

### ZERO TURN SERIES (Ultima-S)

**Date:** March 17, 2022 Revised October 17, 2023

**Subject:** 8.923" Speed Cam Alignment Tool

**Parts** 703-27432 RH Speed Cam Plate  
**Affected:** 703-27449 LH Speed Cam Plate

**Models**  
**Affected:** 2022 and Newer Ultima Zero Turn Steering Wheel Models (17XXGXXXXXX)

**PURPOSE:**

A new left hand (703-27449) and right hand (703-27432) Speed Cam Plates have been designed for the 2022 Ultima Steering Wheel Models. The new Speed Cam Plates require a new 8.923" Speed Cam Alignment Tool and shorter 1/4" pins for proper neutral and steering procedures.

**NOTE: The 8.923" Speed Cam Alignment Tool Is Not Included in Any Complete Steering Tool Kit.**

**NOTE:** These materials are prepared for use by trained technicians who are experienced in the service and repair of equipment of the kind described in this publication, and are not intended for use by untrained or inexperienced individuals. Such individuals should seek the assistance of an authorized service technician or dealer.

**NOTE:** Always wear eye protection while servicing equipment. Wear hearing protection when appropriate. Always work in a well ventilated area and follow all safety precautions when dealing with combustible materials.

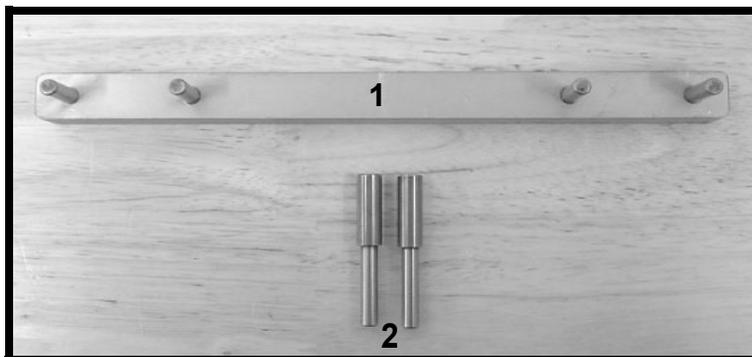
**NOTE:** Left (LH) and Right (RH) sides are determined from the operator's position and facing in the forward direction.

**NOTE: Save this Instruction Sheet. Refer to it when ordering replacement parts.**

### 759-05915 Service Kit Contents

ITEM NO.	PART NUMBER	QTY	DESCRIPTION
1	N/A	1	8.293" SPD CAM ALIGNBAR
2	N/A	2	FXTR:ASM:1/4 PIN:GEAR:RZT-S
	*	1	THIS INSTRUCTION SHEET

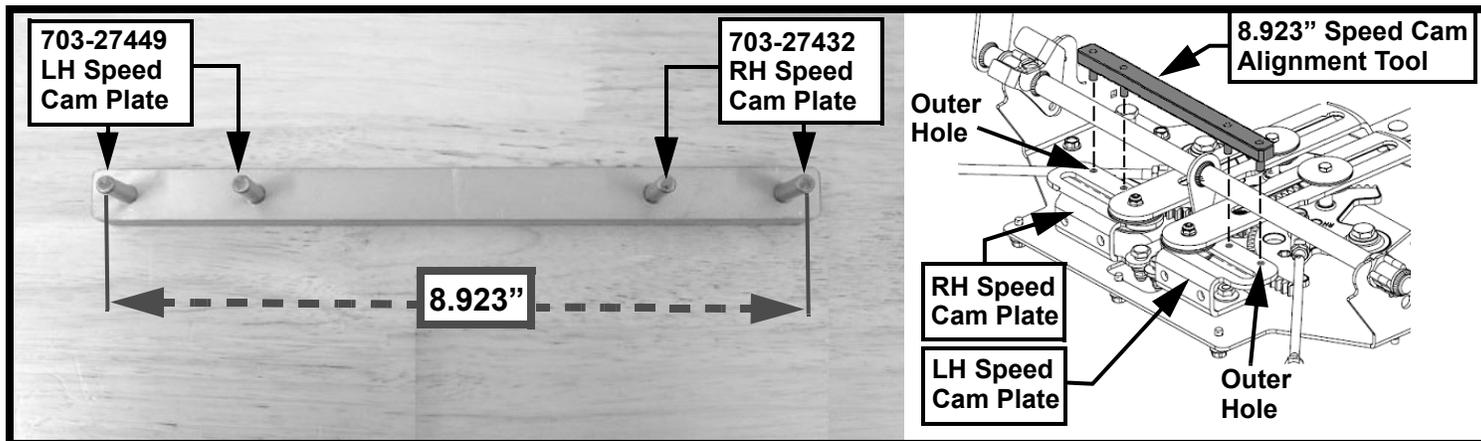
\* Instruction sheet included with kit.



