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SERVICE INFORMATION LETTER

SERVICE INFORMATION LETTER (SIL) 0080
Revision 2

DATE: March 28, 2025

1. SUBJECT: Clutch Control and Belt Tension Inspection and Rigging Procedure

2. MODEL: F-28A, 280, F-28C, F-28C-2, F-28C-2R, and 280C

3. EFFECTIVITY: All Serial Numbers

4. BACKGROUND:

This Service Information Letter (SIL) provides the procedures for performing clutch control and belt tensioning mechanism inspections and system rigging.

This SIL revision clarifies previously published procedures and illustrations, includes new adjustment and component replacement procedures, and adds Paragraphs 7-12 for completeness. In addition, the model list was revised: a F-28C model variant was added and the F-28F and 280F models were removed. (Content contained in this SIL revision is contained in the F-28F/280F Series Maintenance Manual.)

SIL 0080 Revision 2 supersedes all previous SIL 0080 issues.

5. COMPLIANCE

It is recommended that a static inspection be performed in accordance with Paragraph 6, A at all subsequent 100-hour inspections. This inspection should be carried out in full when replacing any component in the clutch engagement system. Rigging adjustments are accomplished in accordance with Paragraph 6, B.

6. PROCEDURES

This inspection allows the operator or maintenance personnel to determine if the drive belt tension, the belt tension mechanism, the actuator, and the clutch lever are rigged correctly and in the proper operating position.

NOTE: The following inspection is performed with the engine off.

WARNING: Extreme caution should be used when belt tension mechanism is in engaged position. Keep hands away from this mechanism when engaging or disengaging clutch, or personal injury could occur.

A. Static Inspection

1. Pull clutch handle up a couple of inches and SLOWLY return lever to CLUTCH DISENGAGED position (Fig. 1, Detail d).

   NOTE: The clutch lever must be placed in the disengaged position gently (and the guide bushings must be snug enough) so that momentum will not continue movement of the bellcrank and give a false indication of the 1/16 to 1/8 inch/1.6-3.3 mm gap.

   a. The threaded shaft (6) should be within 1/16 to 1/8 inch/1.6-3.3 mm of the lower pivot spacer of bellcrank (2) (Fig. 2, Detail a).

      1 If measurement is outside the limits, adjust spring capsule clearance (Para. 6, B, 4).

   b. Verify guide bushings (8) are snug on bracket (9) (Fig. 4 and Fig. 3, Detail c).

      1 If the guide bushings are not snug on the brackets, adjust clutch capsule slide connection (Para. 6, B, 3).

2. ENGAGE clutch and STOW clutch lever (Fig. 1, Detail a).

   a. The clutch lever should lie flat on the floor (Fig. 1, Detail a). Movement of the handle should have no effect on the bellcrank (Fig. 1, Detail e and Detail f).

   b. Use the shank of a 1/8 drill bit or a #30 drill bit to verify that there is approximately 0.125-inch (3.2 mm) space between the clutch lever and the spacer in the bellcrank (Fig. 1, Detail e).

      1 If the clearance between the handle and the spacer is not correct (Fig. 1, Detail f) the clutch system will require rigging (Para. 6, B).

   c. Viewing the belt tension mechanism, check that the overcenter stop (8) is tightly against side plates (9) (Fig. 3, Detail b) and the clutch engage warning light is out.

   d. Viewing the top of the spring capsule, inspect for wear between the adapter (3) and the bushing (5) (Fig. 5 and Fig. 6). It may help to push the top of the capsule inboard while watching for movement between the adapter and the bushing.

      1 If bushing is loose, replace the bushing (Para. 6, C).

   e. View spring capsule adapter (6) (Fig. 3).

      1 The proper extension of adapter (6) is 1-5/8 to 1-3/4 inches/41.3-44.5 mm from top of spring capsule assembly to bottom of adapter nut (Fig. 3, Detail d).

         a If the adapter extension is not correct, adjust the extension (Para. 6, B, 5, c).

NOTE: Adjusting the adapter extension will require rigging and snubber roller checks.

