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ONEIDA NOMENCLATURE

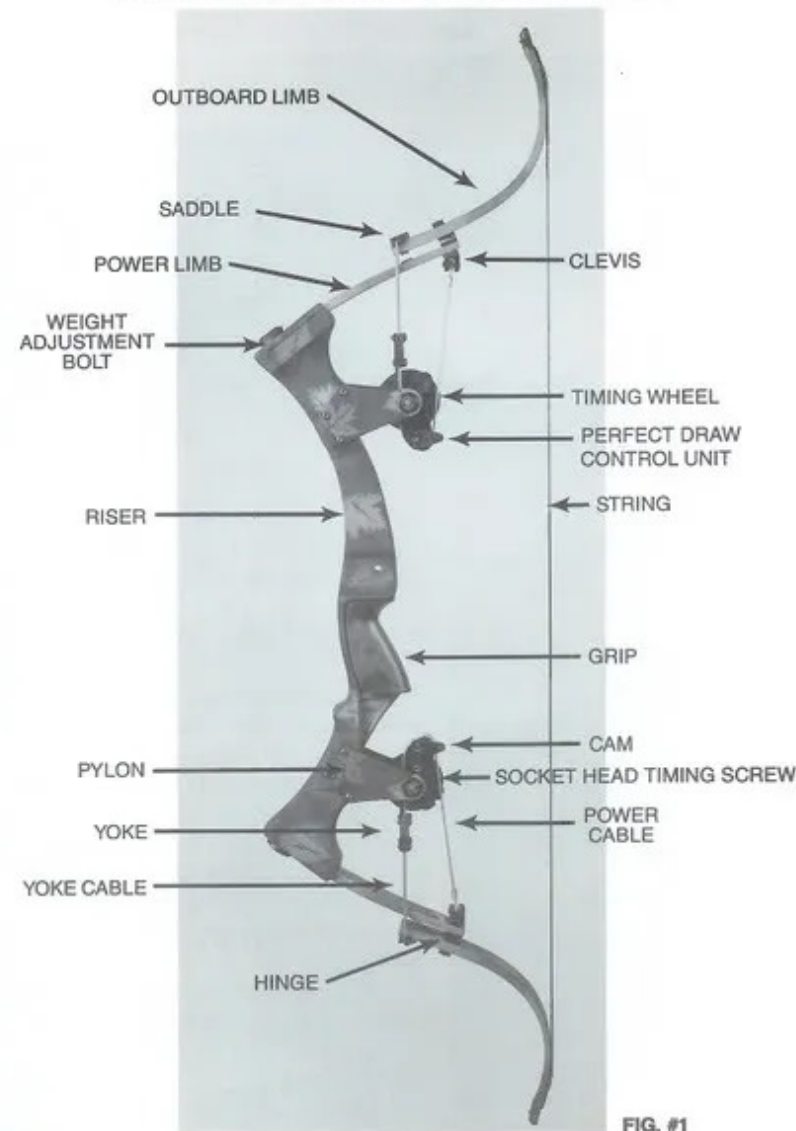


FIG. #1

Figure 1 illustrates the names and locations of the major parts of the Oneida Eagle Bow. We will be referring to these parts throughout this text.

SETTING UP THE BOW

When shipped from the factory, your bow has been set at approximately the middle of the weight adjustment range and has also been tillered.

To determine the exact draw weight, a bow scale is required. Any good archery pro shop will have one. Whenever a weight change is desired, first loosen the socket head timing screw located on the back side of the lower cam.

This is found opposite the timing tensioning hub and slot. *(Note: The slotted timing wheel is located at the bottom end of a currently produced right handed bow and at the top on a left handed bow. For any Oneida Bow manufactured prior to 1990, the opposite is true.)* Never loosen the button head timing cable anchor screw.

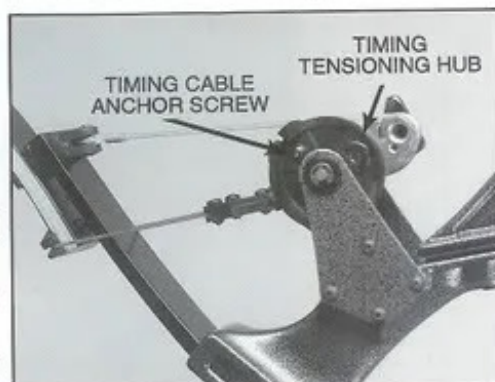


FIG. #2

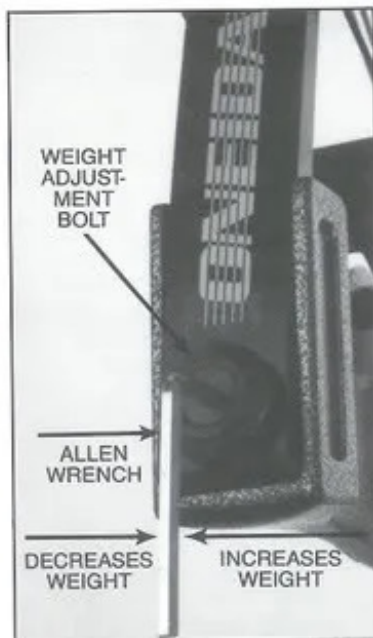


FIG. #3

Using a 3/16" Allen wrench, turn each weight adjustment bolt (Fig. 3) one turn for each approximate 5-pound increase (or decrease) in weight required.

Turning the weight bolt clockwise increases the draw weight, counter-clockwise decreases it. Always alternate between the top and bottom weight bolt every two turns whenever changing weight. Adding more than two turns on any one weight bolt without alternating may cause damage to the timing system.

When using a common wrench, you may experience difficulty in turning the weight adjustment bolts all the way in for maximum weight adjustment. By employing

a small diameter piece of pipe as an extension to the hex wrench, enough torque will be developed to easily achieve maximum weight. **(CAUTION: DO NOT DRAW THE BOW AT THIS POINT AS THE TIMING SCREW IS STILL LOOSE.)**

TILLER

With the approximate desired weight achieved, the next step is to tiller the bow. Tilling insures that both limbs and cams are working together without excess pressure on the timing system.

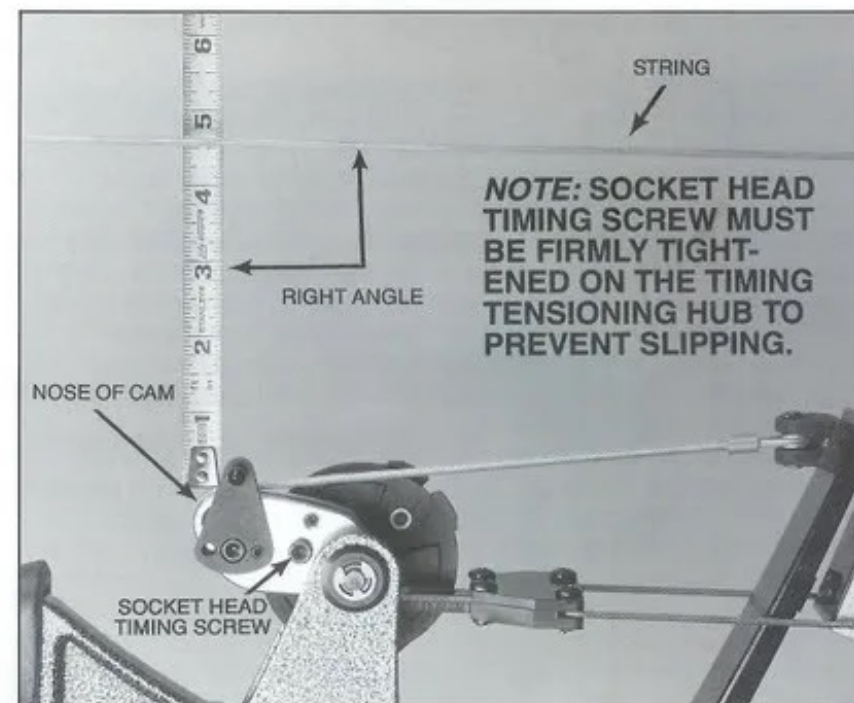


FIG. #4

To tiller the bow you need a ruler about six inches long. Measure the distance between the string and the nose of the cams at a right angle to the string (Fig. 4). If both cams measure the same distance from the string to the nose of the cam, the bow is in tiller.

If the distances are different, you have to adjust the weight adjustment bolts to get the distances even. If the top cam is closer to the string than the bottom cam, turn the top weight adjustment bolt counter-clockwise until both cams measure the same distance from the string. If the top cam is farther from the string than the bottom cam, turn the top weight adjustment bolt clockwise until both cams measure the same distance.