**FIGURE 1**

**ACTION:**

When servicing a 2022 and newer zero turn Ultima steering wheel model, verify the dimension from the outer hole to the outer hole of the LH & RH speed cam plates. If they measure 8.923" as shown in Figure 2, the (759-05915) 8.923" Speed Cam Alignment Tool along with the two (2) shorter 1/4" pins are required for the transmission speed control adjustment procedures.



**FIGURE 2**

Use the (759-05013A) 2012 Zero Turn Steering Tool Kit or the (753-08598) 2016 Zero Turn Steering Tool Kit along with the New 2022 8.923" Speed Cam Alignment Tool and the two (2) shorter 1/4" pins (highlighted in red) contained in the (753-05915) Service Kit shown in Figure 3. Use the Instructions provided on Pages 3 through 6 of this Service Kit when performing the Front Wheel Toe Adjustment Procedure and the Transmission Speed Control and Adjustment Procedure on a 2022 or newer Ultima Steering Wheel Model.

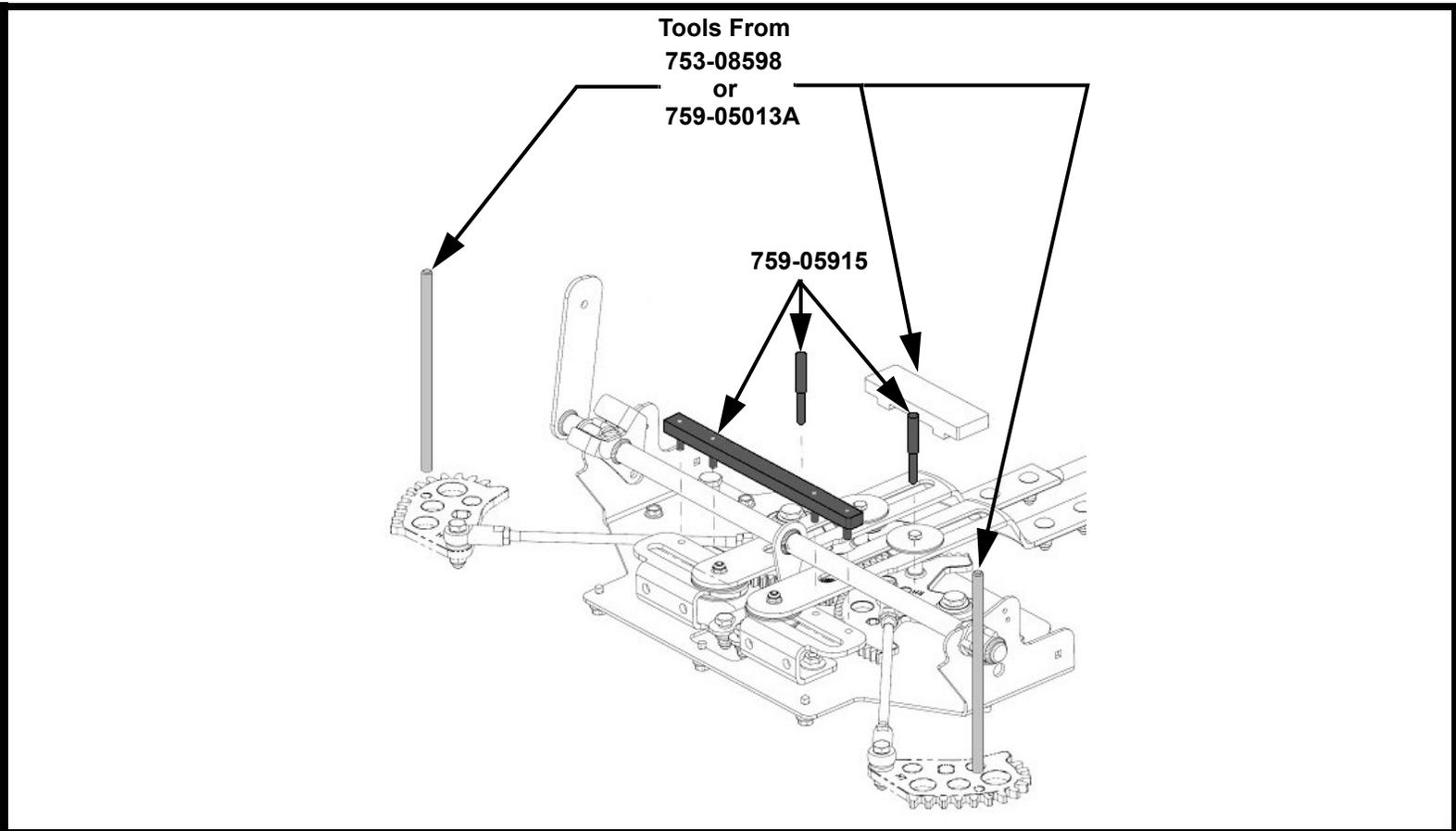


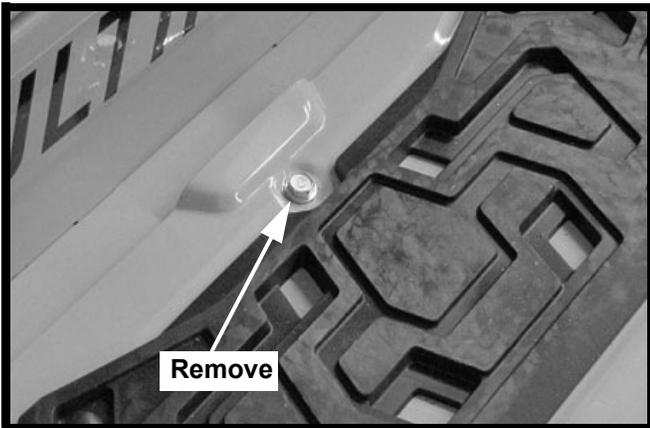
FIGURE 3

