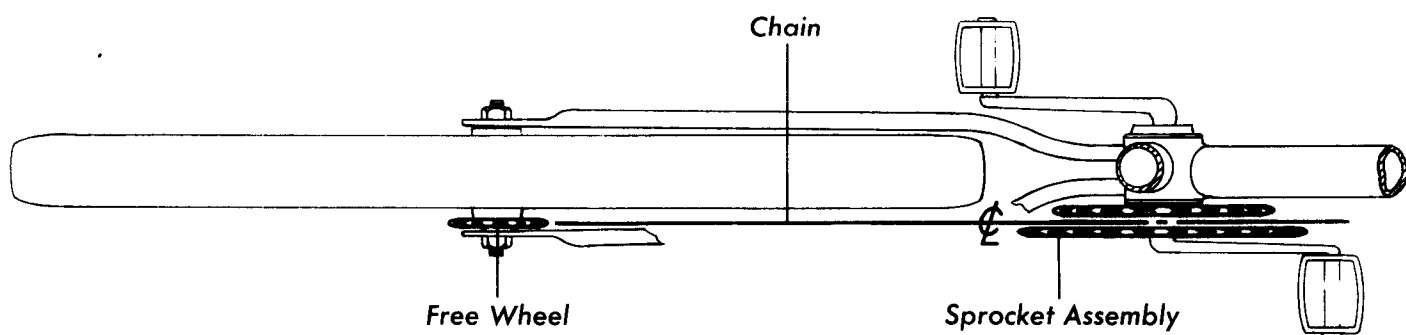


ILLUS  
14

PAWL CLEARANCE IN RELATION TO RIGHT CHAINSTAY.