With the bow in tiller, use the 5/32" Allen wrench to tighten the screw on the back side of the lower cam so the timing wheel and cam move as one unit. **(NOTE: NEVER TURN A WEIGHT ADJUSTMENT BOLT EVEN SLIGHTLY WITHOUT FIRST LOOSENING THE SOCKET HEAD TIMING SCREW. TO DO SO COULD DAMAGE THE TIMING SYSTEM.)**

BRACE HEIGHT

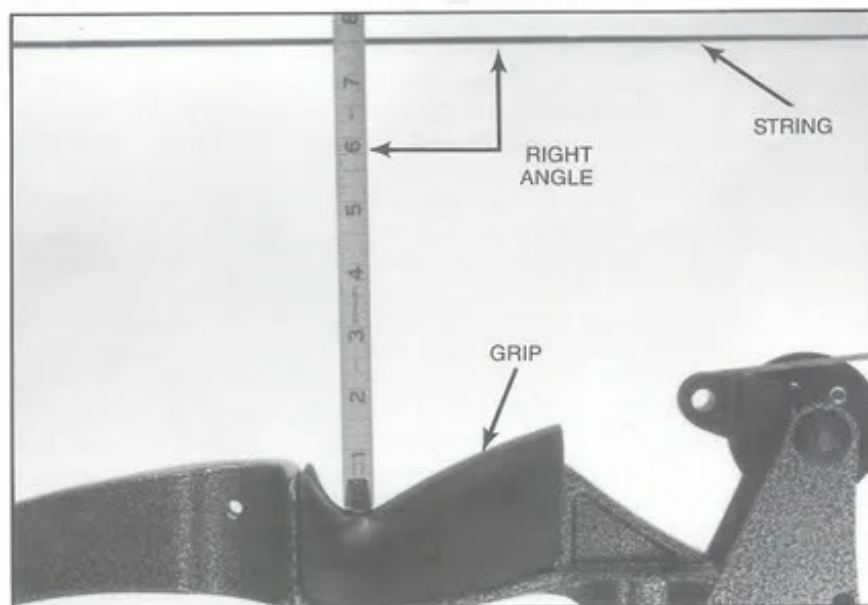
The brace height is measured from the middle of the string to the hollow section of the grip (Fig. 5). Measure the brace height on your new bow and compare the measurement, for the draw length of your bow, with the recommended brace height on the specification chart. If the brace height of your new bow is correct, move on to the next section.

If incorrect, the simplest method of changing your brace height will be to draw the bow and place it between the two limb compression brackets of the Oneida Bow Press (Fig. 10). Remove the string from the bow; add twist to the string to raise the brace height, or remove twist from the string to lower the brace height.

If an Oneida Bow Press is not available, you must loosen the socket head timing screw and back off the weight on the bow by turning both weight adjustment bolts counter-clockwise the same number of turns until the string is relaxed. **(NOTE: ALWAYS ALTERNATE BETWEEN TOP AND BOTTOM WEIGHT ADJUSTMENT BOLTS EVERY TWO (2) FULL TURNS WHENEVER CHANGING WEIGHT.)** Then remove the string from the bow; add twist to the string to raise the brace height, or remove twist from the string to lower the brace height. **(NOTE: Adding five (5) twists in the string will increase the brace height approximately 1/16". Subtracting turns in the string will lower the brace height.)**

Turn the weight adjustment bolts clockwise the same number of

FIG. #5



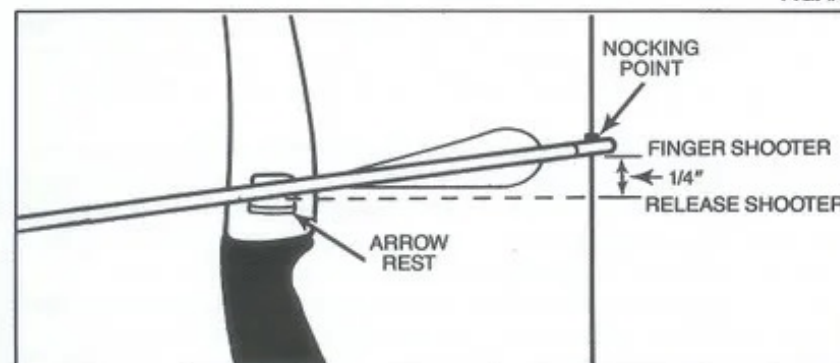
turns it took to relax the bow; check the tiller and adjust accordingly. Tighten the socket head timing screw, and the brace height should be correct. **ALWAYS** keep the brace height within the recommended range for the draw length of your bow; otherwise, the weight and draw length will be affected. Consult the Specification Chart for your model bow for correct brace height range.

ARROW REST

Although there are many excellent arrow rests on the market today, we at Oneida Labs have a basic recommendation. A release shooter has freedom of choice of rests as long as he achieves good clearance. Resetting of nocks may be necessary with some rests to insure good vane clearance. A finger shooter, we feel, should use a non-downward yielding rest. This would include any of the flipper-type rests such as the Oneida Ticonderoga Rest. (The flipper rest you choose must allow enough horizontal adjustment to achieve center-shot positioning of the arrow with the new overdraw risers.) A flipper-type rest, we believe, gives the best results when used in conjunction with a Catskill Button cushion plunger.

When installing the rest, be sure that the arrow shaft centers over the middle of the 5/16-24 tapped hole in the riser. Following the directions that come with the cushion plunger, adjust the tension until about 6 to 8 ounces of pressure is required to depress the plunger. Screw the cushion plunger into the 5/16-24 tapped hole in the riser until the button end of the plunger protrudes from the window side of the riser (1/4" for the Tomcat II, 3/8" for the Phantom II, and 9/16" for both the Strike Eagle and the Aero-Force). These starting points will put your arrow shaft very close to center shot and may require only a slight further adjustment.

FIG. #6



NOCKING POINTS

The most commonly used nocking point is a little rubber lined brass or aluminum horseshoe-shaped clamp that attaches to the bow string to insure that you nock your arrow in exactly the same position on the string every time. A finger shooter should start with the nocking point on the string in such a fashion as to position the bottom of the nock end of the arrow between $3/16"$ and $1/4"$ above a point on the string that is a 90° angle to the arrow shaft sitting on the rest. (Fig. 6) A release shooter will want to start right at a 90° angle off the rest.

When clamping the nocking point into position, clamp it firmly, but not too tightly. When so clamped, you will be able to actually screw the nocking point up or down on the string serving to adjust the nocking point while tuning for arrow flight.

SELECTING AN ARROW

Selecting the proper arrow to go with your new bow may seem like a monumental task at first. When, in reality, it is quite easy. Because the vast majority of archers use aluminum shafts, we at Oneida Labs have recommended aluminum shaft sizes in our arrow chart to help you in selecting the proper arrow to match your bow.

When looking at the arrow shaft selection chart at the back of this manual, you will notice that all aluminum shafts have a four digit size designation number. The first two digits represent the diameter of the shaft in 64ths of an inch. If the first two digits are 24, this means that the shaft is $24/64$ ths inches in diameter. The last two digits represent the wall thickness of the shaft in thousandths of an inch. If the last two digits are 13, then the wall thickness is .013 (thirteen one thousandths of an inch).

To select the proper shaft size for your bow, you must know the draw weight of the bow and the correct arrow length. Look for the column at the left of the chart that corresponds with the arrow point weight that you intend to use. Follow this column down until you are at the desired weight range of your bow. Proceed straight across to the right until you reach the column for your correct arrow length.

You will notice that in the box there are several choices of shaft sizes for your arrow length. The shaft size on top is the lightest for archers who want a little more speed and a little flatter trajectory. The shaft size on the bottom is a little heavier for those who like more penetration. Those sizes in the bold print are our first recommendation, but the other listed sizes are also suitable alternatives. (NOTE: A release aid shooter might be able to use an arrow with less spine than a finger shooter.)

VERI-EZE CAMS AND MODULES

Oneida's revolutionary break-through in cam design offers the archer the absolute ultimate in adjustability. By selecting the appropriate Veri-Eze module, you may vary the draw length of your bow over a 3-inch range and choose either 65% or 80% let-off.

Your bow is supplied with 6 sets of Veri-Eze modules, each of which is marked for identification. Included is a reference chart to show which module, when installed, will give you the draw length and let-off combination you require.

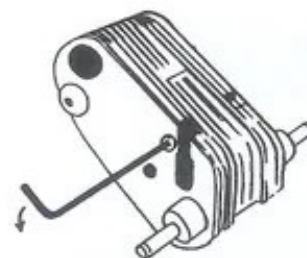


FIG. #7



FIG. #8

To change the Veri-Eze modules, simply loosen the set screw on the side of each cam with a $3/32"$ Allen wrench. (Fig. 7). With the same wrench inserted between the power cables, push downward at the front end of the module as shown in Fig. 8. The module is rounded on the underside, and as a result, the rear of the module will rotate upward and can be easily removed with your fingers. **NEVER PRY UP ON THE REAR OF THE MODULE AS YOU RISK BREAKING IT.**

Once you have removed the modules from the cam, you are ready to complete the draw change and/or let-off adjustment operation. Select the appropriate set of modules and insert them one in each cam. Press them firmly into place and hold until the set screw has been tightened. **CAUTION: Never draw the bow without both modules properly and completely installed.**

INSTALLATION AND ADJUSTMENT OF THE PERFECT DRAW CONTROL SYSTEM

1. Check to insure that the bow is tillered perfectly.
2. Be sure that the proper cam module for your draw length has been installed. Adjustment of the "Perfect Draw Control" (PDC) will be difficult if an improper cam module is used. If the PDC unit has previously been installed on the cams, go to step 12 for PDC adjustment.
3. Compress string and power cable on one end and connect with a 1-inch "S" hook as when changing the power cable. (Shown in figure #11 on page 16.)
4. The opposite power cable will be relaxed. Remove the retaining ring and clevis pin from the clevis to free the outer end of the power cable.
5. Remove the button head power cable retaining screw from the cam.
6. Insert the socket head screw into the body of the PDC unit, taking care that the head will drop into the side that is recessed to accept the socket head. (The stop peg will be aimed away from the cam.)
7. Notice that the PDC body has two set screw holes tapped in to accommodate the upper and lower cam. Always install the PDC unit in a manner that the set screw will be located inside toward the cam axle.
8. Screw the socket head screw into the cam on the opposite side from the timing wheels to replace the button head power cable retaining screw. Snug this only and locate the PDC as shown in accompanying figures A & B.