**IMPORTANT:** Check the tire pressure and wear before attempting to diagnose any problems with the steering or tracking of a zero turn steering wheel, riding mower. If the circumferences are not equal across the same axles, it will greatly affect the performance of the zero turn steering wheel, riding mower.

**IMPORTANT:** All zero turn steering wheel, riding mowers must have matching tires across the same axle (both front wheels and both back wheels).

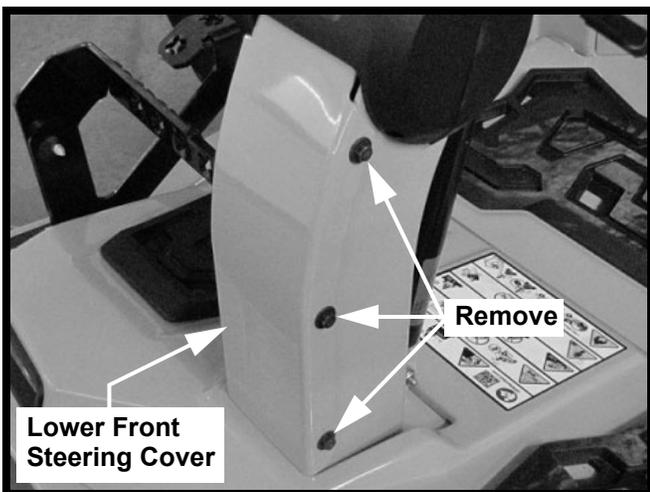
## Disassembly Instructions:

1. Park the rider on a flat level surface. Engage the parking brake.
2. Either place the rider on a lift system or lift the rear of the unit off the ground and place jack stands under the outside rear portion of the frame on each side.
3. Disconnect the negative battery cable from the negative battery terminal.
4. Remove the steering wheel cap.
5. Remove the 5/16-24 x 0.875" hex screw and Belleville washer that secures the steering wheel to the steering shaft.
6. Remove the steering wheel.
7. Remove the forward / reverse combination drive pedal assembly.
8. Remove the 5/16-18 x 0.875" hex screw that secures the floor board to the frame. See Figure 1.



