

Group 10 Parking Brake

GENERAL: This group contains information on the coach parking brake from the actuating lever to the transmission.

SPECIFICS: As applicable

...Parking Brake Cables and Hardware

...Parking Brake Lever and Hardware



FMC Corporation
Recreational Vehicle Division
333 Brokaw Road Box 664 Santa Clara, California 95052

GROUP 10

PARKING BRAKE

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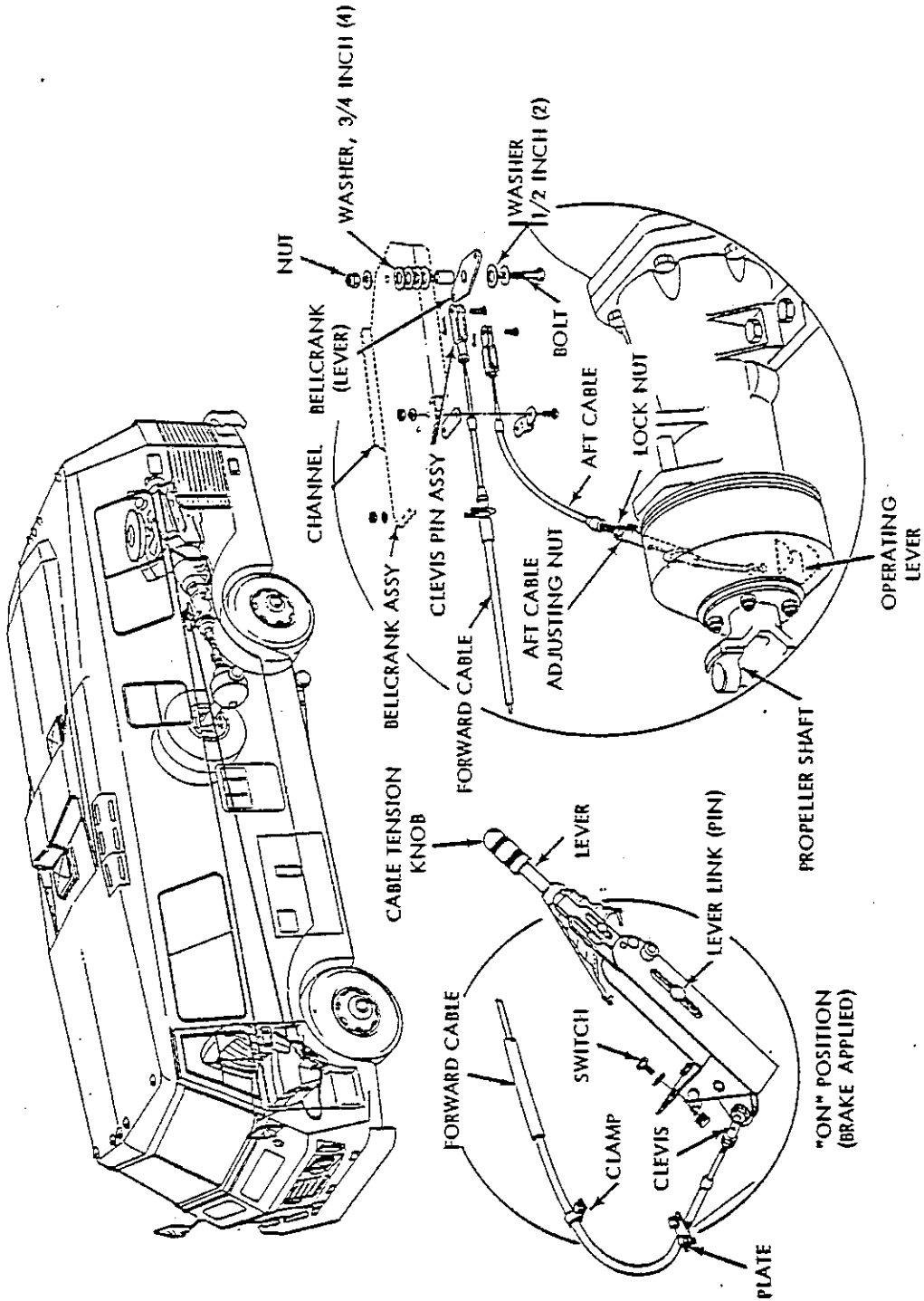


