engine plumbing guidelines suggest temperature sensor locations.

The thermistor is a two wire sensor which connects into the harness via a plug. Because the plug is already installed in the cab harness, we do not recommend cutting the wire. Instead, coil the excess wire and secure it to the remainder of the harness, out of the way of hot or moving parts.



Thermistor installed in truck engine block.

REPLACE THE COOLANT

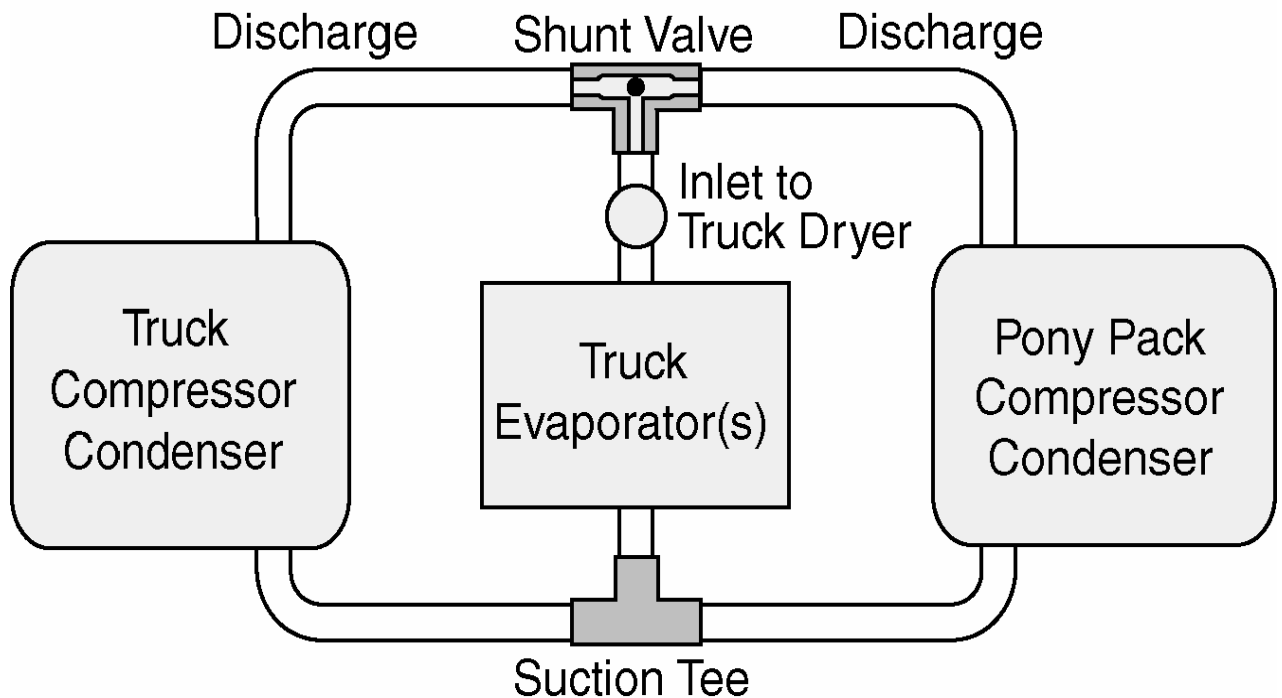
Pour (or pump) the coolant, removed earlier, back into the truck engine. Be prepared to add more coolant after the initial start-up.

Air Conditioner Plumbing

The A/C Schematic below shows how the Pony Pack is integrated with the truck system to provide cooling. The shunt valve and suction tee are Pony Pack items included in the installation kit. The installer adds a high pressure hose from the Pony Pack discharge connection to the shunt valve and a low pressure hose from the Pony Pack suction connection to the suction tee. Both hose connections

at the Pony Pack are made behind the unit under the fan.

Switch four, the lower right switch on the Pony Pack control panel, determines which compressor; truck (MAIN) or Pony Pack (AUX) cycles the refrigerant through the truck/Pony Pack air conditioning system. Wiring the control panel is covered in the chapter titled *Electrical Installation*.

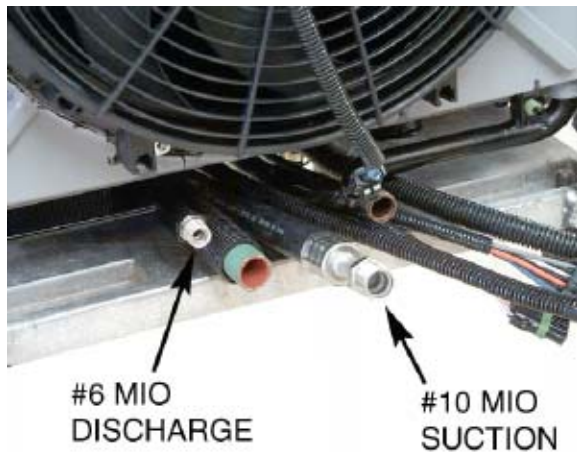


REFRIGERANT

Installing a Pony Pack increases the refrigerant capacity of the truck's A/C system. The Pony Pack condenser, hoses, and compressor all add volume. Adding a Pony Pack increases the overall system capacity by between 1/2 and 3/4 lbs. Most trucks have a sticker on the firewall or condenser that lists the manufacturer's recommended refrigerant charge.

The A/C system with the larger condenser will likely cool the truck better. The Pony Pack has the larger condenser.

The following photo shows the Pony Pack A/C service ports.



Discharge and suction hose connections at the Pony Pack



Refrigerant service ports on a model 2006 Pony Pack.

INSTALLATION

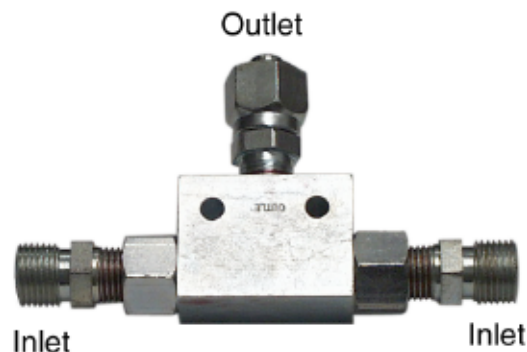
Pony Pack highly recommends testing the factory A/C system prior to integrating the Pony

Pack. Complete the *Installation Checklist and Record* (included with this manual). Repair any A/C problems with the truck before proceeding.

- Follow accepted air conditioning service procedures.
- Use a recovery system.
- Note the amount of refrigerant removed. This is important when adding it back in.
- Avoid getting dirt into the open system fittings.
- Never reuse O-rings. Always lubricate O-rings before installing them.
- Always use a back-up wrench on A/C fittings, including the caps shipped with new units.
- Secure the two new hoses away from hot or moving parts. Use cushions and clamps as necessary.
- Pull a proper vacuum for your altitude and hold it for at least 15 minutes before replenishing the system.

SHUNT VALVE INSTALLATION

Pony Pack manufactures four different shunt valve configurations to accommodate as many trucks as possible. The truck specific shunt valve is included in the install kit. The shunt valve fittings should match the fittings on your truck's A/C system. If they do not, contact Pony Pack.



Pony Pack shunt valve with inlets and outlet labeled. Pony Pack supplies four different shunt valve configurations.

The inlet fitting on the dryer is the ideal location to install the shunt valve on most trucks. Install the truck hose that was disconnected from the dryer to one of the inlets on the shunt valve. Build a hose that is the correct length and has the proper fittings to go from the rear of the Pony Pack (condenser outlet) to the other inlet on the shunt valve.

If the truck does not have a dryer, the shunt valve must be installed in the high pressure hose between the truck condenser and evaporator.

SUCTION TEE INSTALLATION

Pony Pack distributes four different suction tees to accommodate as many trucks as possible. The truck specific suction tee is included in the install kit. The tee fittings should match the fittings on your truck's A/C system. If they do not, contact Pony Pack.



Pony Pack suction tee. The tee is open so the inlet and outlet are irrelevant. Pony Pack supplies two different suction tees.

Ideally the suction tee is installed as close to the unit as possible to keep the length of the suction hose short. On older trucks, it is very easy to install the suction tee in the low pressure line under the sleeper. This arrangement is becoming less common or the hoses under the sleeper are hard lines. While it is less desirable, sometimes the only place to install the suction tee is on the firewall where the hoses split for the different evaporators.

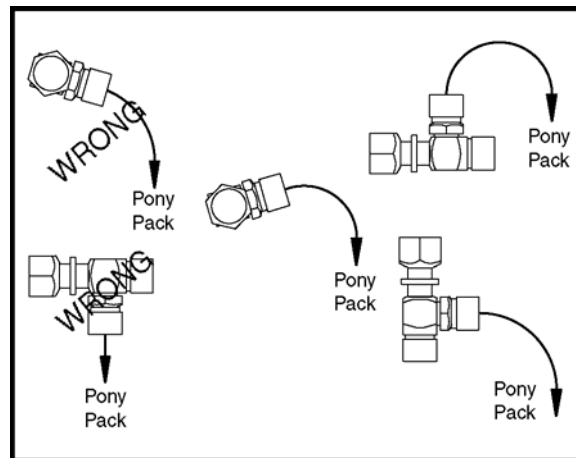
On some trucks, it may be easiest to install the suction tee in a hose. The EATON Aeroquip tee shown below is designed for hose installation.



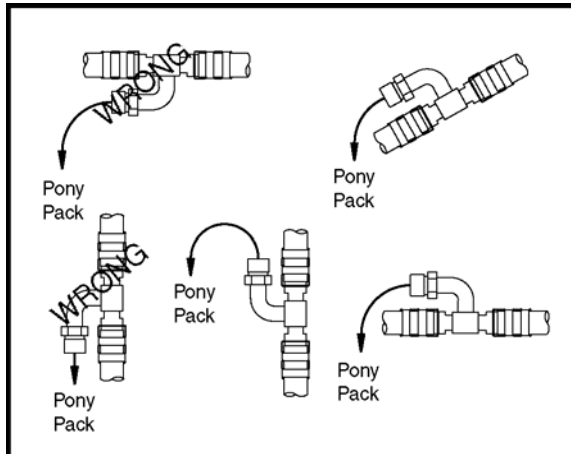
EATON Aeroquip™ style tee with barbs and EZ-Clips shown.



PROPER SUCTION TEE ORIENTATION IS CRITICAL. Orient the tee so the Freon in the refrigerant loop first travels up or sideways to enter the tee side and not directly downward due to gravity. This minimizes the possibility of compressor slugging on startup.



Orient the suction tee like the three pictures on the right.



Orient the EATON Aeroquip tee like the three pictures on the right.

RECHARGE THE A/C SYSTEM

Connect the refrigerant recovery unit to the A/C system at the Pony Pack service ports. Follow normal charging procedures. Pull and hold a vacuum then add Freon to the system. Add 1/2 to 3/4 lb more than what the manufacturer recommends for the truck system. (Longer Pony Pack hoses hold more Freon.) Leave the recovery unit connected to monitor gauge pressures during the initial start-up and test.

