

# Alpha

*aviation, inc.*

## PRODUCT CATALOG



## ALPHA AVIATION INC 3-POINT DIAGONAL TORSO RESTRAINT STC KITS



Beech Baron/Debonair - Inertial



Ercoupe - Fixed Strap STC Kit



Piper PA24/30/39 - Fixed Strap STC Kit



Piper PA28/32 - Inertial Reel STC Kit

### STC Kit

### FAA

### EASA

Beechcraft Baron/Debonair STC

SA01880CH

Beechcraft BE19/23/24 STC

SA04310CH

Cessna 100 Series STC

SA02211CH

10070260

Cessna 150/152 STC

SA04389CH

Piper PA23

SA02298CH

Piper PA24/30/39

SA02492CH

Piper PA28/32

SA02015CH

Ercoupe

SA02498CH

Alon

SA02481AK

## BEECHCRAFT BARON/DEBONAIR STC KIT

### STC SA01880CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA



This structurally integrated Alpha Aviation Inc. 3-point Diagonal Shoulder Harness installation STC kit is FAA / PMA using OEM quality AmSafe® restraint assemblies meeting TSO-C114. Shipped as a complete kit, this STC includes everything for the installation of shoulder harness restraints in the Pilot and Co-Pilot positions

Fixed Strap and Inertial Reel Equipped STC Kits are stocked with **Black**, **Gray** or **Fawn** (Tan) Restraints.

Over 100 other colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****

#### STC SA01880CH Includes;

- 2 Shoulder Harnesses; Fixed Strap or Inertial Reel Equipped
- 2 New Lap Belts, including new buckle and end fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware (FAA / PMA)
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization

#### APPROVED MODELS

35	K35	35-A33	95	D55
35R	M35	35-B33	95-55	D55A
A35	N35	35-C33	95-A55	E55
B35	P35	35-C33A	95-B55	E55A
C35	S35	E33	95-B55A	E95
D35	V35	E33A	95-B55B	A56TC
E35	V35A	E33C	95-C55	58
F35	V35B	F33	95-C55A	58A
G35	36	F33A	B95	
H35	A36	F33C	B95A	
J35	35-33	G33	D95A	

Estimated Installation Time

Fixed Strap: 4 - 8 hrs

Inertial Reel: 12 - 16 hrs

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*



## BEECHCRAFT BARON/DEBONAIR STC KIT INSTALLATION OVERVIEW

### STC SA01880CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA

Model Number	Description
3RS-114FS	Three-Point Restraint System - Fixed Strap Style
3RS-114IR	Three-Point Restraint System - Inertial Reel Equipped

#### Product Description – Fixed Strap & Inertial Reel Equipped

Accommodates the installation of a vendor supplied, FAA Approved, TSO-C114 Restraint system at each pilot position. The restraint system incorporates a traditional pelvic restraint strap (lap belt) provided with the provision to attach, as needed, a single diagonal upper torso (shoulder) restraint strap. The upper end of the shoulder strap is hard mounted to the airframe at a location aft and above the pilot position. The free end of the shoulder strap is attached to the pelvic restraint strap at the buckle location and adjusted, as necessary, by use of the cinch strap or inertial reel.

#### Upper Attachment Points

The **Left Upper Attachment Point** is created by the installation of an aluminum doubler, **PN 4.2001**, to be installed on the interior side of the window post at fuselage station 106.00. When installed the doubler reinforces the window post and provides the required hard point for the installation of the upper torso restraint or the upper torso restraint strap guide as appropriate to the type of restraint system being installed.

The **Right Upper Attachment Point** is created by the installation of an aluminum doubler, **PN 4.2002**, that is installed on the interior side of the cabin door post at fuselage station 106.00. When installed, the doubler reinforces the door post and provides the hard point required for the installation of the upper torso restraint strap or the upper torso restraint guide as appropriate to the type of restraint system being installed. The installation of the doubler is accomplished through the addition of seven (7) nominal Cherry Max rivets, interspersed among the eight (8) existing flush rivets.