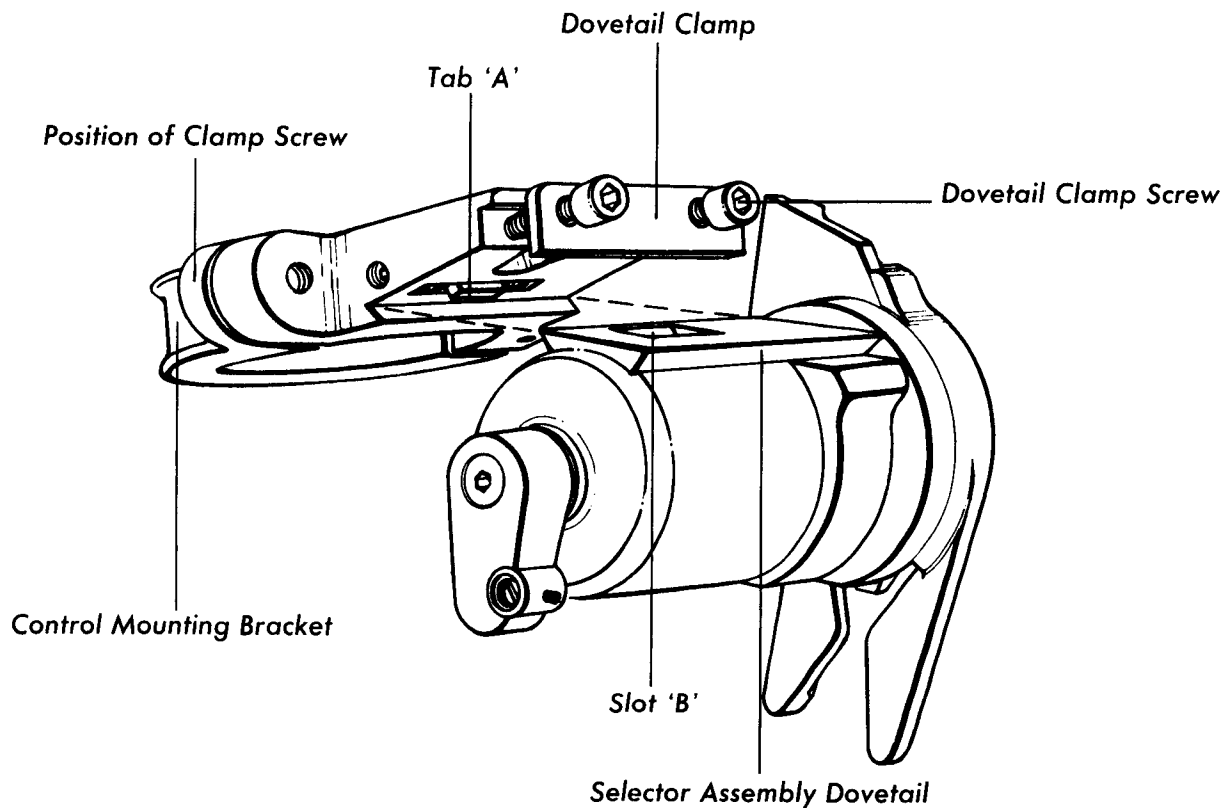
ILLUS  
15

ALIGNMENT OF SPROCKET ASSEMBLY ON CENTERLINE WITH REAR FREE WHEEL.

These measurements should reflect two things:

- 1- The pawl on the sprocket assembly must clear the right chain stay of the bicycle when the sprocket assembly is mounted to the bottom bracket, and rotation occurs (Illustration #14). Clearance between pawl end and chainstay may be as little as .020.
- 2- The sprocket assembly must be spaced either in or out to bring the center line of it into alignment with the rear freewheel (Illustration # 15).

NOTE: If spacer washers on sprocket assembly do not provide enough adjustment to make proper alignment, please consult factory.



ILLUS  
16

MOUNTING OF SELECTOR ASSEMBLY UNIT TO MOUNTING BRACKET.

STEP

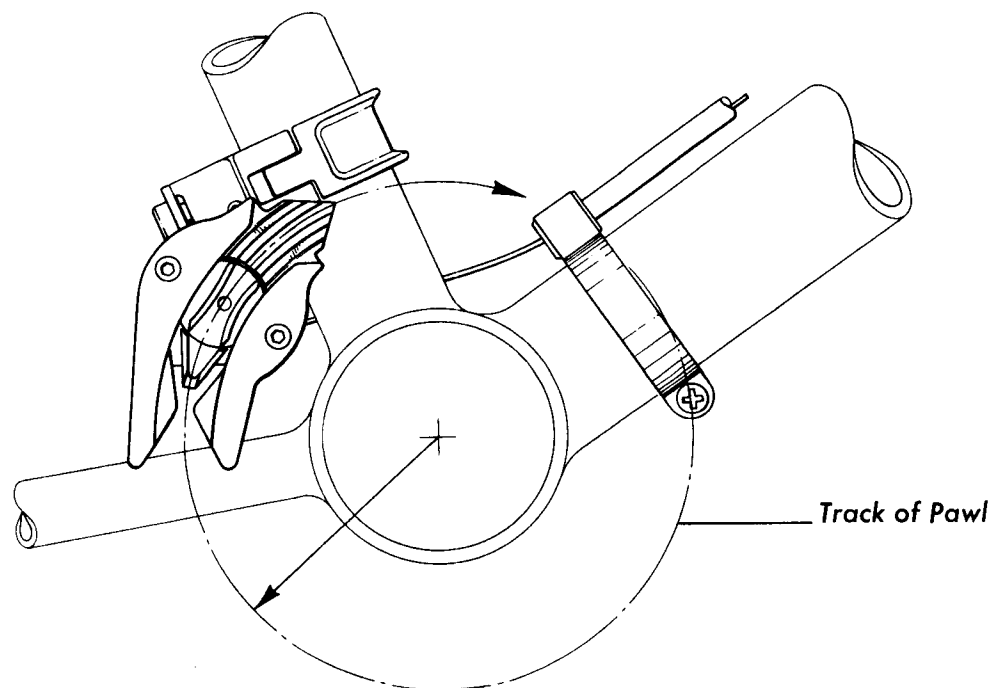
3

Assemble mounting bracket on seat tube. Start clamp screw to keep the bracket on the tube, but do not tighten. Attach the selector assembly to the bracket.