TRUCK A/C INSTALLATIONS

The following pages show A/C shunt valve and suction tee installations for different trucks. Use the photos as a guide to help you determine the best locations to integrate the Pony Pack into the truck system.

PERIODIC OPERATION

Pony Pack recommends operating the air conditioner monthly for at least five to ten minutes. This keeps the seals and system lubricated.

TRUCK INFORMATION

Truck Make: Kenworth

Year: 2000

Truck Model: W900

Sleeper Model: _____

SHUNT VALVE



Shunt valve location at the dryer.



Shunt valve installed. Include notes regarding fitting sizes and anything else that might be useful.

PONY PACK SHUNT VALVE PART NO.

- ☐ 104-0290 Standard Shunt Valve
- ☒ **104-0291 Kenworth Shunt Valve**
- ☐ 104-0292 Peterbilt Shunt Valve
- ☐ 104-0293 International Shunt Valve

Other: _____

SUCTION TEE



Suction tee location. Include notes regarding fitting sizes and anything else that might be useful.



Suction tee installed. Include notes regarding fitting sizes and anything else that might be useful.

PONY PACK SUCTION TEE PART NO.

☒ **104-0213 Suction Tee, 10 MIO tee with 10 FO and 10 MIO sides**

☐ 104-0245 Suction Tee, 10 MIO tee with 12 FO and 12 MIO sides

☐ Other _____

TRUCK INFORMATION

Truck Make: Freightliner

Year: 2000

Truck Model: Century Class

Sleeper Model: _____

SHUNT VALVE



Shunt valve location. Include notes regarding fitting sizes and anything else that might be useful.



Shunt valve installed. Include notes regarding fitting sizes and anything else that might be useful.

PONY PACK SHUNT VALVE PART NO.

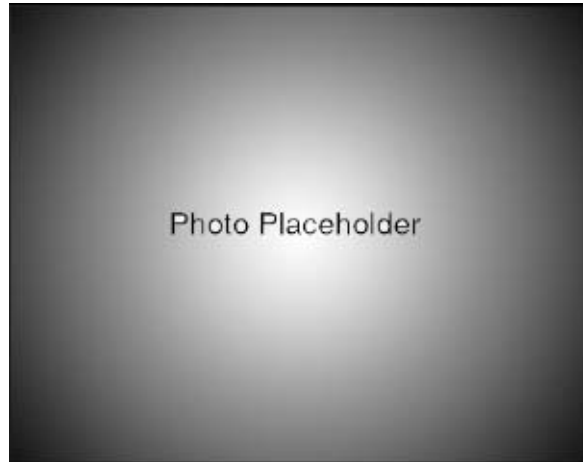
- ✓ **104-0290 Standard Shunt Valve**
 - ☐ 104-0291 Kenworth Shunt Valve
 - ☐ 104-0292 Peterbilt Shunt Valve
 - ☐ 104-0293 International Shunt Valve
 - ☐ Other: _____
- _____
- _____

SUCTION TEE



BEFORE

Suction tee location. Include notes regarding fitting sizes and anything else that might be useful.



AFTER

Suction tee installed. Include notes regarding fitting sizes and anything else that might be useful.

PONY PACK SUCTION TEE PART NO.

- ☐ 104-0213 Suction Tee, 10 MIO tee with 10 FO and 10 MIO sides
 - ✓ **104-0245 Suction Tee, 10 MIO tee with 12 FO and 12 MIO sides**
 - ☐ Other: _____
- _____
- _____
- _____

TRUCK INFORMATION

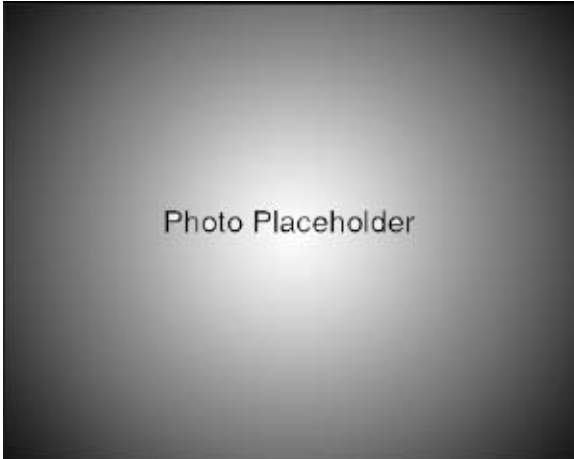
Truck Make: Freightliner

Year: 1999

Truck Model: Condo Classic

Sleeper Model: _____

SHUNT VALVE



Shunt valve location. Include notes regarding fitting sizes and anything else that might be useful.

SUCTION TEE

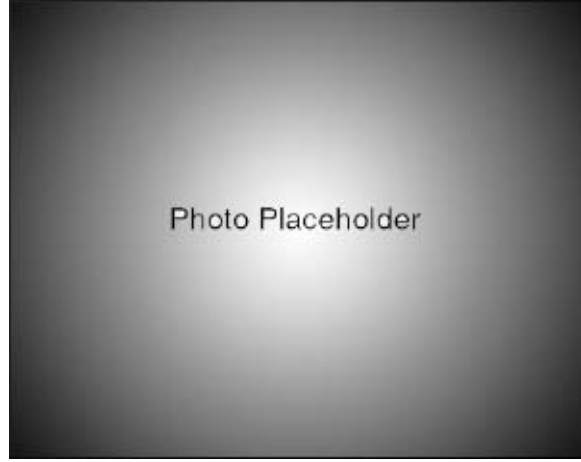


BEFORE

Suction tee location. Include notes regarding fitting sizes and anything else that might be useful.



Shunt valve installed. Include notes regarding fitting sizes and anything else that might be useful.



AFTER

Suction tee installed. Include notes regarding fitting sizes and anything else that might be useful.

PONY PACK SHUNT VALVE PART NO.

- ☒ **104-0290 Standard Shunt Valve**
- ☐ 104-0291 Kenworth Shunt Valve
- ☐ 104-0292 Peterbilt Shunt Valve
- ☐ 104-0293 International Shunt Valve
- ☐ Other: _____

PONY PACK SUCTION TEE PART NO.

- ☒ **104-0213 Suction Tee, 10 MIO tee with 10 FO and 10 MIO sides**
- ☐ 104-0245 Suction Tee, 10 MIO tee with 12 FO and 12 MIO sides
- ☐ Other: _____

TRUCK INFORMATION

Truck Make: International

Year: 1999

Truck Model: 9300

Sleeper Model: Pro Sleeper

SHUNT VALVE



Shunt valve location. Include notes regarding fitting sizes and anything else that might be useful.

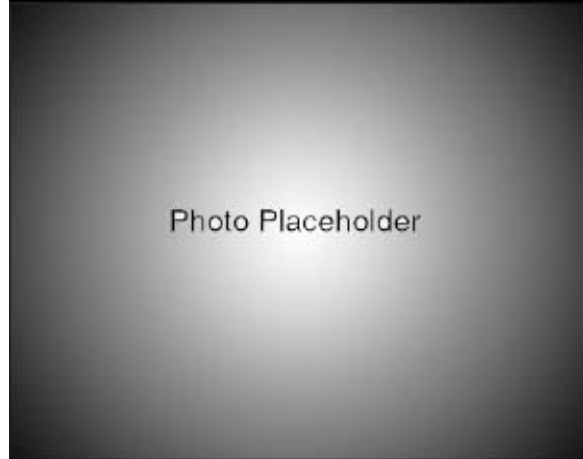


Shunt valve installed. Include notes regarding fitting sizes and anything else that might be useful.

PONY PACK SHUNT VALVE PART NO.

- ☐ 104-0290 Standard Shunt Valve
- ☐ 104-0291 Kenworth Shunt Valve
- ☐ 104-0292 Peterbilt Shunt Valve
- ✓ **104-0293 International Shunt Valve**
- ☐ Other: _____

SUCTION TEE



BEFORE

Suction tee location. Include notes regarding fitting sizes and anything else that might be useful.



AFTER

Suction tee installed. Include notes regarding fitting sizes and anything else that might be useful.

PONY PACK SUCTION TEE PART NO.

- ☐ 104-0213 Suction Tee, 10 MIO tee with 10 FO and 10 MIO sides
- ✓ **104-0245 Suction Tee, 10 MIO tee with 12 FO and 12 MIO sides**
- ☐ Other: _____

TRUCK INFORMATION

Truck Make: Western Star

Year: 2000

Truck Model: _____

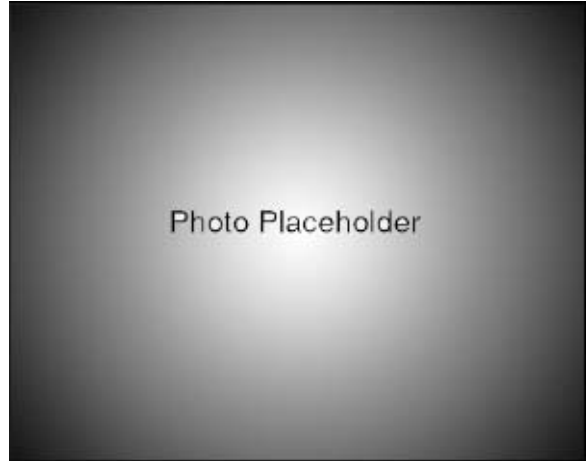
Sleeper Model: _____

SHUNT VALVE



Shunt valve location. Include notes regarding fitting sizes and anything else that might be useful.

SUCTION TEE



BEFORE

Suction tee location. Include notes regarding fitting sizes and anything else that might be useful.



Shunt valve installed. Include notes regarding fitting sizes and anything else that might be useful.



AFTER

Suction tee installed. Include notes regarding fitting sizes and anything else that might be useful.

PONY PACK SHUNT VALVE PART NO.

- ☒ **104-0290 Standard Shunt Valve**
- ☐ 104-0291 Kenworth Shunt Valve
- ☐ 104-0292 Peterbilt Shunt Valve
- ☐ 104-0293 International Shunt Valve
- ☐ Other: _____

PONY PACK SUCTION TEE PART NO.

- ☒ **104-0213 Suction Tee, 10 MIO tee with 10 FO and 10 MIO sides**
- ☐ 104-0245 Suction Tee, 10 MIO tee with 12 FO and 12 MIO sides
- ☐ Other: _____

Auxiliary Evaporator for Peterbilt

Ordinarily, the Pony Pack air conditioning system is integrated with the on-board air conditioning system on the truck. This method utilizes the truck ventilation and temperature controls and the blower motors and ductwork. In some cases, it may be desirable to install a stand alone air conditioning system that does not integrate with the truck A/C system. For this, an auxiliary evaporator unit is installed in the truck.

An auxiliary evaporator unit is usually a box-shaped assembly that contains an evaporator, blowers, ducts, and controls. It is installed permanently, usually in the sleeper, and has two refrigerant hoses plumbed directly to the Pony Pack. Several different evaporators are available from various manufacturers. This document and accompanying diagrams show a Kysor/Westran Model No. KA-700 Sidekick evaporator unit.



