SQUARE-D COMPANY SMYRNA, TN	ENGINEERING STANDARD	A46011-014
SUBJECT 15KV FVBA BREAKER ADJUSTMENTS		PAGE 1 OF 8

These instructions define the adjustments to be made on 15KV FVB breakers at final assembly, after the breaker has been cycled 50 close-open cycles.

Adjustments should be made in the following sequence. Some steps may have to be repeated to obtain correct settings.

1. **OPEN PLUNGER FREE PLAY** (SEE FIGURE 1)

Open plunger free play is the gap between the opening plunger and the trip arm roller. With the breaker open and the drive springs charged, set open plunger free play to 1/8" + 1/32" -0. To adjust, rotate the eccentric stop. This setting effects both mechanical trip sensitivity and minimum tripping voltage, and may require readjustment during the electrical operations test to meet minimum tripping voltage requirements. (Over adjustment may allow sufficient open plunger free play; however there is a possibility of the trip cam becoming overly sensitive and causing nuisance tripping).

2. **LATCH CHECK SWITCH** (SEE FIGURE 2)

The latch check switches prevents the closing solenoid from operating unless the trip cam is in the normal operating position. With the trip cam in the normal operating position, set the clearance between the latch check pushrod and the contact block to 1/32" + 1/32" - 0. To confirm proper operation, lift the trip lever and apply an electrical close command. The breaker should not close. While maintaining an electrical close command, release the trip lever. The breaker should close.

3. **TOGGLE BEARING CLEARANCE** (SEE FIGURE 3)

With the breaker in the open position and the drive springs charged, set the clearance between the toggle bearing and the opening cam to 1/32" + 1/32" - 0". If necessary adjust by rotating the toggle sub-assembly retainer nut.

4. **BIAS SPRING OVERTRAVEL ADJUSTMENT** (SEE FIGURE 4)

With the breaker closed and the drive springs fully charged, set the bias spring overtravel to 3/16" ± 1/32". The bias spring overtravel is adjusted by means of the 1/2 - 13 nuts on the top of the pushrods.

5. **PRIMARY CONTACT GAP** (SEE FIGURE 5)

Set the primary contact gap to .400" ± .03" inches with the breaker in the open position. Primary contact gap is the difference of the measurements between the front interrupter support and the bottle flex block with the breaker in the closed and open positions. Adjustment is performed by loosening the 5/8" hex nut at the top of each return spring shaft, and rotating the return spring stops evenly; clockwise to decrease primary contact gap and counter clockwise to increase primary contact gap. Tighten the 5/8" hex nuts after adjustment. Adjustment is made with the breaker in the closed position. Do **not** put fingers under return spring stops.

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6. **AUXILIARY SWITCH LINKAGE** (SEE FIGURE 6)

Set the auxiliary switch linkage such that the travel from an imaginary horizontal centerline through the auxiliary switch shaft is equal in both the open and closed positions of the breaker. Adjustment is performed by loosening the locknuts on the linkage and rotating the linkage shaft to obtain the desired travel. Tighten the locknuts after adjustment. Both the lower and the upper auxiliary switch, when it is called for, are adjusted the same way.

7. SHOCK ABSORBER SETTING

The FVBA circuit breaker incorporates an adjustable orificed hydraulic shock absorber. The shock absorber is required to dissipate some operating mechanism energy before the mechanical stops impact during the opening operation. Dissipating this energy helps control the vacuum interrupter total travel. The correct preliminary setting is #2.