Figure 10-1. Parking Brake

GROUP 10

PARKING BRAKE

10-1. DESCRIPTION (fig. 10-1)

a. General. The parking brake consists of a brake shoe and drum mechanism, installed on the end of the transmission extension housing, around the output drive shaft. A hand-operated lever, located adjacent to the left-hand side of the drivers seat, is mechanically connected by cables and bellcrank to an actuating lever in the brake mechanism. By pulling the hand lever aft, the inter-connecting linkages move the actuating lever in the brake to expand the shoes against the inside diameter of the drum. The drum is splined to turn with the drive shaft and the shoes remain stationary as they are installed on an anchor pin, extending from two flanges of the transmission extension housing. With the shoes fully expanded in the drum, the drive shaft rotation is retarded by the friction between the two. This locks the drive train to the rear wheels and prevents the coach from moving.

NOTE

The parking brake functions completely independently of the service brakes.

A brake light on the dash panel electrically connects to a push switch. The push-switch is mechanically actuated by the hand-operated lever when the parking brake is on. When actuated, the switch grounds the electrical circuit to the brake light.

If the ignition switch is turned on while the parking brake is on, the brake light is energized and illuminates to warn the driver to release the parking brake.

NOTE

The parking brake is not designed for stopping the moving coach during regular driving, and should not normally be applied for this purpose.

This group provides service instructions for the parking brake and components. For service information on related systems such as transmission, refer to Group 16, or to other applicable groups when referenced. For information on ordering replacement parts, refer to Group 10 in the 2900R Parts Catalog.

b. Parking Brake Components. The major components of the parking brake consist of the hand-operated lever, forward actuating cable, bellcrank assembly, rear actuating cable, and the drum and shoe mechanism.

10-2. TROUBLESHOOTING

Instructions for troubleshooting the parking brake are contained in table 10-1. Prior to troubleshooting, a preliminary visual inspection to assist in locating the problem should be made as outlined in paragraph 10-4.

Table 10-1. Troubleshooting Parking Brake

Malfunction (symptoms)	Probable causes	Corrective action (remedies)
Hand lever won't travel full distance	Broken or jammed cable	Replace; refer to paragraphs 10-3b and 10-3c
	Foreign matter in linkage	Remove obstructions
	Linkage out of adjustment	Adjust; refer to paragraph 10-5a
Hand lever movement has no effect on shoes	Broken bellcrank or loose cables	Repair, tighten, or replace parts as necessary
	Worn brake shoe lining	Replace linings

Table 10-1. Troubleshooting Parking Brake (Continued)

Malfunction (symptoms)	Probable causes	Corrective action (remedies)
Brake light does not illuminate when brake lever is aft and ignition switch on	Defective bulb	Replace bulb
	Push switch out of adjustment	Adjust by removing access plate and turning mount nut until switch arm contacts lever
	Defective push switch	Replace switch; check operation of new switch

10-3. REMOVAL/INSTALLATION

a. General. Step-by-step removal and installation procedure for the parking brake components are provided in this section.

NOTE

Use a thin coat of thread-lube on all external threads during installation procedures. For access to brake hand lever lower parts, carpeting and trim must be removed just forward of lever. An access plate (four screws) is under the carpet. Reinstall carpet in position with floor covering adhesive after procedures.

b. Hand-Operated Lever Removal (fig. 10-2).

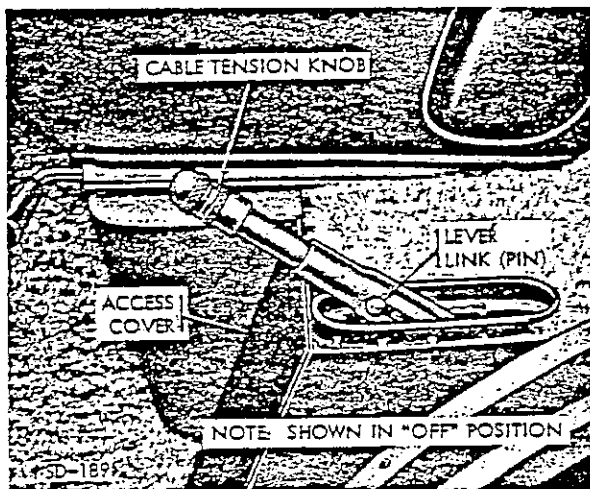


Figure 10-2. Parking Brake Hand-Operated Lever

(1) Remove access plate (four screws) just forward of brake hand lever:

(2) Remove nut, lockwasher, washer, and bolt from lower end of hand brake lever, then disconnect forward cable.

