



TRANE™

**General
Service
Bulletin**

CVHE-SB-24

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Literature Changes:

CVHE-SB-24 (6/90) -- Original issue of bulletin.

Subject: CVHE Vane-Actuator Motor Limit-Switch Gear Replacement Kit

Introduction:

The purpose of this service bulletin is to advise the field of the availability of a replacement kit for the gear assembly of the vane-actuator motor limit switch used on CVHE units with the UCP-695 control panel.

Discussion:

A kit is now available for replacing the plastic worm-gear assembly in the CVHE vane-actuator motor limit switch. This kit is part number **GER-0315**. The vane-actuator motor has failed on several occasions due to stripped gears in the limit switch.

Units Affected:

All Model CVHE units with UCP-695 micro-control panel.

Recommended Action:

Use the following procedure to replace the gear assembly in the vane actuator motor limit switch:

1. Disconnect power to the vane-actuator motor.

WARNING: To prevent injury or death due to electrical shock, open and lock all disconnects before servicing the unit.

2. Remove and set aside the eight retaining screws from the actuator conduit-box cover. Remove the conduit box cover, exposing the limit-switch gear assembly. See Figure 1.

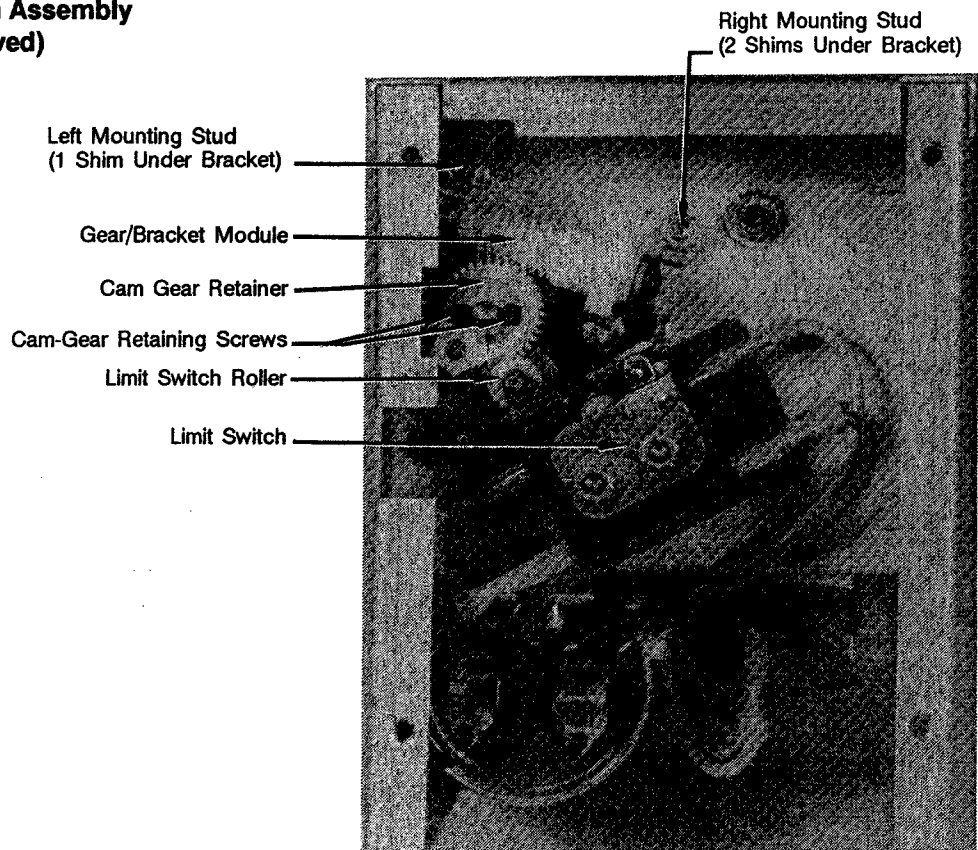
3. Remove and discard the gear/bracket module, the two gear/bracket mounting nuts, and the three shims (washers) located under the gear-bracket.

4. Remove and discard the snap ring and worm gear (on the motor shaft).

5. Mount the new worm gear (provided in the kit) on the motor shaft with hex-end toward actuator motor. Kit components are shown in Figure 2. The snap-ring groove should be exposed. Install the new snap ring (provided in the kit) in the groove. Check the worm gear to be sure it is secure on the motor shaft.

It is not usually necessary to replace the cam gears. If they require replacement, however, remove and discard the cam retaining screws, the cam retainer, and the old cam gears. Install the new cam gears and retainer using the new screws provided in the kit. Cams should be installed on left side of the cam roller as shown in Figure 1. Start but do not fully tighten the cam-retaining screws at this time.

Figure 1
Vane-Actuator Limit Switch Assembly
(Conduit Box Cover Removed)



6. Place one new shim (Figure 2) on the left gear/bracket mounting stud (Figure 1) and place two new shims over the right gear/bracket mounting stud (Figure 1).

