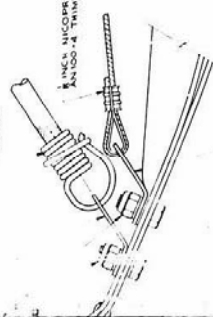
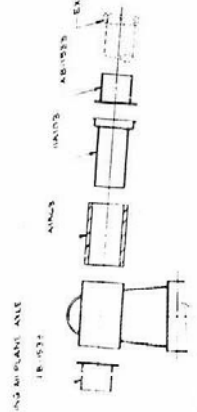


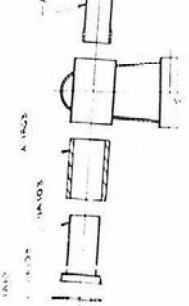
AR-150 BENT TO PROPER ANGLE
SCALE: HALF SIZE



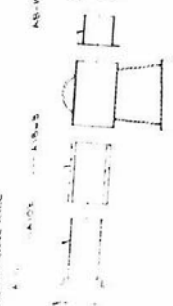
AR-150 BENT TO PROPER ANGLE
SCALE: FULL SIZE



1/2" DIA. WITH LONG STRAIGHT AXLES
SCALE: HALF SIZE



FOR USE WITH TAPERED AXLES
SCALE: HALF SIZE

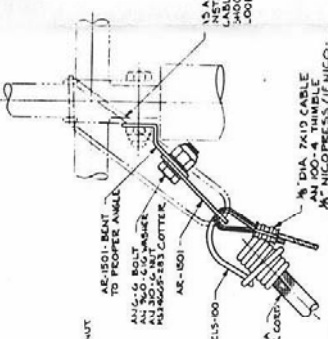


FOR USE WITH TAPERED AXLES
SCALE: HALF SIZE

FOR USE WITH TAPERED AXLES
SCALE: HALF SIZE



ATTACHMENT RIGGING TO AFT END OF SKI
SCALE: FULL SIZE

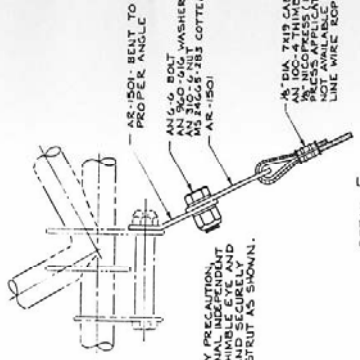


ATTACHMENT RIGGING TO AIRPLANE FORE
SCALE: FULL SIZE

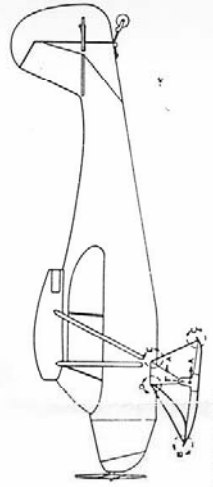
TABLE OF WEIGHTS

MAIN SKIS, PER PAIR	A-1500	A-1950	A-2000	A-2000A	CA-1850-G
RIGGING KIT, IIA129	2175	2175	2175	2175	2175
AXLE ADAPTER KIT, IIA112	325	325	325	325	325
SHOCK CORDS, PER PAIR	1325	1325	1325	1325	1325
TOTAL PER INSTALLATION	3600	3600	3600	3600	3600

NOTE:
THE WEIGHT OF THE WHEELS MUST BE DETERMINED FROM THE WEIGHT OF THE SKI INSTALLATION TO FIND WEIGHT OF WHEELS EXCEPT WHEN USING SKI MODEL CA-1850-G.



ATTACHMENT RIGGING TO AIRPLANE AFT
SCALE: FULL SIZE



SCALE: 1/20 SIZE

NOTES ON LENGTHS OF SHOCK CORDS & CABLES:
1. FRONT LIMITING CABLES TO ALLOW THE SKIS TO FIT IN MOSE DOWN 20" MEASURED ON TOP ZONAL REFERENCE LEVEL LINE. MORE TO FIT MOSE UP 10" MEASURED FROM THE SKIS. FRONT SHOCK CORDS TO HAVE APPROX. 2" PRELOAD WHEN AFT CABLES ARE TAUT.

NOTE:
THIS INSTALLATION INSTRUCTION DOES NOT CONSTITUTE AUTOMATIC APPROVAL OF EQUIPMENT. APPROVAL MUST BE OBTAINED FROM THE CANADIAN INSPECTOR.

1	PRODUCTION TOOL CHANGE
---	------------------------

NOTE:
THIS DRAWING APPLIES TO AIRPLANE MODELS NO. 501A, 557AF, MCC, 501C, 557AL, TSCM, 501D, 557F, TSC, 501E, 557G, TSCA, 501F, 557H, TSCB, 501G, 557I, TSCC, 501H, 557J, TSCD, 501I, 557K, TSCD.

NOTE:
THERE MAY BE SLIGHT VARIATIONS IN THE ASSIGNMENT OF DIMENSION POINTS IN THIS CASE THIS DRAWING IS TO SERVE AS A GUIDE TO THE LIMITING CABLES AND SHOCK CORDS TO BE AS

* WHEN SKI MODEL CA-1850-G IS INSTALLED SLUSHING SET (M02), AND AXLE ADAPTER KIT (IIA112), ARE NOT REQUIRED.