The selector assembly is fastened to the mounting bracket in the following manner:

Tab "A" of the mounting bracket fits into slot "B" of the selector assembly. Secure it into position by placing the dovetail clamp over the dovetail on the selector assembly and tighten the dovetail clamp screws (Illustration # 16).

Now adjust the mounting bracket and the selector assembly on the seat tube until the centerline of the selector assembly is on a 2" radius from the centerline of the bottom bracket (Illustration # 17). The pawl, which travels on a 2" radius around the axle, may be used as a guide to obtain this adjustment.



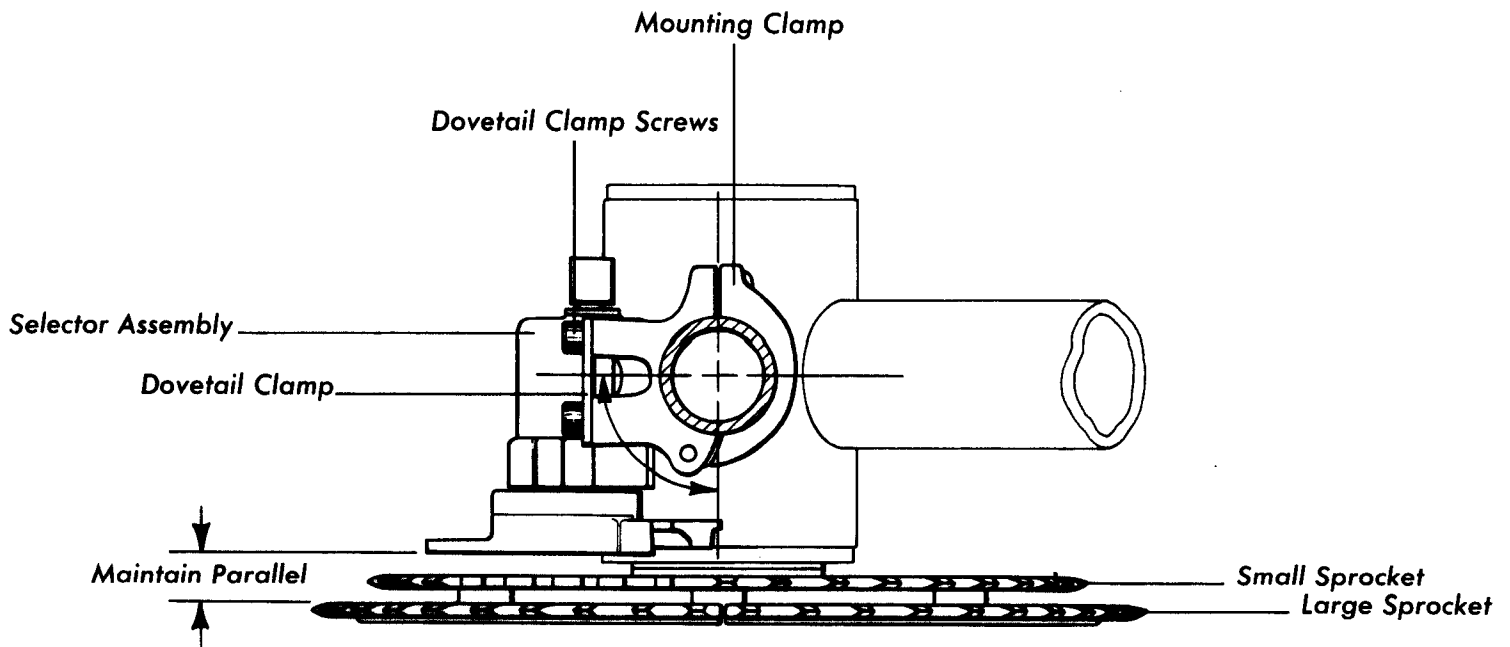
ILLUS  
17

2" RADIUS FROM BOTTOM BRACKET TO CENTERLINE OF SELECTOR ASSEMBLY.