Kysor/Westran KA-700 Sidekick. This unit is 16 inches tall, 14 inches wide, and 9 inches deep.

The Sidekick has tapped mounting holes on the back and bottom for fine-thread 3/8 inch fasteners. It contains two fans and four vents.

The two dial controls are for A/C temperature and fan speed. The installer needs to purchase and install a receiver/dryer to go with any auxiliary evaporator.

ITEM LIST

Below are the items needed to install an auxiliary evaporator:

- Auxiliary evaporator unit
- Receiver/dryer
- 3/8-24 studs or bolts to mount the evaporator
- Refrigerant hoses
- Single relay harness (available from Pony Pack)

NOTE: Since the Pony Pack A/C system is not integrated with the truck, the shunt valve and suction tee are not used.

MOUNTING LOCATION

Keep these points in mind when determining a mounting location for the auxiliary evaporator.

- Allow space in front of the unit and on the sides for proper air circulation.
- The A/C hoses and wire harness connect on the right-hand side of the unit.
- The controls on the unit need to be accessible to the user.
- The refrigerant hoses need to exit the truck cab/sleeper compartment and connect to the Pony Pack.
- The condensation drain hose needs to exit the truck to drain on the pavement.

INSTALLATION

1. Mount the evaporator in the truck. The Sidekick mounting locations are tapped for 3/8-24 bolts. Pony Pack recommends using studs. Use Loctite or jam nuts to prevent the studs or screws from backing out of the evaporator.
2. Determine where the refrigerant hoses will exit the compartment and route to the Pony Pack. Drill the necessary holes if needed.
3. Install a receiver/dryer. Mount it on the truck frame near the unit.
4. Fabricate and install the refrigerant hoses. Be sure to secure them away from hot or moving parts.
5. Route the condensation drain hose through a hole in the floor of the truck.
6. Charge the auxiliary evaporator like any A/C system. First pull a vacuum to test for leaks, and then charge the system with refrigerant. A Kysor Sidekick installation holds between 2 and 2-1/2 lbs of refrigerant.

ELECTRICAL INSTALLATION

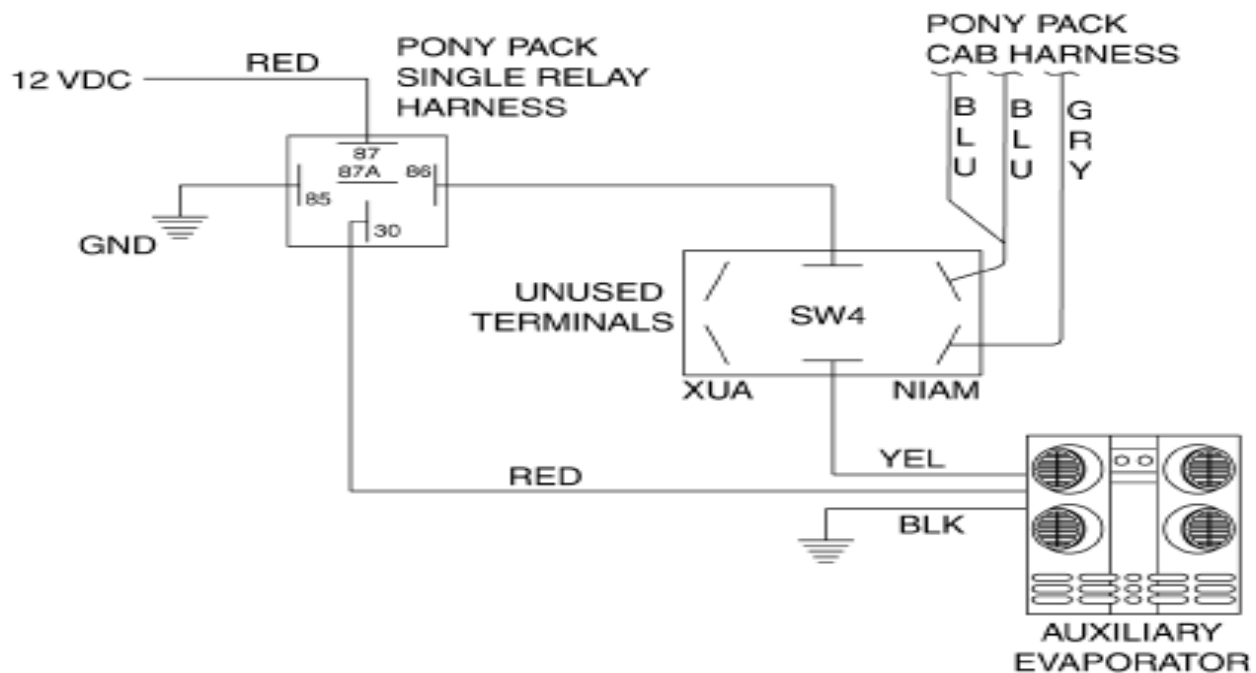
The Kysor Sidekick has a three-wire harness that contains a red wire for power, a black wire for ground, and a yellow wire for thermostat control. Unless you have the proper mating connector, you will need to cut the connector off the wire harness.

1. Attach the red wire to a 12 volt power source. Pony Pack recommends installing a relay as shown to excite the evaporator power lead from switch four on the Pony Pack control panel.
2. Attach the black wire to a good secure ground location.
3. Attach the yellow wire to the lower center post of switch four on the Pony Pack control panel.

The schematic below illustrates how to wire an auxiliary evaporator.

OPERATION

To use the auxiliary evaporator, turn on the Pony Pack; toggle switch four to the AUX position. Use the dial controls on the evaporator to adjust the temperature and fan speed.



Generic wiring schematic for a Pony Pack with an auxiliary evaporator. This applies to most applications including Peterbilt.

Electrical Installation

The Pony Pack integrates electrically with the truck via a 3 inch by 5 inch control panel. The control panel's four toggle switches control starting, stopping, heating, and cooling functions. Electrical installation requires the following:

1. Choosing a location for the control panel.
2. Routing the cab wire harness, included in the installation kit, along the truck frame, through a hole you drill in the firewall, to the Pony Pack control panel location in the cab.
3. Plugging the cab harness into the truck-engine temperature thermistor.
4. Wiring the cab heat pump.
5. Plugging the cab wire harness into the control panel.
6. Integrating switch four, MAIN/AUX, on the control panel with the truck's A/C controls.
7. Installing the Pony Pack ground.
8. Installing the Pony Pack power lead (supplied by the installer).
9. Testing
10. Screwing the control panel in place. (Screws supplied by the installer).

The cab wire harness and control panel are included in the installation kit that comes with the unit.

The *Panel Wiring Schematic* shows the cab harness connections at the rear of the Pony Pack, and the harness connections at the control panel. It also includes illustrations of the temperature thermistor (installed in the truck

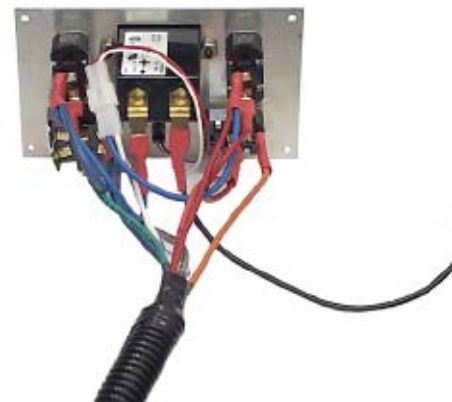
engine block), cab heat pump (installed in the cab heater core supply hose) and their associated connections.

Always make good electrical connections. Solder wires properly and use a heat shrink material to protect the joints. Pony Pack will not warranty damages caused by improper electrical connections and less than robust solder joints.

CONTROL PANEL LOCATION



Pony Pack Model 105 and 2004 Control Panel



Unit wire harness plugged into the back of the control panel. This photo is for illustration purposes only.

Choose a location on the dashboard for the Pony Pack control panel. On some trucks the easiest mounting scheme is to remove the ash tray and put the panel in its place. Some drivers prefer to cut a hole in the dash. Consider these items when choosing the control panel location:

- Is there sufficient space behind the panel so it will sit flush on the dashboard?
- Is the dashboard material rigid enough and thick enough to hold the four mounting screws (supplied by installer) in the corners?
- Is there a good location on the firewall to drill a 5/8" hole for routing the wire harness to the control panel?
- Is there either hollow space in the dashboard behind the control panel location or out near the firewall where excess wire harness length can be coiled up and stored safely out of the way?
- Is there access between the control panel and the load center and/or ignition switch to install a relay harness and route the wires for switch four.



Do not install the control panel in the sleeper. Do not attempt to install a second control panel in the sleeper. Pony Pack will not warranty problems that arise from sleeper panel installations.



Panel installed in the ashtray location.



Additional photo of a panel location.

ROUTING THE CAB WIRE HARNESS

The cab wire harness is included in the install kit. Uncoil it and lay it out beside the truck. It should be about 27 ft. long. The end with loose wires attaches to the control panel. The end with two black plugs attaches to the rear of the Pony Pack. Here are a few things to consider when installing this harness.

- Once the installation is finished, the harness and hoses all need to be safely secured away from driveshaft, exhaust pipes, and abrasive edges.
- It may be necessary to drill a hole in the firewall. It must be large enough to feed the loose wire bundle (on the cab harness) to the cab control panel. Sometimes it can be routed through the firewall alongside an existing truck harness leg.
- The cab harness is 27 feet long to accommodate the longest trucks. This is longer than needed for most trucks. Look for a location to secure a coil of excess wire out of the way.



Harness connectors and ground wire behind the Pony Pack

1. Drill a 5/8" hole in the firewall. Be sure there is clearance on either side of the hole. Avoid drilling into A/C tubes, hoses, or other wires etc.
2. Starting at the Pony Pack, route the harness to the engine compartment.
3. Once the harness is in the engine compartment, locate the white and white/green wires for the thermistor and the single green wire for the cab heat pump. Uncoil these wires and determine the best way to route them to the thermistor and cab heat pump.
4. Feed the "loose wire" end of the harness through the hole in the firewall. From inside the truck, pull the harness through until the wires easily reach the control panel.

Coil up the extra wire behind the control panel or out on the firewall. Commonly, mechanics use tie straps to hold the coil tightly in place.

THERMISTOR WIRING

Plug the thermistor connector from the cab harness into the thermistor. Coil up any excess thermistor wire and tie it securely away from hot or moving engine components.



Thermistor plugged in.

CAB HEAT PUMP WIRING

Locate the cab heat pump. It should have been installed in the cab heater core supply hose. See *Coolant System Plumbing* for instructions on installing the cab heat pump. Plug it into the cab harness connector, yellow and black wires.

Note: On earlier Pony Packs, the cab heat pump was hard wired. The power wire (black on the pump) was attached to a green wire from the cab harness. The brown wire, ground, was bolted somewhere in the engine compartment with an eyelet or ring terminal.