NOTE: Rigging between clutch control handle and the belt tension mechanism will usually remain constant unless some portion of this system is removed or replaced.

2 The bellcrank should be horizontal to slightly below horizontal (Fig. 3, Detail e).

f. Inspect for contact between the anchor (14) (Fig. 6) and the pylon tube.

1 If contact is evident, chamfer the anchor. (Chamfer limit = 0.050 in/1.3 mm maximum)

g. Check clearance between the snubber roller and the back side of the belt and parallelism to the belt.

1 Refer to SIL 0152, latest revision (Para. 5.1, B).

2 Inspect the snubber roller for wear (grooves). Wear of the snubber roller from the belt indicates contact from the belt during operation and that the gap between the belt and the roller is not sufficient.

B. Rigging Procedures

WARNING: Extreme caution should be used when belt tension mechanism is in engaged position. Keep hands away from this mechanism when engaging or disengaging clutch, or personal injury could occur.

NOTE: Para. 6, B, 5, Belt Tension Adjustment, will have to be re-checked after belt replacement or drive system disassembly to assure proper belt tension and rigging.

NOTE: The clutch is rigged in the following steps. Rigging is to be completed in the sequence listed, with the engine off.

1. Preliminary Clutch Lever Adjustment

NOTE: The clutch lever must be placed in the disengaged position gently (and the guide bushings must be snug enough) so that momentum will not continue movement of the bellcrank and give a false indication of the 1/16 to 1/8 inch/1.6-3.3 mm gap.

a. Place clutch lever in ENGAGED position (Fig. 1, Detail b). With clutch engaged, lift and release clutch lever to stowed position (Fig. 1, Detail a). Adjust turnbuckle (3) (Fig. 1, Detail g) until the clutch lever will lie flat on floor and that there is approximately 0.125 inch/3.2 mm clearance between the handle and the spacer (Fig. 1, Detail e).

2. Preliminary Belt Tension Mechanism Check

   a. Check the following items before proceeding with clutch rigging.

      1 Clutch cable is to have one thread exposed above jam nut (11) (Fig. 3).

      2 Engage the clutch lever (Fig. 1, Detail b). Check that belt tension assembly is locked over center with stops (8) contacting side plates (9) and the clutch engage warning light is out (Fig. 3, Detail b).

      3 Disengage the clutch (Fig. 1, Detail d).

3. Spring Capsule Slide Connection Adjustment

   1 With the clutch disengaged, remove the bolt (18) securing the clutch cable (15) to the clutch actuator bellcrank (13) (Fig. 3).

   2 Pull clutch handle up 2 inches/50 mm to move the cable out of the way at the clutch capsule.

   3 Loosen the torque on nuts (7) that secure the capsule assembly (6) into the guide brackets (9) so that the nylon guides (8) are loose (Fig. 4).

   4 Connect a fish scale to the bellcrank (2) assembly and measure the force required to start the bellcrank moving (Fig. 2, Detail b).

   5 Incrementally re-tighten the nuts securing the capsule to the brackets until the force required to move the bellcrank is the original scale reading plus 3 lb/1.4 kg.

   6 Connect the clutch cable rod end (10) to the bellcrank (13) and torque nut to 30-40 in-lb/3.4-4.5 Nm (Fig. 3, Detail a).

4. Spring Capsule Clearance Adjustment

   NOTE: Adjust spring capsule clearance with clutch disengaged.

   a. Loosen jam nut (5) and turn adapter (4) (Fig. 2) in or out of spring capsule to obtain 1/16 to 1/8 inch/1.6-3.3 mm clearance between threaded shaft and lower pivot spacer of bellcrank (2) (Fig. 2, Detail a).

      NOTE: After each adjustment of the adapter, the clutch handle must be pulled up a few inches and SLOWLY returned to the full down position.

   b. Re-check clearance after engaging and disengaging clutch.

   c. Lock jam nut (5) against adapter (4).

5. Belt Tension Adjustment

a. ENGAGE the clutch.

b. Measure the exposed surface of the adapter (6) (Fig. 3, Detail d).