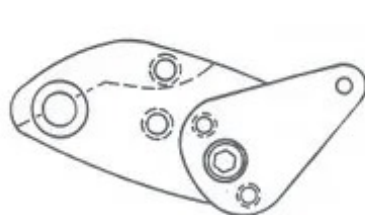


Figure A
For Tomcats, Phantoms, and
Short Aero-Forces

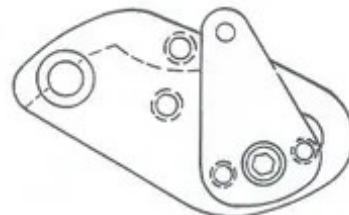


Figure B
For Medium and Long
Aero-Forces

9. Reconnect power cable to clevis with clevis pin and retaining ring.
10. Remove "S" hook from opposite power cable and string.
11. Repeat above procedure on opposing power cable to accomplish installation of the socket head screw and PDC draw stop unit on the other cam.
12. Be sure that the PDC mounting screw is just loose enough that the PDC will move when force is applied. Adjustment of the PDC draw stop is accomplished by slowly drawing the bow and coming to a normal natural anchor. If you feel some resistance short of your anchor point, continue draw until you reach your desired normal anchor. The PDC units will rotate on contact with the pylon.
13. Let the bow down and carefully tighten the set screws first, taking care that the PDC units are not accidentally moved. Then tighten the main socket head screws.
14. A second person will be helpful to insure that both pegs of the PDC are in contact with the edge of the pylon.



SAFETY FIRST ALWAYS

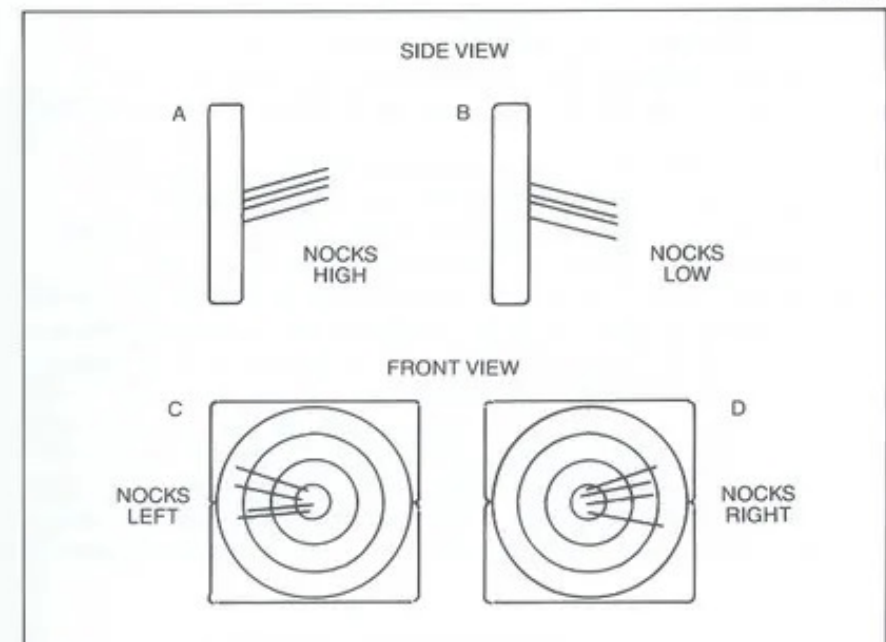
- Always be sure of your target and backstop. The backstop should be of a material that is capable of stopping arrows with no pass-throughs. It should be situated so the area behind is clear of pets, livestock, and human inhabitants, with no chance of an errant arrow causing damage to personal property.
- Prior to each outing, inspect your equipment. String and cables should be checked for evidence of wear. Loose nuts and screws on the bow and accessories, when found early, can prevent serious damage to equipment and even injury to the shooter.
- Inspect arrows and nocks regularly for cracks, dents, or straightness. Cracked nocks should be replaced, and fractured or dented arrows should be discarded immediately.
- Never draw back and release a bowstring without an arrow. This is called "Dry Firing" and doing so will greatly reduce the shooting life of your bow. It also may cause immediate damage to the bow and serious injury to the shooter.
- Always make sure that the outboard limb will not strike a foreign object during a shot sequence. The most common incidence of this is hitting an overhead branch while shooting from a treestand. This limb restriction may cause damage to the timing system.
- Use only arrows that properly match your bow. Shooting an arrow with too light a spine can damage your equipment and will result in inconsistent performance.
- Broadhead hunting arrows should always have their razor sharp edges covered with a protective hood. This serves to protect both equipment and user. (Bowstrings can be accidentally cut when afield and nearly all archery hunting injuries are self-inflicted by careless archers.)
- The use of archery equipment by any inexperienced minor or adult should be closely supervised by a knowledgeable archer until basics are learned.
- Never shoot an arrow straight up in the air.

TUNING — Bare Shaft

With the proper arrow and your new bow now ready to shoot, all you have to do is get your arrow flying off your bow correctly. There are two things to look for in the flight of your arrow. One is called porpoising which is the back end of the arrow wobbling up and down while flying through the air. The other is called fishtailing which is the back of the arrow wobbling from side to side while flying through the air. If you find that your arrows porpoise, fishtail, or a combination of both, follow these directions and you will have good arrow flight when you are done.

The first thing needed is a target like styrofoam, excelsior bales, or a plain old sand bank, that will not affect the way the arrow enters it. Use an arrow exactly like the ones you are shooting but with no feathers, and stand back from the target a distance of six feet to the front of the bow. Now shoot the featherless arrow into the target at approximately shoulder level. Without moving, look at the arrow sticking out of the target. Does the nock end of the arrow rest high or low, left or right, or perfectly in line with the arrow (Fig. 9)? If the nock end of the arrow is in alignment with the front of the arrow, your bow and arrow combination are in tune with each other. If the arrow sticks out of the target at an angle, adjustments for porpoising and/or fishtailing will be needed.

FIG. #9



PORPOISING

If the nock end of the arrow is high compared to the front of the arrow sticking out of the target, the nocking point on the string is too high. Hold the string firmly to keep it from twisting, and screw the nocking point down the string two (2) full turns and try another shot.

Continue screwing the nocking point down the string and taking shots until the nock end of the arrow is in line with the front part of the arrow sticking out of the target. Now, securely clamp the nocking point to the string. If the nock end of the arrow is low, just reverse the procedure and screw the nocking point up the string until the arrow enters the target correctly.

FISHTAILING

Now that you have corrected the arrow from porpoising, the arrow still may be fishtailing going into the target, leaving the nock end of the arrow either left or right of the front part of the arrow sticking out of the target. If the nock end of the arrow is to the right, loosen the locking nut on the cushion plunger and move the plunger 1/2 turn counter-clockwise, which will move the face of the plunger towards the riser. Retighten the locking nut and shoot another featherless arrow. Continue moving the cushion plunger counter-clockwise in 1/2 turn increments until the nock end of the arrow is in line with the front of the arrow sticking out of the target. Simply reverse this procedure if the nock end of the arrow is pointing to the left of the front part of the arrow.

(NOTE: Left handed archers will use the same procedures for porpoising as right handed archers, but for fishtailing, just reverse the procedure.)

Incorrect arrow spine may also cause fishtailing. If an underspined arrow is suspected, reduce the bow weight in 5 pound increments while shooting a bare shaft. If arrow flight improves with these weight reductions, this would indicate an underspined shaft. You must either select a heavier shaft or shoot your bow at a reduced weight to compensate. If an overspined arrow is suspected, 5 pound increases in weight while shooting bare shafts can confirm this situation.

With both porpoising and fishtailing corrected, you should now be able to shoot the featherless arrow into the target and see nothing but the nock with no part of the arrow shaft showing. Once this has been accomplished, your bow and arrow combination are tuned to each other perfectly. You may now shoot your

new Oneida Eagle Bow, knowing that you are getting the optimum performance from your equipment.

(NOTE: Variations in broadhead weight and in shooting styles may dictate experimenting with shaft sizes other than the ones suggested on the Oneida Labs Arrow Selection Chart.)

PAPER TUNING

An alternative to the previously described tuning method is known as paper tuning. This involves shooting arrows, with fletching, through paper at a range of 10 to 12 feet. Some sort of rigid frame over which to stretch an approximately 24" square sheet of paper will be required to paper tune. Newspaper, butcher's wrapping paper, or computer paper will suffice. Arrows should be shot at shoulder level and the tear patterns observed.

Vertical tears indicate a need for nocking point adjustment. A tear from low to high would require a lowering of the nocking point, a high to low tear, the opposite.