Left - PN 4.2001



Right - PN 4.2002

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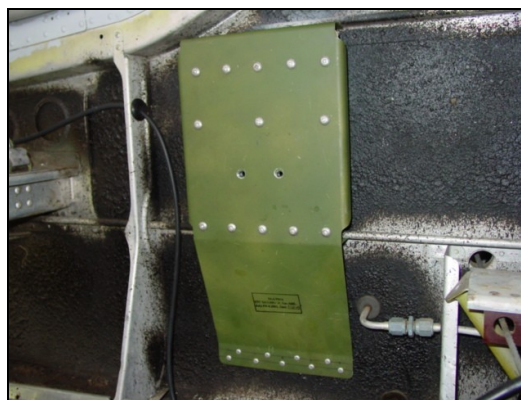
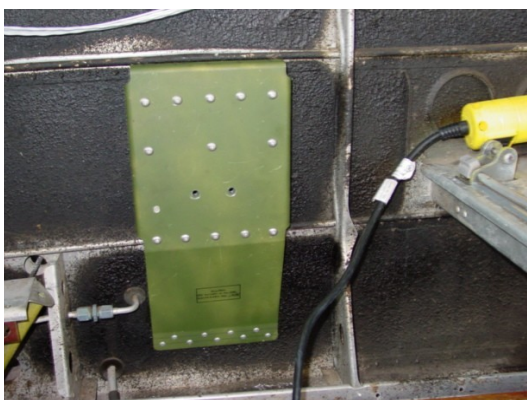


## BEECHCRAFT BARON/DEBONAIR STC KIT INSTALLATION OVERVIEW

STC SA01880CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA

### Inertial Reel Mount - Left and Right (Model 3RS-114IR)

The Left and Right Inertial Reel Mounts are established in a similar manner. The inertial reel mounts are sidewall mounted at fuselage station 105.5 by attaching to the two lower horizontal “J” channels and fastening to the cabin skin.



Left & Right Inertial Reel Mount - PN 4.2003 & 4.2004

### Airframe Qualification

Aircraft that have a standard airworthiness certificate are eligible for this installation. The airworthiness certificate must be issued in either the Normal or Utility category. If the aircraft is a Utility category aircraft, its placards, markings and Aircraft Flight Manual (AFM) / Pilots Operating Handbook (POH) must PROHIBIT intentional spins or Aerobatic maneuvers which by regulation require that the occupants wear parachutes. Inspect the aircraft and its records to assure that any change in structure or window installation does not preclude the installation of the Model 3RS-114FS or Model 3RS-114IR restraint system

### Weight and Balance - two pilot positions

Model 3RS-114FS requires a net weight change of +1.25 pounds per installation; with an arm of 106.0” - 33/35/55/56/95 aircraft; 96.0” - 36/58 aircraft.

Model 3RS-114IR requires a net weight change of +4.50 pounds per installation; with an arm of 105.5” - 33/35/55/56/95 aircraft; 95.5” - 36/58 aircraft.

## BEECHCRAFT BE19 / 23 / 24 STC KIT

### STC SA04310CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA



This structurally integrated Alpha Aviation Inc. 3-point Diagonal Shoulder Harness installation STC kit is FAA / PMA using OEM quality AmSafe® restraint assemblies meeting TSO-C114. Shipped as a complete kit, this STC includes everything for the installation of shoulder harness restraints in the Pilot and Co-Pilot positions

Fixed Strap and Inertial Reel Equipped STC Kits are stocked with **Black**, **Gray** or **Fawn** (Tan) Restraints.

Over 100 other colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****



#### STC SA04310CH Includes;

- 2 Shoulder Harnesses; Fixed Strap or Inertial Reel Equipped
- 2 New Lap Belts, including new buckle and end fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware (FAA / PMA)
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization



Estimated Installation Time

4 - 6 hrs

Fixed Strap or Inertial Reel Kit

#### APPROVED MODELS

19A	M19A	B19	23	A23
A23-19	B23	C23	A23-24	A24R

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*

## BEECHCRAFT BE19 / 23 / 24 STC KIT INSTALLATION OVERVIEW

### STC SA04310CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA

Model Number	Description
BE19-114FS	Three-Point Restraint System - Fixed Strap Style
BE19-114IR	Three-Point Restraint System - Inertial Reel Equipped

#### Product Description – Fixed Strap & Inertial Reel Equipped

Accommodates the installation of a vendor supplied, FAA Approved, TSO-C114 Restraint system at each pilot position. The restraint system incorporates a traditional pelvic restraint strap (lap belt) provided with the provision to attach, as needed, a single diagonal upper torso (shoulder) restraint strap. The upper end of the shoulder strap is hard mounted to the airframe at a location aft and above the pilot position. The free end of the shoulder strap is attached to the pelvic restraint strap at the buckle location and adjusted, as necessary, by use of the cinch strap or inertial reel.

The attachment of the fixed end of the torso restraint strap is accomplished by the installation of a PN MS21075-4N nut plate and PN AAI-169-420000-81 (Left) / AAI -169-420000-82 (Right) gusset to the fuselage structure adjacent to each pilot position at fuselage station 132.0. The attachment points for the pelvic restraint strap (lap belt) are continued in use, as the manufacturer provided them at the time of type certification.