NOTE: Ensure measurement is taken from the bottom of the adapter nut (4), NOT the jam nut (5) on top of adapter nut (4) (Fig. 3, Detail d).

c. The length of the exposed adapter (6) should be 1-5/8 to 1-3/4 inches/41.3-44.5 mm (Fig. 3, Detail d). If length is not correct, proceed as follows:

1 Loosen jam nut (5) (Fig. 3).

2 DISENGAGE clutch.

3 Disconnect rod end (1) from bellcrank (2).

4 Adjust shaft (3) in or out of yoke (4). Each turn of shaft (3) will change the exposed section of the adapter (6) by approximately 0.1 inch/2.4 mm.

5 Connect rod end (1) to bellcrank (2) and ENGAGE clutch to recheck adjustment of adapter (6).

6 Continue the adjustment process until the exposed surface of the adapter (6) is 1-5/8 to 1-3/4 inches/41.3-44.5 mm.

d. Continue to check the following with clutch ENGAGED:

1 The top edge of bellcrank (2) should be horizontal to below horizontal to the lower aft pylon cross tube (Fig. 3, Detail e).

2 The snubber roller should be parallel to the back side of the belt with 0.38 inch/9.5 mm clearance.

NOTE: After final adjustment of the idler pulley track, loosen the aft nut on the "snubber" roller and allow the roller to self-align on the idler straps. Torque the aft nut to 95-110 in-lb/10.8-12.5 Nm.

e. Connect rod end (1) to bellcrank (2). Torque nut (30-40 in-lb/3.4-4.5 Nm).

f. Secure yoke jam nut (5) against yoke (4) (40-45 in-lb/4.5-5.1 Nm).

g. Apply Vibra-Tite VC-3 to the following:

1 Spring capsule adapter (6) jam nuts.

2 Yoke jam nut (5).

3 Clutch cable rod end jam nut (12).

6. Final Clutch Lever Adjustment

a. With the clutch engaged and clutch lever in stowed position, the clutch lever should lie flat on the floor (Fig. 1, Detail a). Movement of the handle should have no effect on the bellcrank (Fig. 1, Detail e and Detail f).

b. Use the shank of a 1/8 drill bit or a #30 drill bit to verify that there is approximately 0.125-inch (3.2 mm) space between the clutch lever and the spacer in the bellcrank (Fig. 1, Detail e).

c. Check that the nuts on the turnbuckles and all other check nuts in the system are torqued.

d. Check that the clutch is over center with the stops contacting the side plates (Fig. 3, Detail b) and that the clutch light is out.

C. Replacement – Spring Capsule Bushing

1. Spring Capsule Disassembly and Assembly

NOTE: The bushing (5) (Fig. 6) in the top of the spring capsule is a normal wear item. If the bushing is allowed to wear through the Teflon coating it will damage the adapter (3) requiring replacement of both the bushing and adapter.

NOTE: This procedure is written with the belt tension assembly installed.

NOTE: Ensure that the belt clutch is disengaged.

a. Remove the left side cowling.

b. Remove hardware (24), (25), (26), and (27) (Fig. 4) connecting the spring capsule rod end (1) (Fig. 6) to the bellcrank (28) (Fig. 4).

c. Remove screws (12) and washers (11) from the spring housing (13) (Fig. 6).

d. Withdraw spring assembly (1) through (10) from spring housing (13).

e. Remove the cotter pin through the rod end bearing (1) and loosen the two check nuts (2).

f. Insert a flat screwdriver blade into the bottom end cap (8) to prevent nut (10) from turning and remove rod end (1) and the two check nuts (2) from the shaft (7).

g. Measure the length of the exposed threads on rod (7) for reassembly.

h. Remove adapter (3).

i. Press the bushing (5) from the top of end cap (4).

j. Insert a new 07DU08 bushing (5) into the top of end cap (4).

k. Measure the adapter (3) to verify that it is within limits:

1) O.D: 0.4360-0.4370 in; Serviceable limit: -0.020 in.