7. Position the new gear/bracket module (provided in the kit) over the mounting studs and install the new mounting nuts (provided in the kit) on the studs. Do not tighten the nuts fully at this time. Adjust position of gear/bracket module to engage both gear sets; then tighten the mounting nuts.

8. Then, check both gear sets for backlash. Gears should rotate slightly, but not excessively. Movement should be restricted to .005 to .010 inches.

Caution: Too much or too little backlash will shorten gear life.

9. Remove mounting pin from actuator extension tube.

10. Restore power to the actuator motor and retract the actuator until the limit switch shuts down the actuator. The extension tube may rotate during this process. Rotate the extension tube (if necessary) until the dimension between the mounting holes (center-to-center) is 16.63 to 16.75 inches.

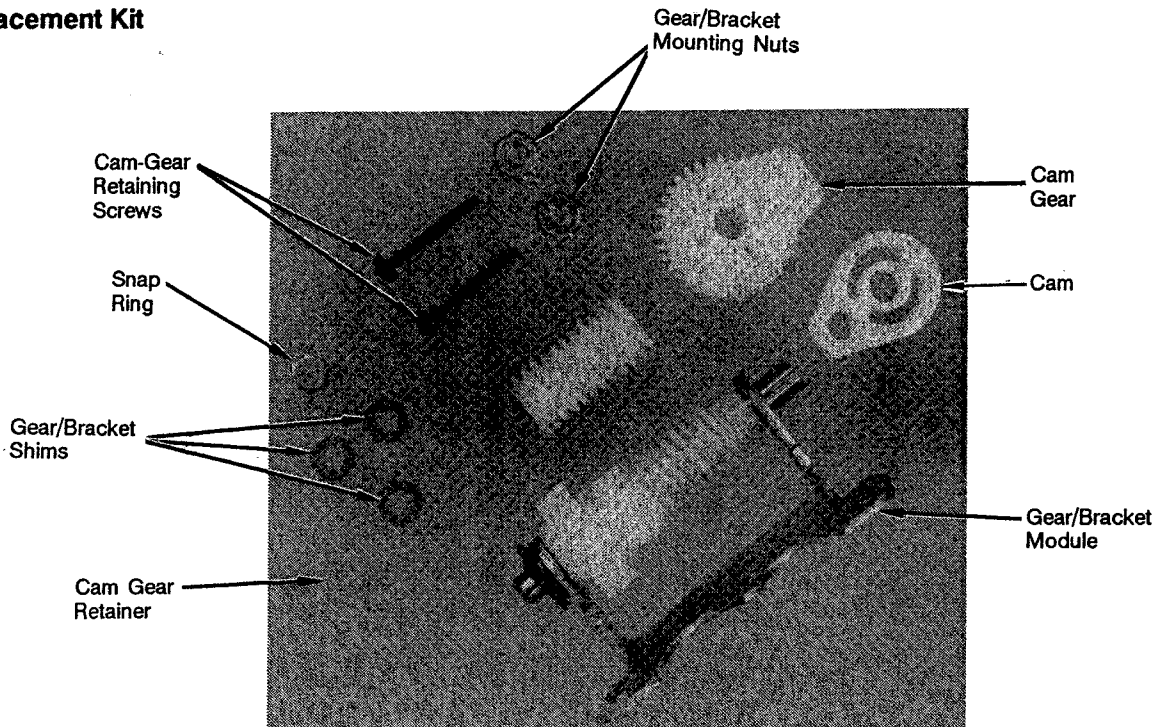
WARNING: To prevent injury or death due to electrical shock, exercise extreme caution when servicing unit with electrical circuits energized.

While preventing the extension tube from rotating, extend the actuator until the stroke length between the mounting holes (center-to-center) is 21.44 to 21.94 inches. The cam gear retaining screws should be loose enough to allow the cam gear to turn. Turn the cam to engage the limit switch roller. Keep turning the cam until the limit switch makes with an audible "click". Then, tighten the cam gear retaining screws to 4 in./lbs.

11. Replace the mounting pin and cycle the actuator to check limit switch function and stroke length.

12. Replace conduit box cover.

Figure 2
Vane-Actuator Motor Limit Switch Gear
Replacement Kit



Parts Ordering Information:

Order one vane-actuator limit switch gear kit for each vane-actuator failure occurrence due to stripped limit switch gears. Specify the part number listed below:

Trane Part No. = **GER-0315**

Each kit contains:

- (1) Motor worm gear;
- (1) Snap-ring;
- (1) Gear/bracket module;
- (2) Gear/bracket module mounting nuts;
- (3) Gear/bracket module shims;
- (2) Cam gears;
- (1) Cam-gear retainer;
- (2) Cam-gear retainer screws.

Order from La Crosse, "Ship from 31".

Note: This service bulletin is informational only and does not authorize parts or labor.

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