AAI-169-420000-81 INSTALLED



AAI-169-420000-82 INSTALLED

#### Airframe Qualification

Aircraft that have a standard airworthiness certificate are eligible for this installation. **Aircraft licensed in the Aerobatic Category are NOT eligible.** Inspect the aircraft and its records to assure that any changes in the structure do not preclude the installation of the Model BE19-114FS or Model BE19-114IR restraint system.

#### Weight and Balance - two pilot positions

Model BE19-FS has a location station +113.00 and a net weight change of 1.75 pounds per installation. Model BE19-IR has a location of station +113.00 and a net weight change of 3.50 pounds per installation.



## CESSNA 100 SERIES STC KIT

STC SA02211CH / EASA 10070260

### 3-Point Diagonal Shoulder Harness Kit - FAA / PMA



This structurally integrated Alpha Aviation Inc. 3-point Diagonal Shoulder Harness installation STC kit is FAA / PMA using OEM quality AmSafe® restraint assemblies meeting TSO-C114. Shipped as a complete kit, this STC includes everything for the installation of shoulder harness restraints in the Pilot and Co-Pilot positions

Fixed Strap and Inertial Reel Equipped STC Kits are stocked with **Black, Gray or Fawn (Tan)** Restraints.

Over 100 other colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****



#### STC SA02211CH Includes;

- 2 Shoulder Harnesses; Fixed Strap or Inertial Reel Equipped
- 2 New Lap Belts, including new buckle and end fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware (FAA / PMA)
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization

#### APPROVED MODELS



170	172H	180C	182E	185A
170A	172I	180D	182F	185B
170B	172J	180E	182G	185C
172	172K	180F	182H	185D
172A	175	180G	182J	185E
172B	175A	180H	182K	185F
172C	175B	182	182L	185G
172D	175C	182A	182M	185H
172E	P172D	182B	182N	A185E
172F	180A	182C	182P	A185F
172G	180B	182D	185	

Estimated Installation Time

2 - 3 hrs

Fixed Strap or Inertial Reel Kit

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*

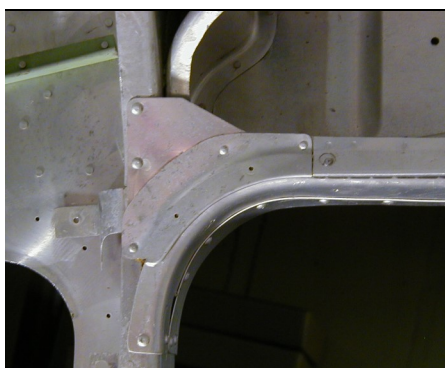
## CESSNA 100 SERIES STC KIT INSTALLATION OVERVIEW

**STC SA02211CH / EASA 10070260 3-Point Diagonal Shoulder Harness Kit - FAA / PMA**

Model Number	Description
C100-114FS	Three-Point Restraint System - Fixed Strap Style
C100-114IR	Three-Point Restraint System - Inertial Reel Equipped

### Product Description

This STC authorizes the installation of a vendor supplied, FAA Approved, TSO-C114 Restraint system at each pilot position. The restraint system incorporates a traditional pelvic restraint strap (lap belt) provided with the provision to attach, as needed, a single diagonal upper torso (shoulder) restraint strap. The upper end of the shoulder strap is hard mounted to the airframe at a location aft and above the pilot position. The free end of the shoulder strap is attached to the pelvic restraint strap at the buckle location and adjusted, as necessary, by use of the cinch strap or inertial reel. The attachment of the fixed end of the shoulder strap is accomplished by the installation of a MS210754-4N Nut Plate centered at fuselage station 65.33 as called out in the drawing package.



### Airframe Qualification

Aircraft that have a standard airworthiness certificate are eligible for this installation.

The airworthiness certificate must be issued in either the Normal or Utility Category.

Inspect the aircraft and its records to assure that any change in structure of window installation does not preclude the installation of Model C100-114FS or Model C100-114IR restraint system.

### Weight and Balance - two pilot positions

Model C100-114FS has a location station 65.33 and a net weight change of 1.75 pounds per installation

Model C100-114FS has a location of station 65.33 and a net weight change of 3.50 pounds per installation

### Installation

The headliner is opened as needed and, using clamps, positioned to provide access to the cabin structure

The left and right nut plates are positioned in the aircraft and riveted in place

The headliner is closed and a .250-inch mounting hole is opened through the headliner fabric.