CONTROL PANEL WIRING

Connect the spade connectors on the cab wire harness to the terminals on the control panel switches exactly as shown on the *Panel Wiring Schematic*. Understand, on the schematic, the control panel is shown as viewed from behind.

Install a ground wire (supplied by the installer) to the negative spade connector on the hour meter.



Control panel hanging out of hole in dash with the Pony Pack Cab Harness wires attached.

SWITCH FOUR

Wiring switch four on the Pony Pack control panel is the most challenging aspect of the Pony Pack electrical installation. It is wired uniquely for each truck manufacturer. In some instances, the wiring changes from year to year depending on the changes the truck manufacturer makes to the heating, ventilating, and air conditioning (HVAC) system.

Wiring switch four requires accessing the truck's load center and locating the wires that control the truck compressor clutch and cab and sleeper blower motors. Once these wires are known, it may be necessary to cut them and split into a relay circuit.

EXPLANATION

Pony Pack includes truck specific schematics that illustrate the recommended wiring. They are included at the back of this manual. We are constantly updating these schematics and trying to stay current with the latest trucks. If you don't find the exact schematic for a specific truck, look at other schematics for that manufacturer and compare them to what you see in the truck's load center. Often they are similar. Furthermore, if we know the type of truck, we include relay harnesses as needed. A short discussion on the underlying function behind the MAIN/AUX switch follows.

The A/C system on a truck requires constant 12 volt power to operate the compressor clutch (engage the compressor), blower motors, thermostat, and climate control components. A properly installed Pony Pack provides 12 volt

power to these components **WITHOUT THE KEY IN THE TRUCK IGNITION**. Battery discharge is not an issue because the Pony Pack alternator keeps the batteries charged.

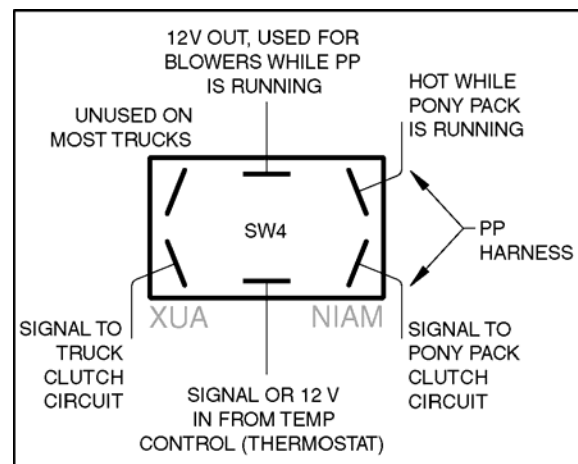
The MAIN/AUX switch: Transfers all heating, ventilating, and air conditioning functions between the truck engine (MAIN) and Pony Pack (AUX).

When the MAIN/AUX switch is in the AUX position (no truck key required), the truck air conditioning sensors and dashboard controls activate the Pony Pack compressor clutch as needed for cooling. The blower motors receive power via a constant hot circuit provided by the Pony Pack. When the switch is in the MAIN position (truck key required), the truck air conditioning sensors and controls activate the truck compressor and blowers as needed for cooling. The blower motors receive power via normal truck operation.

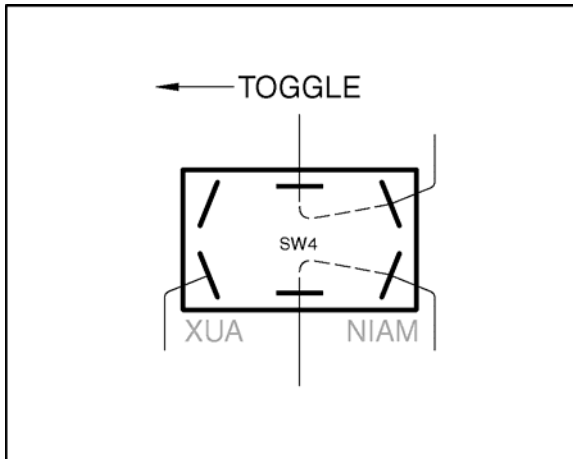
Obviously, since an A/C compressor is a belt driven accessory, the truck engine must be running to use the truck compressor. Likewise the Pony Pack must be running to use the Pony Pack compressor. If both the truck and Pony Pack are running, switching the MAIN/AUX switch determines which compressor engages when the dashboard controls are set for cooling.

SWITCH FOUR WIRING

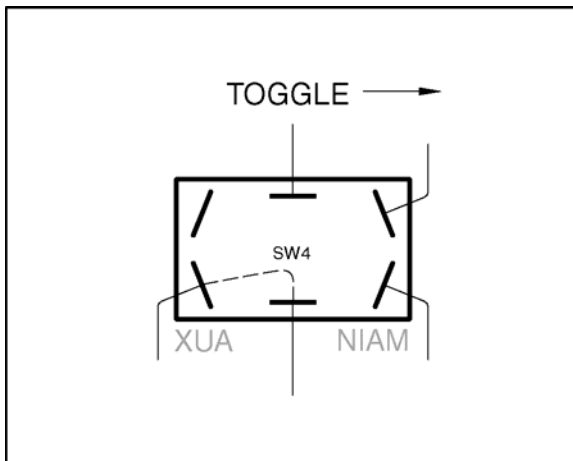
The following diagrams show the six terminals on switch four as viewed from behind. Notice the labels on the panel front are shown in gray text and backwards. The toggle action completes the circuits between the center terminals and a pair of outside terminals.



Switch four terminals. The installer wires center terminals and "signal to truck clutch circuit" wire per the switch.



This shows the live switch four circuit when the toggle is in the AUX (Pony Pack) mode.



This shows the live switch four circuit when the toggle is in the MAIN (Truck) mode.

Locate the switch four schematic and use it as a guideline. Locate the truck wires identified by number on the schematic. They may be found in the load center which is usually located behind a kick panel or behind the dashboard. The thermostat is commonly located behind or under the dashboard on the passenger side. Consult manufacturer's documentation as needed for locating wires.

The upper circuit on the MAIN/AUX switch supplies 12 volt power to the blower motors, even without a key in the ignition. This is accomplished by splitting and powering the motor circuits, usually with relays.

The lower circuit on the MAIN/AUX switch activates the truck or Pony Pack compressor clutch when it receives a control signal, usually from the thermostat. A relay is not necessary because the signal voltages are low.

Thermostats have both an input and an output wire. Make sure it is the output wire that you split. Some trucks require splitting the clutch wire instead of the thermostat wire.

NOTE: It is easier to find the thermostat output wire while there is refrigerant still in the system.

SET THE A/C CLUTCH CONTROL TO POWER OR GROUND SWITCHING

The truck control system engages the A/C compressor clutch either by energizing the clutch power wire; *power switching*, or closing the clutch ground circuit; *ground switching*.

Power switching is the most common arrangement. The Pony Pack A/C compressor clutch is a power switching clutch. Unless the factory knows a Pony Pack is destined for a ground switching truck, Pony Packs are set up for the power switching arrangement. Changing the Pony Pack to accommodate a ground switching truck requires swapping a pair of connectors in the Pony pack unit harness. This procedure is explained below.

HOW TO IDENTIFY POWER AND GROUND SWITCHING ON A TRUCK

Locate the harness connection on the truck's A/C compressor. A single wire harness plug indicates a power switching clutch that employs a frame ground. Two wires indicate that the clutch does not employ a frame ground and can be either power switching or ground switching. Usually, a two-wire harness plug indicates ground switching.



Single-wire harness plug on a truck compressor.



Two-wire harness plug on a truck compressor.

The surest way to determine if a truck is ground or power switching is to locate the thermostat in the cab compartment. Remove one of the two thermostat wires. Set the dash controls to engage the A/C clutch. (Truck IGN on). Use a test light (clipped to ground for a power switching truck) to determine which of the two thermostat wires sends the signal to engage the clutch. If you suspect the clutch is ground switching, clip the test light to a power source and do the same thing. The thermostat output circuit is what gets split to the lower center terminal on the Pony Pack, switch 4.

POWER SWITCHING TRUCKS

*Freightliner
Early International
Early Volvo
Mack
Peterbilt, R12 units, before mid 1994
Volvo
Western Star*

GROUND SWITCHING TRUCKS

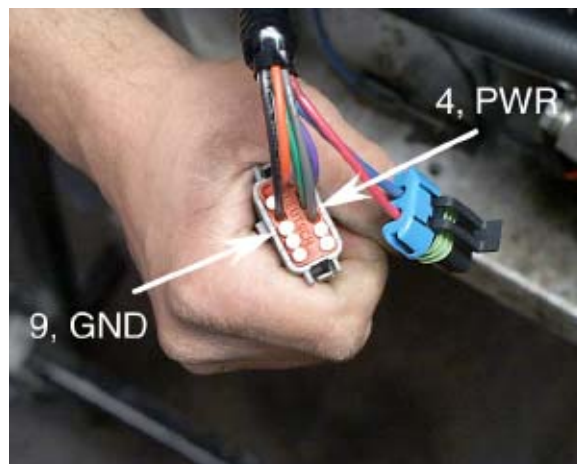
*International
Kenworth
Peterbilt, R134 units, after mid 1994*

CHANGING THE CLUTCH SWITCHING ARRANGEMENT ON A 2004 PONY PACK

The unit schematic at the back of this manual shows the gray module connector. It is labeled CAB, GRY. It is the gray plug on the end of the module, close to the air intake hose. Unplug it from the module and pull it out towards the left side of the unit. You will likely need to unplug the two-wire harness connector with the red and blue wires.

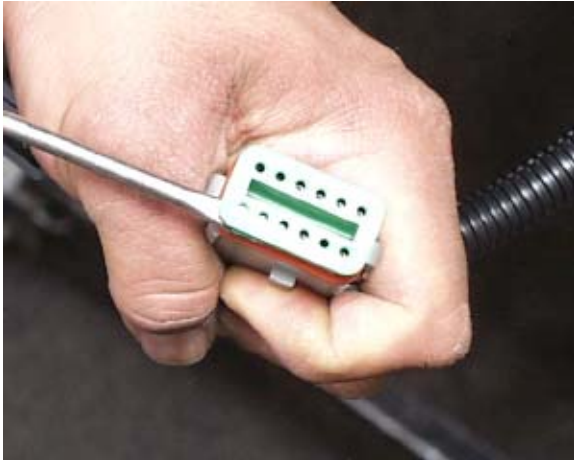
This procedure describes how to change the harness from a power switching arrangement to a ground switching arrangement. Simply do the opposite to change from ground to power.

1. Locate the gray where it enters the back of the connector. If you look closely, you can actually see tiny numbers on the connector body that identify the terminal locations. In the photos, we are showing how to move the terminal from the number 4 Power Switching location to the number 9 Ground Switching location.