l. Install the adapter (3) and set it back to the same measurement obtained in step (g).

m. Insert the two check nuts (2).

n. Install the rod end (1). Line up the cotter pin hole and install the cotter pin.

o. Apply grease (MIL-PRF-81322) liberally to the spring (6).

p. Insert the spring assembly (1) through (10) back into the spring housing (13).

q. Install the screws (12) and washers (11). Torque screws (20-25 in-lb/2.3-2.8 Nm).

r. Safety wire the screws as a set of three around the outboard edge of the capsule. Do not run the safety wire around the inboard side of the capsule as the safety wire will contact the pylon when the clutch is engaged.

s. Install spring capsule rod end attachment hardware (24) through (27) (Fig. 4). Torque nut (27) (50-70 in-lb/5.6-7.9 Nm) and install cotter pin (27).

t. Verify that the clutch adjustment is correct (Para. 6, A).

u. Torque jam nuts (2) (30-40 in-lb/4.3-4.5 Nm).

v. Install cowling.

7. PARTS: None

8. SPECIAL TOOLS: N/A

9. MAN-HOURS: N/A

10. WARRANTY: N/A

11. LOG BOOK ENTRY: As required for maintenance actions

12. REPETITIVE ACTION:

Perform the clutch control and belt tension static inspection (Para. 6, A) during every 100 hour/annual inspection.