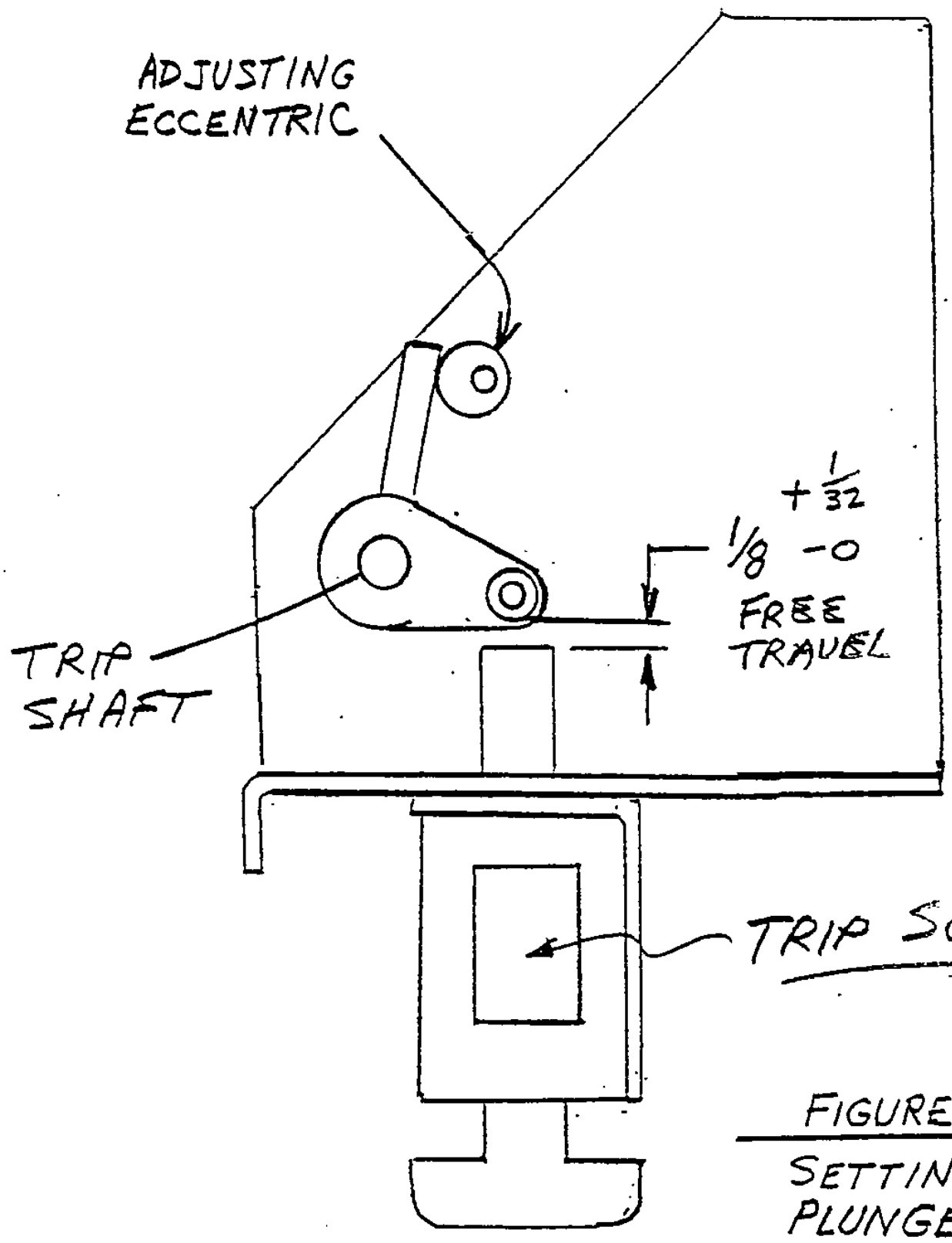

FIGURE 1

SETTING OPEN PLUNGER FREE PLAY