## Note

Most bicycles are manufactured with the seat tube in line with the centerline of the bottom bracket (Illustration #17). Unfortunately, a few bicycles are manufactured with the centerline of the seat tube not in line with the bottom bracket. On such bicycles, a repositioning of the selector assembly as achieved in step three above may be necessary. The pawl must be equally spaced between the top and bottom faces of the triangular cam (Illustration #20). This is an important adjustment that must be maintained on every installation. On a bicycle with the seat tube not in line with the bottom bracket, the selector assembly may be moved slightly up or down on the seat tube away from the 2" radius as described in step #3. Please do not hesitate to consult the factory if there are any questions. In cases of severe misalignment of the seat tube to bottom bracket, we do not recommend the use of the Browning Transmission.

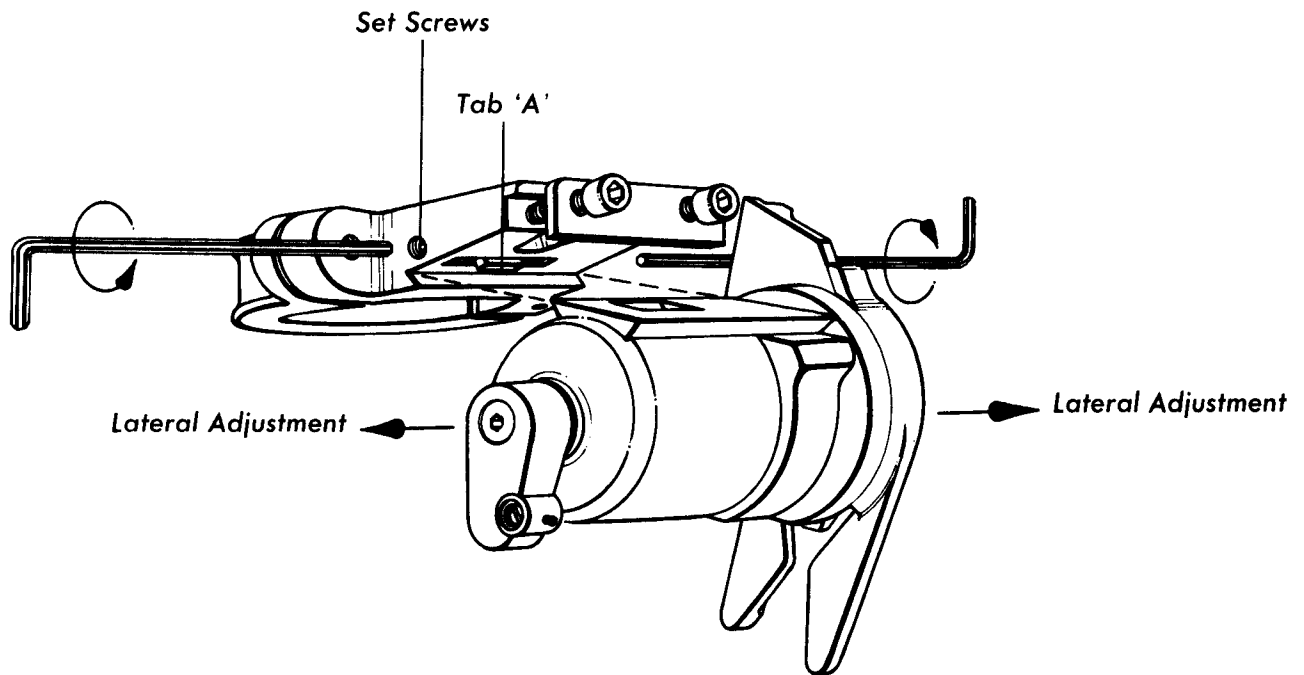
Make sure that the mounting bracket is aligned with the bicycle as shown (Illustration # 18). Tighten the mounting bracket bolt. The mounting bracket need never come off during the life of the bicycle. Advise the customer: **DO NOT REMOVE OR LOOSEN THE MOUNTING BRACKET AFTER IT HAS BEEN INSTALLED BY THE DEALER.**



ILLUS 18 POSITION OF MOUNTING BRACKET ON SEAT TUBE.