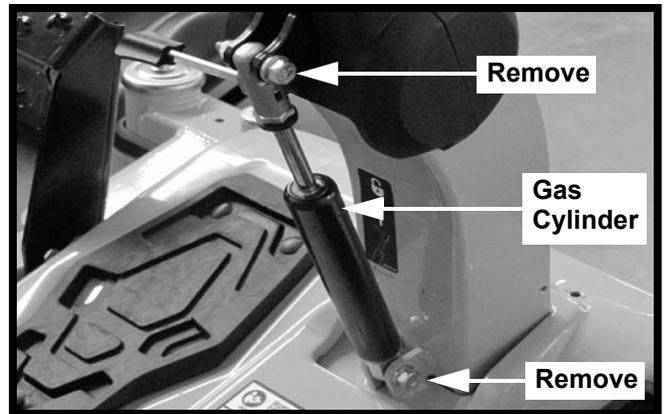
**FIGURE 1**

9. Remove the floor board and set off to the side.
10. Remove the six (6) screws that secure the lower front steering cover as shown in Figure 2, then remove the cover plate and set off to the side.



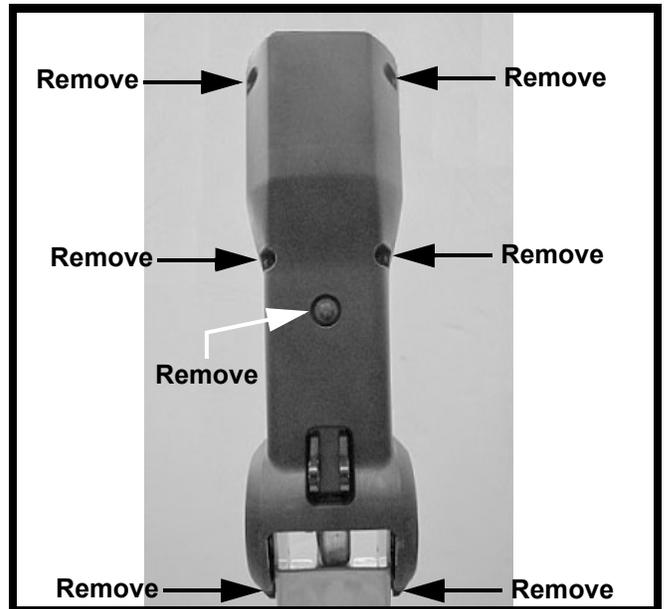
**FIGURE 2**

11. Remove the tilt steering cylinder. See Figure 3. Take notice of the flat washers on each bolt.



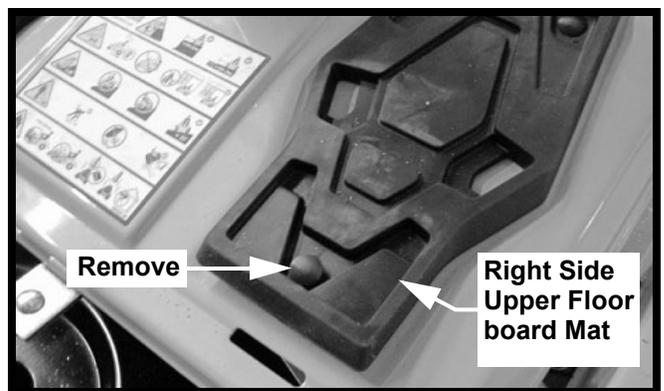
**FIGURE 3**

12. Remove the six (6) 8-16 x 3/4" Torx screws down the outside and the one single hex screw in the center that secures the two piece upper steering cover. See Figure 4.