The upper end of the shoulder strap or inertial reel is installed using the hardware provided.

New lap belts are installed.

## CESSNA 150/152 STC KIT (FAA SA04389CH) THE INSTALLATION of NUTPLATES and TSO-C114 3-POINT DIAGONAL RESTRAINTS



Alpha Aviation Inc's. 3-point Diagonal Shoulder Harness STC kit is FAA approved using OEM quality AmSafe® restraint assemblies meeting TSO-C114.

This STC includes belt assemblies and hardware for the installation of 3-pt diagonal shoulder harness restraints in the Pilot and Co-Pilot positions.

Cessna 150, 150A, B, C, D & E aircraft will require this STC for the installation of nut plates to accommodate the addition of 3-pt diagonal restraints.

Cessna 150F, G, H, J & K have existing factory installed nutplates. The upgrade to 3-point diagonal Fixed Strap restraints does not require an STC; it is accomplished by minor change. The upgrade to 3-point diagonal inertial reel restraints will require this STC to accommodate the positioning of the Inertial reels.

Cessna 150L, M & 152 aircraft have existing factory installed nutplates. The replacement of the 3-point diagonal Fixed Strap diagonal restraints does not require an STC and can be accomplished by minor change. The upgrade to 3-point diagonal Inertial Reel equipped restraints will require this STC to accommodate the positioning of the reels.

Fixed Strap and Inertial Reel Equipped STC Kits & Fixed Strap upgrade and replacement restraints are stocked in **Black, Gray and Fawn (Tan)**.

Over 100 colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****

### STC SA04389CH Includes;

- 2 Shoulder Harnesses; Fixed Strap or Inertial Reel Equipped
- 2 New Lap Belts with Buckles & End Fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization

Estimated Installation Time

3 - 4 hrs Fixed Strap or Inertial Reel Kit

APPROVED MODELS		
	FIXED STRAP	INERTIAL REEL
150	STC KIT REQ'D	STC KIT REQ'D
150A	STC KIT REQ'D	STC KIT REQ'D
150B	STC KIT REQ'D	STC KIT REQ'D
150C	STC KIT REQ'D	STC KIT REQ'D
150D	STC KIT REQ'D	STC KIT REQ'D
150E	STC KIT REQ'D	STC KIT REQ'D
	FIXED STRAP	INERTIAL REEL
150F *	UPGRADE *	STC KIT REQ'D **
150G *	UPGRADE *	STC KIT REQ'D **
150H *	UPGRADE *	STC KIT REQ'D **
150J *	UPGRADE *	STC KIT REQ'D **
150K *	UPGRADE *	STC KIT REQ'D **
* Nutplates for Fixed Strap Restraints exist. Hardware will be provided as needed.		
	FIXED STRAP	INERTIAL REEL
150L	REPLACEMENT	STC KIT REQ'D **
150M	REPLACEMENT	STC KIT REQ'D **
152	REPLACEMENT	STC KIT REQ'D **
** The initial installation of Inertial Reel Restraints will require the STC.		

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*



## CESSNA 150 / 152 STC KIT (FAA SA04389CH) INSTALLATION OVERVIEW

### The Installation of Nutplates and TSO-C114 3-Point Diagonal Restraints



#### Description

Three-Point Torso Restraint System—Fixed Strap Style

Three-Point Torso Restraint System—Inertial Reel Equipped

#### Cessna 150, A, B, C, D & E aircraft built prior to Model Year 1966

STC SA04389CH approves the installation of NAS680A4 nutplates and TSO-C114 3-point diagonal restraints at each pilot position. The newly installed NAS680A4 nutplates allow the installation of either Fixed Strap or Inertial Reel Equipped upper torso restraints.

#### Cessna 150F, G, H, J & K aircraft built from Model Years 1966 through 1970

Factory installed nutplates exist in these models to accommodate 3-point diagonal Fixed Strap Restraints that were optional equipment at that time. Alpha Aviation Inc offers the 3-point Diagonal Fixed Strap belt assemblies to upgrade this installation. Instructions and hardware will be provided as needed.

For those desiring 3-point Diagonal Inertial Reel Equipped restraints, STC SA04389CH approves the installation of two additional NAS680A4 nutplates required to accommodate the positioning of the reel at each pilot position.

#### Cessna 150/152 aircraft built from Model Years 1971 through 1985 (150 L, M, 152)

##### Fixed Strap Replacement

Alpha Aviation Inc offers a drop in replacement for models with existing 3-point diagonal Fixed Strap restraints. Those desiring 3-point diagonal Inertial Reel Equipped Restraints will require the STC Kit for the installation of the additional nutplates to accommodate the reel.