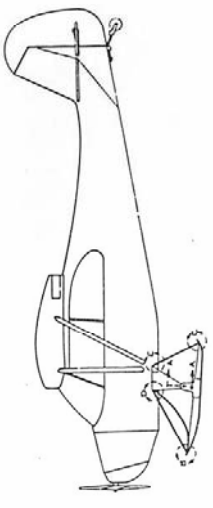
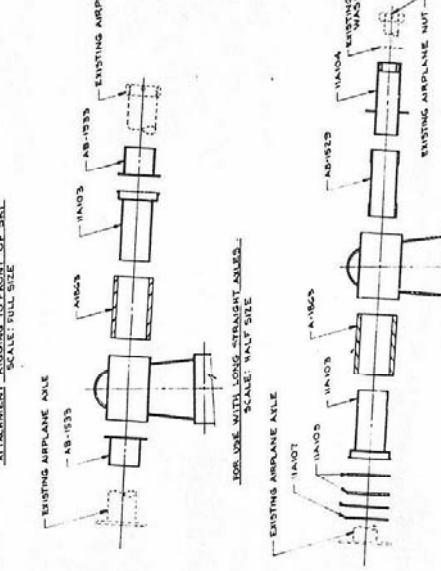
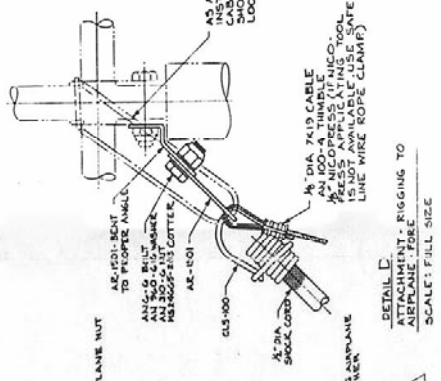
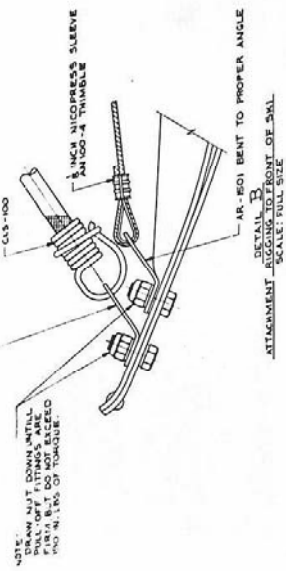
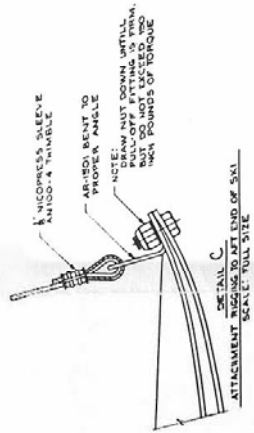
1	IIA129	RIGGING KIT
2	IIA112	AXLE ADAPTER KIT
3	GR 199	MODEL CA-1850-G
4	A-2000	MAIN SKI MODEL A-2000
5	A-1950	MAIN SKI MODEL A-1950
6	A-1500	MAIN SKI MODEL A-1500

1	IIA129	RIGGING KIT
2	IIA112	AXLE ADAPTER KIT
3	GR 199	MODEL CA-1850-G
4	A-2000	MAIN SKI MODEL A-2000
5	A-1950	MAIN SKI MODEL A-1950
6	A-1500	MAIN SKI MODEL A-1500

TABLE OF WEIGHTS

MODEL	1-1950	1-1950	A-2000	A-2000A	CA-1850-G
MAIN AXES PER PAIR	2820#	3112#	3274#	3274#	4412#
RIGGING KIT, 1/4 IN. 29	375	375	375	375	440
AXLE ADAPTER KIT, 1/4 IN. 2	325	325	325	325	375
SHOCK CORDS	1225	1225	1225	1225	1225
TOTAL PER INSTALLATION	3625#	3837#	3799#	3799#	4973#

NOTE: THE WEIGHT OF THE WHEELS MUST BE DELETED FROM THE WEIGHT OF THE SKI INSTALLATION TO FIND THE NET CHANGE EXCEPT WHEN USING SKI MODEL CA-1850-G.



NOTE: THIS INSTALLATION INSTRUCTION DOES NOT CONSTITUTE A FINAL APPROVAL. IT MUST BE OBTAINED FROM THE C.A.A. INSPECTOR.