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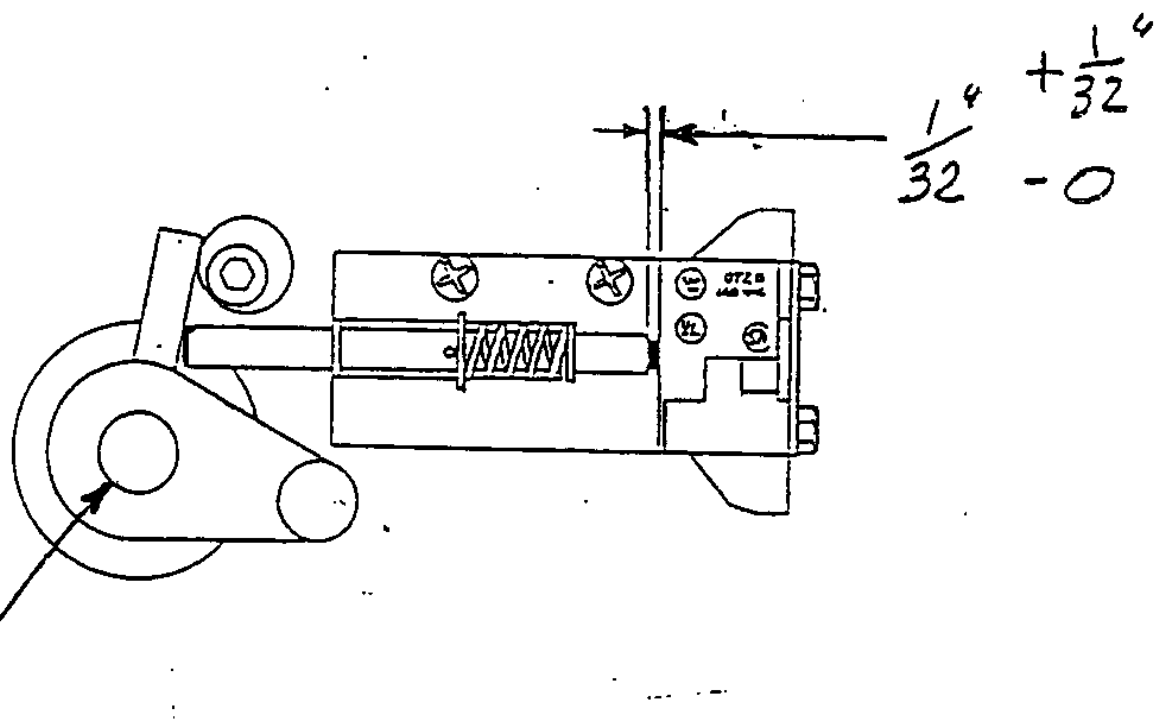
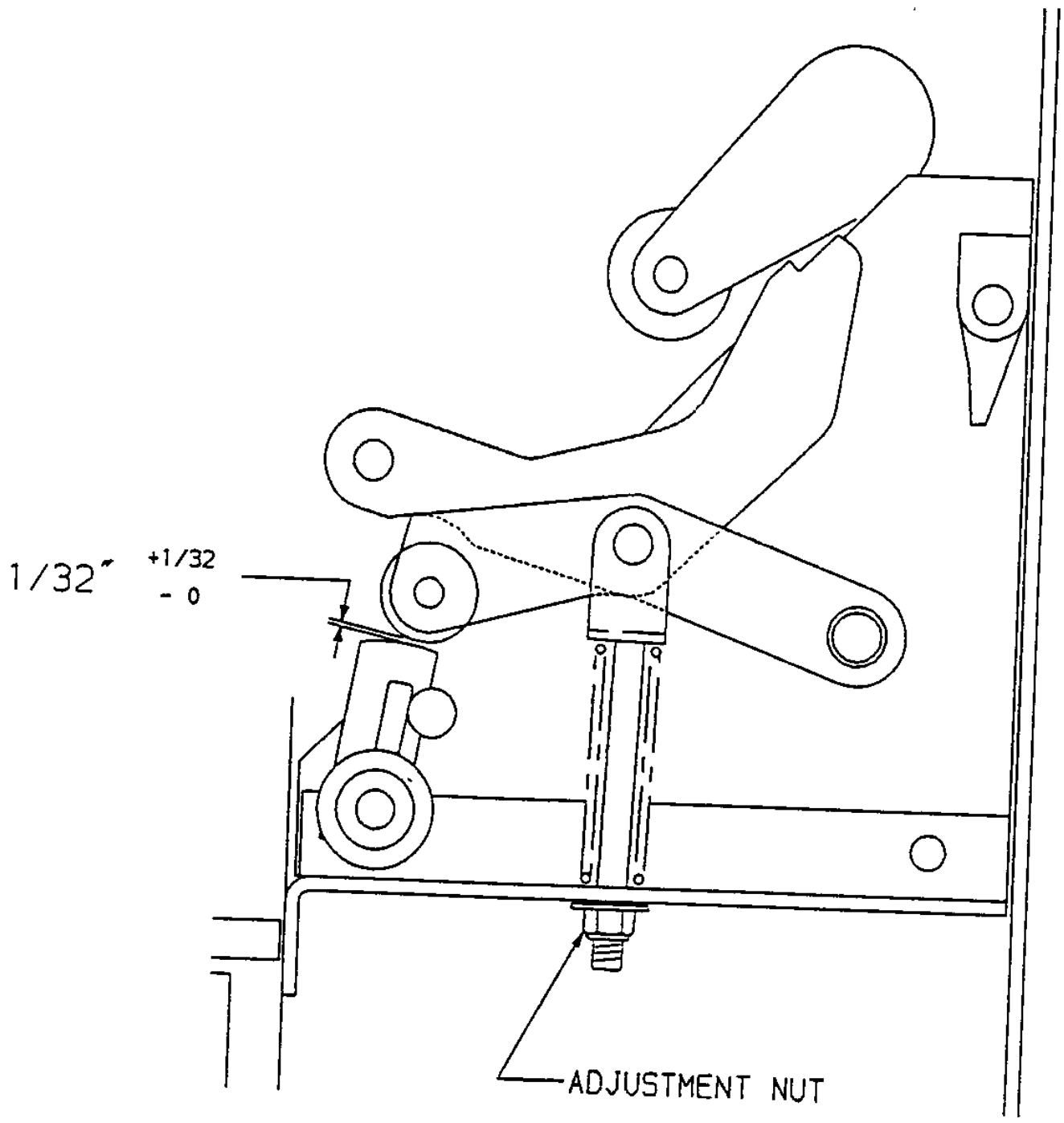