##### STC Installation Overview

Remove the interior trim and headliner as necessary to gain access to the bottom surface of the cabin rear spar carry through beam. Mark the attachment rivet locations and install nutplates per instructions.

The nut plate installation is accomplished using blind rivets.

Reinstall the headliner and moldings while locating and opening the mounting hole through the headliner.

The upper end of the shoulder strap or inertial reel is installed using the hardware provided. Install the new lap belts.

##### Airframe Qualification

The aircraft is to have a standard airworthiness certificate.

The airworthiness certificate must be issued in the Utility Category.

Inspect the aircraft and its records to ensure that any change in structure does not preclude the installation of this STC.

**Aircraft certified in the aerobatic category are NOT eligible**

##### Weight and Balance - two pilot positions

The installation of this STC has a location of station +57.00 and a total net weight change of;

2 ea TSO-C114 Fixed Strap Restraint Assemblies 1.25 lbs

2 ea TSO-C114 Inertial Reel Restraint Assemblies 2.50 lbs

## PIPER PA23 STC KIT

### STC SA02298CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA



This structurally integrated Alpha Aviation Inc. 3-point Diagonal Shoulder Harness installation STC kit is FAA / PMA using OEM quality AmSafe® restraint assemblies meeting TSO-C114. Shipped as a complete kit, this STC includes everything for the installation of shoulder harness restraints in the Pilot and Co-Pilot positions

Fixed Strap and Inertial Reel Equipped STC Kits are stocked with **Black**, **Gray** or **Fawn** (Tan) Restraints.

Over 100 other colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****



#### STC SA02298CH Includes;

- 2 Shoulder Harnesses; Fixed Strap or Inertial Reel Equipped
- 2 New Lap Belts, including new buckle and end fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware (FAA / PMA)
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization

#### APPROVED MODELS

PA-23    PA23-150    PA23-160    PA-E23-250    PA23-235



Estimated Installation Time  
2 - 3 hrs

Fixed Strap or Inertial Reel Kit

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*

## PIPER PA23 STC KIT INSTALLATION OVERVIEW

### STC SA02298CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA

Model Number	Description
PA23-114FS	Three-Point Restraint System - Fixed Strap Style
PA23-114IR	Three-Point Restraint System - Inertial Reel Equipped

#### Product Description

This STC authorizes the installation of a vendor supplied, FAA approved, TSO-C114 restraint system at each pilot position. The restraint system incorporates a traditional pelvic restraint strap (lap belt) provided with the provision to attach, as needed, a single diagonal upper torso (shoulder) restraint strap. The upper end of the shoulder strap is hard mounted to the airframe at a location aft and above the pilot position. The free end of the shoulder strap is attached to the pelvic restraint strap at the buckle location and adjusted, as necessary, by use of the cinch strap or inertial reel. The attachment of the fixed end of the shoulder strap or inertial reel is completed by the installation of hard points, left and right, at fuselage station 65.33.

The establishment of the hard points is accomplished by the removal of the existing rear passenger assist strap on each side. The assist strap gusset is then reused in combination with the outer fuselage skin and spacers to create a structural attachment that has been proven to exceed FAA; CAR 3 requirements.



#### Airframe Qualification

Aircraft that have a standard airworthiness certificate are eligible for this installation.

The airworthiness certificate must be issued in either the Normal or Utility Category.

Inspect the aircraft and its records to assure that any change in structure of window installation does not preclude the installation of Model PA23-114FS or Model PA23-114IR restraint system.

#### Weight and Balance - two pilot positions

Model PA23-114FS has a location of station 65.33 and a net weight change of 1.75 pounds per installation.

Model PA23-114IR has a location of station 66.35 and a net weight change of 3.50 pounds per installation.

#### Installation

Remove the rear passenger assist strap, rear window trim and air vent cover on each side of the cabin

Loosen the headliner from the window channel and use clamps to position it.

Remove the assist strap nut plate. Upsize the center hole to .250. Complete hole through the outer cabin skin.

Install the restraints using the bushings spacers and bolts as called out in the drawing. Reinstall the cabin headliner and trim. The new lap belts are installed using the existing hardware and mounts.



## PIPER PA24 STC KIT

### STC SA02492CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA



This structurally integrated Alpha Aviation Inc. 3-point Diagonal Shoulder Harness installation STC kit is FAA / PMA using OEM quality AmSafe® restraint assemblies meeting TSO-C114. Shipped as a complete kit, this STC includes everything for the installation of shoulder harness restraints in the Pilot and Co-Pilot positions

Fixed Strap and Inertial Reel Equipped STC Kits are stocked with **Black**, **Gray** or **Fawn** (Tan) Restraints.