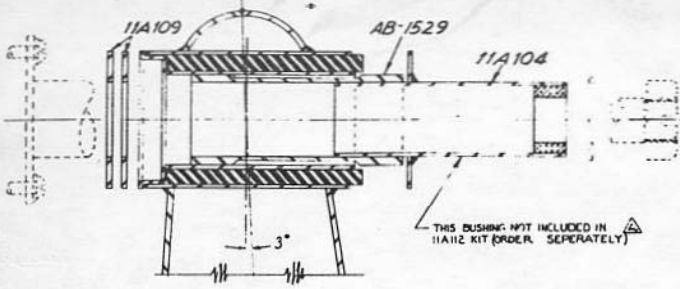
THIS ASSEMBLY FOR USE WITH MODELS T-1, T-1A, T-1B, T-1C, T-1D, T-1E, T-1F, T-1G, T-1H, T-1I, T-1J, T-1K, T-1L, T-1M, T-1N, T-1O, T-1P, T-1Q, T-1R, T-1S, T-1T, T-1U, T-1V, T-1W, T-1X, T-1Y, T-1Z, T-2, T-3, T-4, T-5, T-6, T-7, T-8, T-9, T-10, T-11, T-12, T-13, T-14, T-15, T-16, T-17, T-18, T-19, T-20, T-21, T-22, T-23, T-24, T-25, T-26, T-27, T-28, T-29, T-30, T-31, T-32, T-33, T-34, T-35, T-36, T-37, T-38, T-39, T-40, T-41, T-42, T-43, T-44, T-45, T-46, T-47, T-48, T-49, T-50, T-51, T-52, T-53, T-54, T-55, T-56, T-57, T-58, T-59, T-60, T-61, T-62, T-63, T-64, T-65, T-66, T-67, T-68, T-69, T-70, T-71, T-72, T-73, T-74, T-75, T-76, T-77, T-78, T-79, T-80, T-81, T-82, T-83, T-84, T-85, T-86, T-87, T-88, T-89, T-90, T-91, T-92, T-93, T-94, T-95, T-96, T-97, T-98, T-99, T-100, T-101, T-102, T-103, T-104, T-105, T-106, T-107, T-108, T-109, T-110, T-111, T-112, T-113, T-114, T-115, T-116, T-117, T-118, T-119, T-120, T-121, T-122, T-123, T-124, T-125, T-126, T-127, T-128, T-129, T-130, T-131, 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T-990, T-991, T-992, T-993, T-994, T-995, T-996, T-997, T-998, T-999, T-1000.

NOTE: THESE MAY BE SLIGHTLY VARY IN THE RIGGING ATTACHMENT POINTS IN THIS CASE THE THICKER WIRE AS A GUIDE THE LENGTHS OF SHOCK CORDS SPECIFIED.

NOTE: WHEN SKI MODEL CA-1850-G IS USED (WHEEL AND AXLE KIT IS NOT REQUIRED)

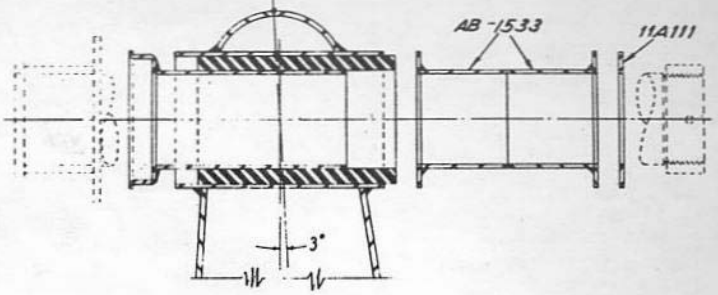
MODEL	1-1950	1-1950	A-2000	A-2000A	CA-1850-G
SHOCK CORDS	1225	1225	1225	1225	1225
AXLE ADAPTER KIT, 1/4 IN. 2	325	325	325	325	325
RIGGING KIT, 1/4 IN. 29	375	375	375	375	375
MAIN AXES PER PAIR	2820#	3112#	3274#	3274#	4412#
TOTAL PER INSTALLATION	3625#	3837#	3799#	3799#	4973#

AERONCA TAYLORCRAFT



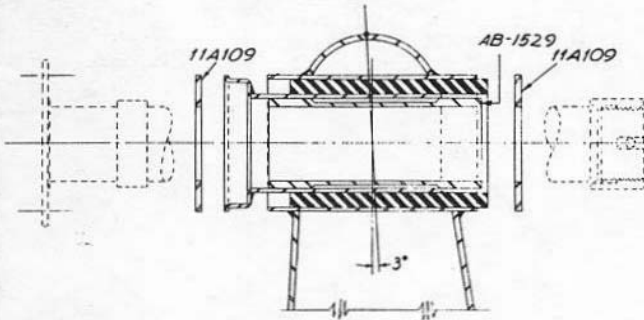
THIS ASSEMBLY FOR ALL TAYLORCRAFT MODELS.
FOR USE WITH AERONCAS WITH TAPERED AXLES ADD 2 11A107
WASHERS ON INBOARD SIDE OF PEDESTAL.

LUSCOMBE



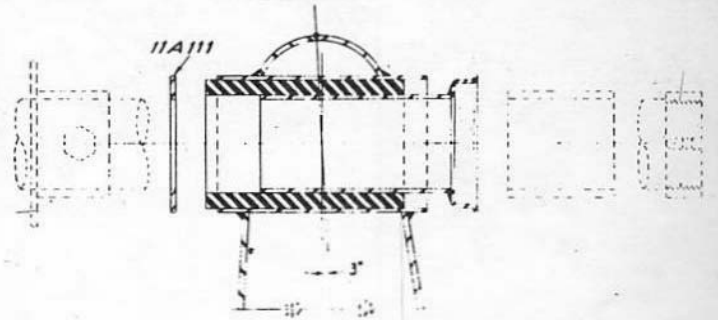
THIS ASSEMBLY FOR ALL LUSCOMBE MODELS EQUIPPED
WITH OTHER THAN GOODYEAR BRAKES.