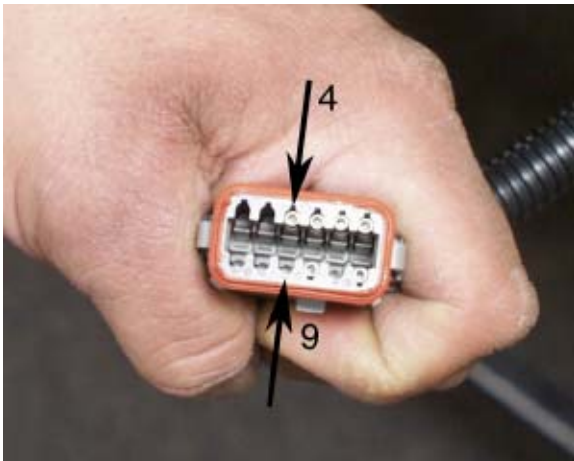


Module connector in the Module-Cab Harness. The gray wire is in the number 4, power switching location.

2. Carefully use a narrow screwdriver to pry the green plastic faceplate off the connector. Work the screwdriver under one corner and down the side of the connector.



Pry off the green faceplate.



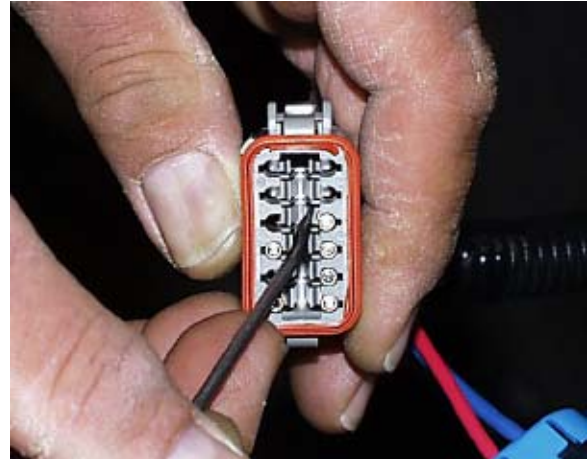
Faceplate removed. You can see the terminals.



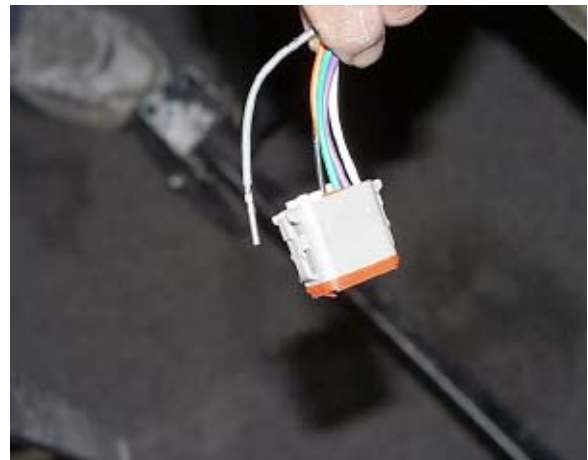
Remove the cavity plug. Save it for replacement.

3. Remove the white cavity plug from the number 9 location. You can pry it out from the back or push it out with a pick from the inside.

4. Look into the connector and you will see small barbs that keep the terminals from pulling out the back of the connector. Use a pick or small screwdriver and gently nudge the number 4 barb towards the center and pull on the gray wire from the back.
5. Gently pull the gray wire out the back of the connector. It will slide out of the rubber seal.



Use a pick or small screwdriver to push the barb out of the way.



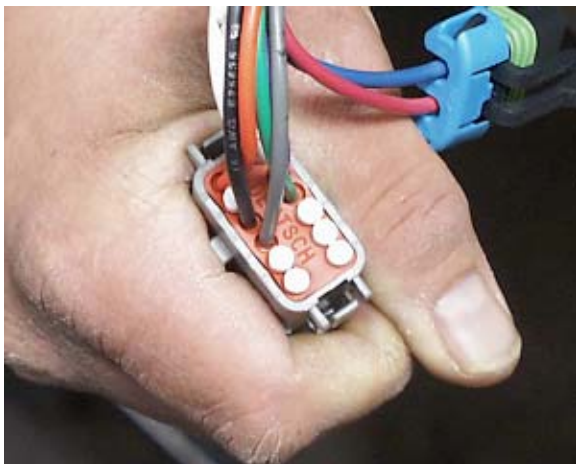
Gently pull the wire all the way out of the seal.

6. Poke it back through the seal at the number 9 location. Push it through until it seats. You should hear "click."



Move it over to the number 9 position and gently push it through the seal until you hear it click in place.

7. Replace the cavity plug in the empty position.



Once it is pushed all the way in, replace the cavity plug in location 4.

8. Gently insert the green faceplate back into the front of the connector and press it in until it clicks.
9. Plug the module connector back into the module.
10. Plug the two-wire connector back into the adjacent harness.

INSTALL GROUND CABLE

Locate the black 6 gauge ground wire behind the Pony Pack. It is about 40 inches long. Because lengths vary, the additional ground wire to the battery box is supplied by the installer. Use a 6 gauge cable or larger. Pony Pack highly

recommends crimped, soldered, and heat shrunk end lugs with some protective loom or convoluted conduit along the entire length.

Use a bolt and locknut to attach the leads together. Contact lubricant will help keep corrosion out of this joint.

Connect the opposite end of the ground cable to a ground post in the battery box on the truck. Route the wire along the frame. Secure it away from moving or hot parts and sharp abrasive corners.

NOTE: It is acceptable for the mechanic to remove the Pony Pack supplied ground cable and simply install a continuous ground cable between the truck and the Pony Pack.



Pony Pack recommends grounding the unit at the same location as the battery ground. Attaching to the passenger sided frame rail DOES NOT insure an adequate ground on all trucks.

INSTALL POWER CABLE



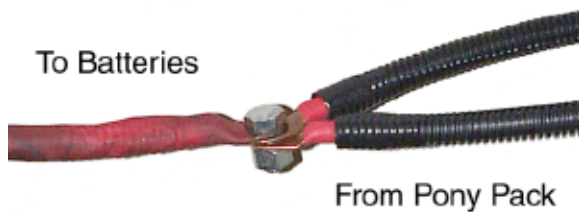
Install the main power lead only after all the other electrical connections are finished.

Because lengths vary, the power wire is supplied by the installer. Use a 2 gauge cable. Pony Pack highly recommends crimped, soldered, and heat shrunk end lugs with some protective loom or convoluted conduit along the entire length.

Locate the two power leads at the rear of the Pony Pack. Use the M8 x 15mm hex bolt and locknut included in the Pony Pack install kit to attach the lugs on these leads to the lug on the main power lead. Contact lubricant will help keep corrosion out of this joint.



This joint must be insulated with heat shrink tubing and/or electrical tape to prevent contact with surrounding ground sources. Failure to insulate this joint will result in costly damage to the Pony Pack electrical system.



Bolted connection for the main power lead.

Connect the opposite end of the main power lead to the battery box on the truck. Route the wire along the frame. Secure it away from moving or hot parts and sharp abrasive corners.

NOTE: The charging gauge on most trucks will show a slight discharge condition when the Pony Pack is wired directly to the batteries. This is normal and reflects the current electrical usage on the truck.

HISTORICAL NOTE

Prior to 2003, Pony Pack recommended routing the main power lead to the power post on the truck alternator and the ground cable to the truck frame. Mechanics will likely notice this arrangement on pre-2003 Pony Packs.

FUNCTION TESTS



These are non-running electrical tests. Do not run the engine while performing these tests.

For these tests, you will want someone outside the truck to tell you when they hear the compressor clutches engage and disengage and if some of the other Pony Pack items are operating. Conduct these tests with the cover off the Pony Pack and the truck hood open.

SERVICE MODE ON MODEL 2004/06 PONY PACKS

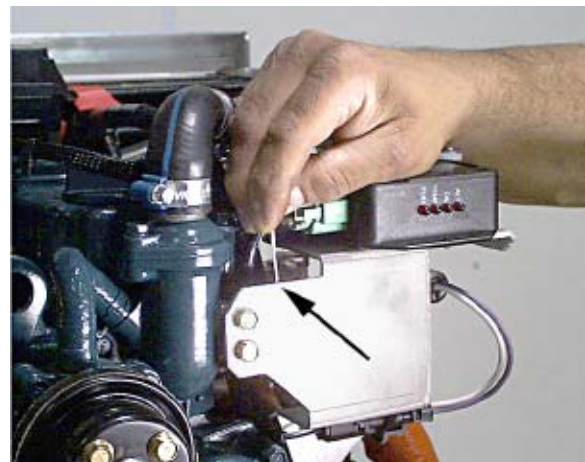
Once the IGN/OFF switch is toggled to the ON position, the electric fuel pump on the Pony Pack will run for two minutes in anticipation of the driver starting the unit. Also, blower motors in the truck dash and the cab heat pump will run if they are switched on. Additionally, the hour meter will roll. If the driver does not start the Pony Pack, the fuel pump and related electrical items will all turn off and stay off until the driver again either toggles the IGN/OFF switch to the IGN

position or toggles the START switch to the right to begin the start sequence.



White reset wire, model 2004/06 Pony Pack.

If you look closely, there is a short white wire, four inches long, coming out of the green plug in the module. Making electrical contact between this wire and the module bracket (before the two-minute timeout mentioned above) starts the SERVICE MODE so a mechanic may test various Pony Pack functions. Once started, the Pony Pack stays in SERVICE MODE until the engine is started or the IGN/OFF switch is turned OFF. In service mode, electrical system components have power for 15 seconds at a time. Touching the white wire to the module bracket begins another 15 second electrical power up period.



Reset wire contacting module bracket starts SERVICE MODE.

Starting the Pony Pack of toggling the ON/IGN switch to IGN will cancel the service mode.

SERVICE MODE

By design, the Pony Pack electronic control system shuts down electrical functions (fuel pump, heat exchanger motor, fan, coolant pump etc.) if the engine is not started within 15 seconds of turning the IGN/ON switch to the ON position. (This prevents battery drain in the event the Pony Pack shuts down.) However, 15 seconds is not always enough time for purging the air from the fuel system. If the service button is pushed within 15 seconds of turning on the IGN/ON switch, then the electronics will enter the SERVICE MODE. Once in the SERVICE MODE, pushing the service button has the same effect as toggling the IGN/ON switch. The service button will work as long as the IGN/ON switch is in the ON position. This feature may also be used to troubleshoot electronic components safely, without the engine running.

NOTE: If unused, the SERVICE MODE will time out after five minutes.



Service button on a model 105 Pony Pack. On older models, this switch is located on the module.



Service button on a model 2004 Pony Pack.

TEST THE IGNITION FUNCTION

When the IGN/OFF switch is toggled to the IGN position, the green light on the Pony Pack control panel will blink once, the Pony Pack control system engages the electric fuel transfer pump (bolted to the base plate behind the Kubota oil pan) which can be heard if you listen closely, the module staging lights will blink through a sequence then turn off, and the heat exchanger motor linkage will move into bypass mode (toward the front of the unit). If any of these things do not occur, check all the wiring and retest.

