



Service Bulletin No. 1028

MODEL	: T2100 Series
TYPE	: Service information
SECTION	: Maintenance Manual: Chapter 11 - Body and accessories Operator's Guide Book: Section 2A - Operating instructions
DATE	: May 3rd, 1999
SUBJECT	: External rear view mirror: adjustment, maintenance and troubleshooting
CONDITIONS	: Service information only. Parts may be purchased from your nearest International Coach Parts Inc. dealer.

DESCRIPTION :

WILKE, coach mirror constructors and suppliers, have released an information booklet containing recommendations about the installation, operation, adjustment and repair of their external rear view mirrors, as fitted to the T2100 Series coaches.

The guidelines in this Bulletin are derived from the Wilke-booklet and will assist operators and service personnel in the proper use and maintenance of these mirrors.

PARTS:

Always use genuine maintenance products and parts. Do not accept imitations!

Part No.	Description	Qty.
VH 10617183	Convex (wide angle) mirror	1
VH 10617185	Flat mirror	1

Note: For more information on service replacement parts for Wilke mirrors, refer to Parts Manual pages 762009-1014 and 762009-1015.

Service Bulletins are issued to supplement or supersede information in the Van Hool manuals. Note Service Bulletin number, date and subject on the register at the end of the relevant chapter(s). File Service Bulletin separately for future reference.

SERVICE PROCEDURE:

!!! CAUTION !!!

**USE SAFE SHOP PRACTICES AT ALL TIMES.
READ THE ENTIRE PROCEDURE BEFORE BEGINNING WORK.**

1. General:

The T2100 Series coach is equipped with two exterior mirror assemblies. One features a long arm (curb side) and one a short arm (street side). Both support arms can be moved to position the mirror head close to or away from the coach body. The head assembly can turn on the support arm for initial adjustment. The support arm carries a dovetail bracket which attaches to a coach mounted base plate. An electrical quick-fit connection is located between the base plate and the mirror arm. The entire mirror assembly can be removed from the vehicle without tools. Each mirror head contains a flat and a convex-type mirror. Convex mirrors give a wide angle view. Objects viewed in convex-type rear view mirrors appear smaller and are actually closer than they appear. To provide good visibility in adverse weather conditions, the mirrors are equipped with heating elements that are activated simultaneously by a rocker switch located on the right hand side control panel. The flat mirrors can easily be adjusted by using the remote control switch on the right hand side control panel. The wire harness to the mirror head runs along the support arm. The remote motor is mounted to the mirror head behind the flat mirror glass. The remote motor can be replaced. The convex mirrors must be manually adjusted. All mirrors have detachable glass which can be replaced if broken.

!!! CAUTION !!!

DO NOT ATTACH STICK-ON TYPE CONVEX MIRROR ACCESSORIES TO THE HEATED MIRROR GLASS. THIS COULD IMPEDE UNIFORM HEAT DISTRIBUTION ON THE MIRROR SURFACE WHICH COULD BREAK THE MIRROR.

2. To remove mirror assembly:

!!! CAUTION !!!

THIS PROCEDURE REQUIRES WORKING ON A STEP LADDER. MAKE SURE LADDER IS IN GOOD CONDITION, STANDS STEADY AND CANNOT SLIP OR TUMBLE.

1. Park the coach safely on a level surface, apply the parking brake, stop the engine and set the battery master switch to the "off" position.
2. Install a step ladder below the mirror that is going to be removed.
3. Have the mirror supported by an assistant on a second step ladder or secure against dropping with a portable crane (engine hoist).

4. Lightly tap the mirror arm out of the base plate from the bottom, using a soft mallet. The mirror assembly may release suddenly.

NOTE

Both mirror assemblies must be removed from the coach prior to entering automatic vehicle washing facilities.

3. To install mirror assembly:

1. Refer to items 1,2 and 3 of "To remove mirror assembly".
2. Clean the terminals of the electrical quick-fit connector and check for damage. Correct if necessary. Apply contact spray or terminal grease.
3. Place the mirror assembly (1, Figure 1) onto the base plate (2, Figure 1) and tap lightly home until dimension "A" is 1/4 inch. Full electric contact is only guaranteed at this dimension. If the clearance is different, check joints for burrs or damage.
4. Check mirror operation.

NOTE

The dovetail joint becomes worn if the mirror is frequently removed from the base plate. As a result dimension "A" may be reduced to 13/64 inch.