Over 100 other colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****



#### STC SA02492CH Includes;

- 2 Shoulder Harnesses; Fixed Strap or Inertial Reel Equipped
- 2 New Lap Belts, including new buckle and end fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware (FAA / PMA)
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization

#### APPROVED MODELS

PA24	PA24-250	PA24-260	PA24-400
PA30	PA39		



Estimated Installation Time

10 - 14 hrs

Fixed Strap or Inertial Reel Kit

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*

## PIPER PA24 STC KIT

### INSTALLATION OVERVIEW

#### STC SA02492CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA

Model Number	Description
PA24-114FS	Three-Point Restraint System - Fixed Strap Style
PA24-114IR	Three-Point Restraint System - Inertial Reel Equipped

#### Product Description

This STC authorizes the installation of a vendor supplied, FAA approved, TSO-C114 restraint system at each pilot position. The restraint system incorporates a traditional pelvic restraint strap (lap belt) provided with the provision to attach, as needed, a single diagonal upper torso restraint strap. The upper end of the shoulder strap is hard mounted to the airframe at a location aft and above the pilot position. The free end of the shoulder strap is attached to the pelvic restraint strap at the buckle location and adjusted, as necessary, by use of the cinch strap or inertial reel. The attachment of the fixed end of the torso restraint strap is accomplished by the installation of a cabin roof support and mounting hard point to the fuselage adjacent to each pilot position and centered at fuselage station 112.0



#### Airframe Qualification

Aircraft that have a standard airworthiness certificate are eligible for this installation.

The airworthiness certificate must be issued in either the Normal Category.

Inspect the aircraft and its records to assure that any change in structure of window installation does not preclude the installation of Model PA24-114FS or Model PA24-114IR restraint system.

#### Weight and Balance - two pilot positions

Model PA24-114FS has a location of station 112.0 and a net weight change of 1.75 pounds per installation.

Model PA24-114IR has a location of station 112.0 and a net weight change of 3.50 pounds per installation.

#### Installation

The installation of the torso restraint upper mount is centered at fuselage station 112.0, adjacent to each pilot position

It is necessary to remove the passenger assist strap, interior trim and relocate the headliner to the extent necessary to gain access to the cabin roof back to the luggage compartment frame

The installation requires the addition of a cabin roof support angle

In addition, a two-ply aluminum mount is installed at fuselage station 112.00

## PIPER PA28 / 32 STC KIT

### STC SA02015CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA



This structurally integrated Alpha Aviation Inc. 3-point Diagonal Shoulder Harness installation STC kit is FAA / PMA using OEM quality AmSafe® restraint assemblies meeting TSO-C114. Shipped as a complete kit, this STC includes everything for the installation of shoulder harness restraints in the Pilot and Co-Pilot positions

Fixed Strap and Inertial Reel Equipped STC Kits are stocked with **Black**, **Gray** or **Fawn** (Tan) Restraints.

Over 100 other colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****



#### STC SA02015CH Includes;

- 2 Shoulder Harnesses; Fixed Strap or Inertial Reel Equipped
- 2 New Lap Belts, including new buckle and end fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware (FAA / PMA)
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization



#### APPROVED MODELS

PA28-140	PA28-150	PA28-160	PA28-180
PA28-235	PA28R-180	PA28R-200	PA28S-160
PA28S-180	PA32-260	PA32-300	PA32S-300

Estimated Installation Time

8 - 10 hrs

Fixed Strap or Inertial Reel Kit

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*



## PIPER PA28 / 32 STC KIT INSTALLATION OVERVIEW

### STC SA02015CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA

Model Number	Description
PA28-114FS	Three-Point Restraint System - Fixed Strap Style
PA28-114IR	Three-Point Restraint System - Inertial Reel Equipped

#### Product Description

This STC authorizes the installation of a vendor supplied, FAA approved, TSO-C114 restraint system, at each pilot position. The restraint system incorporates a traditional pelvic restraint strap (lap belt) provided with the provision to attach, as needed, a single diagonal upper torso (shoulder) restraint strap. The upper end of the shoulder strap is hard mounted to the airframe at a location aft and above the pilot position. The free end of the shoulder strap is attached to the pelvic restraint strap at the buckle location and adjusted, as necessary, by use of the cinch strap or inertial reel. The attachment of the fixed end of the shoulder strap is accomplished by the installation of an aluminum mount centered at fuselage station 111.35



#### Airframe Qualification

Aircraft that have a standard airworthiness certificate are eligible for this installation. The airworthiness certificate must be issued in either the Normal or Utility Category. Inspect the aircraft and its records to assure that any change in structure of window installation does not preclude the installation of Model PA28-114FS or Model PA28-114IR restraint system.