PONY PACK (AUX) CLUTCH CONTROL, MODEL 104 AND EARLIER

NOTE: Testing the Auxiliary Clutch Control without the Pony Pack running only works for Model 104 Pony Packs and earlier. The A/C clutch on a Model 105 Pony Pack will not engage unless the Pony Pack engine is running.

1. Turn the truck A/C switch off.
2. Make sure the key is in the off position. Toggle the Pony Pack IGN/OFF switch to the ON position. You have 15 seconds to complete steps 3-6. If you run out of time, simply toggle the IGN/OFF switch again and the 15 second shutdown mode will repeat.
3. Toggle the MAIN/AUX switch to the AUX position.
4. Turn the truck A/C switch on. You should hear a click sound when the Pony Pack compressor clutch engages. You can see it move if you are standing close enough.
5. Turn the truck A/C switch off. The clutch should disengage.
6. Turn the blower motors on in both the cab and the sleeper. You should hear the fans. Turn the blower motors off.

TRUCK (MAIN) CLUTCH CONTROL

1. Put the key in the ignition and turn it enough to engage the ignition mode but not start the engine. Toggle the Pony Pack IGN/OFF switch to the OFF position.
2. Turn the truck A/C switch off.
3. Toggle the MAIN/AUX switch to the MAIN position.
4. Turn the truck A/C switch on. You should hear a click when the truck compressor clutch engages. You can see it move if you are standing close enough.
5. Turn the truck A/C switch off. The clutch should disengage.
6. Turn the blower motors on in both the cab and the sleeper. You should hear the fans. Turn the blower motors off.

If the A/C clutch and fans do not work as intended, recheck the wiring. Contact Pony Pack if you have questions.

TEST THE CAB HEAT PUMP

Test the cab heat pump that was installed in the cab heater core supply hose. Ask a helper to stand close enough to the pump to hear it or feel it vibrate.

1. Toggle the Pony Pack IGN/OFF switch to the ON position.
2. Within 15 seconds, toggle the CAB HEAT/OFF switch to the CAB HEAT position. You should hear the pump motor turning. If you can't hear it, touch it to feel if it is running.
3. If the cab heat pump is not working, recheck the wiring. Remember, the pump is unusual in that the black wire is the power lead and the brown wire is the ground.

Proceed to the section for INITIAL UNIT START-UP AND OPERATION

Freightliner Auxiliary Air Compressor

Some Freightliners require the air system on the truck to maintain adequate pressure for certain heat and A/C functions to operate properly. Once the engine is shut off, small leaks in the air system on the truck cause it to bleed down and the heat and A/C features revert to defrost. To remedy this, Pony Pack recommends installing a small, oil-less auxiliary air compressor and pressure cutoff switch. The 12 volt compressor comes on as needed and pressurizes the air tank on the truck.

Compressors that have worked well for our customers are part of the Firestone *Ride-Rite* product line.

Part No. 9210, heavy duty for 3 gallon tanks.

Part No. 9285, super heavy duty for up to 5 gallon tanks.

Part No. 9230, super heavy duty for up to 5 gallon tanks.

For the pressure switch, we recommend:

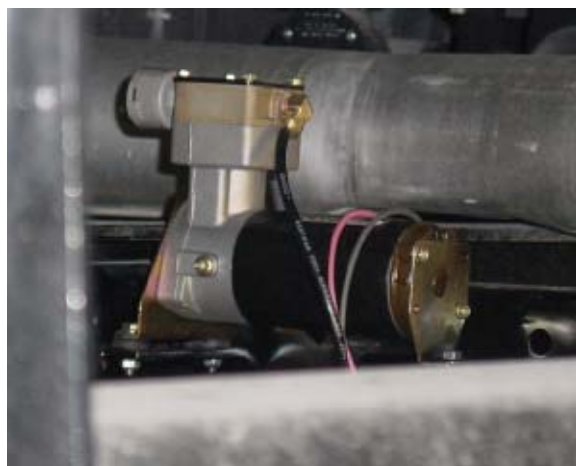
Part No. 9016 pressure switch, on at 90 psi, off at 120 psi.

WIRING

Wire the compressor using a relay as shown in the attached wiring schematic on the back of this page. *SW4 Schematic No. 1-2* for Freightliner also illustrates the proper way to wire the compressor on the truck. Pick up power for the relay coil from the Pony Pack control panel on the blue wires at switch four.

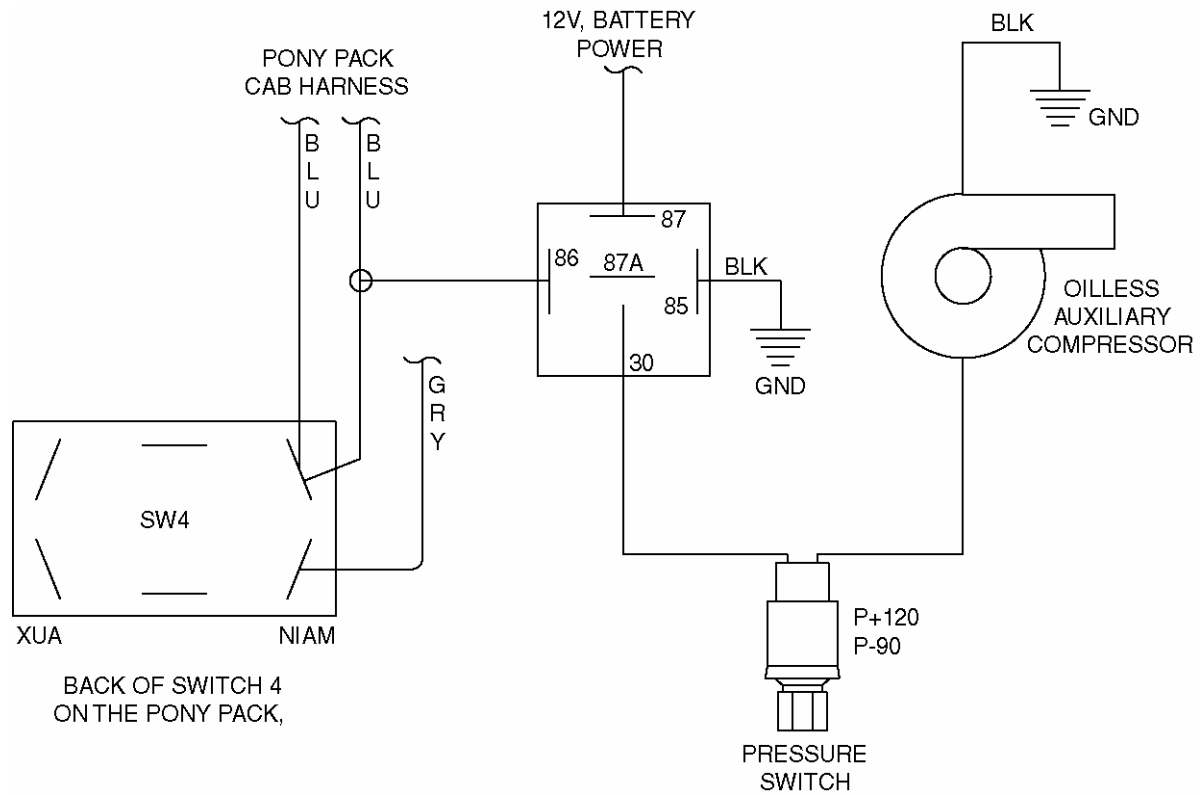
Pick up power for the compressor from a 12 volt battery source on the truck.

Install the pressure switch in a tee to shut off the compressor when system pressure is attained.



Auxiliary air compressor installed on a 2001 Freightliner FLD.

General wiring arrangement for an auxiliary air compressor



Initial Start-Up and Test

Read and understand the safety section at the front of this manual before proceeding further.



Only qualified shop personnel should operate the Pony Pack without the cover in place. Operating the Pony Pack with the cover removed is dangerous. Keep loose clothing, hair, tools, fingers, and anything else clear of the Pony Pack moving components.

Pour the coolant back into the truck engine if you have not already done so. Have extra coolant on hand to add as air is purged from the system.

Before starting the Pony Pack, it is necessary to purge the air from the fuel and coolant hoses.

PURGE THE AIR FROM THE FUEL SYSTEM

Always purge the air from the system after servicing either fuel filter. The following photo shows the three screws that are loosened one at a time to purge air from the fuel system.



Leave the fuel bowl pet-cock alone. It serves no useful purpose within the Pony Pack fuel system. The lever must be pointed down for fuel flow. Model 2004 and later Pony Packs have the pet-cock removed.



Three purging screws: (1) and (2) on the aluminum filter body and (3) on the injector pump.

Screws 1 and 2 install into an aluminum body. Barely tighten them to prevent stripping out the housing. Some drivers find that finger tight is adequate and they never use a wrench. Gently tighten screw number three with a wrench.

1. Cover the alternator (up to model 105) or compressor (model 2004 and later) with a rags or a catch pan to prevent diesel fuel from entering the case.
2. For older units push the service button to engage the electric fuel pump. For new units, make contact with the reset wire to initiate the service mode. (See *Electrical Installation*).



Purging the air out of the fuel system: The right hand is making contact with the reset wire. The left hand is bleeding the air. Note the rags in place to keep fuel off of the compressor.

3. Open screw number 1 between a half and full turn.
4. Keep it open until fuel drips steadily from behind the screw, and tighten the screw
5. Repeat step 4 for screws 2 and 3. Push the user switch as needed (every 15 seconds) so the electric fuel pump continues to purge the air from the system.

Depending on the Pony Pack fuel plumbing arrangement, a low fuel level in the tank may introduce air into the fuel system.

PURGE AIR FROM THE COOLANT SYSTEM (NO PURGE VALVE)

Follow this procedure for model 2004 Pony Packs and older.

Any time the truck coolant is removed or the coolant system is open, it is likely air will enter the coolant system. If the air pocket migrates to the Pony Pack, an over-temperature shutdown will occur. Follow these steps:

1. Open the Pony Pack coolant flow valves at the truck engine if so equipped.
2. Check the coolant level in the truck. Add coolant if necessary.
3. Clamp the water pump inlet hose and thermostat outlet hose with clamping vise grips as shown.

4. Loosen the hose clamp at the thermostat nipple just enough that you can ease the hose off just one side of the nipple. This allows steam and air to vent.



Clamp locations

Start the truck engine. Perform steps 5-8 with the truck engine running.

5. Once pressure is released, you can ease the hose completely off the nipple. Air will continue to vent.
6. Unclamp the inlet hose to the Kubota water pump BUT be prepared to clamp it shut quickly. Bubbles coming out of the thermostat housing mean that there is air in this side of the system. Eventually, the bubbles will stop and coolant will rise to the top of the thermostat housing. Clamp the hose.
7. Bleed air from the thermostat hose by unclamping it. You may hear a gurgling noise as the air leaves the system. When coolant starts to come out of the hose, quickly place it over the thermostat nipple and tighten the clamp.
8. Add coolant at the truck radiator as needed.
9. Start the truck and let it run for five minutes. Then repeat steps 1 thru 7 if the unit shuts down for over temperature.