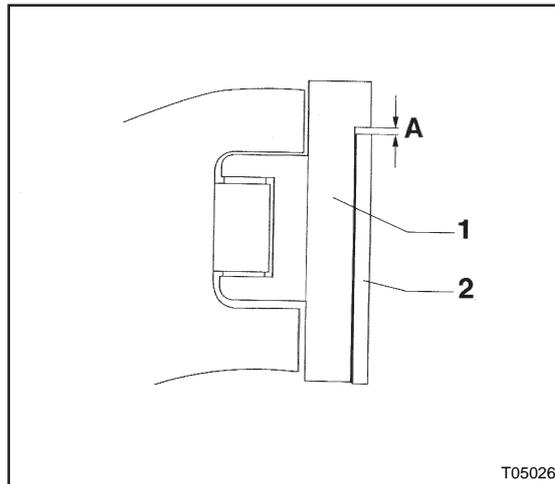


Figure 1: Mirror support arm (1) and base plate (2). Dimension "A" should equal 1/4 inch.

4. To adjust and secure mirror assembly:

The mirror support arm and the mirror head have been pre-adjusted at the factory. If readjustment is necessary, proceed as follows:

a. To adjust mirror support arm:

1. With a small flat tip screw driver, pry off and remove the dust cap from the support arm mounting bracket (see Figure 2).

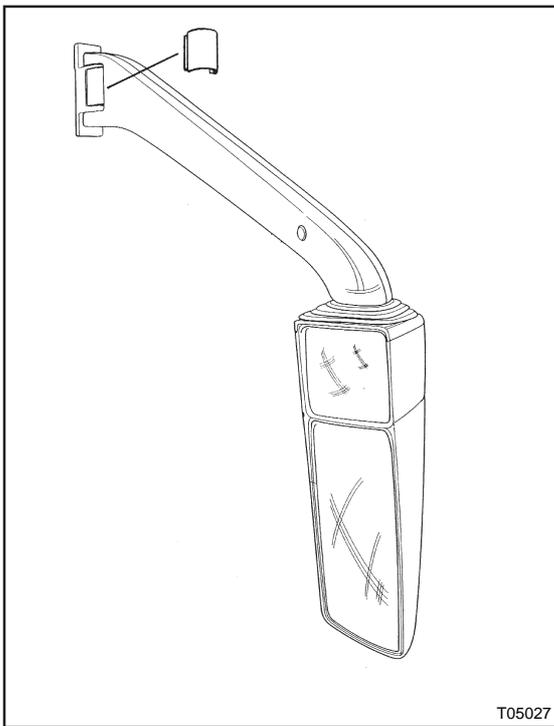


Figure 2: Support arm dust cap removal

2. Loosen jam nut (1, Figure 3) and retaining nut (2, Figure 3) of support arm pivot bolt (3, Figure 4).

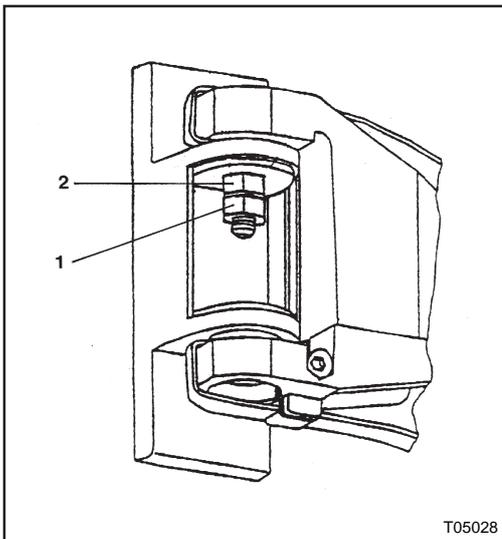


Figure 3: Support arm with jam nut (1) and retaining nut (2)

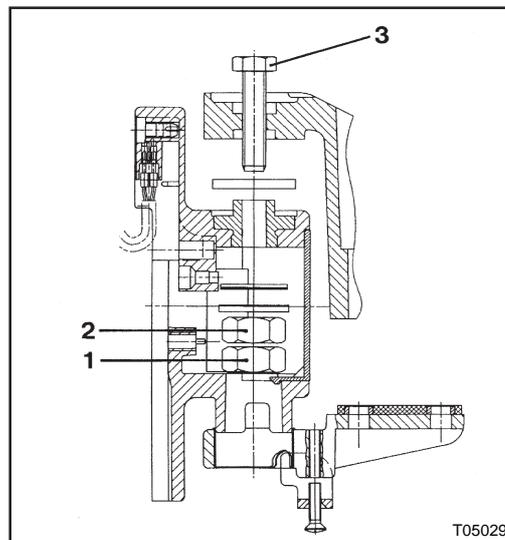


Figure 4: Support arm pivot bolt (3) and nuts (1, 2)

3. Move the support arm closer to or further away from the coach body as required.
4. Tighten pivot bolt retaining nut (2, Figure 3) to 37 ft.lbf.
5. Prevent retaining nut (2, Figure 3) from turning with a slim box wrench and tighten jam nut (1, Figure 3) to 41 ft.lbf.
6. Refit dust cap. Take note that dust cap is handed.