Horizontal tears are an indication that your arrows are either too stiff or too weak in spine. A tear from left to right for a right handed shooter (opposite for left hand) would dictate that you try one or more of the following to correct:

1. Change to weaker spined arrow shaft.
2. Increase the draw weight of the bow.
3. Move arrow rest in closer to sight window.
4. Try a heavier weight arrow point.
5. Decrease tension of cushion plunger.

A tear from right to left (opposite for a left handed shooter) indicates a weak spined arrow and would require that one or more of the following corrections be made:

1. Change to stiffer spined arrow shaft.
2. Decrease the draw weight of the bow.
3. Move arrow rest away from sight window.
4. Try a lighter weight arrow point.
5. Increase tension of cushion plunger.

A diagonal tear indicates the need for correction of both nocking points and the horizontal tear adjustments. First proceed by correcting the nocking point placement. Then, try correcting the right or left tear pattern.

Be advised that a perfect no-tear hole is not always possible, particularly for finger shooters. Slight tears, which correction techniques fail to eliminate, are acceptable and will not adversely affect accuracy.

Tuning problems can be the result of poor fletching clearance at the arrow rest. To check for this, dust with talcum powder or dry spray deodorant on the rest and sight window. Any contact in this area will be evident after the first shot. The reinstallation of nocks on the arrow in a slightly rotated position will often correct a fletch clearance problem. Some experimentation with different nock rotation positions may be necessary before the best clearance is attained. Applications of the dust on the rest must be done after each shot. Some types of rests might require adjustment to insure better fletch clearance.

It is not uncommon to have to re-tune when making the transition from shooting field points to shooting broadheads. The broadhead in flight creates totally different aerodynamics than the field points and may lead to a drastically different impact point of the arrow. Before attempting to tune your broadheads, make certain that they are mounted in perfect alignment with the arrow shaft. To check this, spin the broadhead on its tip on a hard flat surface. If the shaft or head wobble at all when spun, either the shaft is bent or the broadhead is crooked. In either case, proper tuning in this situation is impossible.

Precision tuning of your bow is truly a science and requires a lot of time and patience. The expenditure of sufficient amounts of both will pay the dividend of perfection.



GENERAL MAINTENANCE STRING

Before each shooting session, the string should be visually checked for frayed or broken strands or worn serving. To change a string, draw the bow and place it between the two limb compression brackets of the Oneida Bow Press (Fig. 10A & 10B). Remove the old string and replace with a new one of the same length.

If the Oneida Bow Press is unavailable, simply loosen the slotted timing wheel screw and turn the weight adjustment bolts counter-clockwise, alternating between the top weight adjustment bolt and the bottom one every two (2) full turns until the string becomes loose. Keep track of the number of turns on the weight adjustment bolts. Now you can remove the old string and replace it with a new one of the same length. Turn the weight adjustment bolts clockwise the same number of turns you backed them out; adjust tiller and brace height, install a new nocking point and any other string accessories.



FIG. #10A



FIG. #10B

WARNING: Whenever necessary, **ALWAYS** use an Oneida Bow Press (shown above). **NEVER** attempt to use a conventional bow press when servicing an Oneida bow. These are intended for use on wheel bows and will cause *severe damage* to the Oneida riser and *void the warranty*.

POWER CABLE

Power cables are subject to wear and will require periodic replacement. They are NOT a warranty item but the replacement cost is minimal.

Check the power cable first by a visual inspection looking for broken strands of cable sticking up like whiskers. Then lightly run your finger slowly up and down the cable in the area where the cable bends over the sharp angle at the rear of the cam. You are checking for the frayed whiskers of broken cable sticking up in this area. **(CAUTION: The whiskers can cut your fingers, so move slowly and cautiously when checking for a worn cable.)** If the cable shows signs of wear, both upper and lower cables must be replaced.

To change the power cables, place the bow on a padded table so that the bow is resting with the string upward. Check the screw in the slotted timing wheel and make sure it is tight. Take a 1-1/2" S hook and hang it on the string so that it is over the middle of the lower power cable. Using both hands, one on each side of the S hook, grasp both the string and the power cable and squeeze them together so that you can hook the string and power cable together with the S hook (Fig. 11).

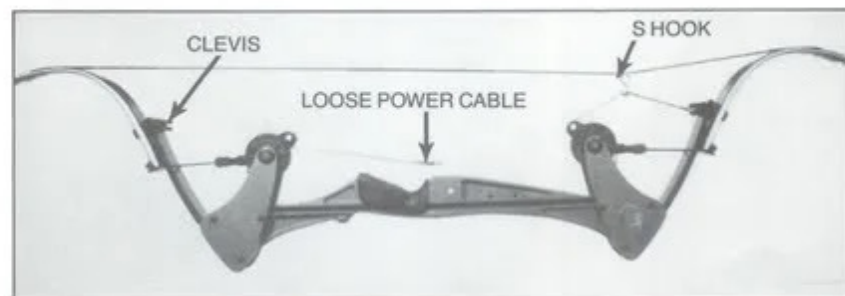


FIG. #11

Once the power cable and string are hooked together with the S hook on the bottom power cable, you will notice that the top power cable will be relaxed. Move up to the top power cable and remove the retaining ring from the clevis pin that holds the power cable into the clevis. Slide the clevis pin out of the clevis, and remove the power cable from the slot in the clevis. Remove the retaining screw in the cam that holds the power cable, and pull the power cable from the cavity in the cam. **WARNING: NEVER UNHOOK BOTH POWER CABLES AT THE SAME TIME. UNHOOK ONLY THE POWER CABLE OPPOSITE THE S HOOK.**

With the old power cable now removed from the bow, take the

new power cable and insert the swedged end into the cavity in the cam. Seat the swedge to the bottom of the cavity keeping the two cables parallel with the table top. The cable should now be sticking out of the cam with the clevis end of the cable lying toward the grip. Using your thumb, push down on the cable where it comes out of the cam, and at the same time, retighten the screw that holds the cable (and PDC if so equipped) into the cam. This keeps the power cable under the screw so that the screw does not chew up the new cable.

Once the screw is tight in the cam, fold the power cable around the nose end of the cam and slide the reinforced ring end of the cable into the slot in the clevis. Reinstall the clevis pin through the clevis and the ring in the power cable, and clip the retaining ring back on the pin. Remove the S hook from the string and power cable, and reinstall the S hook on the other end of the bow. Change the lower power cable using the same procedure.

With both power cables changed, draw the bow a few times to seat the swedged end of the power cables up against the screws in the cams. Now loosen the socket head timing screw, and adjust the tiller if it needs it. Retighten the socket head timing screw, and the job is finished. (On bows so equipped, PDC's require adjusting after power cable changes).

WARNING: RESTRICTING THE MOVEMENT OF THE RECURVE LIMBS WHILE SHOOTING WILL CAUSE DAMAGE TO THE TIMING SYSTEM. BE SURE BOTH LIMBS ARE CLEAR OF ANY OBSTRUCTIONS BEFORE SHOOTING. If a limb is slowed or stopped while making a shot, the tiller may have slipped. To check, make your tiller measurements. To adjust, loosen the socket head timing screw and the wheels will pop back into tiller. Check cable for proper tension.

TIMING SYSTEM

The timing system on your new Oneida Eagle Bow consists of two large timing wheels attached to both the upper and lower cams. One timing wheel with the socket head timing screw and tensioning hub has an adjustment slot in it, the other does not. Connecting these timing wheels are two cables that run around idler wheels under the pylons and through the center of the riser. The job of the timing system is to keep both the upper and lower limbs working together while drawing and shooting an arrow.

The only maintenance on the timing system is to make sure that the cables have the right amount of tension on them. If the cables are too tight, it puts undue stress on the timing system which could slow the speed of the bow and damage the timing system.

If the cables are too loose, it makes the bow noisy and allows the limbs to work independently of each other. This could make the cables jump out of the grooves, damaging the timing system.

Before adjusting the tension on the timing system loosen the socket head timing screw at the timing tensioning hub. To set the proper tension on the timing system cable, loosen the small set screw in the Boss on the large upper timing wheel for a right handed bow (lower timing wheel on a left handed bow). Insert a slotted blade screwdriver into the slot of the cable take up spool on the side of the timing wheel (Fig. 12) and turn clockwise until, with firm finger pressure on the timing cable between the large timing wheel and small idler behind the pylon, the cable may be flexed approximately 1/8". Retighten set screw approximately 1/4 of a turn after it seats on the cable take up spool.

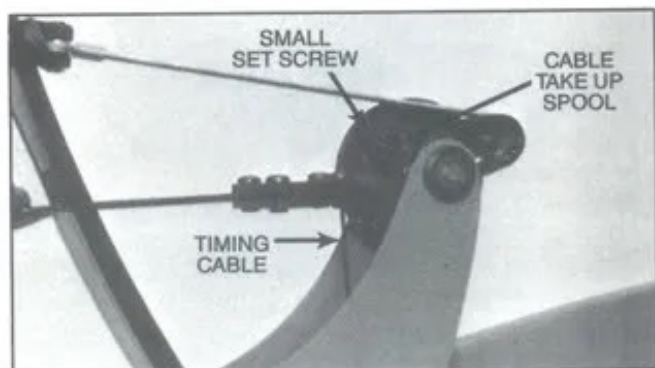


FIG. #12

LUBRICATION

There are only a few parts on the Oneida Eagle Bow that will require lubrication. We can recommend Rusty Duck® Protective Lubricant or Tri-Flow® for any of these routine maintenance lubricating jobs. The limb hinge and the timing idler wheels may need a few drops of lubricant every now and then for smooth operation and freedom from squeaks.