Now the unit is ready to run. Read ahead and follow the Start-Up Procedure to get the Pony Pack running. After the Pony Pack starts, it will likely shutdown for over-temperature. (The temp

LED on the module will remain on after the unit shuts down.) It may be necessary to repeat steps 4 thru 8 above and restart the unit as many as five or six times before all the air is removed from the system. Based on experience, Caterpillar engines are the easiest from which to remove air, followed by Detroit, and Cummins.

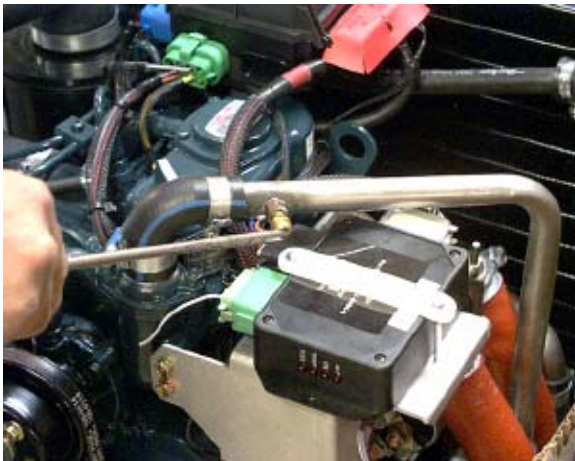
PURGE AIR FROM THE COOLANT SYSTEMS WITH A PURGE VALVE

Follow this procedure for late model 2004 and 2004/06 Pony Packs. These units have a stainless steel coolant tube between the Kubota thermostat and the heat exchanger inlet. There is a Schrader valve brazed to the side of the tube specifically for bleeding the air from the coolant system.



Engine coolant under pressure may be extremely hot and can cause severe burns. Never press the Schrader valve with your fingers. Always use a tool from the side to press the valve stem. Keep hands and fingers away from the direct line of spray that results when the valve is pressed.

To bleed the air, simply remove the cap and use a long screwdriver or similar tool to press and hold the Schrader valve stem in until a steady stream of coolant squirts out. Be sure to hold your hands off to the side while you insert the screwdriver into the valve.



Using a screwdriver to bleed the air out of the Pony Pack coolant system.

CONTROL PANEL



Pony Pack control panel

CONTROL PANEL FUNCTIONS

Hour Meter: The hour meter runs when the unit is running.

Green Light: The green light stays illuminated while the unit is preheating or running.

A flashing green light indicates a system malfunction. For more information, remove the cover and see what red light on the module is lit.

IGN/OFF switch: Pony Pack ignition.

START switch: Preheats and starts the Pony Pack.

CAB HEAT/OFF switch: Turns the in-line coolant pump on or off for cab heating.

MAIN/AUX switch: Transfers all heating, ventilating, and air conditioning functions between the truck engine (MAIN) and Pony Pack (AUX).

SHUT-DOWN PROCEDURE

Before initial start-up, it is best to understand the standard shutdown procedure. Turning the IGN/OFF switch to OFF cuts power to the fuel pump and closes the fuel solenoid which effectively shuts down the unit.

The CAB/HEAT switch should be OFF and the MAIN/AUX switch should be in MAIN position before shutting off the Pony Pack. However, in an emergency, do not be concerned with the position of any switches; simply turn the IGN/OFF switch to OFF.

ENGINE STOP LEVER

The engine stop lever may be used to stop the engine at the unit in an emergency or when the control panel is not readily accessible.



Engine stop lever.

INITIAL START-UP

With the truck engine running, follow these steps for initial Pony Pack start-up. Once the Pony Pack starts, it will likely run for only a few minutes before it shuts down for temperature. Purge the air again and restart.

Once the Pony Pack is running, observe the fuel bowl. It should remain full of fuel. If the fuel level drops, air is getting introduced into the fuel system, likely at a loose hose connection.

During initial operation, inspect all around the unit for coolant or fuel leaks and anything unusual.

1. Place the CAB/HEAT switch in the OFF position and the MAIN/AUX switch in the MAIN position.
2. Turn the Pony Pack IGN/OFF switch to IGN. The green light will blink on and off once.
3. Push the spring-loaded START switch to the right and release. The green light will illuminate indicating automatic glow plug operation. Holding the START switch does not affect the preheat duration.

NOTE: Preheat duration is automatically determined by the coolant temperature in the Kubota engine.

4. When the green light goes off, push the START switch to the right and hold it there until the unit sounds like it is running under its own power. THE UNIT WILL NOT START UNTIL THE GREEN LIGHT SHUTS OFF.
5. When the green light stays on, the unit is running.

If the unit does not start, turn the Pony Pack ignition switch off and back on to reset the control module. Repeat the start-up procedure.

If you recently purged air from the coolant system, the main drive belt may squeal because it is wet. You may also notice steam due to the coolant boiling off engine parts. Both these symptoms will go away as the unit runs.

After the Pony Pack runs continuously for at least ten minutes, start checking the air conditioning and heating functions.

A/C OPERATION

With the truck and Pony Pack running, place the Pony Pack MAIN/AUX switch in the MAIN position. You should see or hear the clutch on the truck A/C compressor engage. Operate the A/C system on maximum cooling at the same engine RPM recorded for the initial test on the *Installation Checklist and Record*. After five minutes, record the cab and sleeper vent temperatures. Turn off the A/C controls and shut off the truck engine.

With the Pony Pack running and the truck on or off, place the Pony Pack MAIN/AUX switch in the AUX position. You should see or hear the clutch on the Pony Pack A/C compressor engage. Operate the A/C system on maximum cooling. After five minutes, record the cab and sleeper vent temperatures.

If the truck and Pony Pack compressor clutches don't engage when the MAIN/AUX switch is toggled between MAIN and AUX respectively, it is likely the system is low on Freon or the MAIN/AUX switch is improperly wired. Check the Freon level and the wiring against the Switch Four schematic for the specific truck.

The initial and final truck A/C performance should be similar. Differences in vent temperature are likely due to ambient temperature, humidity, truck location (indoors or out), sunlight, and engine rpm. For the best

comparison, record the initial and final vent temperatures under similar circumstances.

The Pony Pack system will likely out cool the truck system because the Pony Pack is operating at optimum rpm while the truck is operating at idle speed. In transit, the truck A/C system may outperform the Pony Pack because of the ram air moving through the condenser.

Be sure to record the final temperatures on the *Installation Checklist and Record* and give a copy to the customer. They may be useful to a mechanic in the future.

CAB HEAT PUMP OPERATION

The CAB HEAT/ON switch controls only the electric pump installed in the heater supply line. The dashboard heater controls determine temperature and fan speed.



Do not operate the cab heat pump if the heater core supply valve is off. Operating the cab heat pump without coolant flow causes it to cavitate and subsequently burn out.

To test the cab heat pump, switch the truck's heater controls to maximum and turn the CAB HEAT/OFF switch to CAB HEAT. Hot air should be blowing out the vents.

SIMULTANEOUS OPERATION

A properly installed Pony Pack should operate whether the truck engine is running or not. Two scenarios are listed below.

- Occasionally, a driver may engage Pony Pack cooling while driving to reduce the compressor and cooling fan parasitic loads on the truck engine.
- The Pony Pack will keep the batteries charged in the event the truck alternator fails.
- Provided that the system has a proper Freon charge, the Pony Pack can provide air conditioning in the event the truck A/C compressor fails.

A temperature shut down during simultaneous operation is frequently the result of improper coolant hose plumbing between the Pony Pack and truck engine. The two engine water pumps work against each other causing the Pony Pack to overheat and shut down.

Parts and Service

The logical first place to go for parts and service is your original Pony Pack installer. For the names of good service shops around the country, contact Pony Pack directly or visit www.ponypack.com.

Replacement filter and belt information, including cross-reference data, is listed on the inside cover of this manual.

For parts, call or email Pony Pack:

- Phone: 505-243-1382
- Email: sales@ponypack.com

RECOMMENDED SPARE PARTS

Below is a list of recommended spare parts. It consists mostly of filters and service items.

- Main drive belt
- Water pump belt
- Oil filters
- Oil (whatever you use in the truck is fine)
- Drop-in fuel filter
- In-line fuel filter
- Spare washable air filter and cleaning kit

PARTS LIST

The next three pages list the major Pony Pack assembly items. It does not include minor parts such as fasteners. If you cannot find a specific item on the list, contact Pony Pack.

FASTENERS

Pony Pack uses metric grade 10.9 fasteners to attach the engine, compressor, and alternator to the base plate. If you remove any of these items, replace them with new identical fasteners.



Using ungraded fasteners may result in damage, failure, or injury, etc.

Part Number	Description	Vendor	Vendor Number
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General

2004-0102-AS	Base plate Assembly	Pony Pack, Inc.	
2004-0103-0	Frame Stiffener	Pony Pack, Inc.	
2004-0142-0	Aluminum Silencer	Pony Pack, Inc.	
2004-0151-P	Mounting Frame Painted	Pony Pack, Inc.	
2004-0152-0	Unit Mounts	Karmann Rubber, Co.	K6950-32
2004-0205-0	Cond/Rad Bracket	Pony Pack, Inc.	
2004-0600-0	CS Module Bracket	Pony Pack, Inc.	
2004-0601-0	Load Center Bracket	Pony Pack, Inc.	
2004-0602-0	Spacer Bracket	Pony Pack, Inc.	
2004-0603-0	Fuel Filter Bracket	Pony Pack, Inc.	
2004-0604-0	Tensioner Bracket	Pony Pack, Inc.	
2004-0606-0	HE Motor Bracket	Pony Pack, Inc.	
2004-0615-0	Offset Engine Mount	Pony Pack, Inc.	