b. To adjust mirror head:

The mirror head can be rotated by hand to adjust it to the driver's seating position. It may be necessary to use some force. Further adjustment of the head can be made as follows:

1. Undo and remove the screw(s) (1, Figure 5) retaining the support arm trim molding halves (2 and 4, Figure 5).

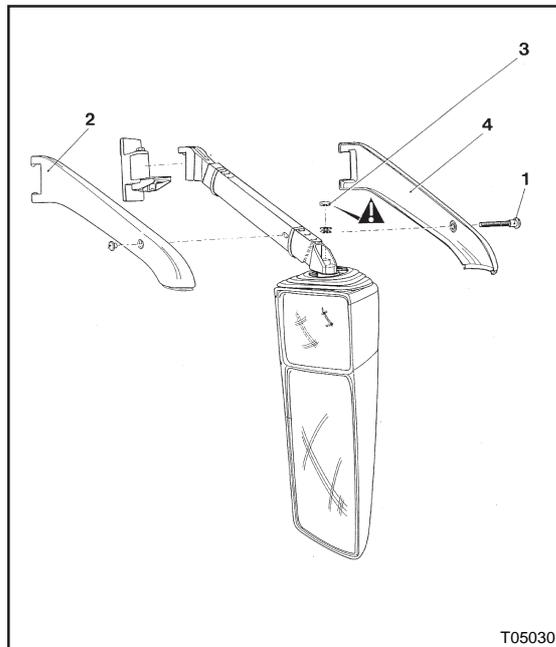


Figure 5: Support arm with mirror head and trim molding

2. Slacken the self-locking nut (3, Figure 5) securing the mirror head to the support arm.
3. Rotate the mirror head and adjust its position as required.
4. While holding the mirror head in the desired position, tighten the retaining nut to 70 in. lbf.

!!! CAUTION !!!

TIGHTENING THE SELF-LOCKING NUT TO A HIGHER TORQUE VALUE WILL CRUSH THE PLASTIC SAFETY CAP ON TOP OF THE MIRROR HEAD AND RENDER IT USELESS.

5. Refit the support arm trim moldings.

c. To adjust mirrors:

- Prior to fine adjustment, move the mirrors to their neutral position.
- Adjust the wide angle mirrors manually until the side of the coach is visible.
- Adjust the flat-type mirrors using the remote control switch on the right hand side control panel until the road is in full view. Select the mirror to be adjusted by turning the pointer knob to the left or right. Adjust the mirror to the desired position by moving the knob (refer to T2100 Series Operator's Guide Book, Section 2A).

5. To replace mirror glass (flat type):

The mirror glass and heater grid are shrunk onto a mounting plate. The assembly locks onto the control mechanism with a snap ring and must be replaced as a single unit.

a. Removal:

1. Make sure the mirror heating switch is in the "off" position.
2. Remove all broken glass if any.
3. Adjust the mirror so the left side moves out of the head casing.
4. Slip a screwdriver into the gap between the mirror head casing and the mirror glass assembly (see Figure 6).

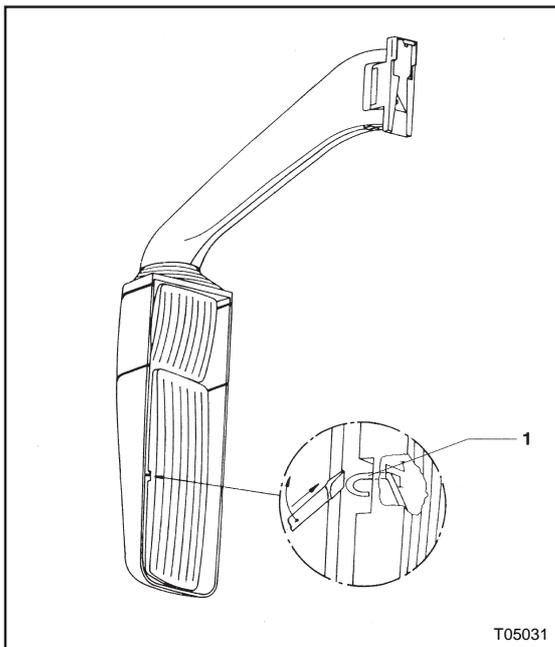


Figure 6: Flat-type mirror glass removal

5. Release the mirror glass assembly from the control mechanism by prying the eye of the snap ring off its seat (1, Figure 6).
6. Remove the assembly from the mirror head.
7. Disconnect the heater grid at the two connectors.

b. Installation:

1. Check that the snap ring of the new mirror glass assembly is properly seated. If necessary engage eye (1, Figure 6) using a screwdriver or needle nose pliers.
2. Check that the rubber sleeve fits the motor housing snugly.
3. Connect mirror heater plugs.
4. Position the assembly (3, Figure 8) into the center of the mirror head casing (2, Figure 8).
5. Press the assembly gently home until a soft click is heard; it is now locked onto the control mechanism.