(3) Remove two bolts and lockwashers, then disconnect lever from bracket.

(4) Remove pivot bolt and lockwasher from center of lever; remove lever.

c. Hand-Operated Lever Installation.

(1) Install lever adjacent to left-hand side of driver's seat using pivot bolt and lockwasher at center of lever.

(2) Attach lever to bracket with lockwasher and bolt.

(3) Attach forward cable assembly to lever with bolt, washer, lockwasher, and nut. Check that locknut is tight against cable rod end.

(4) Adjust parking brake switch.

(5) Adjust parking brakes; refer to paragraph 10-5b.

(6) Install access cover (four screws) over brake lever lower parts.

d. Bellcrank Assembly Removal.

(1) Move hand brake lever fully forward ("off"), and turn knob completely counterclockwise to relieve all cable tension.

(2) Remove two bolts, washers, and lockwashers, then remove bellcrank assembly from chassis bracket.

(3) Remove clamp, two bolts, washers, and lockwashers from cable-to-brake drum.

(4) Remove two nuts and lockwashers to loosen U-bolt assembly over forward (large) cable.

(5) Remove pin and cotter pin from cable clevis at each end of bellcrank.

(6) Remove bellcrank assembly.

e. Bellcrank Assembly Installation.

(1) Check, and adjust, bellcrank end play of lever attaching bolt and nut; refer to step k.

(2) Install bellcrank on chassis bracket using two bolts, washers, and lockwashers.

(3) Attach each cable clevis to bellcrank with pin and cotter pin. Check that clevis locknuts are tight.

(4) On inboard side of bellcrank assembly, secure small aft cable with two bolts, washers, and lockwashers.

(5) On outboard side of bellcrank assembly, secure large forward cable U-bolt with two nuts and lockwashers.

(6) Test parking brake; refer to paragraph 10-5e.

f. Forward Cable Removal (fig. 10-1).

(1) Check that parking brake hand lever is fully forward ("off"), and that lever adjustment knob is turned fully counterclockwise to release all cable tension.

(2) Remove four screws under carpet, then remove lever access plate.

(3) Remove nut, lockwasher, washer, and bolt from lower end of hand-operated brake lever; disconnect forward cable assembly.

(4) Remove two screws and lockwashers; remove forward cable retaining plate.

(5) Remove or loosen each support clamp self-tapping screws on forward curve of cable, and balance of cable. Cut and remove securing harness straps.

(6) Remove cotter pin and pivot pin from bellcrank assembly; disengage cable.

(7) Loosen nuts on U-bolts then pull out cable.

(8) Remove forward cable assembly by pulling rearward from surrounding tube conduit.

g. Forward Cable Installation (fig. 10-1).

(1) Check that parking brake hand-operated lever is fully forward ("off"), and that lever adjustment knob is turned fully counterclockwise to release all cable tension.

(2) Remove cable rod end, then push cable forward through tube conduit under coach into area below hand lever.

(3) Install rod end on cable and secure with locknut.

(4) Connect cable rod end to lever with bolt, washer, lockwasher, and nut.

(5) Install new harness strap(s) as necessary, and install or tighten removed support clamps with one self-tapping screw each.

(6) Push cable through U-bolt on bellcrank assembly; adjust clevis on end to remove as much cable slack as possible, then tighten clevis nut.

NOTE

To remove all slack, it may also be necessary to adjust rod end on forward end of cable.

(7) Attach clevis to bellcrank with pin and cotter pin, then tighten U-bolt on cable by tightening two nuts.

(8) Adjust parking brakes; refer to paragraph 10-5b.

(9) Install access cover using four screws, then install carpet over brake hand lever.

h. Aft Cable Removal.

(1) Check that parking brake hand lever is fully forward ("off"), and that lever adjustment knob is turned fully counterclockwise to release all cable tension.

(2) Remove two bolts, washers, and lockwashers, then remove aft cable clamp from bellcrank assembly.

(3) Remove cotter pin and pin, then remove aft cable clevis from bellcrank.

(4) Loosen nut on cable guide clamp.

(5) Remove four screws and access cover over brake adjusting nut.

(6) Disengage cable end from brake operating lever, then remove cable.

1. Aft Cable Installation (fig. 10-2).

(1) Check that parking brake hand lever is fully forward ("off"), and that lever adjustment knob is turned fully counterclockwise to release all cable tension.

(2) Insert aft cable ball end in cable guide and engage ball in shoe operating lever in drum. It may be necessary to move cable adjusting nuts to adjust cable length with brake shoes in the released position.