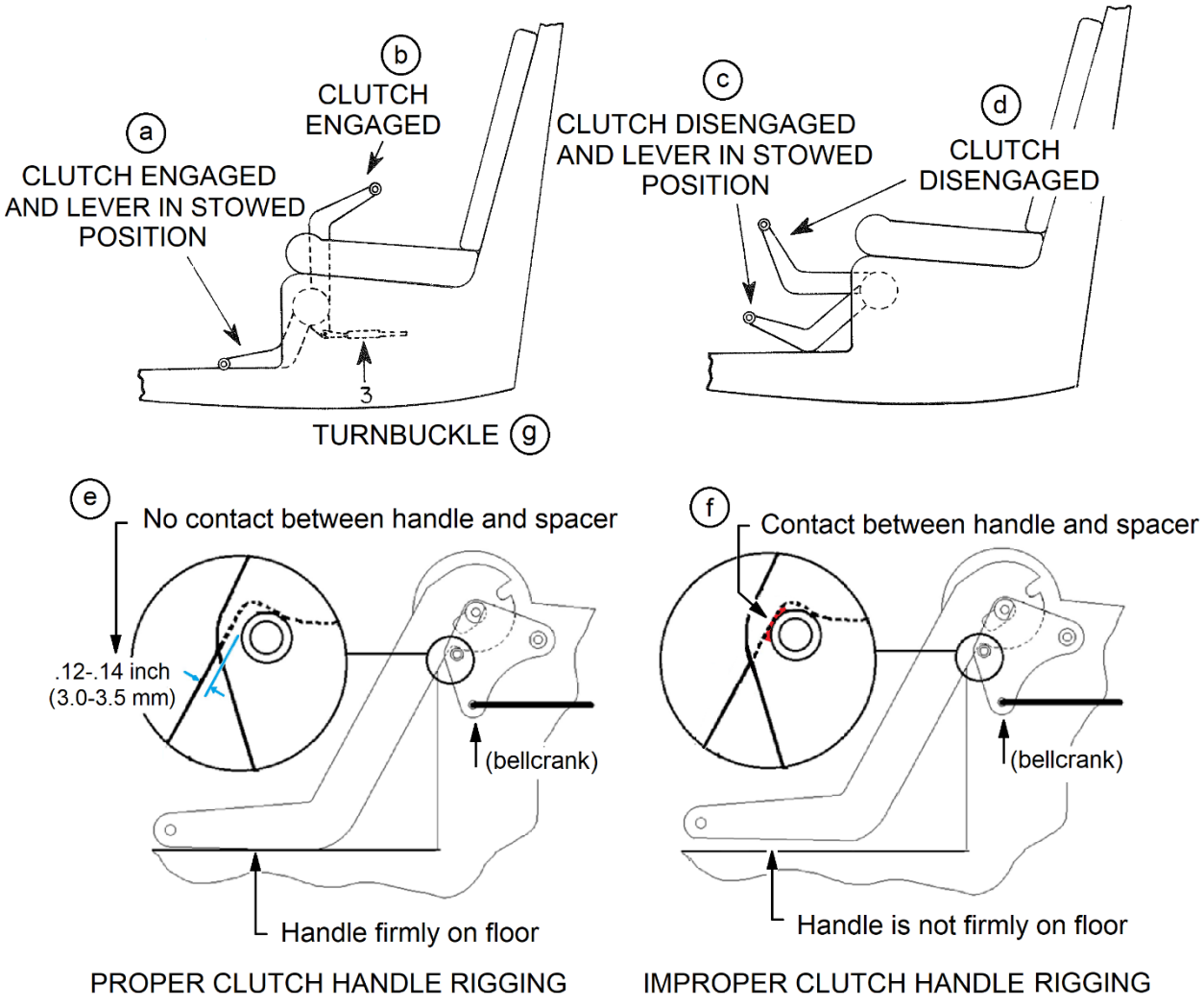
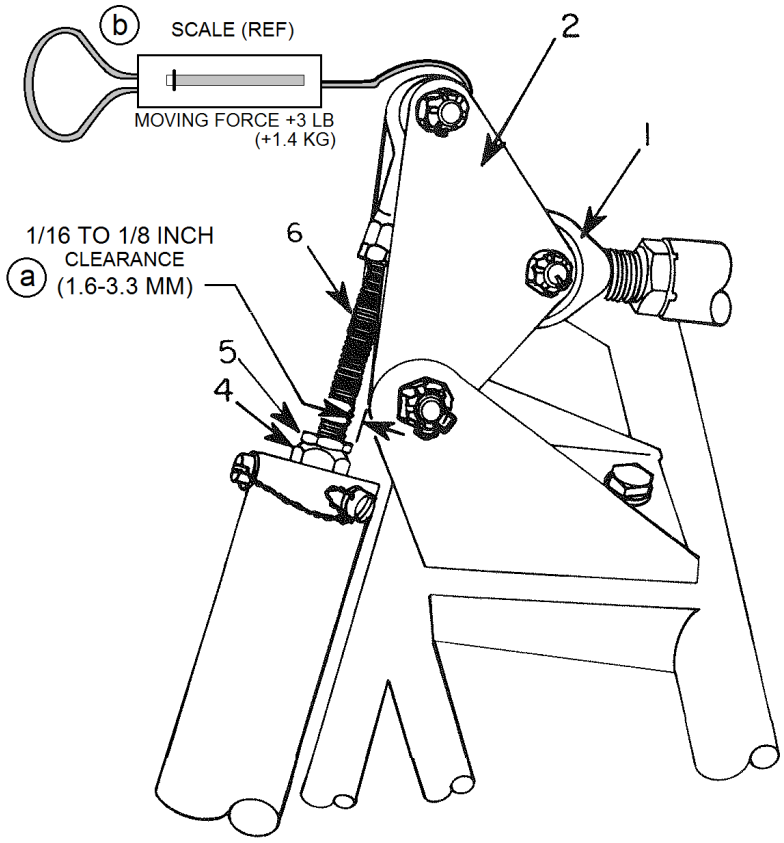