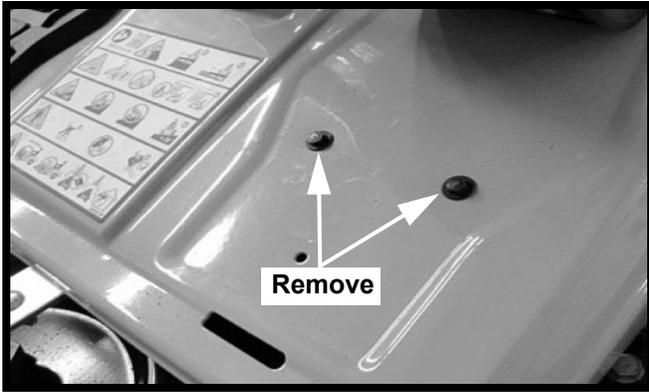
**FIGURE 4**

13. Remove the front and back steering column covers and set off to the side.
14. Remove the single ratchet clip at the bottom of the right side upper floorboard mat as shown in Figure 5.



**FIGURE 5**

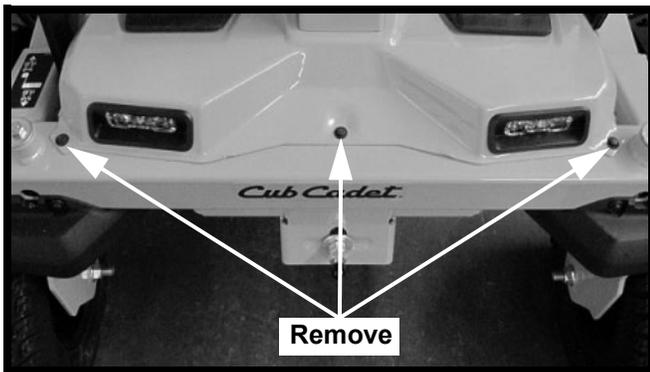
15. Lift the foot pad to access the two (2) M6-1 x 0.625 hex screws for removal. See Figure 6.



**FIGURE 6**

16. Repeat Steps 14 and 15 for the left hand foot pad and hex screws removal, then proceed to Step 17.

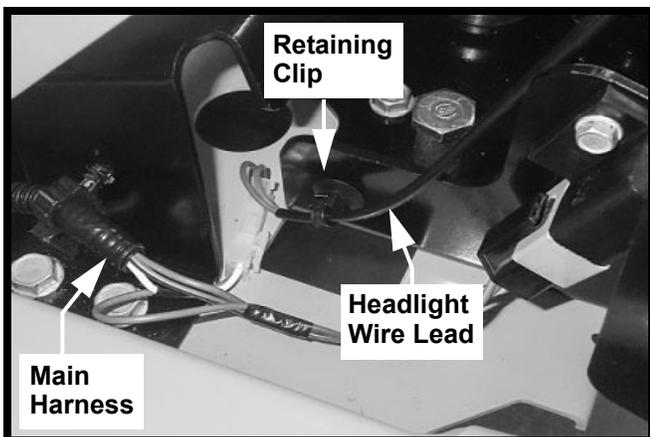
17. Remove the three (3) M6-1 x 0.625 hex screws across the front of the footrest. See Figure 7.



**FIGURE 7**

18. Lift the foot rest at the front. Place a 14" 2x4 under the footrest for support while performing Step 19.

19. Locate the headlight wire lead in the right had corner as shown in Figure 8 and disconnect from the main harness. Remove any harness retaining clips securing the headlight harness in place.



**FIGURE 8**

20. While holding the footrest remove the 2x4. Lift the footrest up the steering column while rotating it around

the shoulder screws at the pivot point of the upper column. Continue lifting while rotating the footrest around the tilt steering cylinder mounting bracket and up and off the steering column. Set off to the side.

21. Place the steering wheel back in place on the steering shaft and move the steering column to the front as far as possible.

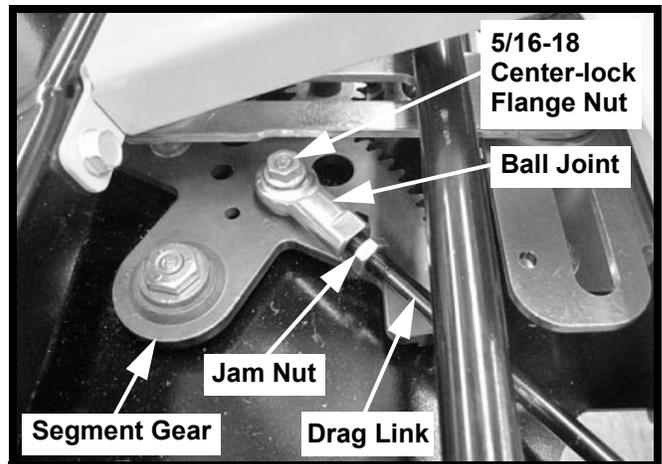
**NOTE: With the tilt steering cylinder removed the steering column can easily fall back towards the seat.**