PIPER



THIS ASSEMBLY FOR ALL PIPER MODELS

LUSCOMBE



THIS ASSEMBLY FOR ALL LUSCOMBE MODELS EQUIPPED
WITH GOODYEAR BRAKES.

GENERAL INSTRUCTIONS FOR ALL MODELS.
INSTRUCTIONS FOR INSTALLING PEDESTAL RUBBER TUBE AND SLEEVE.

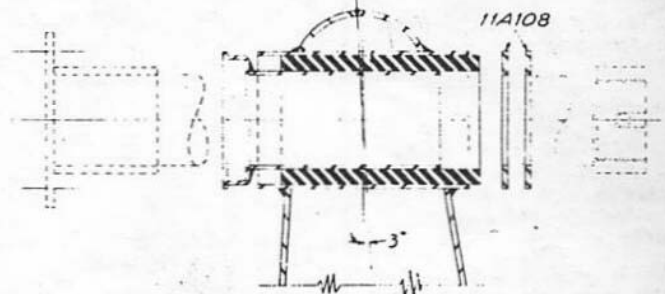
1. PUSH RUBBER TUBE ONTO STEEL SLEEVE AS FAR AS IT WILL GO
2. WARM RUBBER TO APPROX. 100° F.
3. INSERT RUBBER INTO SKI PEDESTAL. PRESS CUP WASHER FIRMLY IN PLACE.
4. PLACE SKI ASSEMBLY ON AXLE. COMPONENT PARTS TO BE KEPT IN ORDER AS PER DIAGRAM FOR THE AIRPLANE.
5. TIGHTEN AXLE NUT UNTIL SKI NOSE WILL JUST MAINTAIN HORIZONTAL POSITION.
6. SAFETY NUT, THEN ATTACH CABLE AND SHOCK CORD RIGGING.

NOTE: IF, AFTER SERVICE, THE SKI TENDS TO DEVELOP PLAY, OR TURN ON THE RUBBER TUBE, ADJUST AXLE NUT AS PER STEP *5 ABOVE.

NOTE: TO COMPENSATE FOR THE CAMBER OF THE LANDING GEAR, FEDERAL SKIS ARE MADE LEFT AND RIGHT. THE HIGH SIDE OF THE PEDESTAL CROSS TUBE MUST BE PLACED ON THE INSIDE OF THE GEAR.

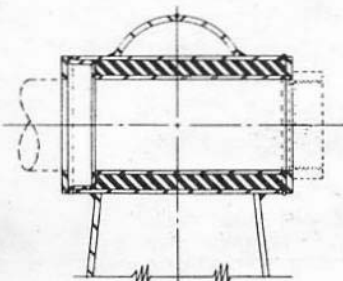
NOTE: SEE OTHER SIDE FOR RIGGING INSTRUCTIONS.

FLEET CANUCK



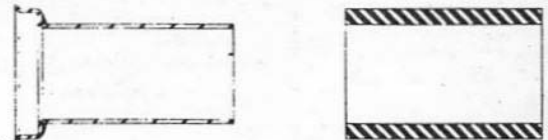
THIS ASSEMBLY FOR ALL MODELS FLEET "CANUCK".

TYPICAL ASSEMBLY



THE ABOVE ILLUSTRATION SHOWS THE PEDESTAL ASSEMBLY TO AXLE FOR THE AVERAGE LIGHT AIRPLANE. WHEN PROPERLY ADJUSTED NOTE HOW THE RUBBER TUBE HAS BEEN COMPRESSED INTO THE PEDESTAL CROSS TUBE TO GIVE THE SKI FIRM MOUNTING. WHEN INSTALLING THE RUBBER, WARM AS DIRECTED (SEE STEP *2). COLD RUBBER BECOMES HARD AND WILL NOT COMPRESS PROPERLY.

PEDESTAL RUBBER TUBE WITH STEEL SLEEVE



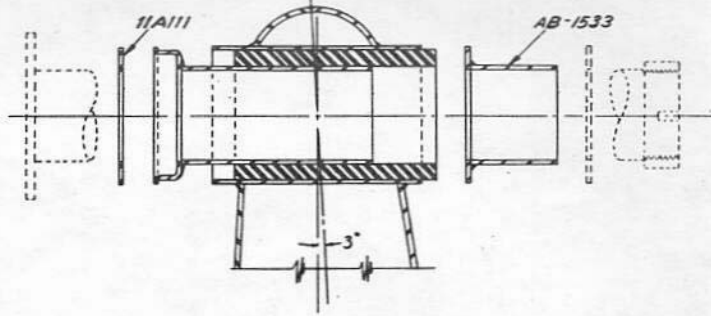
- EACH 11A102 SET CONSISTS OF:
- 2 A-1863 RUBBER TUBE
 - 2 11A103 ASS'M. CUP WASHER & SLEEVE

TYPICAL BUSHING
INSTALLATION DETAILS
FEDERAL AIRCRAFT SKIS
A-1500A THRU A-2000A

FEDERAL AIRCRAFT WORKS
MINNEAPOLIS, MINN.