A drop of lubricant on a 2-inch segment of each power cable in the area that bends over the sharp angle at the rear of the cam will prolong the cable life. (NOTE: Excess oils attract dirt and debris. Be sure to wipe off any excess lubricant after each application.)

ARCHER'S DO'S AND DON'TS

- ALWAYS** Check the string and cables for wear before each shooting session.
 - ALWAYS** Loosen the slotted timing wheel screw before any weight adjustment is attempted.
 - ALWAYS** Maintain brace height in the factory recommended range.
 - ALWAYS** Keep proper tension on the timing system cable.
 - ALWAYS** Alternate between top and bottom weight adjustment bolts every two (2) full turns whenever changing the draw weight or tillering the bow. (Damage to the timing system may occur otherwise.)
-
- NEVER** Dry fire your bow (releasing the string without an arrow).
 - NEVER** Store your bow in a hot environment such as a closed up car or trunk in summer.
 - NEVER** Draw the bow with a loose slotted timing wheel screw.
 - NEVER** Attempt to alter the draw length by using an improper length bowstring.
 - NEVER** Set draw weight above its recommended limit.
 - NEVER** Use a Fast-Flite, Accu-Flite or Omni-Flite string on an Oneida Bow Model H-250, H-500, Tomcat, or Tomcat II.
 - NEVER** Restrict the forward motion of the recurve outboard limbs when shooting.
 - NEVER** Draw your bow without the draw length modules installed properly.
 - NEVER** Loosen the button head screw around which the timing cable loops. This screw serves to center and anchor the timing cable to the slotted timing wheel.

WARNING: Restricting the forward motion of the recurve outboard limbs when shooting will cause damage to the timing system. Be sure the path of both limbs are clear of any obstructions before shooting.

FACTORY SERVICE

Should you ever experience a problem with your bow that cannot be corrected by your Oneida dealer, it may become necessary to return it to the factory for service. Your dealer may do this as a courtesy or you may elect to make the return arrangements yourself.

Whenever a bow is being returned to the factory for service, a return authorization (RA) number must first be obtained by calling the customer service department at Oneida Labs at (315) 695-2741.

DISASSEMBLY

Once the problem has been isolated, the first step is to loosen the socket head timing screw and back the weight totally off the system. Now, remove the string and lay the bow on a padded work table with the riser facing toward you and the sight window side of the riser down. Remove the retaining clips and clevis pins which hold the power cables to the clevis.

Loosen both saddle screws just enough so that you can remove the yoke cables without the saddles falling off the limbs. Remove the cables from the saddles so that the outboard limbs are free to swivel on the hinge.

Holding the limbs in the hinge area, swing the limbs toward you so that the rocker clears the rocker pockets in the riser, and slide the limbs out of the riser. With the limbs now off the bow, remove the four retaining clips from the axles in the pylons. Remove the three (3) pylon screws from the upper and lower pylons.

(CAUTION ON STRIKE EAGLE AND AERO-FORCE: Before lifting the pylons off the axles, remove timing cables from the idler wheels which are attached to the back of the pylons.) Lift the pylons straight up off the riser and axle and set them on the table.

Note that the timing cable runs beneath the grip through the channel in the riser. To remove the timing assembly, the following will be necessary:

The Tomcat II and Phantom II bows are equipped with a molded rubber grip that is glued to the riser. On these two models, the timing cable may be freed by removing the grip or by prying up the lip of the grip on the channel side and pulling the cable out. (The molded rubber grip may, however, be loose and require re-cementing as described under grip installation.)

The Strike Eagle and Aero-Force are equipped with a molded two piece grip that bolts securely to the riser with a hex socket head screw. This screw must be removed to free the timing system during disassembly.

CAUTION: Take care not to lose any of the small needles from the bearing assemblies in the pylons. Remove the socket head screw and tensioning hub from the slotted timing wheel, and the screw from the opposite timing wheel. Now you can lift the two timing wheels off the axles. This leaves the cam assemblies which can now be lifted off.

Now the bow is completely disassembled. From this point all repairs can be made.

ASSEMBLY

CAMS

In 1992, the Veri-Eze "K" Cam System was introduced. The increased arrow velocity rating is largely attributed to this innovative system. For Oneida bows produced from 1990 through 1992 (F,G,I Serial Number Series Bows), there is no physical difference between the top and bottom cam, and any cam may be used at either end. The head of the power cable retaining screw and the cam module set screw should be situated on the side of the cam on the sight window side of the riser. Thus, once the screws are located in the cams, this determines whether the cam will be a top or bottom unit.

In 1993, the introduction of the positive timing lock system required that the cam on the slotted timing wheel end (bottom cam on a right handed bow) be drilled differently. This is necessary to incorporate the new socket head timing screw and timing tensioning hub into the system. The 1993-1995 "K" Cams are NOT interchangeable.

The axle is affixed in the cam by a set screw at the rear of the cam. Care should be taken that the module relief slot in the axle lines up perfectly with the module cavity in the cam. (Fig. 13).



FIG. #13

Should the axle not be aligned properly, there is a chance of accidental breakage of the cam module when the bow is drawn.

The Veri-Eze modules supplied with the bow will allow a variation in draw length over a three inch range with a choice of either 65% or 80% let-off. The modules are marked for easy identification.

To change the Veri-Eze modules, simply loosen the set screw on the side of each cam with a 3/32 allen wrench (Fig. 7). With the same wrench, push down between power cables on the center of the module in the area shown in Figure 8. The module will rotate up and enable you to remove it with your fingers.

Select the desired number module and seat it in the module cavity in the cam, holding it firmly while tightening the set screw.

CAUTION: *Never draw the bow without both matching cam modules properly and completely installed.*

To assemble the Oneida bow, place the riser facing you on a padded bench with the sight window down. Slide the cam axle into the pylon bushing, taking care that the needle bearings are not accidentally bumped loose from the pylon bushing. (Should needle bearings be accidentally knocked loose, they are easily put back in place using a toothpick or other pointed object.) Orient the cams so that the power cables are pointing toward the center of the bow and the yoke assembly away from you (Fig. 14).

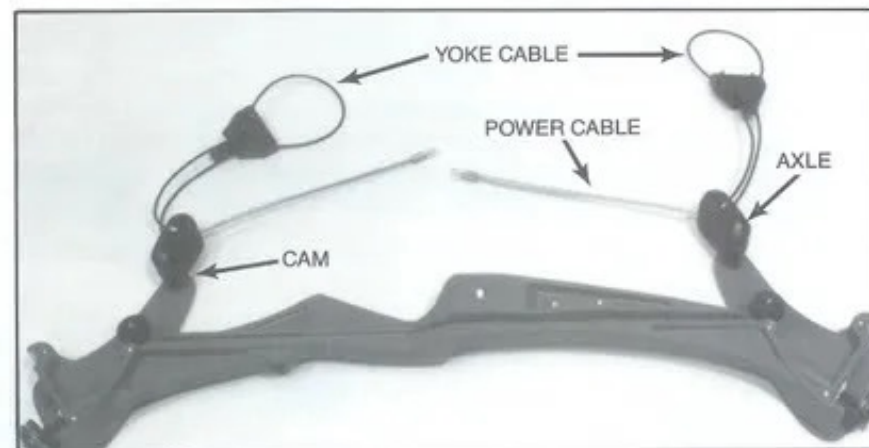


FIG. #14

TIMING SYSTEM FOR PHANTOM AND TOMCAT

With the riser still lying on the table in the same position (Fig. 14), pick up the timing system. Notice that one wheel has an allen head set screw and a large slotted take-up spool that sits in a boss molded on the back of the wheel. Hold this wheel in your right hand so that the boss is facing up and to the right. Pick up the wheel with the slot in your left hand and arrange the cable around the wheels so that it looks like the cable makes a continuous loop around both wheels when stretched tight (Fig. 15).

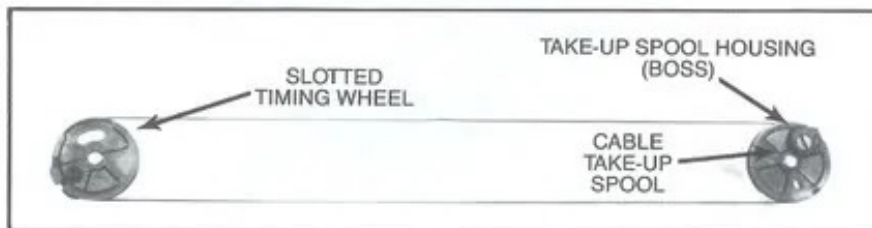


FIG. #15

NOTE: On the slotted timing wheel, the cables coming off the button head anchoring screw must be arranged so as not to cross.

From this position, flip the timing wheel in your right hand over so that the boss is now facing down while keeping tension on the wheels so that the cable stays in the grooves of the wheels. In this position, the cable crosses in the middle (Fig. 16).