MAKE SETTING WITH
BREAKER OPEN,
CLOSING SPRINGS CHARGED

FIGURE 2

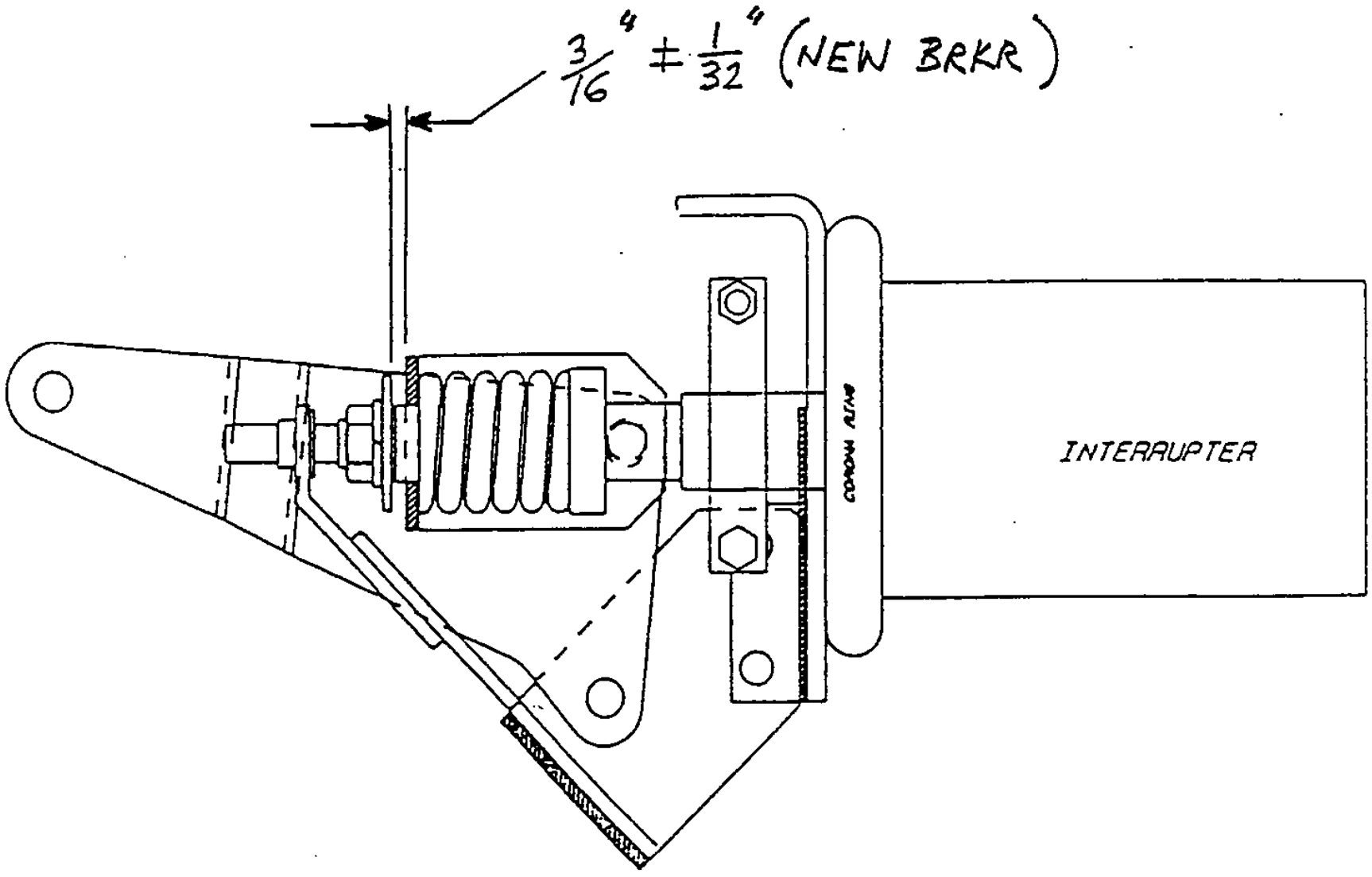
SETTING LATCH
CHECK SWITCH
PLUNGER HEIGHT