**Front Wheel Toe Adjustment Procedure:**

22. Turn the steering wheel to center the segment gears.

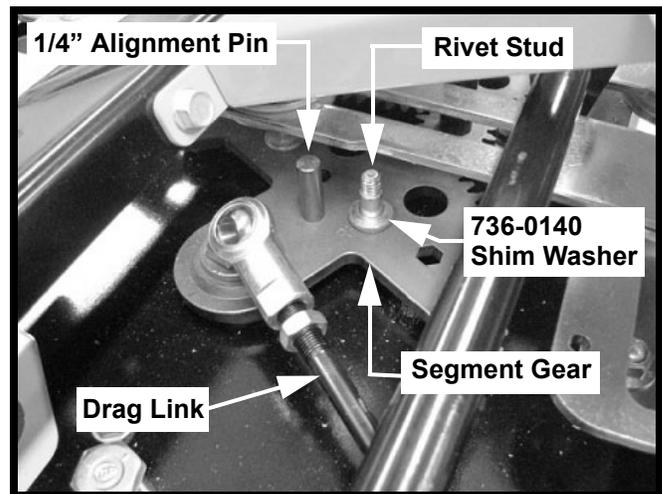
23. Loosen the drag link ball joint jam nuts, left and right.

24. Remove the 5/16-18 center-lock flange nuts from the rivet studs. See Figure 9.



**FIGURE 9**

25. Disconnect the drag links from the segment gears rivet studs. See Figure 10. Make sure the shim washer 736-0140 stays in place on the rivet stud.

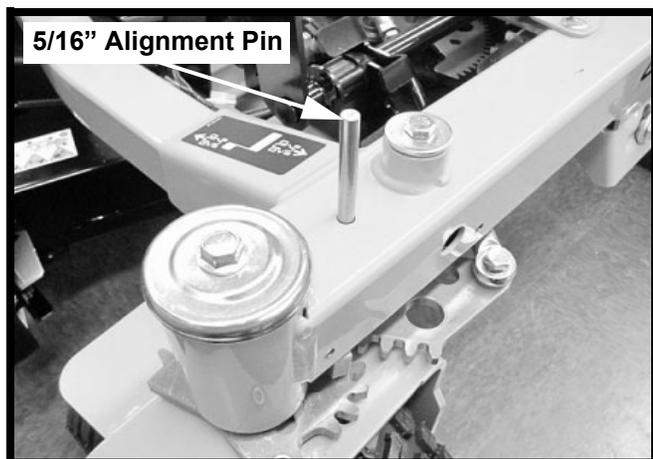


**FIGURE 10**

26. Install the 1/4" alignment pins into the segment gears as shown in Figure 10.

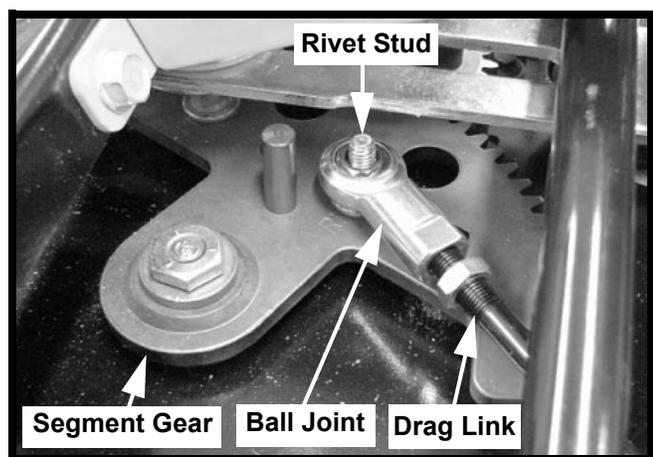
27. Insert the 5/16" alignment pins into the alignment holes in both axles as shown in Figure 11.