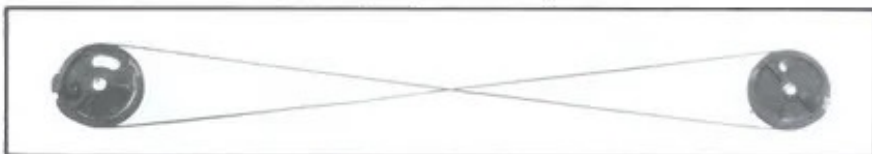


FIG. #16

If you turn the timing wheel in your right hand clockwise, the timing wheel in your left hand should turn counter-clockwise. (Note: The position of the slotted timing wheel will be on the top end of a left hand riser.)

Slide the timing wheel in your right hand in this position onto the axle on the right and slide the timing wheel in your left hand onto the axle on the left.

Now you have to get the timing cables aligned onto proper idler wheels. To do this correctly, we will now call the grip section of the bow the inside and the limb sections the outside of the bow.

Looking at the right timing wheel, take the cable that comes around the groove in the timing wheel on the inside of the bow and place it in the groove of the bottom idler wheel on the right.

Now take the cable coming from the outside of the timing wheel and place it in the groove of the top idler wheel on the right (Fig. 17).

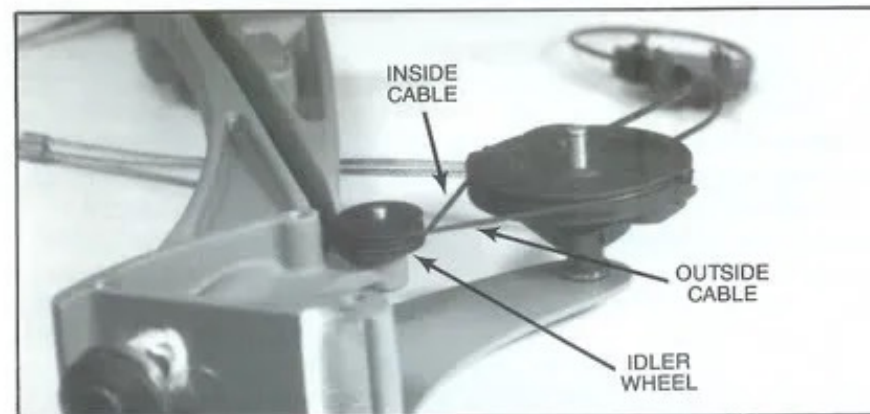


FIG. #17

Looking at the timing wheel on the left, take the cable that comes around the timing wheel on the inside of the bow and place it in the groove of the bottom idler wheel on the left. Take the cable that comes around the timing wheel on the outside of the bow and place it in the groove of the top idler wheel on the left. Push both timing wheels down tight against the cams.

Install the socket head timing screw through the cam and into the timing tensioning hub on the slotted timing wheel. Do not tighten. Then, fully tighten the opposite timing wheel to the cam using the 10-24 button head screw. (Fig. 18)

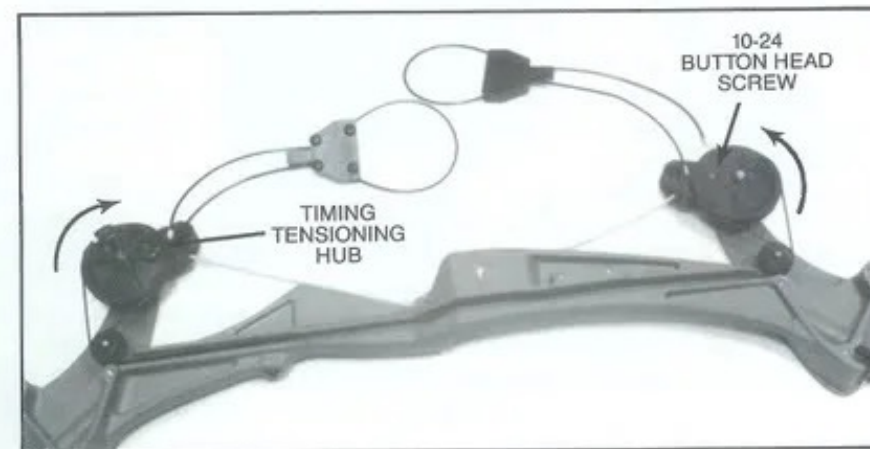


FIG. #18

If you have done everything correctly, you should be able to rotate one timing wheel clockwise while the other one is turning counter-clockwise. Slide the bearing ends of the pylons over the axles, screw the pylons to the riser, and snap the four retaining clips into the groove on the axles.

It is well to note here, that the timing cable itself is longer for a Tomcat and Phantom, due to the longer riser as compared to the Aero-Force.

You are now ready to set the tension on the timing cables. (See Fig. 12). Loosen the socket head timing screw so that the timing tensioning hub is free. Loosen the set screw on the top of the take-up spool housing. With a slotted screw driver, rotate the take-up spool clockwise until the timing cable tension is moderately taut. This cable tension is not critical as long as it is not too loose or extremely tight.

When a moderately taut state is achieved, hold the take-up spool with the screw driver and tighten the set screw. Take care not to over-tighten the set screw as this can result in stripping of the threads or breakage of the take-up spool housing.

Thread the power cables through the center of the yoke cables and pass the yoke cables between the pylons up toward the end of the riser. (Fig. 20). Make sure the yoke screw heads face upward. If they are facing downward, remove the yoke assemblies and reverse them before installing the limb assemblies.

Go to the section dealing with limb assembly and continue.

TIMING SYSTEM FOR AERO-FORCE

Two of the pylons used on this riser each have two idler wheels stacked on the back, one top right and one bottom right. (Top and bottom left for a left handed bow.) The opposite two pylons will have only the three attachment holes and no idler wheels. With the two three hole pylons attached to the riser on the sight window side, place the riser on the bench facing you with the sight window down.

Carefully insert the axles and cams into the pylon bearing assemblies, taking care that the needle bearings are not jarred loose. Secure the axles in the pylon bearings with the large "E" clips. Prepare the timing assembly as shown in Figures 15 and 16. Place the timing wheels onto the axles. Slip the two pylons with idler wheels onto the proper axles. (Top pylon will not fit on the bottom and vice versa as the screw holes do not line up.) Install

the "E" clips on the axles and screw these pylons to the riser taking care that the two cables coming down off the timing wheel are tucked back behind the pylons.

To orient yourself, we shall call the grip the inside of the bow and the limb butt sections the outside of the bow. The cable of the timing system rides in the grooves of the idler wheels.

To get the correct timing cable on the proper timing wheels, look down at the right timing wheel. Take the cable that goes around the groove in the timing wheel on the outside of the bow and place it on the groove of the idler wheel that is against the pylon. Now take the cable that comes around the inside of the timing wheel and place it in the groove of the idler wheel that is stacked on top of the one that is against the pylon.

Looking at the timing wheel on the left, take the cable that comes around the timing wheel on the outside of the bow and place it in the groove of the idler wheel that is against the pylon. Finally, take the cable that comes around the timing wheel on the inside of the bow and put it in the groove of the idler wheel that is stacked on the one that is against the pylon.

See Fig. 19 to ensure that you have threaded the cable correctly.

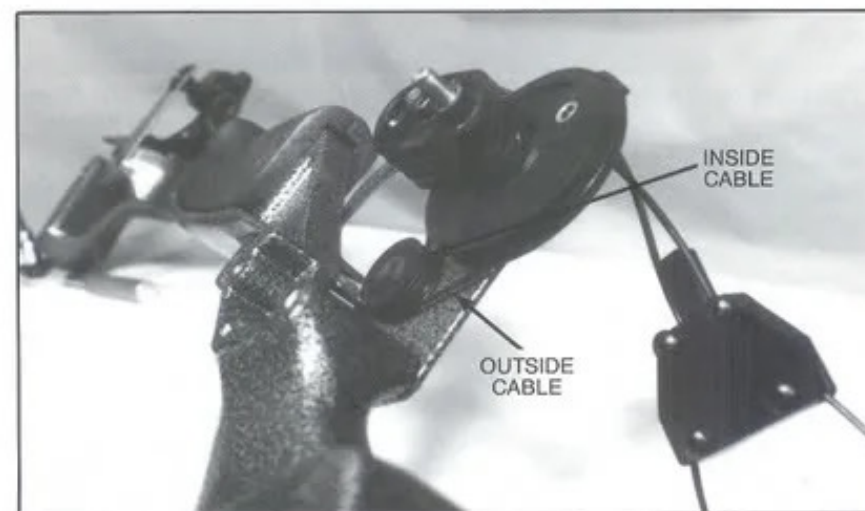


FIG. #19

Before continuing, to ensure that you have done everything correctly, turn the left timing wheel clockwise and the right timing wheel should turn counter-clockwise.

Install the socket head timing screw through the cam and into the tensioning hub on the slotted timing wheel. Do not tighten. Then, fully tighten the opposite timing wheel to the cam using the 10-24 button head screw (Fig. 20).