6. To replace mirror glass (convex-type):

The mirror glass and heater grid are shrunk onto a mounting plate. The assembly must be replaced as a single unit.

a. Removal:

1. Make sure the mirror heating switch is in the "off" position.
2. Remove all broken glass if any.
3. Adjust the mirror so the left side moves out of the head casing.
4. Slip a screwdriver into the gap between the mirror head casing and the mirror glass assembly (see Figure 7).

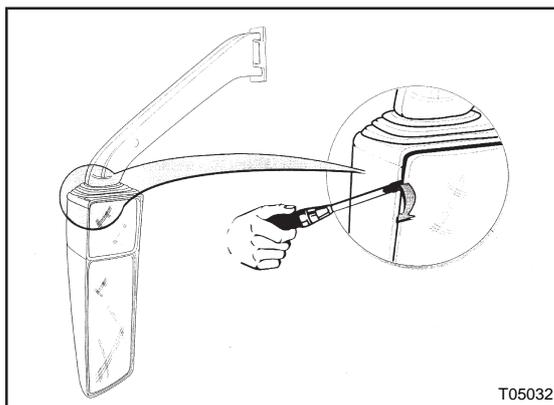


Figure 7: Convex-type mirror glass removal

5. Lever the mirror glass assembly out of the catch insert.
6. Remove the assembly from the mirror head casing.
7. Disconnect the heater grid at the two connectors.

b. Installation:

1. Check that rubber ring (5, Figure 8) is properly seated onto the locking lugs of the new mirror glass assembly.

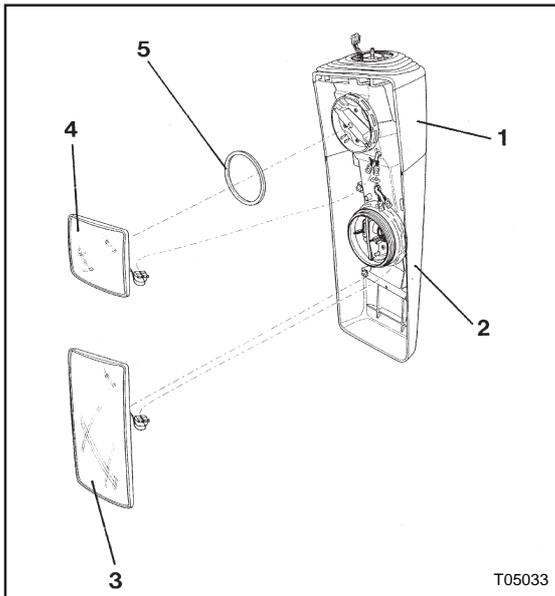


Figure 8: Flat and convex-type mirror glass installation

2. Connect mirror heater plugs.
3. Position the assembly (4, Figure 8) into the center of the mirror head casing (1, Figure 8).
4. Press the assembly gently home until a soft click is heard, indicating that it is locked onto the swivel hub.

7. To clean mirrors:

NOTE

Both mirror assemblies must be removed from the coach prior to entering automatic vehicle washing facilities.

Before refitting, apply contact spray or terminal grease to the quick-fit connector terminals.

- Clean the exterior mirror assemblies with a mild cleaning agent.
- Regularly remove soiling caused by insects and birds.
- Regularly treat plastic surfaces with a plastic cleaning agent.
- Clean mirror glass with glass cleaner.

8. Troubleshooting:

Problem	Cause	Correction
Motor doesn't work Mirror doesn't heat	No contact between electrical quick-fit connector terminals	Connect bracket to base plate again Clean quick-fit connector
	Quick-fit connector shifted or bent	Replace damaged parts
	Connector terminals shifted or bent	Replace mirror-side wiring harness
	Corroded connector terminals due to constant use of heater	Clean or replace connector Check heater switch operation
	Mirror glass heating plugs corroded or disconnected	Reconnect or clean plugs
	Mirror support arm plug corroded or disconnected	Reconnect or clean plug
	Mirror wiring faulty or terminal mismatch	Check wiring Reconnect terminals
Mirror head wobbles or rotates	Mirror head retaining nut loose	Remove support arm trim moldings and tighten self-locking nut
Mirror glass assembly wobbles	Mirror glass assembly not engaged	Remove assembly, check snap ring seating, refit mirror glass assembly
	Lateral adjustment control mechanism broken	Replace adjustment control mechanism
Mirror support arm wobbles/loose	Support arm pivot bolt loose	Tighten retaining nut to 37 ft.lbf. Tighten jam nut to 41 ft.lbf.

Service procedure complete.