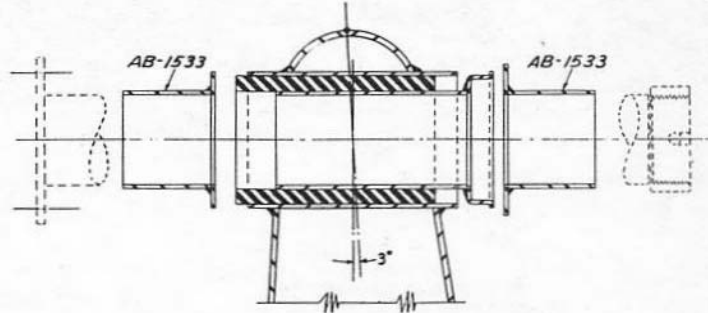
11R124 B

AERONCA & CHAMPION 7 SERIES



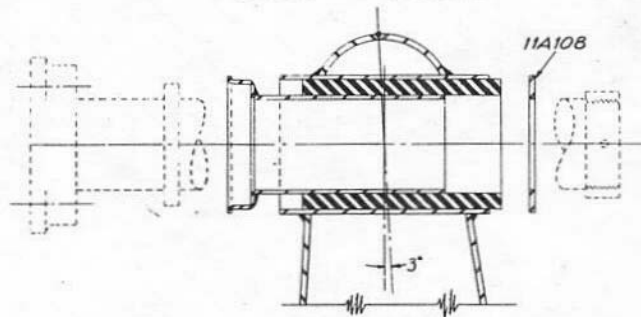
THIS ASSEMBLY FOR AERONCA CHAMPION MODEL 7A & CHIEF MODEL N° 11-A, WITH BRAKES REMOVED.
 FOR USE WITH GOODYEAR BRAKES DISCARD SPACER N° AB-1533 & INSIDE WASHER N° 11A111.
 FOR USE WITH CLEVELAND BRAKES DISCARD SPACER N° AB-1533.

AERONCA



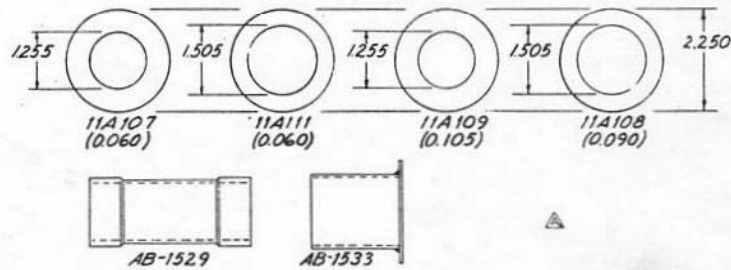
THIS ASSEMBLY FOR AERONCAS WITH LONG STRAIGHT AXLES.

GLOBE CESSNA



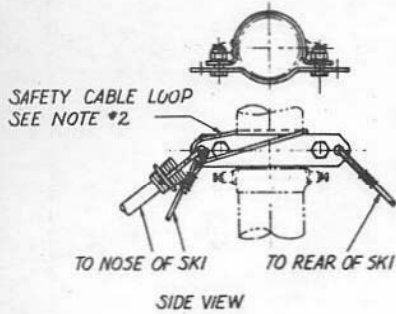
THIS ASSEMBLY IS FOR GLOBE "SWIFT" & CESSNA MODEL 120 & 140.

UNIVERSAL AXLE ADAPTER KIT

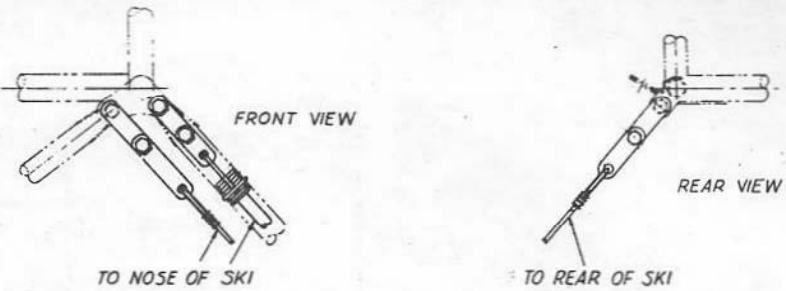


EACH 11A112 KIT CONSISTS OF:

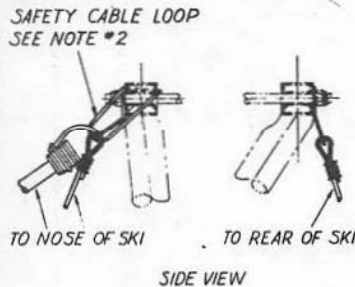
- | | |
|--------------------|--------------------|
| 4 - 11A107 WASHER | 4 - 11A109 WASHER |
| 4 - 11A108 WASHER | 2 - 11A111 WASHER |
| 2 - AB1529 BUSHING | 4 - AB1533 BUSHING |