(3) Tighten nut on cable guide clamp.

(4) Adjust cable clevis for as little cable slack as possible when it is installed, then tighten clevis nut.

(5) Attach cable clevis to bellcrank with pin and cotter pin.

(6) Secure cable to bellcrank assembly with two bolts, washers, and lockwashers.

(7) Adjust parking brakes; refer to paragraph 10-5b.

j. Lever Removal.

(1) With cables disconnected according to steps f and h, remove nut on lever-attaching bolt; remove bolt, two 1/2 inch washers, five 3/4 inch washers, and spacer tube.

(2) Remove bellcrank lever.

k. Bellcrank Lever Installation.

(1) Insert spacer in lever pivot hole. Install one 1/2 inch washer and one 3/4 inch washer on bolt head end, then insert bolt through spacer previously inserted into lever.

(2) Install four 3/4 inch washers over spacer. Insert bolt through bellcrank channel mount bracket hole. Install one 1/2 inch washer and nut. Tighten nut to obtain 0.01 to 0.10 inch clearance between washer and channel mount bracket surface. Check with feeler gauge.

(3) Install cables; refer to steps g and i.

10-4. INSPECTION/CLEANING

a. General. This section provides information necessary for inspection and cleaning of the parking brake components.

b. Brake Component Inspection. Inspect parking brake components according to table 10-2.

c. Cleaning. A bristle brush, brass wire brush, or cloth may be used on external parts. The bellcrank assembly may be cleaned with pressurized air or water, as necessary.

Table 10-2. Parking Brake Component Inspection

Component	Inspect for	Method	Corrective action
Hardware securing lever, cables, and bellcrank	Damage or looseness	Visual and manual	Tighten if loose. Replace if unserviceable
Adjusting nuts and clevis nuts	Damage, looseness, or bad threads	Visual and manual	Tighten if loose. Replace if unserviceable
Brake drum and shoe mounting plate	Damage	Visual	If unserviceable, replace; refer to Group 16
Hand-operated lever	Damage and binding	Visual and manual	Repair; loosen tight parts; lubricate with lubriplate
	Check brake hand lever pin position in slot		If pin is at top of slot, parking brakes should be adjusted; refer to paragraph 10-5b.

10-5. GENERAL INFORMATION

a. Hand-Operated Lever Adjustment (fig. 10-1).
To adjust the hand-operated lever, turn the adjusting knob counterclockwise to release tension on the parking brake cable, and clockwise to increase tension on the cable. The cable tension determines the distance from the brake shoe to the brake drum. The brakes should be full "on" as the lever passes over center position, and the lever should hold brakes full "on" while in the rearward position. To test parking brakes, refer to paragraph 10-5e. If the hand-operated lever linkage pin is near the top of the slot, the brakes should be adjusted according to the following procedure.

b. Parking Brake Adjustment (fig. 10-3). To adjust the parking brake, proceed as follows:

(1) Set coach hand brake lever to the "off" position, turn adjustment knob fully counterclockwise to release all cable tension.

(2) Disconnect rear end of propeller shaft at the brake drum by removing four bolts attaching yoke to propeller shaft.

(3) On transmission side of parking brake drum, remove four screws and access cover over adjusting nut.

(4) Turn brake shoe adjusting nut until drum is felt to have a slight drag. Turn nut back at least one full notch.

NOTE

Spanner wrench C-3014 (Chrysler) or equal, may be used to turn brake adjusting nut.

(5) At cable guide, loosen clamp bolt, set cable nuts so gap from outer face of operating lever to the closest surface of cable ball is 0.005 to 0.010 inch. Tighten cable clamp bolt and adjusting nuts.

(6) Install access cover over adjusting nut, using four screws.

(7) Set adjusting nuts to remove all slack from brake cable and to secure nuts in position at brake cable guide on brake drum assembly.

(8) Disengage each cable clevis from bell-crank lever, then remove all cable slack; reconnect clevis.

NOTE

To remove all slack, it may also be necessary to also adjust rod end on forward end of cable.