Kubota

2004-0100-AS	Z482 Engine w/Accessories	Kubota Engine America	
2004-0115-0	Oil Filter	Kubota Engine America	70000-15241
15451-96670	Drain Plug Gasket	Kubota Engine America	15451-96670
15707-33750	Drain Plug	Kubota Engine America	15707-33750
15841-39010	Switch, Oil Shut down	Kubota Engine America	15841-39010
16001-53000	Z482 Injector Nozzle	Kubota Engine America	16001-53000
19837-63010	.8 KW Starter	Kubota Engine America	19837-63010
16851-65512	Z482 Glow Plug	Kubota Engine America	16851-65512

Drive-train

2004-0107-0	76 mm Flat Idler Pulley	Gates Rubber Co.	38006
2004-0108-0	Idler Tensioner Assembly	Gates Rubber Co.	38137
2004-0110-0	Drive Belt	Gates Rubber Co.	K060465
2004-0114-0	Water Pump Belt	Gates Rubber Co.	7250

Fuel System

2004-0133-0	Air Intake Hose	Pony Pack, Inc.	
2004-0420-AS	Electric Fuel Pump Ass'y	Kubota Engine America	17476-52032
2004-0503-0	12 VDC NC Solenoid Valve Raw	Pony Pack, Inc.	
2004-0504-AS	Brass Check Valve Ass'y	Pony Pack, Inc.	
2004-0506-AS	Fuel-Filter Assembly Modified	Pony Pack, Inc.	
2004-0508-0	In-Line Fuel Filter	Kubota Engine America	12581-43012
2004-0515-0	Washable Air Filter	Pony Pack, Inc.	
2004-0516-0	Sleeve for Washable Filter	Pony Pack, Inc.	
2004-0517-0	Air Filter Cleaning Kit	Pony Pack, Inc.	
15231-43560	Drop-In Fuel Filter	Kubota Engine America	15231-43560

Coolant System

2004-0120	Radiator to Water Pump Hose	Pony Pack, Inc.	
2004-0124-0	Thermostat Elbow Hose	Pony Pack, Inc.	
2004-0125-0	3/4" Heater Tube, SS, 1 Bend	Pony Pack, Inc.	
2004-0128-0	3/4" Heater Tube, SS, 3 Bends	Pony Pack, Inc.	
2004-0258-0	Radiator	Pony Pack, Inc.	
15531-73010	Thermostat	Kubota Engine America	15531-73010
15676-73270	Thermostat Gasket	Kubota Engine America	15676-73270
15841-72870	#3 Water Pipe (400&482)	Kubota Engine America	15841-72870

Part Number	Description	Vendor	Vendor Number
15841-73432	Water Pump Gasket	Kubota Engine America	15841-73432
19069-73032	Z482 Water Pump	Kubota Engine America	19069-73032

Air Conditioning

2004-0200-0	Ford Compressor	Ford	F7LZ-19703-AA
2004-0204-0	Aluminum Fan Shroud	Pony Pack, Inc.	
2004-0205-0	Cond/Rad Bracket	Pony Pack, Inc.	
2004-0207-0	AC Accumulator Assembly-Ford	Pony Pack, Inc.	
2004-0208-0	AC Hose Assembly-Ford	Pony Pack, Inc.	
2004-0213-0	Tee, Suction, 10 MO, FO, MO	ATCO	6263
2004-0214-0	2004 Block Assembly	Pony Pack, Inc.	
2004-0215-0	2004 Discharge Hose	Pony Pack, Inc.	
2004-0216-0	2004 Muffler Can Assembly	Pony Pack, Inc.	
2004-0217-0	2004 Suction Hose	Pony Pack, Inc.	
2004-0218-0	2004 Suction Extension Tube	Pony Pack, Inc.	
2004-0245-0	Tee, Suction 12 FO, 10 MO	ATCO	3-0074
2004-0257-0	Condenser	Pony Pack, Inc.	
AIRC-FC03	AC Pressure Relief Valve	Ford	F65H-19D644-A1A
ELEC LP 1	Low Pressure Cut-Out Switch-BLK	Pony Pack, Inc.	
ELEC HP 1	High Pressure Cut-Out Switch-GRA	Pony Pack, Inc.	
ELEC FAN	Fan Switch	Pony Pack, Inc.	
Call	Shunt Valve Assembly	Pony Pack, Inc.	

Heat Exchanger and Exhaust

2004-HE01	HE Box w/Lid	Pony Pack, Inc.	
2004-HE02	HE Manifold	Pony Pack, Inc.	
2004-HE03	1-1/4 ID Silicone Coated Fiberglass	Pony Pack, Inc.	
2004-0300-G	HE Flange Gasket	Pony Pack, Inc.	
2004-0309-0	Single Exhaust Manifold Gasket	Pony Pack, Inc.	
2004-0330-0	Water Bundle w/Brass Nipples	Pony Pack, Inc.	
2004-EXH01	Automotive Muffler	Arvin Meritor	BT037830
2004-EXH03	5/16 x 1-1/2 in Std. Duty Exhaust Clamp	NAPA	733-5325
2004-EXH02	Universal Exhaust Hanger	NAPA	732-1009
2004-R36	Muffler Clamp	Pony Pack, Inc.	
HOS-SS09-01	1-1/8 in ID SS Interlocked Hose-7.25" long	Pony Pack, Inc.	
HOS-SS09-02	1-1/8 in ID SS Interlocked Hose-8.25" long	Pony Pack, Inc.	
HOS-SS12-01	1-1/2 in ID SS Interlocked Hose-4 ft long	Pony Pack, Inc.	

2004 Electrical

2004-0260-0	16 in Straight Blade Fan	SPAL Mfg. Co.	30102046
2004-0400-0	Ford Alternator	Ford Service	3C3Z-10346-EARM
2004-0401-0	Load Center	Pony Pack, Inc.	
2004-0404-0	Control Module, CS3V	Pony Pack, Inc.	
2004-0406-AS	Control Panel Assembly	Pony Pack, Inc.	
2004-0407-0	Single Pole O-None-Off Switch	Carlingswitch	2FA53-73/Tabs
2004-0409-0	Double Pole On-None-On Switch	Carlingswitch	2GL51-73/Tabs
2004-0410-AS	Green LED Assembly	Pony Pack, Inc.	
2004-0411-0	40 Amp Relay	Aromat	CB1-12V
2004-0412-0	Single Pole Momentary Off-On	Carlingswitch	6FA53-73/Tabs
2004-0419-AS	Cab Heat Pump	Pony Pack, Inc.	
2004-0421-0	Coolant Fluid Thermistor	AC Delco	213-310
2004-0430-AS	HE Linear Actuator	Pony Pack, Inc.	
2004-0431-0	Actuator Relay Harness	Pony Pack, Inc.	

Part Number	Description	Vendor	Vendor Number
2004-0432-0	Actuator Spring Yoke	Pony Pack, Inc.	
2004-0445-0	Alternator-Starter Cable	Pony Pack, Inc.	
2004-0446-0	Base plate-Ground Cable	Pony Pack, Inc.	
2004-0447-0	Alternator-Power Cable	Pony Pack, Inc.	
2004-0461-AS	2004 Module-LC Harness	Pony Pack, Inc.	
2004-0462-AS	2004 LC-Power Harness	Pony Pack, Inc.	
2004-0463-AS	2004 LC-Distribution Harness	Pony Pack, Inc.	
2004-0464-AS	2004 Module-Unit Harness	Pony Pack, Inc.	
2004-0465-AS	2004 Module-Cab Harness	Pony Pack, Inc.	
2004-0466-AS	2004 LC-Fan Harness	Pony Pack, Inc.	
2004-0477-AS	Noise Filter Assembly	Pony Pack, Inc.	
ELEC-LPHP	Pressure Switch Linkup Harness	Pony Pack, Inc.	

2004/06 Electrical

		Pony Pack, Inc.	
2006-0443-AS	LC Ground-Engine Cable	Pony Pack, Inc.	
2006-0444-AS	LC-Power Cable	Pony Pack, Inc.	
2006-0445-AS	Alternator-Starter Cable	Pony Pack, Inc.	
2006-0446-AS	Engine-Ground Cable	Pony Pack, Inc.	
2006-0447-AS	Alternator-Power Cable	Pony Pack, Inc.	
2006-0460-AS	2006 Cab Harness	Pony Pack, Inc.	
2006-0461-AS	2006 Module-LC Harness	Pony Pack, Inc.	
2006-0463-AS	2006 LC-Distribution Harness	Pony Pack, Inc.	
2006-0464-AS	2006 Module-Unit Harness	Pony Pack, Inc.	
2006-0465-AS	2006 Module-Cab Harness	Pony Pack, Inc.	
2006-0466-AS	2006 LC-Fan-Ignition Harness	Pony Pack, Inc.	

Unit Cover

2004-0701-AS	Unit Cover Assembly	Pony Pack, Inc.	
2004-0704-0	WARNING Sticker	Pony Pack, Inc.	
2004-0705-0	NO STEP Sticker	Pony Pack, Inc.	
2004-0706-0	Logo Plate	Pony Pack, Inc.	
2004-0710-0	Cover Handle	Pony Pack, Inc.	
2004-0780-A	Rubber Latch Handle Ass'y	Pony Pack, Inc.	

Schematic Overview

What follows are the schematics and plumbing guidelines for specific applications. Prior sections of this manual reference this information. The first items are the Pony Pack electrical schematics followed by switch four wiring schematics. Coolant line plumbing guidelines for specific truck engines are at the end. Electrical schematics for early model Pony Packs (104, 105, and 105-2004) may also be included in the event that you service one of these in your shop. If you received this manual with a new unit, then refer to the schematics for *2004/06 Unit Wiring*.

PONY PACK SCHEMATICS

2004/06 UNIT WIRING, 3 PAGES

These schematics are for Model 2004/06 Pony Packs with serial numbers above 3323 and built in March 2006 or later. The main electrical components are the control module, load center with relays and fuses, and 6 wiring harnesses.

2004 UNIT WIRING, 3 PAGES

These schematics are for Pony Packs with serial numbers above 2999 and built in 2004 or later. The 2004 model Pony Packs were the first to introduce an electrical load-center with fuses and relays for circuit protection. Also, the wiring harness arrangement on a model 2004 Pony Pack is easier to troubleshoot. There are six main harnesses, any of which can be replaced easily and inexpensively.

105-2004 UNIT WIRING, 3 PAGES

These schematics are for Model 105 Pony Packs that have been upgraded to Model 2004 electrical control system. They will have serial numbers between 2700 and 3000. Pages 1 and 2 show the new harness components that were used on this upgrade. The third page is the cab harness and control panel for a Model 105. It is included for reference but did not change as a result of the upgrade. Complete instructions titled, *Upgrade Manual, Model 105-2004*, were included with each upgrade. The Pony Pack

Owner should have this manual. If you come across a model 105 Pony Pack that has not been upgraded, call Pony Pack to discuss options.

SWITCH 4 SCHEMATICS

These schematics are discussed in the *Electrical Installation* section of this manual. In these model specific schematics, wiring of the "switch 4" air conditioning control switch, on the lower-right corner of the Pony Pack control panel, is shown.

PLUMBING OPTIONS, 4 ENGINES

These pages illustrate coolant plumbing recommendations for different truck engines. The front shows the engine prior to plumbing a Pony Pack. The back shows it afterwards. Consult the CAT 3406 options for CAT C-Series engines. If your engine is not included, review the options for the engines shown, and consult the *Coolant Plumbing* section in this manual to determine the best way to plumb the engine.

MODEL 104, 2 PAGES

These schematics are titled *Unit Wiring Schematic* and *Panel Wiring Schematic*. They are for older Model 104 Pony Packs, prior to unit serial number 2700. If you place the unit wiring schematic above the panel wiring schematic, you can see where the two four-pin connectors line up. Physically, this is the connection below the radiator condenser where the unit harness connects to the cab harness.