MAKE SETTING WITH BREAKER OPEN, CLOSING SPRINGS CHARGED

FIGURE 3
SETTING TOGGLE BEARING CLEARANCE

SQUARE D COMPANY SMYRNA, TN	ENGINEERING STANDARD	A46011-014
SUBJECT 15KV FVBA BRKR ADJUSTMENTS		PAGE 6 OF 8



MAKE SETTING WITH BREAKER CLOSED, CLOSING SPRINGS CHARGED

FIGURE 4

SETTING BIAS SPRING OVERTRAVEL ADJUSTMENT

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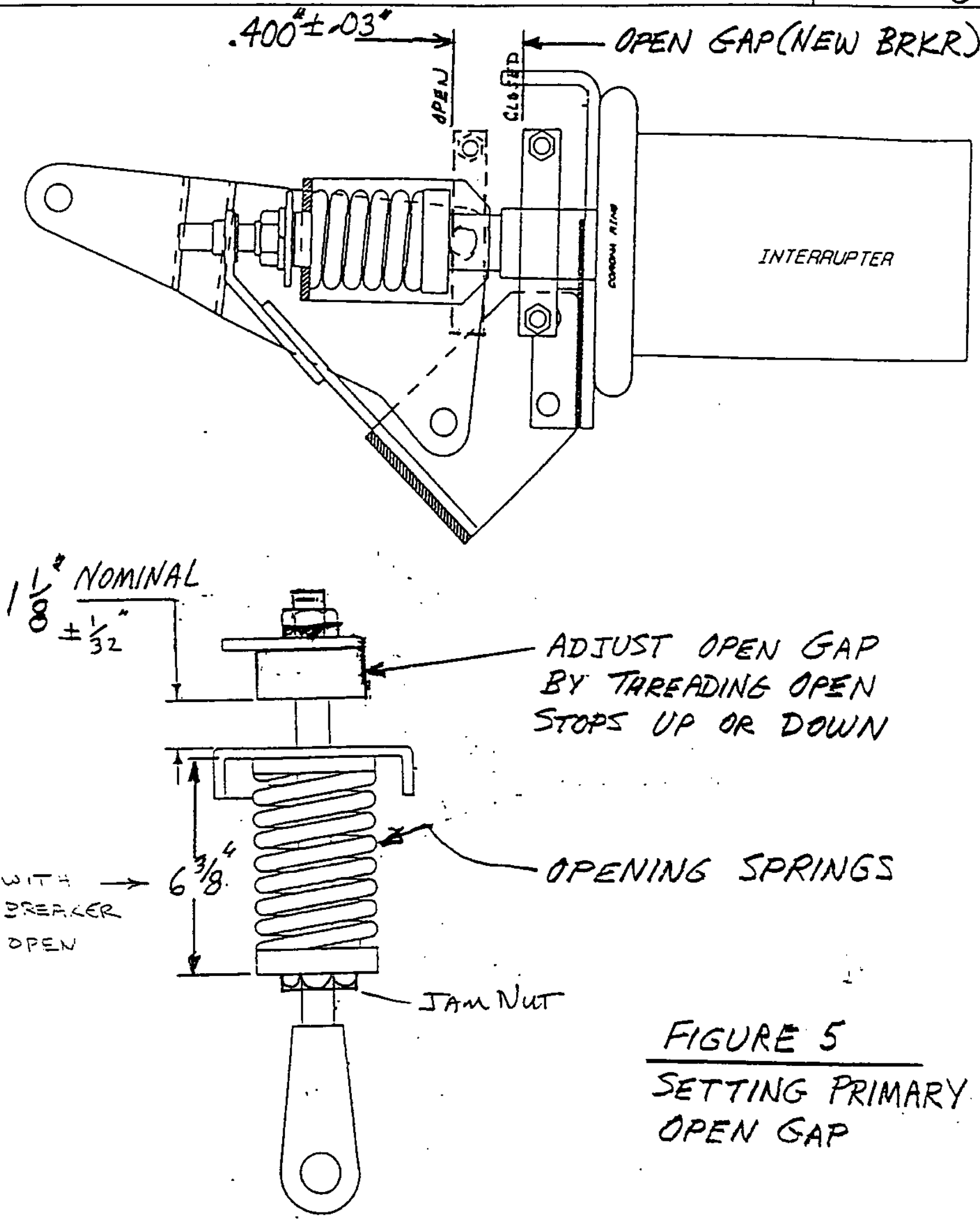