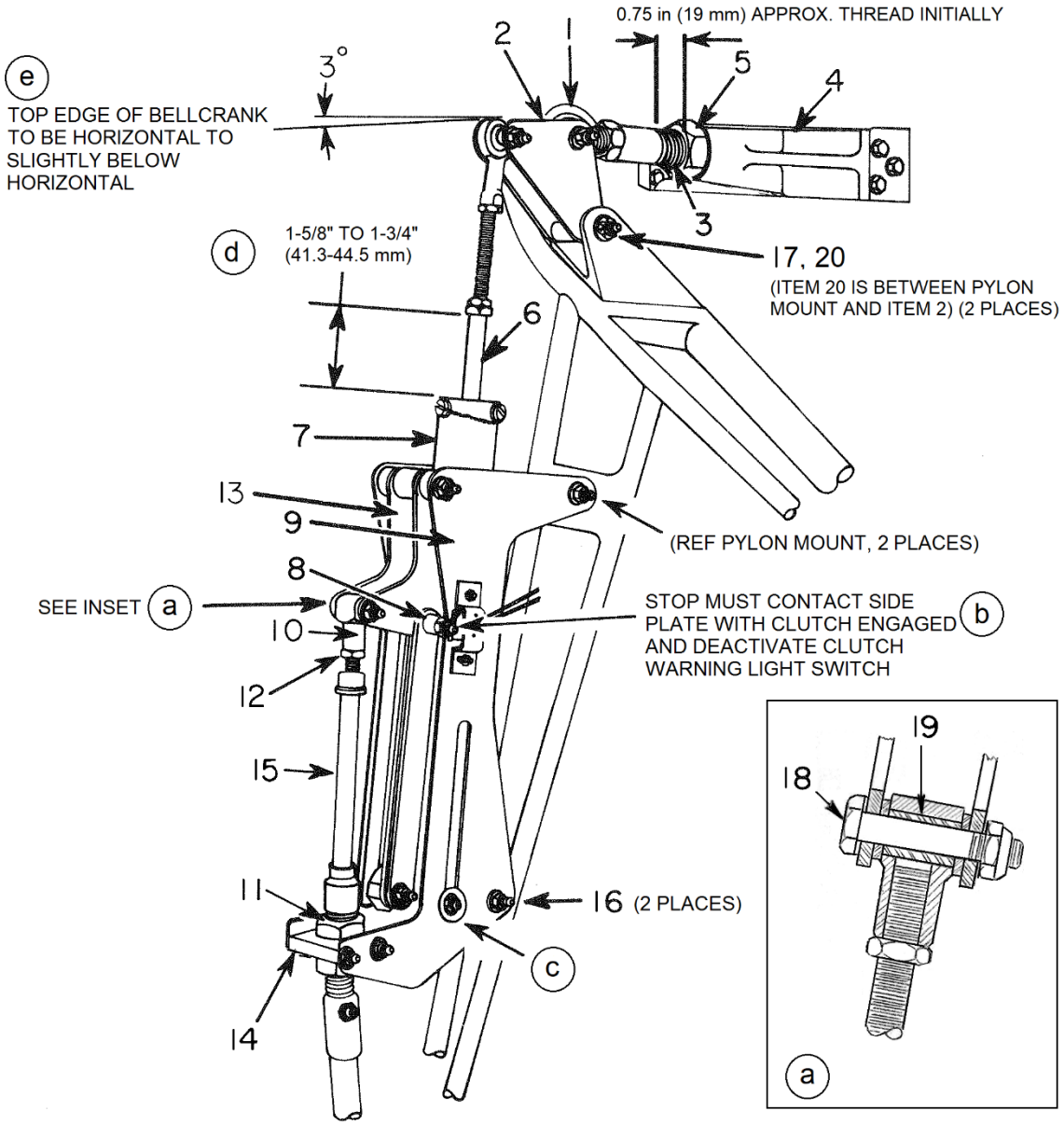
Figure 1. Clutch Control Static Inspection



(Clutch Disengaged)