#### Weight and Balance - two pilot positions

Model PA28-114FS has a location of station 111.35 and a net weight change of 1.75 lbs per installation  
Model PA28-114IR has a location of station 111.35 and a net weight change of 3.50 lbs per installation

#### Installation

The rear passenger window trim is removed as necessary, on each side. Carefully loosen the headliner from the window channel and using clamps, positioned to provide access to the cabin structure. On the bench, the left and right mounts are drilled and riveted together, then the mount assemblies are positioned in the aircraft and riveted in place. With the exception of seven rivets through the cabin skin; all rivets are concealed above the headliner. The headliner is reinstalled and a .250-inch mounting hole is opened through the headliner fabric. The upper end of the shoulder strap or inertial reel is installed using the hardware provided. New lap belts are installed.

## ERCOUPE STC KIT

### STC SA02493CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA



Estimated Installation Time  
4 - 6 hrs

This structurally integrated Alpha Aviation Inc. 3-point Diagonal Shoulder Harness installation STC kit is FAA / PMA using OEM quality AmSafe® restraint assemblies meeting TSO-C114. Shipped as a complete kit, this STC includes everything for the installation of shoulder harness restraints in the Pilot and Co-Pilot positions

This kit is stocked with **Black, Gray or Fawn (Tan)** Restraints.

Over 100 other colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****

#### STC SA02493CH Includes;

- 2 Shoulder Harnesses; Fixed Strap
- 2 New Lap Belts, including new buckle and end fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware (FAA / PMA)
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization

#### APPROVED MODELS UNIVAIR (Erco / Forney)

415-C	415-CD	415-D	Model E	Model G
F-1	F-1A			

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*

## ERCOUPE STC KIT INSTALLATION OVERVIEW

### STC SA02493CH 3-Point Diagonal Shoulder Harness Kit - FAA / PMA

Model Number	Description
415-114FS	Three-Point Restraint System - Fixed Strap Style

#### Product Description

This STC authorizes the installation of a vendor supplied, FAA approved, TSO-C114 restraint system, at each pilot position. The restraint system incorporates a traditional pelvic restraint strap (lap belt) provided with the provision to attach, as needed, a single diagonal upper torso (shoulder) restraint strap. The aft end of the torso restraints strap is hard mounted to the airframe at a location aft of each pilot position. The free end of the strap is attached to the pelvic restraint strap at the buckle location and adjusted, as necessary, by the use of the cinch strap provided. The attachment points for the pelvic restraint (lap belt) are unchanged. The attachment of the fixed end of the torso restraint strap is accomplished by the addition of a mounting hard point to the fuselage structure adjacent to each pilot position and centered at fuselage station 67.0



#### Airframe Qualification

Aircraft that have a standard airworthiness certificate are eligible for this installation.

The airworthiness certificate must be issued in either the Normal Category.

Inspect the aircraft and its records to assure that any change in structure does not preclude the installation of Model 415-114FS restraint system. **Note:** This installation has been successfully proof tested with the frame "E" crossmember removed to insure structural integrity when installed in aircraft that were manufactured or modified to include an enlarged baggage area.

#### Weight and Balance - two pilot positions

The Model 415-114FS installation has a location of station 67.0 and a net weight change of +1.75 pounds per installation

#### Installation

An aft hard point is established at fuselage station 67.0 on the right and left side of the fuselage.

The attachment of the two-ply aluminum doubler is accomplished by bolting through the horizontal angle PN 415-31116L / R and riveting through the outer fuselage skin above the exterior cabin reinforcement channel.



## ALON A-2 STC KIT INSTALLATION OVERVIEW

### STC SA02481AK 3-Point Diagonal Shoulder Harness Kit - FAA / PMA

Model Number	Description
A-2	Three-Point Restraint System - Fixed Strap Style

#### Product Description

This STC authorizes the installation of a vendor supplied, FAA approved, TSO-C114 restraint system, at each pilot position. The restraint system incorporates a traditional pelvic restraint strap (lap belt) provided with the provision to attach, as needed, a single diagonal upper torso (shoulder) restraint strap. The aft end of the torso restraints strap is hard mounted to the airframe at a location aft of each pilot position. The free end of the strap is attached to the pelvic restraint strap at the buckle location and adjusted, as necessary, by the use of the cinch strap provided. The attachment points for the pelvic restraint (lap belt) are unchanged. The attachment of the fixed end of the torso restraint strap is accomplished by the addition of a mounting hard point to the fuselage structure adjacent to each pilot position just forward of station F.