FIGURE 5
SETTING PRIMARY OPEN GAP

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									DLD	9/8/92	

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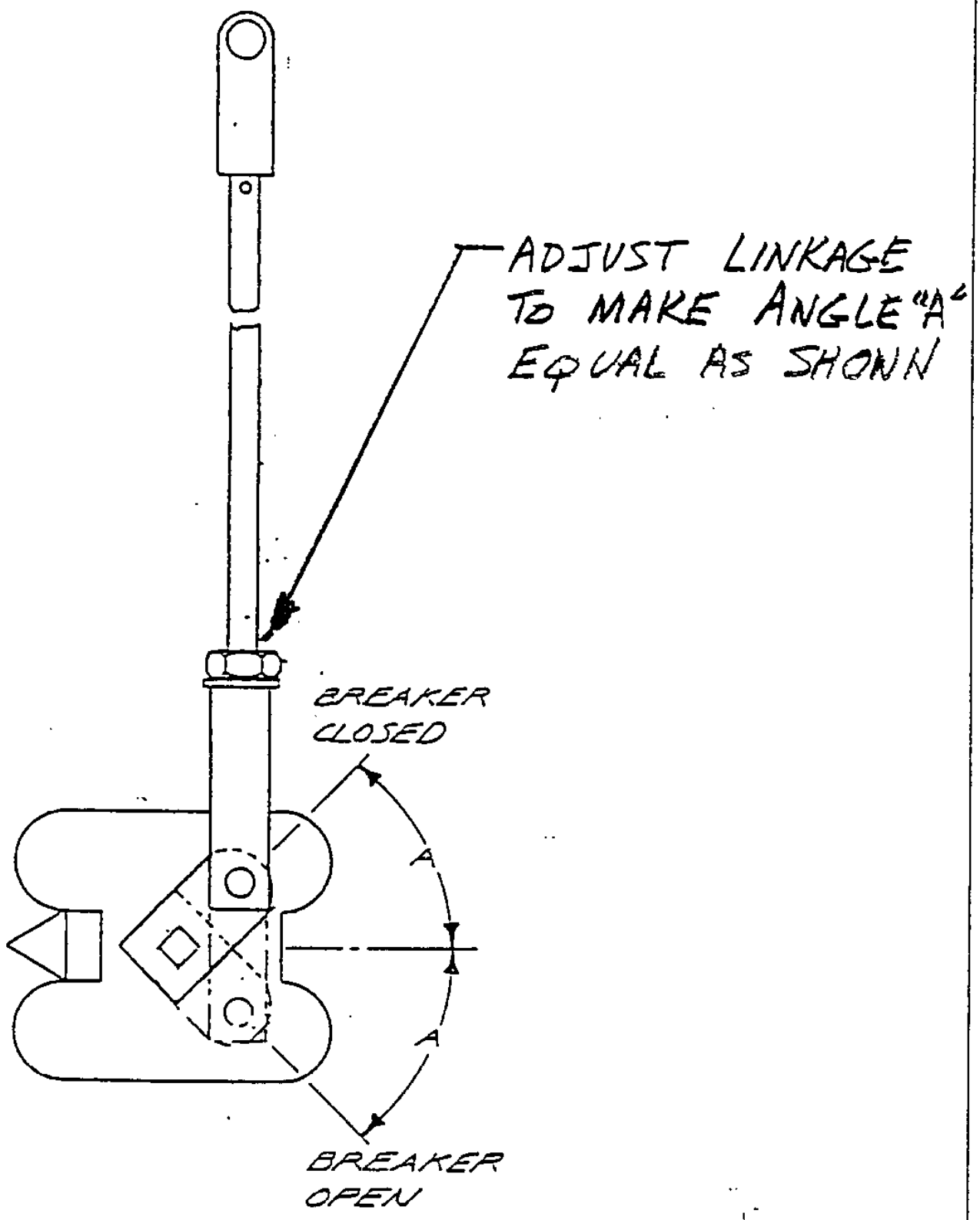

FIGURE 6

SETTING AUXILIARY SWITCH TRAVEL

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									BY	DATE	
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