1. Rod End
2. Bellcrank
3. (See Figure 1, Detail g)
4. Spring Capsule Adapter
5. Jam Nut (2 places)
6. Shaft

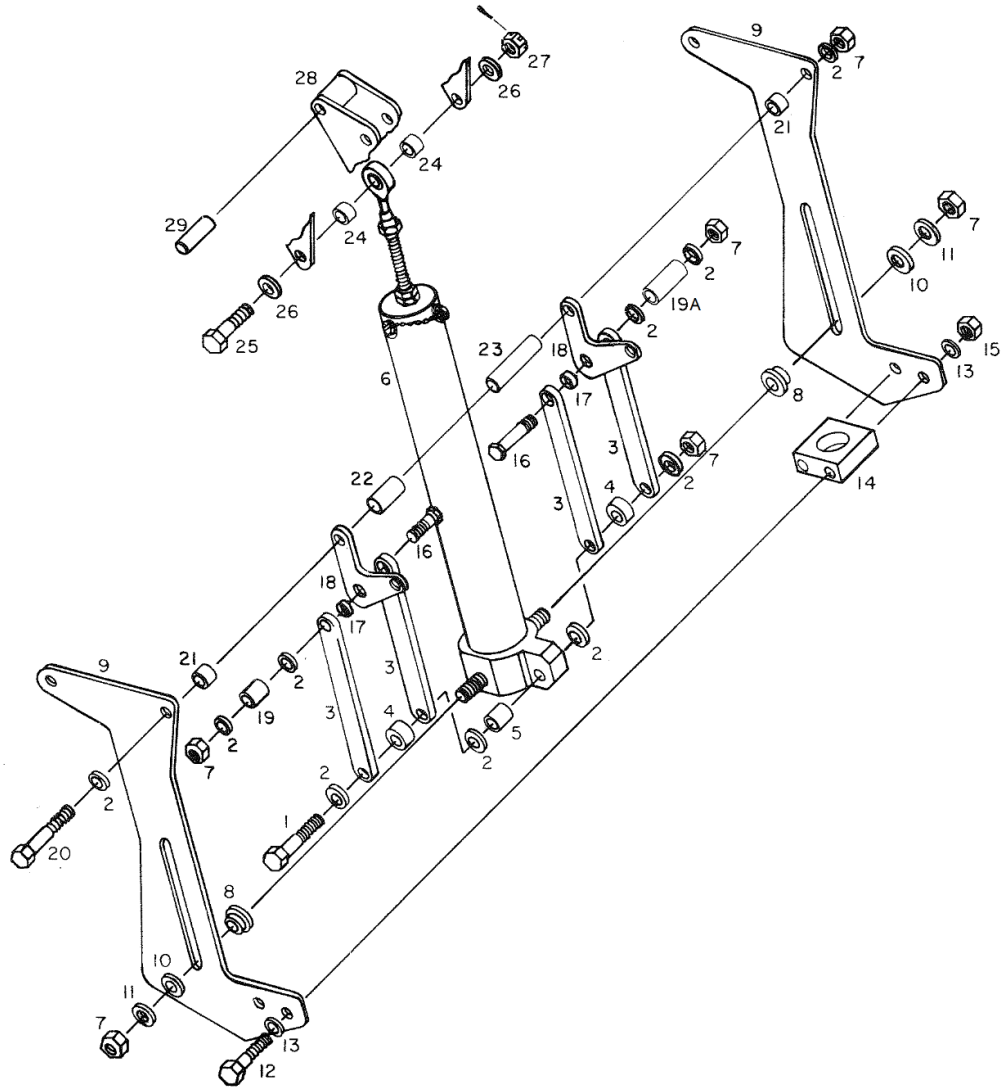
Figure 2. Clutch Control Rigging – Spring Capsule Adjustments



(Clutch Engaged)

1.	Rod End Bearing	11.	Jam Nut
2.	Bellcrank	12.	Jam Nut
3.	Shaft	13.	Bellcrank
4.	Yoke	14.	Mount Block
5.	Nut	15.	Cable
6.	Adapter	16.	Bolt (far side)
7.	Spring Capsule Assembly	17.	Bolt (far side)
8.	Belt Tension Assembly Stop	18.	Bolt
9.	Bracket (side plate)	19.	Spacer
10.	Rod End	20.	Flanged Bushing