#### Airframe Qualification

Aircraft that have a standard airworthiness certificate are eligible for this installation.

The airworthiness certificate must be issued in either the Normal Category.

Inspect the aircraft and its records to assure that any change in structure does not preclude the installation of this restraint system

#### Weight and Balance - two pilot positions

The upper attachment point installation are centered at station +75.5 as shown on Drawing A2-3001. The total net weight change is +1.75 pounds.

#### Installation

An aft hard point is established on the right and left side of the fuselage.

The vertical and horizontal locations of the upper attachment points (left and right) are determined, and then marked on the inside of the fuselage for reference.

This mounts to an existing horizontal rivet line that runs aft of the rear window

Lap belt mounting location remains unchanged, and existing hardware will be re-used.

## ALON A-2 STC KIT

### STC SA02481AK 3-Point Diagonal Shoulder Harness Kit - FAA / PMA



This structurally integrated Alpha Aviation Inc. 3-point Diagonal Shoulder Harness installation STC kit is FAA / PMA using OEM quality AmSafe® restraint assemblies meeting TSO-C114. Shipped as a complete kit, this STC includes everything for the installation of shoulder harness restraints in the Pilot and Co-Pilot positions

This kit is stocked with **Black, Gray or Fawn (Tan)** Restraints.

Over 100 other colors are available by Special Order at no extra charge. Please allow 4 - 5 weeks for shipment of special order colors. Color Swatches are available upon request. ***\*We are not able to accept returns or provide refunds on special orders\****



#### STC SA02481AK Includes;

- 2 Shoulder Harnesses; Fixed Strap
- 2 New Lap Belts, including new buckle and end fittings
- 8130-3 Airworthiness Certificate
- Certificate of Conformance
- All Required Parts and Hardware (FAA / PMA)
- Detailed Installation Manual with Drawings
- Supplemental Type Certificate
- STC Authorization



#### APPROVED MODELS

A-2

Estimated Installation Time  
4 - 6 hrs

*Estimated installation times do not include the aircraft prep of removing seats, opening panels, pulling back headliners, etc. Due to the differences between maintenance shops & installers we are not able to guarantee the estimated installation times provided.*

## SHOULDER HARNESS STC APPROVED MODELS LIST

BEECH 3RS-114FS and BEECH 3RS-114IR					STC SA01880CH	
35	G35	V35	35-C33	G33	95-C55A	E95
35R	H35	V35A	35-C33A	95	B95	A56TC
A35	J35	V35B	E33	95-55	B95A	58
B35	K35	36	E33A	95-A55	D95A	58A
C35	M35	A36	E33C	95-B55	D55	
D35	N35	35-33	F33	95-B55A	D55A	
E35	P35	35-A33	F33A	95-B55B	E55	
F35	S35	35-B33	F33C	95-C55	E55A	
BEECH BE19-FS and BEECH BE19IR					STC SA04310CH	
19A	M19A	B19	23	A23	A23A	B23
C23	A23-24	A24	A24R			
CESSNA 150/152 FS and CESSNA 150/152 IF					STC SA04389CH	
150	150A	150B	150C	150D	150E	150F
150G	150H	150J	150K	150L	150M	152
CESSNA C100-114FS and CESSNA C100-114IR					STC SA02211CH	
170	172E	175B	180E	182D	182M	185B
170A	172F*	175C	180F	182E	182N	185C
170B	172G	P172D	180G	182F	182P	185D
172	172H*	180	180H	182G	185E	
172A	172I	180A	182	182H	A185E	*USAF T41A
172B	172K	180B	182A	182J	A185F	
172C	175	180C	182B	182K	185	
172D	175A	180D	182C	182L	185A	
PIPER PA23-114FS and PA23-114IR					STC SA02298CH	
PA-23	PA-23-160	PA-23-235	PA23-250	PA-E23-250		
PIPER PA24-114FS and PA24-114IR					STC SA02492CH	
PA-24	PA-24-250	PA-24-260	PA24-400	PA-30	PA-39	
PIPER PA28-114FS and PA28-114IR					STC S02015CH	
PA28-140	PA28-150	PA28-160	PA28-180	PA28-235	PA28R-180	PA28R-200
PA28S-160	PA28S-180	PA32-260	PA32-300	PA32S-300		