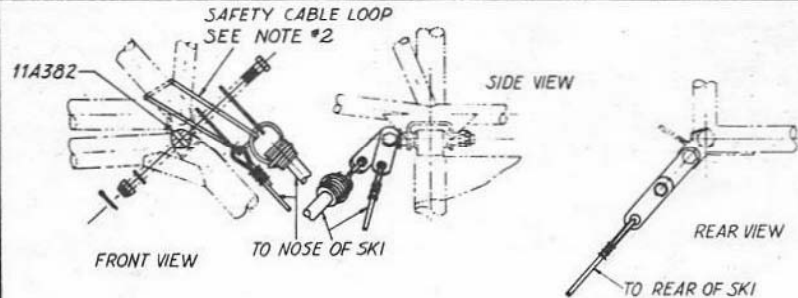
TEMCO (GLOBE) SWIFT
MODELS 85 AND 125



PIPER MODELS J3, J3C, PA-11, J3F, J3L, J4,
J4A, J5A, J5B, PA-15 AND PA-17



TAYLORCRAFT MODELS BC, BC1265,
BC12D, BC12D1, BC65, BF, BF1265,
BF60, BF65, BL, BL1265, BL65, DC65,
DC065, DF65 AND DL65



PIPER MODELS J5C, PA-12 AND PA-14

NOTES:

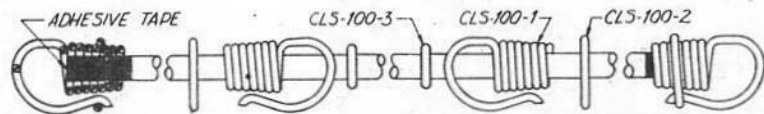
- 1- WHEN USING $\frac{3}{8}$ " BOLT, DRAW NUT DOWN UNTIL FITTING IS FIRM BUT DO NOT EXCEED 190 IN. LBS. TORQUE.
- 2- AS AN ADDED PRECAUTION, INSTALL A $\frac{1}{8}$ " SAFETY CABLE LOOPED THRU THE UPPER ENDS OF THE SHOCK CORD AND LIMITING CABLE AND SUITABLY ANCHOR TO AN INDEPENDENT POINT ON THE AIRPLANE AS SHOWN.
- 3- ALL SKI PITCHING ANGLES REFERRED TO ARE MEASURED BETWEEN THE HORIZONTAL REFERENCE LINE OF THE AIRPLANE AND THE TOP OF THE SKI CHANNEL.
- 4- SEE OTHER SIDE FOR BUSHING INSTRUCTIONS.
- 5- THESE INSTALLATION INSTRUCTIONS DO NOT CONSTITUTE AUTOMATIC APPROVAL OF THE SKI INSTALLATION. APPROVAL OF FINAL INSTALLATION MUST BE OBTAINED FROM C.A.A. INSPECTOR OR COGNIZANT AIR INSPECTOR.

EACH 11A129 RIGGING KIT CONTAINS:

2	11B127	CABLE ASSEMBLIES	4	AN310-6	NUTS
1	11B128	SHOCK CORD ASSEMBLY	8	AN960-616	WASHERS
12	AR-1501	PULL-OFF FITTINGS	1	11R125	RIGGING INSTRUCTION SHEET REVISED OCT 1953
4		$\frac{1}{8}$ SAFE-LINE FITTINGS	4	AN380-33	COTTERS
4	AN100-4	THIMBLES			
4	AN6-6	BOLTS			