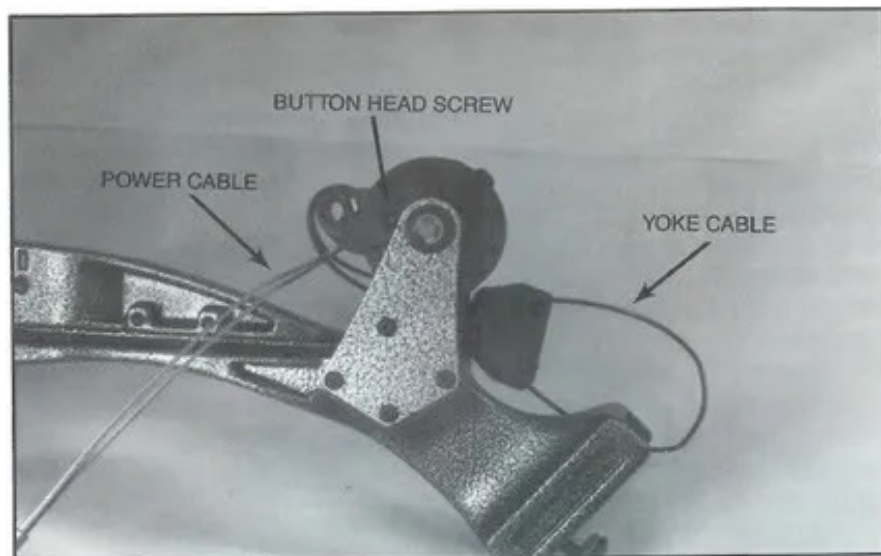


FIG. #20

You are now ready to set the tension on the timing cables. (See Fig. 12). Loosen the socket head timing screw so that the timing tensioning hub is free. Loosen the set screw on the top of the take-up spool housing. With a slotted screw driver, rotate the take-up spool clockwise until the timing cable tension is moderately taut. This cable tension is not critical as long as it is not too loose or extremely tight.

When a moderately taut state is achieved, hold the take-up spool with the screw driver and tighten the set screw. Take care not to over-tighten the set screw as this can result in stripping of the threads or breakage of the take-up spool housing.

Thread the power cables through the center of the yoke cables and pass the yoke cables between the pylons up toward the end of the riser. (Fig. 20). Make sure the yoke screw heads face upward. If they are facing downward, remove the yoke assemblies and reverse them before installing the limb assemblies.

INSTALLING LIMB ASSEMBLIES

The outboard (recurve) limb is attached to the power (flat) limb using our own patented hinges and four screws. The two screws that pass through the hinge and outboard limb thread into a nut bar on the front side of the limb. The other two hinge screws go through the power limbs and thread into the clevis. (See Fig. 21).

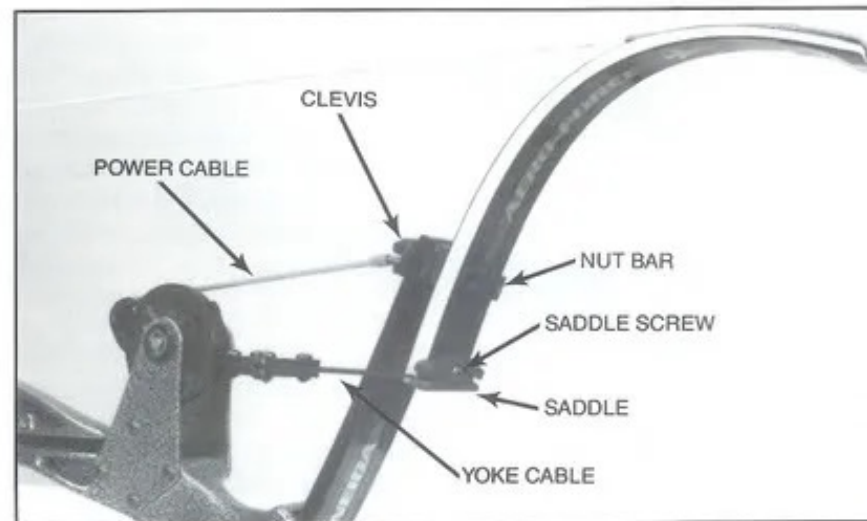


FIG. #21

The butt section of the outboard limb must align parallel to the power limb (Fig. 22). This alignment should be checked and corrected before the hinge screws are given their final tightening. These hinge screws should be checked for tightness before any bow is reassembled.

Once the assembly of the riser section is complete, the limb assemblies must be installed. Place the riser on the bench facing toward you and the sight window down. Grasp the yoke cable on the right side of the bow and slide the power limb end of the limb assembly through the loop of the yoke cable and under the plastic washer of the weight

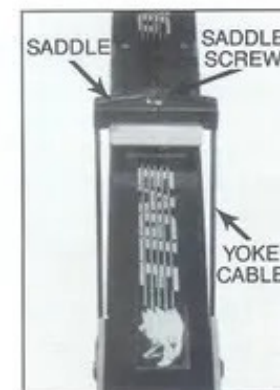


FIG. #22
CORRECTLY ALIGNED
LIMB BUTT SECTION

adjustment bolt. Be sure that the half-moon rocker under the power limb seats into the machined rocker pocket in the riser. The rocker pockets should be greased lightly before reassembly.

Fit the yoke cable into the slot and beneath the screw head in the saddle on the butt end of the outboard limb. Repeat the above procedure at the opposite end of the bow.

With the limb assemblies sitting in the riser and the yoke cables seated in the outboard limb saddles, wrap the power cables around the nose of the cam and attach the reinforced ring end to the clevis with the clevis pin and retaining clips. (Fig. 21)

Install the bowstring and make sure that all cables are riding in the proper grooves in the cams. Add some weight to the bow by turning the weight adjustment bolts clockwise, always alternating between the top and bottom weight bolts every two (2) turns.

MISALIGNED LIMBS

The limb configuration of an Oneida Eagle Bow is unique. A power limb extends from the riser and connects to the outboard recurve limb with a hinge. The butt end of the outboard limb overlaps the power limb for a few inches past the hinge. This butt end of the outboard limb must always be aligned parallel to the power limb.

Occasionally, our repair department receives a bow which the owner believes has twisted or warped outboard limbs. Almost always, outboard limb misalignment is caused by one of two things. It is either a case of the outboard limb butt section being out of line with the power limb, or the yoke cable may have shifted laterally in the saddle causing an imbalance in yoke cable tension from one side of the limb to the other.

Under normal conditions, the outboard limbs will remain properly aligned indefinitely, but may occasionally become misaligned through accident. An unscheduled trip out of a tree stand or an accidental wrenching of the limb in a car door or trunk lid are common culprits in a limb misalignment situation.

Rarely, if ever, does a limb that appears warped actually have

any permanent damage. A little patience and a few properly executed adjustments will put the bow back in shape in a few minutes.

Any limb misalignment is probably caused by one of two things:

1. It is possible that the butt section of the outboard limb is not aligned parallel with the power limb.
2. The yoke cable may have shifted in the saddles causing an imbalance of cable tension from one side to the other, thus physically pulling the limb tip out of alignment.

If, upon visual inspection, the butt section of the outboard limb (at the saddle) protrudes from the edge of the power limb, this can easily be corrected with a nylon head mallet. With full weight on the bow and the hinge screws tight, smartly rap the saddles in the direction the limb should move. (CAUTION: If just a light tap on the saddle moves the outboard limb, the hinge screws should be checked for tightness. To accomplish this, the weight must be totally relaxed, the bow unstrung, the saddle screw removed from the butt end of the outboard limb, and the limbs folded over to expose the screw heads in the hinge. (Fig. 23). Figure 22 shows a correctly aligned limb butt.

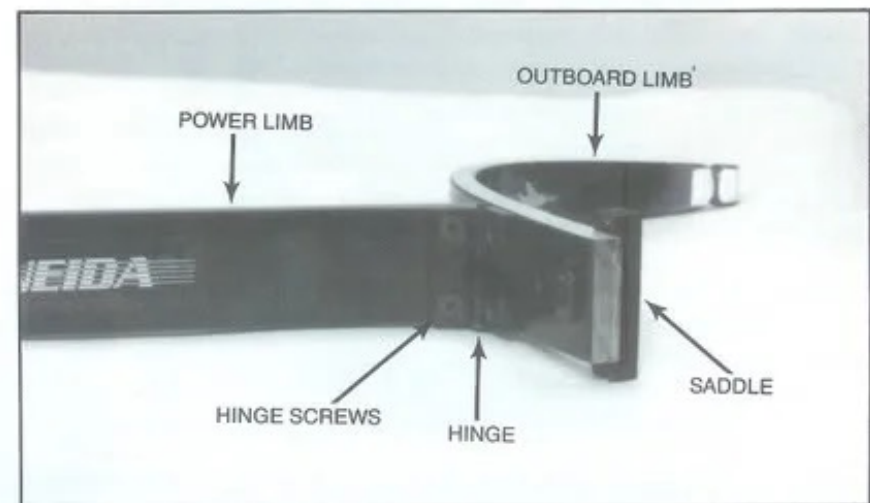


FIG. #23

ALIGNING THE LIMB TIPS

While looking down the string from one outboard limb tip to the other (Fig. 24), you may notice one or both limb tips appear to be cocked right or left. This is caused by a shift of the yoke cable in the saddle resulting in an imbalance of cable tension from one side of the limb to the other.