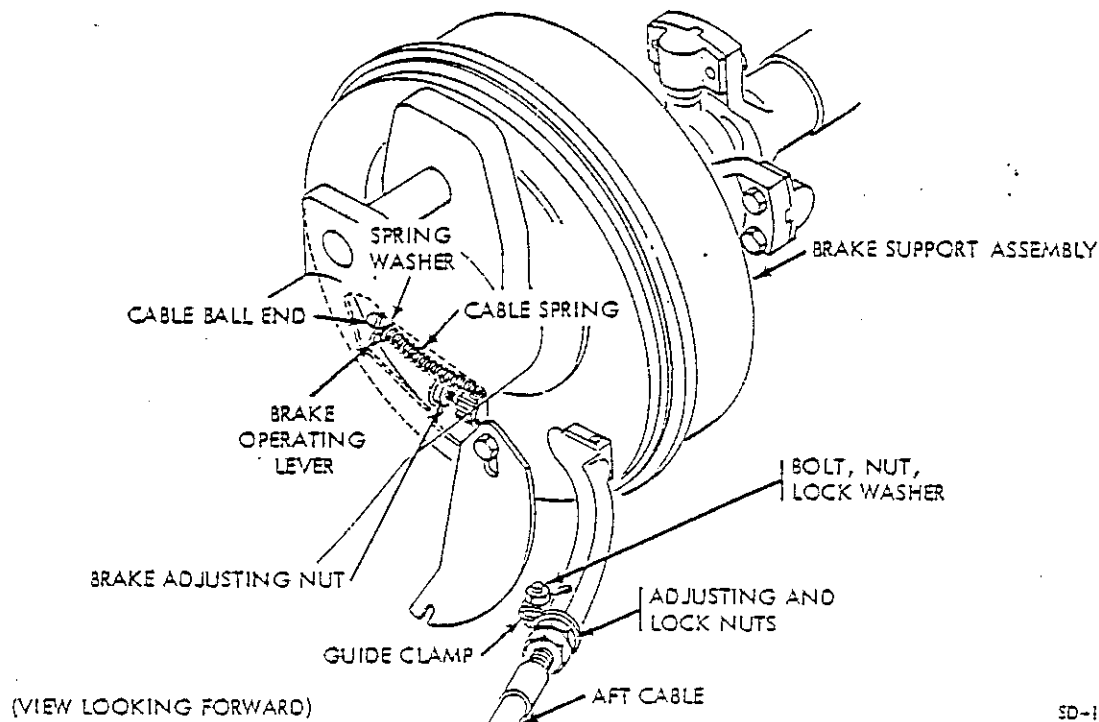


Figure 10-3. Parking Brake Adjustment

(9) Turn adjusting knob on hand-operated lever clockwise to increase cable tension so brake is "on" as lever is pulled aft past center position. Lever will remain in "on" position because of the over-center hold feature of lever.

(10) Readjust brake lever knob so brake releases when in the "off" position (lever forward).

(11) Connect propeller shaft to yoke on brake drum with four nuts; refer to Group 17.

(12) Check out parking brake system; refer to paragraph 10-5e.

c. Parking Brake Data. Parking brake data is provided in table 10-3.

d. Torque Requirements. Torque requirements for the attaching hardware in the parking brake are provided in table 10-4.

NOTE

Standard torque values apply unless otherwise specified in the installation procedures.

e. Parking Brake Checkout. To check out the parking brake, proceed as follows:

(1) If problems are indicated, inspect parking brake according to table 10-2.

(2) Start engine and set transmission selector to range "1".

(3) Move parking brake hand-operated lever to full "on" position (rearward) several times, then leave it "on".

(4) Slowly accelerate engine. Coach should not move forward. If coach moves forward, immediately release accelerator pedal, stop engine, and adjust parking brake control system according to paragraph 10-5d.

NOTE

For this procedure in confined areas, rear wheels may be jacked free to floor, and their motion checked instead of moving coach. Block front wheels against movement in both directions.

Table 10-3. Parking Brake Data

Item	Data
Control cable	Plastic and steel coil sheathed multi-strand
Shoe type	Internal expanding
Drum mount location	On transmission extension
Control lever location	To left of driver's seat
Drum material	Cast iron
Drum diameter	7 inches
Shoe lining material	Woven asbestos fabric
Shoe width	2 inches
Shoe length	6.53 inches each; 13.06 inches total

Table 10-4. Torque Requirements

Hand-lever to chassis	Bolt (3)	20	5/16-24
Bellcrank	Bolt to chassis	20	5/16-18
	U-bolt	10	1/4-20
	Cable clamp	20	5/16-24
	Clevis nut	20	5/16-24
Cable clamp	Nut	10	1/4-28
Propeller shaft to brake drum	Nut	20	5/16-24
		25	7/16-20
		35	3/8-24