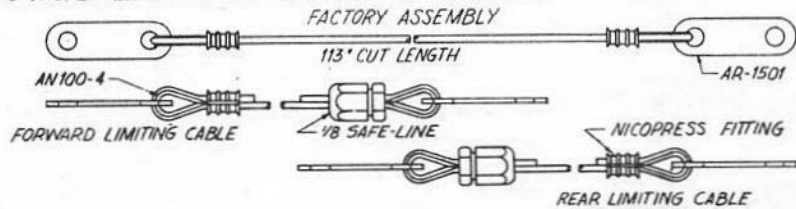
PREPARE SHOCK CORDS AND CABLES AS SHOWN DIRECTLY BELOW

FACTORY ASSEMBLY
86" CUT LENGTH



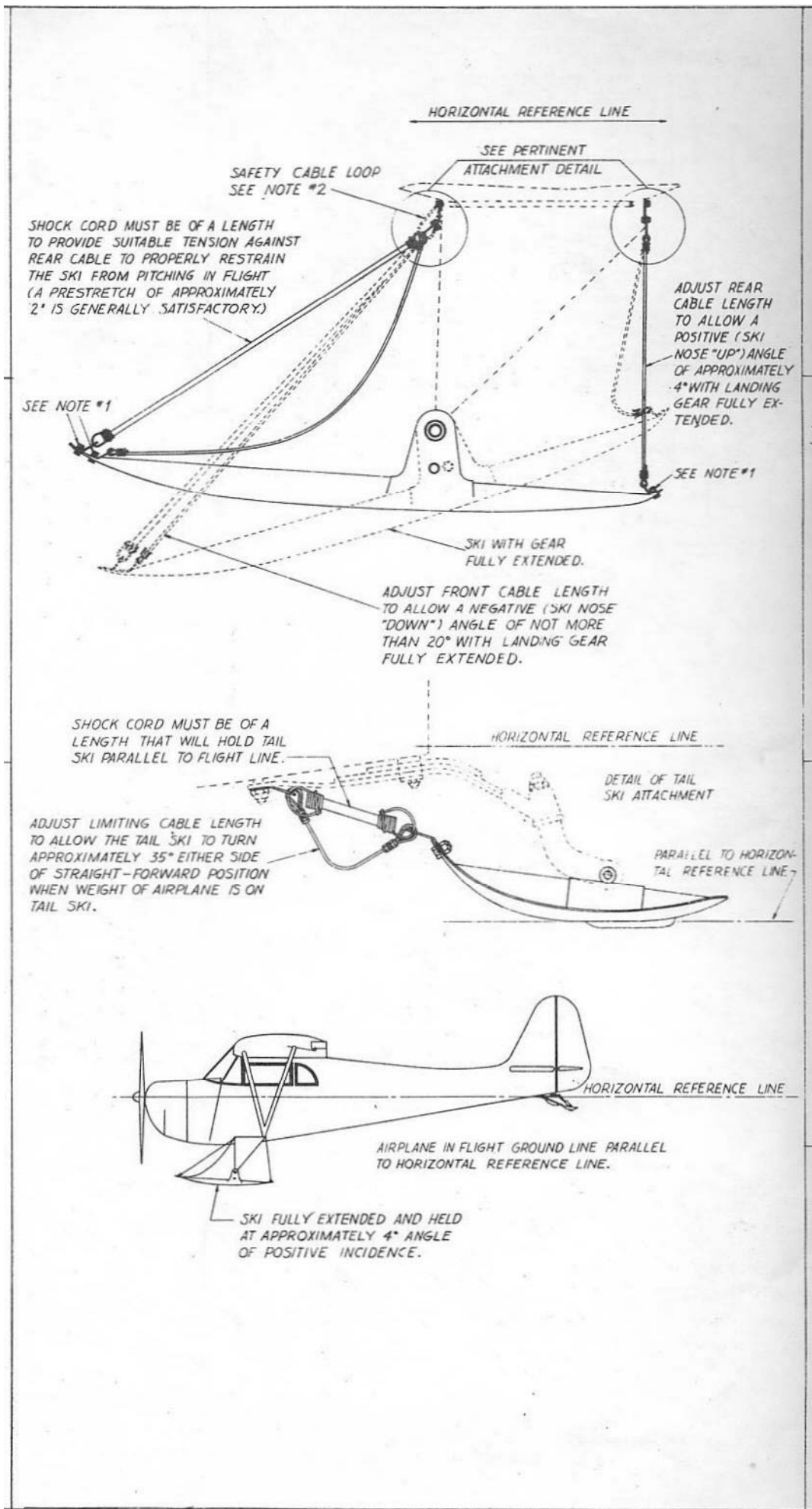
TO PREVENT CORD FROM FLARING OUT WHEN CUT, WRAP LOCATION TO BE CUT WITH TWO TURNS OF ADHESIVE TAPE. CUT SHOCK CORD AT END OF TAPE.
TWO FORWARD SHOCK CORDS ARE TO BE MADE FROM EACH FACTORY ASSEMBLY, BY CUTTING FACTORY ASSEMBLY TO PROPER LENGTH TO SUIT CONDITIONS OF THE AIRPLANE.

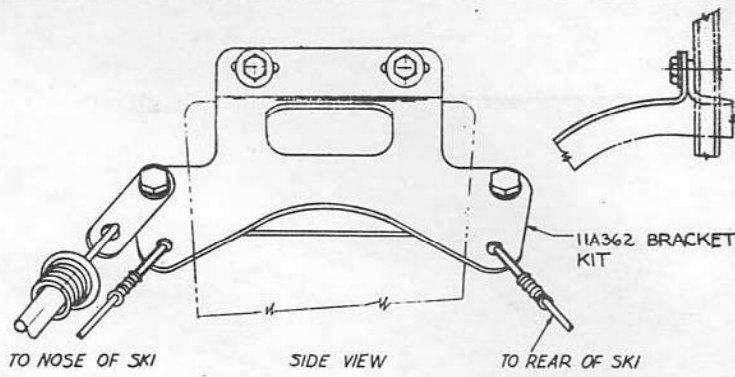
THE GROUND ENDS OF LOCK RING ARE TO PREVENT PINCHING OF SHOCK CORD WHEN LOCK RING IS CLINCHED.