STEP  
4

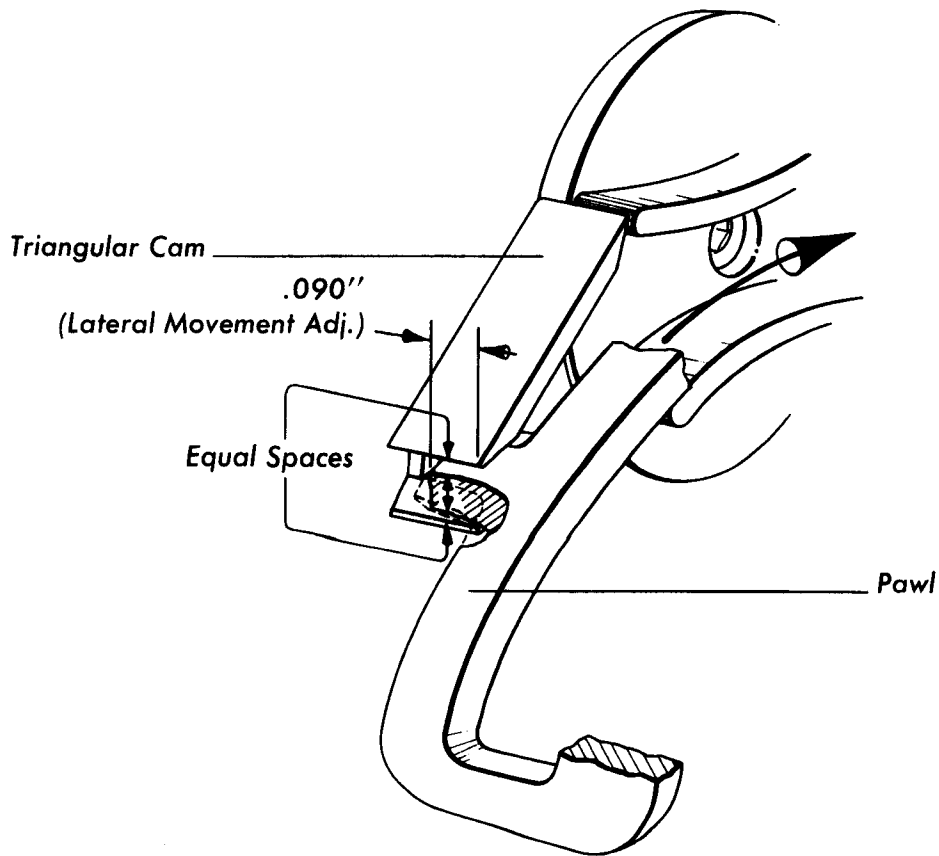
Once the mounting bracket and selector assembly unit are in place, you must now adjust the clearance of the triangular cam on the selector assembly in relationship with the pawl on sprocket assembly. Loosen the dovetail clamp screws on the mounting bracket and retighten by hand.



ILLUS  
19

LATERAL POSITION ILLUSTRATION.

The clearance between the selector assembly, triangular cam, and the pawl is adjusted by loosening one of the set screws on the mounting bracket and tightening the opposite set screw (Illustration # 19).