**NOTE: The plastic covers are not required to be removed to access the alignment holes. They have only been removed here for a better visual of the gears.**



**FIGURE 11**

28. Adjust the ball joints on the threaded drag links to align with the rivet studs in the segment gears. See Figure 12.



**FIGURE 12**

29. Install the nuts that attach the drag links to the rivet stud and torque to 170-180 In. Lbs.

30. Tighten the drag link ball joint jam nuts, making sure not to bias the ball joint in any direction.

31. Remove the 5/16" alignment pins from the left and right side of the front axle.

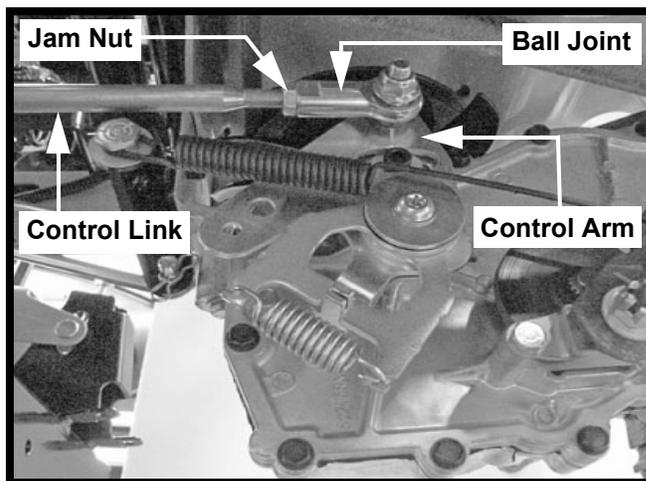
**NOTE: Leave the 1/4" alignment pins in the segment gears that were installed in Step 26 for the next procedure.**

#### Transmission Speed Control and Adjustment Procedure:

**NOTE: The rear tires may be removed to allow more access for Steps 32 and 33 and 38 through 41.**

32. Loosen the left and right side jam nuts on the control links. See Figure 13.

33. Disconnect the control links from the control arms of the transmissions by removing the 3/8-16 nylon lock flange nut from the 3/8-16 hex bolt. See Figure 13

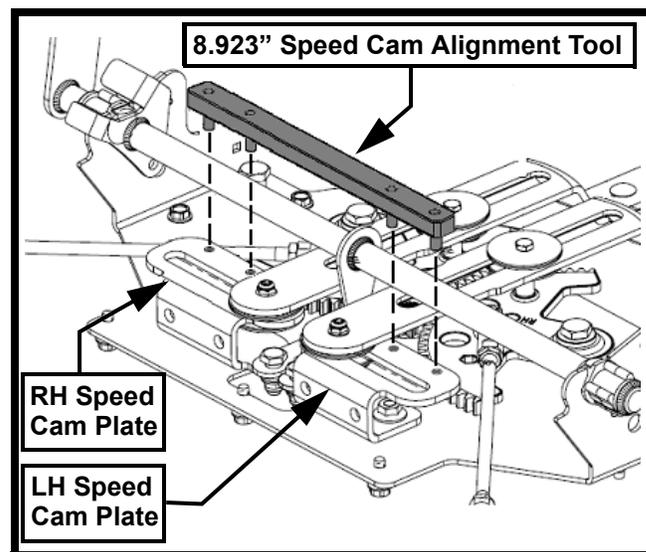


**FIGURE 13**

34. Locate the 8.923" Speed Cam Alignment Tool from the Service Kit.

35. Figure 14 shows a line art drawing as to where the 8.923" Speed Cam Alignment Tool is installed. The red circles point out where the four (4) pins of the 8.923" Speed Cam Alignment Tool are installed into the RH and LH speed cam plates.