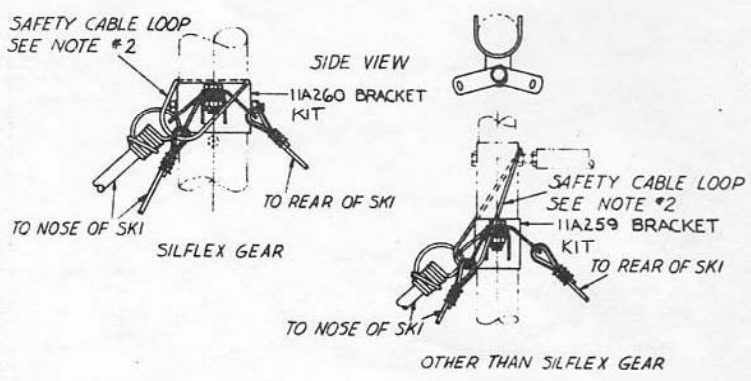
ONE FORWARD AND ONE REAR LIMITING CABLE TO BE MADE FROM EACH FACTORY ASSEMBLY BY CUTTING FACTORY ASSEMBLY TO PROPER LENGTH TO SUIT CONDITIONS OF THE AIRPLANE. ATTACH SAFE-LINE FITTING AT OPPOSITE END OF CABLE FROM NICOPRESS FITTING.

CAUTION! ALLOW FOR EXTRA AR-1501 FITTING WHICH PROVIDES FOR METHOD OF QUICK DISASSEMBLY. NOT USED WHEN SPECIAL STRUT BRACKET IS REQUIRED.

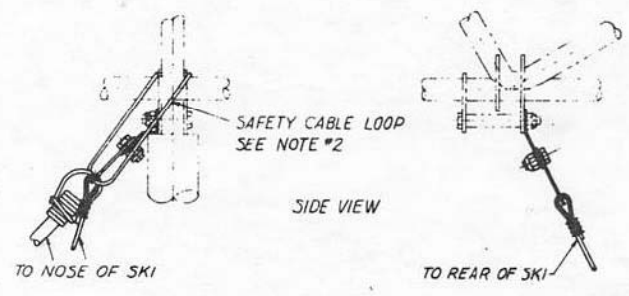




CESSNA MODELS 120 AND 140



LUSCOMBE MODELS 8, 8A, 8B, 8C, 8D, 8E AND 8F



AERONCA MODELS CA, 50C, 65C, 65CA, KM, KF, 50F, 50L, 50LA, 65LB, Y05A, 50TC, 50TL, 60TF, 65TAC, 65TAF, 65TAL, 65TC, 65TF, 65TL, 7AC, 11AC, 11BC AND 11CC

INSTALLATION INSTRUCTIONS FEDERAL AIRCRAFT SKIS A-1500A THRU A-2000A	
FEDERAL AIRCRAFT WORKS MINNEAPOLIS, MINN.	11R125

REVISED OCT. 1959

Notes on Install to Aeronca Champ:

1. Installing ski tabs. You will need to buy the thick ski tabs that attach to the two top bolts on your oleo case. The current bolts are not long enough as you will also have to use many washers to project the tabs clear of the oleo case frame. Buy a ton of both the thick and thin washers to get the exact length you want. I have seen people use a machined bushing in lieu of the washers and that really gives a professional, finished look. There is one trick to save the expense of these expensive bolts: you can usually move the existing rear bolt to the front and then you only have one/side to buy. These are AN6-?. You have to measure the length and not all FBO's carry these larger bolts. Make sure you get drilled threads and use a castle nut/cotter key, NOT a Nylock. This is a rotation point so don't over tighten and keep it lubricated. Use two ski tabs for the front (one for bungee, one for safety cable) and another for the rear. Bend all tabs on the airplane at a 45 degree angle. You will need 6 total for the airplane and another 10 on the skis if they haven't already been rigged. Tabs are available at Aero Ski, Brooten, MN (320) 346-2285. Get the thick ones. Don't cheap out and install the forward cable and bungee to the same tab, as the fwd cable is a safety in case the bungee breaks and you are defeating the purpose if you only use one tab. I am surprised how many people I see do this. When lifting the airplane to install these new bolts/tabs, it is HIGHLY recommended that you use an engine hoist around the engine mount rather than jacking from below. There are differing arguments if it is possible to bend the mount doing this but I almost dropped an airplane off the jack once with the oleo off and that would have been certain damage.
2. Most of your wheel hardware will work to install the ski on the axel. Usually the ski pedestal is not as wide as the wheel so you will need some appropriate washers. Aero Ski also sells these. John Deere also has one that works. I think I have 3-4 on each side. The appropriate wheel nut tension is when you lift the ski tip (on a jack) and it slowly falls when released (no bungee hooked up). If the rubber inserts have worn out in the skis many folks have had great success replacing them with a machined Nylatron bushing. Search the forums for that discussion. I had solid steel bushings welded in my skis for a more permanent solution (just like the new Aero Skis). Worn bushings give you side to side play which is very bad as it can really wear your whole gear assembly. If you have mechanical drum brakes, a large hose clamp over the shoes works well to secure the brake assembly.
3. You officially need an A&P to do the initial install and the weight and balance. After that, it is considered preventative maintenance to switch back and forth every year and thus legal by the owner (as far as I know). The perfect jack for switching skis/wheels is the scissor type found in many cars or at Northern Tools:
<http://www.northerntool.com/webapp/wcs/stores/servlet/ProductDisplay?storeId=6970&productId=200305253&R=200305253>