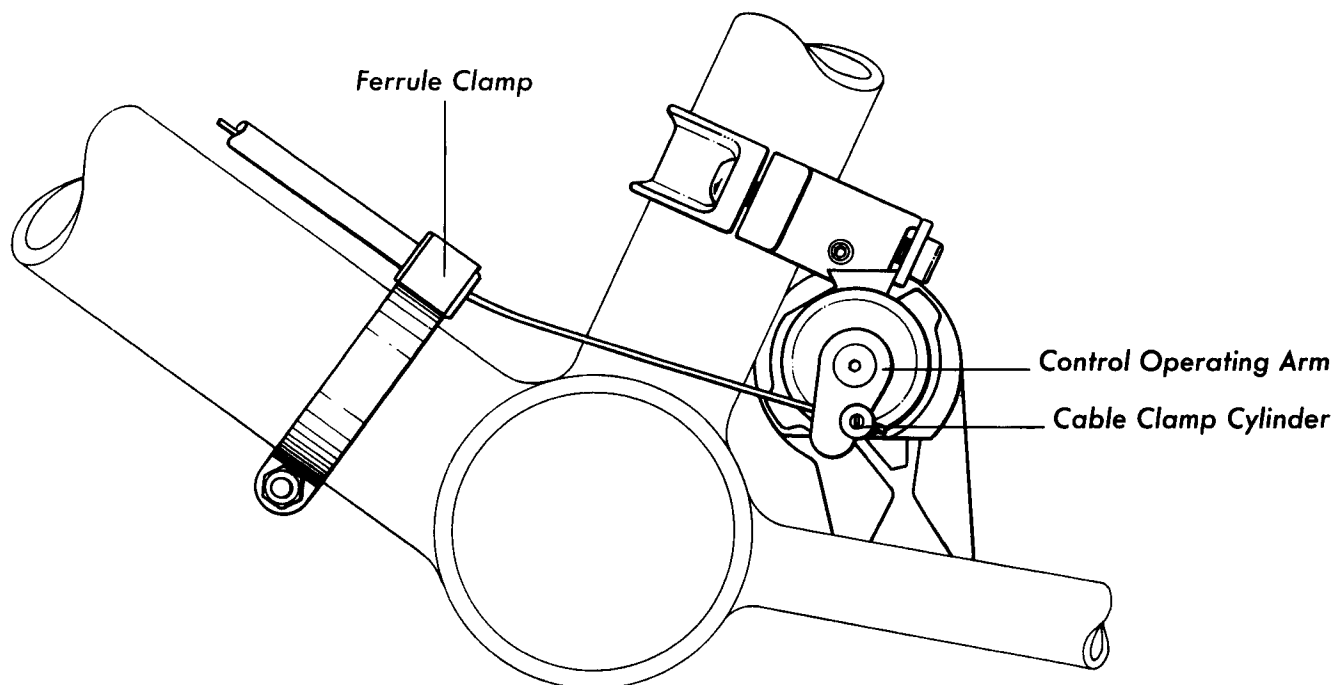


ILLUS  
20

VIEW OF CORRECT PENETRATION OF PAWL THROUGH TRIANGULAR CAM.

This should be repeated until the lateral position of the triangular cam in relation to the pawl is as shown (Illustration # 20).

Once the proper clearance is achieved, both set screws and the dovetail clamp screws should be tightened firmly. There should be no further adjustments necessary unless the bottom bracket bearings are changed or a new crank is installed.



ILLUS  
21

POSITION OF FERRULE ON DOWNTUBE CLAMP.

STEP  
5

Attach the control lever in the position desired on the handle bars. Slide the recommended cable adjustment assembly on the cable and position adjustment assembly in the control lever. Turn cable adjustment nut to the end of the threads so that no threads are showing. Run the cable along the down tube and anchor the end of the cable sleeve with the ferrule clamp as shown in illustration #21. Secure the cable near the top of the down tube with a cable sleeve clamp.

Thread the cable end extending from the ferrule clamp through the slot in the control operating arm and slide the cable clamp cylinder up the cable until it rests in the half moon recess of the operating arm. Now depress the control lever completely against the hand grip, snug the cable and tighten the set screw in the cable clamp cylinder. Now adjust the cable adjustment nut until the operating arm is moved forward enough to position the triangular cam in the extreme downward position. Please refer to illustration # 11.

STEP  
6

Install chain tensioner according to instruction from manufacturer.