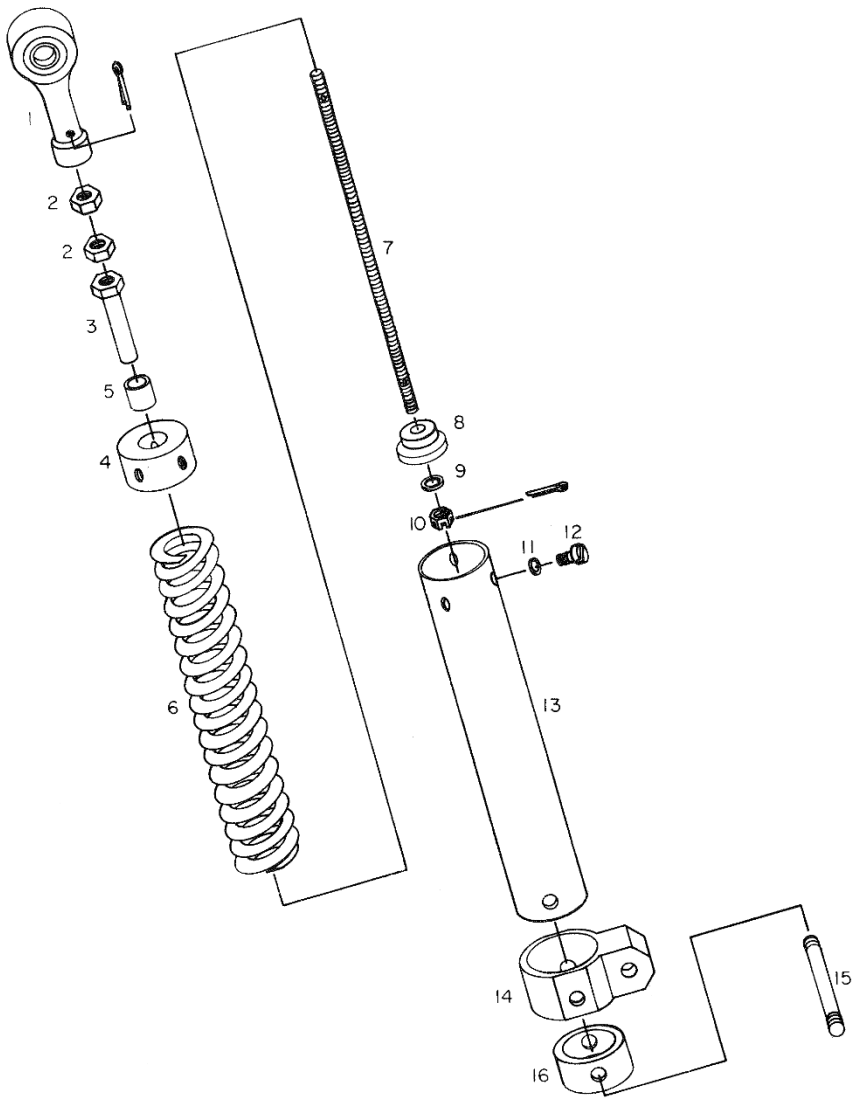
Figure 3. Clutch Rigging – Belt Tension Assembly Adjustment



1.	Bolt	11.	Washer	20.	Bolt
2.	Washer	12.	Bolt	21.	Spacer
3.	Strap	13.	Washer	22.	Spacer
4.	Spacer	14.	Mount Block	23.	Spacer
5.	Spacer	15.	Nut	24.	Spacer
6.	Spring Capsule Assembly	16.	Bolt	25.	Bolt
7.	Nut	17.	Spacer	26.	Washer
8.	Nylon Guide	18.	Bellcrank Side	27.	Nut
9.	Bracket	19.	Spacer	28.	Bellcrank Assembly
10.	Nylon Washer	19A.	Spacer	29.	Spacer

Figure 4. Belt Tension Assembly

Figure 5. Spring Capsule Wear Inspection Area



1.	Rod End	9.	Washer
2.	Jam Nut	10.	Nut
3.	Adapter	11.	Washer
4.	End Cap	12.	Screw
5.	Bushing	13.	Spring Housing
6.	Spring	14.	Anchor
7.	Shaft	15.	Shaft
8.	Cap	16.	Retainer

Figure 6. Spring Capsule Assembly