**NOTE: A line art drawing is used due to the impossibility of capturing all four holes with a photo.**

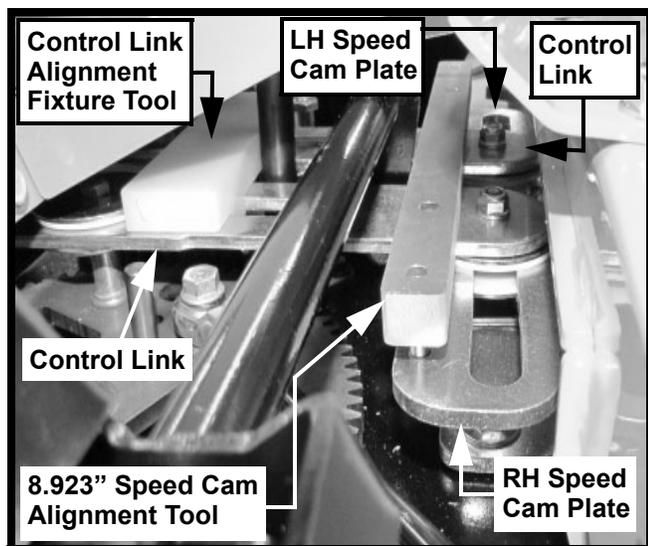


**FIGURE 14**

36. Install the 8.923" Speed Cam Alignment Tool into position by placing the four (4) alignment pins into the RH and LH speed cam plates. See Figure 15.

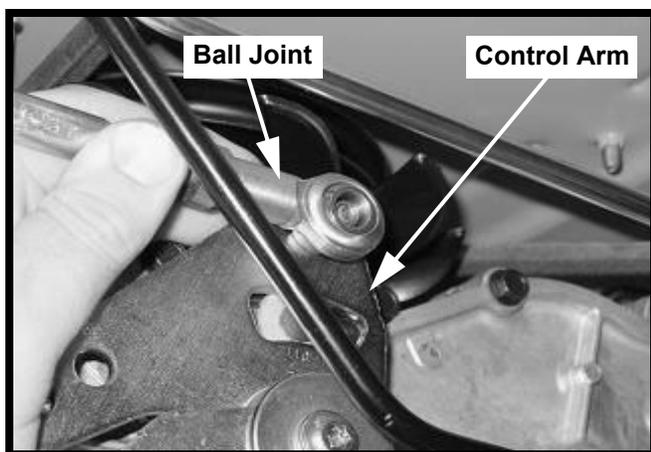
**NOTE: The 8.923" speed cam alignment tool shown in Figure 15 may be slightly different from the 8.923" speed cam alignment tool included in this Service Kit.**

37. Install the control link alignment fixture tool in the slots of the control links. See Figure 15.



**FIGURE 15**

38. Thread the ball joints up or down the length of the control links to align them with the holes in the transmission control arms. See Figure 16.



**FIGURE 16**

39. Attach the control links to the transmission control arms.

40. Tighten the 3/8-16 hex bolt and 3/8-16 nylon lock flange nut to a torque of 35-40 Ft. Lbs.

41. Tighten the control link jam nuts.

42. Remove all alignment pins and alignment fixtures.

43. Check alignment by rotating the steering wheel from complete left to stop and complete right to stop. During the rotation of the steering wheel there should be No movement of the forward / reverse combination drive pedal assembly. If the pedal assembly shows significant movement repeat Steps 32 through 43, then proceed to Step 44.

44. Remove the steering wheel from the steering shaft.

45. Install the footrest over the steering column and connect the headlight harness, then secure with the screws removed in Steps 15 through 17.

46. Install the front and back steering column covers over the steering column and secure with the hardware removed in Step 12.

47. Install the tilt steering wheel cylinder. Make sure that washer is in place.

48. Install the yellow lower front steering cover plate and secure with the six (6) screws removed in Step 10.

49. Install the floorboard and secure with the 5/16-18 x 0.875" hex screw removed in Step 8.

50. Install the forward / reverse combination drive pedal assembly. Securely tighten the hex flange screw. Do Not over tighten.

51. Secure the steering wheel with the 5/16-24 x 0.875" hex screw and Belleville washer removed in Step 5.

52. Install the steering wheel cap.

53. If the rear tires were removed install them at this time. Torque the lug nuts to 30 to 40 Ft. Lbs.

54. If the rider is on a lift system or supported by jack stands lower the rider to the ground.

55. Connect the negative battery cable to the negative battery terminal.

56. Start the rider and confirm that all operating features are functioning correctly.

57. Test drive the zero turn steering wheel rider in a safe area before returning it to service.