# TEST STAND PROCEDURE

The Browning Transmission is designed to operate with any combination of lever positions and crank rotation.

The released position refers to the lever when it is NOT being pulled. In this position the chain is normally on the large sprocket (44 tooth).

The depressed position refers to the lever when it is pulled. In this position the chain is normally on the small sprocket (38 tooth).

All tests are done with the bike on the test stand.

- 1- Lever in released position, the chain on the large sprocket, bike on test stand. Slowly rotate crank forward and backward several times to make sure the pawl tracks through the selector assembly (triangular cam, reset cam, and cam housing) freely, without interference.
- 2- Lever depressed, the chain on the large sprocket, slowly rotate crank backward several turns. The pawl will make a slight click as it tracks back through the triangular cam housing; otherwise the crank will rotate freely.
- 3- Lever depressed, the chain on the large sprocket, rotate the crank forward one turn. The swinging sector should swing out, allowing the chain to shift to the small sprocket. Keep the lever pulled and continue to rotate the crank forward and then backward. The pawl should track through the selector assembly freely, without interference.
- 4- Let the lever go and allow it to return to the released position. Rotate the crank backward several turns. The pawl will make a slight click as it tracks back through the cam housing, otherwise the crank will rotate freely.
- 5- Proceeding from test # 4 with the lever in the released position, the chain on the small sprocket, rotate the crank forward. The selector assembly will shift the chain to the large sprocket. Continue to rotate the crank forward and then backward to make sure the pawl tracks through the selector assembly freely.
- 6- Pull the lever into the depressed position and hold, rotate crank 1/2 way through the shift sequence, where the chain is on both sprockets at once. Reverse the crank rotation and turn the crank backwards several turns. The pawl will make a slight click as it passes through the selector assembly. Turn the crank forward one full turn. The chain should shift from the large sprocket to the small sprocket.
- 7- Let the lever go, allowing it to return to the released position. Rotate the crank until the selector assembly is 1/2 way through the shift sequence. Reverse the rotation of the crank for several turns, then turn the crank forward one turn. The chain should shift from the small sprocket to the large sprocket.
- 8- Pull the lever into the depressed position and hold. Slowly rotate the crank forward until the pawl just touches the triangular cam. Let the lever go. Continue the forward rotation of crank. The crank may hesitate but the pawl must pass through the selector assembly.
- 9- Continuing from test # 8, the lever is in the depressed position and the chain is on the small sprocket. Let the lever go, allowing the lever to be in the released position. Slowly rotate the crank until the pawl touches the triangular cam. Pull the lever into the depressed position and continue the forward rotation of the crank. The crank may hesitate but the pawl must pass through. This shift sequence also occurs occasionally. The result is that the lever is in the depressed position and the chain is on the large sprocket. The condition is corrected by allowing the lever to return to the released position and turning the crank forward. The selector assembly operates but the chain stays on the large sprocket. Now the lever is in the released position and the chain is on the large sprocket as it should be.



# MAINTENANCE INSTRUCTIONS

The only maintenance requirement for the Browning Transmission is to keep it clean.

## Chain

Maintenance of the chain is especially important with any device, such as the Browning Transmission, which employs a chain tensioner. Spray the chain with a degreaser, wipe clean and spray with a chain lubricant.

## Sprocket Assembly

Keep the sprocket and pawl teeth clean and dry. Spray with degreaser if necessary and wipe clean.

## Selector Assembly

The selector assembly may be removed from the mounting bracket for easier cleaning. This is removed by loosening the two dovetail screws (Illustration #19). This procedure does not alter any of the installation settings. While cleaning the selector assembly, examine the operating corners of the triangular cam (Illustration #20). If the operating corners are worn or damaged, the triangular cam must be replaced. Do not spray or oil any part of the selector assembly. Do not immerse the selector assembly in any liquid or clean with a wire brush. On a regular basis, brush dirt and dust away with a small inexpensive paint brush. **If the selector assembly is disassembled, the warranty is void.**

# NOTES



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