FIG. #24

LIMB SHIFTED
TO LEFT

CORRECT LIMB
ALIGNMENT

LIMB SHIFTED
TO RIGHT

To correct this situation, affix the bow in a padded vice by the affected outboard limb between the hinge and the saddle (Fig. 25). Loosen the saddle screw approximately 2 full turns counter-



FIG. #25

clockwise. Grasping the bow by the grip, either push or pull the bow sideways, depending on which way the limb is off. You will have to torque the bow to a point that the string is past perfect alignment because of springback. When attempting this procedure for the first time, the tendency is to under-torque the bow so that the yoke cable does not shift in the saddle at all.

(WARNING: Care should be taken when twisting the bow that the string does not slip off the edge of the limb.)

Visually check the limb tip alignment and string alignment. If the string centers well and the limb tips do not cock to one side, tighten the saddle screw. Draw the bow a few times, and visually check tip and string alignment. If any misalignment is still evident, repeat the procedure again.

Patience is the by-word in correcting misaligned limbs. You may, in some cases, find that you have to repeat this procedure several times before the limb tips remain aligned. Once the limb tips remain straight after drawing and shooting, there should be no further alignment problem.

In a particularly stubborn case where repeating the normal limb straightening procedure fails to permanently correct the problem, it may be necessary to change the yoke cables. A bow that has been shot over a long period of time with limbs misaligned may have a permanent set in its yoke cables in the bend at the corner of the saddle. This permanent set may make any alignment correction impossible. Installation of a new set of yoke cables and adjusting limb alignment at mid weight range will ensure proper limb tracking.

It is well to add here that a misaligned limb does not affect the accuracy of a bow. The point of arrow impact will be laterally changed from a bow with straight limbs compared to a bow with misaligned limbs. But, in either situation, a bow will repeat shots equally.

GRIP INSTALLATION

The last step in reassembly is the installation of the grip onto the riser. Before the grip installation is attempted, the timing cable tension should be relaxed slightly and re-tensioned once the grip installation is complete.

The Tomcat II and Phantom II have a molded rubber grip. Attachment can be accomplished using hot glue from a common electric glue gun or clear silicone bathtub caulk, available at most building supply stores. It is important that the surfaces of the riser and grip be cleaned and free of old glue residue.

With the bow standing on its pylons, string pointing upward, run a generous bead of glue along the rear of the riser in the area to be covered by the grip. The mouth of the grip should be spread slightly and the grip seated firmly in place and allowed to dry. Hot glue will be dry in a few seconds, but the clear silicone will require several hours. Care should be taken that excessive glue amounts are not applied causing it to run down onto the timing cable, affecting the function of the bow.

All Aero-Force and Strike Eagle bows are fitted with a 2-piece grip that bolts on for a positive lock. Place the two grip halves into

position and tighten the screw. Tap the grip lightly to seat the two grip halves during the final tightening stage.

DO NOT OVER TIGHTEN.

A properly installed 2-piece grip may, at times, shift slightly or squeak when the bow is drawn. To correct this, remove the grip halves and strategically pack the insides of each half with a small amount of glazing compound. This will eliminate unwanted grip movement or noise when drawing the bow.

FINAL CHECK

From this point, the bow is assembled and is very near being ready to shoot. Paying close attention to details from this point forward will make a big difference in the final performance of the bow.

With some weight on the bow, check the tension of the timing system cable, making sure that you can flex the cable 1/8 inch between the timing wheel and idler wheel. *(NOTE: When setting tension on the timing system, make sure that the flange of the tensioning hub is NOT touching the ends of the slot in the timing wheel.)*

Tiller the bow, making sure that the measurement between the nose of each cam and the string is the same (Fig. 4). When equal, tighten the socket head timing screw.

Check the brace height against the factory recommendation. Should an adjustment be necessary, adding to the number of twists in the string will increase the brace height, and reducing the twists in the string will lower the brace height.

Check the limb alignment and adjust as necessary as described on page 32 under the section on Misaligned Limbs (Fig. 24). When limbs are aligned, tighten the saddle screws. *(NOTE: If you have installed a new yoke or yoke cable, check to make sure the screws in the yoke plate are tight.)*

The draw weight of the bow should be checked and adjusted up or down according to the desired shooting weight of the owner. *(ALWAYS loosen the socket head timing screw before any weight adjustment is made.)* The tiller should be checked and adjusted, if necessary, and the socket head timing screw tightened into the tensioning hub.

A final inspection, checking for loose screws, missing retaining clips, etc. should be made. Draw the bow a few times to insure that all parts are working smoothly. Once you are satisfied that everything is normal, you can return the bow to your customer with full confidence that it will serve him well.

TROUBLE SHOOTING TIPS

This section will help you find quick solutions to some of the problems that may arise from time to time.

PROBLEM	CHECK FOR
Bow Noise	<ol style="list-style-type: none"> (1) Loose Accessories (sight pins, pin guard, arrow rest, quiver, etc.) (2) Loose timing system cables (3) Brace height not in recommended range (4) Arrow slapping the riser (5) String accessories (6) Hinge needs oiling (7) Some camo paints cause cable squeaking (8) Saddle screws not tight (clicking sound will be heard) (9) Loose hinge screws (clicking sound will be heard) (10) Yoke hitting power limbs at full draw
Weight Loss	<ol style="list-style-type: none"> (1) Brace height not in recommended range (high) (2) Weight adjustment bolts not screwed down far enough (3) Weight scale not reading correctly (4) Worn power cables (5) Improperly reassembled bow with the plastic weight bolt washer beneath the power limb, preventing complete seating of the power limb

TROUBLE SHOOTING TIPS

PROBLEM	CHECK FOR
Premature String Breakage	<ol style="list-style-type: none"> (1) Limbs tips - slight sanding marks or a sharp edge in limb tip grooves (2) Center of string-brace height too low so string hits arm guard (3) Nocking point may be too tight which cuts into the strands of the string (4) String accessories may have a sharp edge (5) String may hit on overdraw (6) String rubbing on something in transport (7) Excessive wear caused by certain release aids
Erratic arrow flight:	<ol style="list-style-type: none"> (1) Improper shaft size (2) Arrow clearance on bow (3) Arrow rest not working correctly (4) Improper tuning of bow and arrow combination (5) Too heavy a broadhead (may need stiffer arrow) (6) String hitting arm guard or clothing and not knowing it (7) Loose timing system (8) Poor shooting technique (9) Release aid twisting string at full draw (10) Release aid exerting too much pressure on nock at full draw (11) Brace height not in recommended range (12) Tiller out of adjustment (13) Arrow nocks not properly indexed for certain rest types, allowing vanes to strike rest

TROUBLE SHOOTING TIPS

PROBLEM	CHECK FOR
Slight bump felt while drawing bow:	<ol style="list-style-type: none"> (1) Loose saddles screws (2) Loose hinge screw (3) Loose clevis (4) Worn coating on timing system cable (5) Bow out of tiller (6) Loose timing wheel screw (top or bottom) (7) Broken or improperly installed cam modules in Veri-Eze cam (8) Power cable hitting timing take-up spool when drawing (9) Loose timing cable (10) Burr on idler wheel
Timing cable will not remain tight:	<ol style="list-style-type: none"> (1) Crack in take-up spool housing at set screw (2) Set screw threads stripped in take-up spool housing (3) Timing cable may be threaded wrong
Abnormally low let-off:	<ol style="list-style-type: none"> (1) Wrong Veri-Eze cam module installed (2) Cam axle turned preventing cam module from seating properly
Broken cam module:	<ol style="list-style-type: none"> (1) Cam axle turned preventing cam module from seating properly (NOTE: Cut-outs in cam and axle must align- Fig. 13)
Cams misaligned:	<ol style="list-style-type: none"> (1) Bent pylons (2) Pylon screw loosened with weight on the bow causing the pylon to shift*

*This problem may be encountered in 1990 or 1991 Strike Eagle bows and usually occurs in conjunction with improper Tuscarora bow quiver installation. When installing the Oneida bow quiver or

the quiver mount adapters, the bow weight should be totally relaxed before the pylon screws are removed. If this precaution is not taken, either or both of the pylons may shift which can cause any of the following situations:

- (1) Power cable rubs on the timing cable take-up spool housing when the bow is drawn.
- (2) The side of the front end of the cams may rub on the idler wheel axles when the bow is drawn.
- (3) When the bow is drawn, the power cables may bind on the edge of the module cavity of the cam causing an audible click and premature cable wear.

To correct a shifted pylon, the bow weight must be relaxed completely and all pylon screws loosened. Shift the bearing ends of the pylons back toward the center of the bow and retighten the pylon screws. After the addition of weight to the bow and tillering, draw the bow or shoot it several times. The pylons should remain straight with normal cam alignment. If the pylons do shift back out of alignment, the pylon screw holes have probably been stripped out. This will require the return of the bow to the factory for helicoil installation. Call our customer service department for a return authorization (RA) number.

When installing the quiver mount adapters, care must be taken that they are not over tightened. A twist-off may occur requiring drill out, tapping, and helicoil installation.

In mid 1991, a modification was made to the Aero-Force/Strike Eagle riser which no longer requires the removal of pylon screws for Tuscarora Bow Quiver installation. The addition of a boss adjacent of the pylon is tapped to accept the quiver mounting knobs without disturbing pylon screws.