



Fire Protection Training

Procedures Handbook 4300

MOBILE EQUIPMENT

TOPIC: How To Adjust S-Cam Air Brakes – Type 30/30 – Engine, 1 Person

TIME FRAME: 15 Minutes

LEVEL OF INSTRUCTION: Level II

BEHAVIORAL OBJECTIVE:

Condition: An engine with an S-Cam Type 30/30 air brake system chocked or on jack stands, a helmet and goggles, a $\frac{9}{16}$ " box end wrench, a ruler, a marking device and a creeper

Behavior: The student will properly adjust an S-Cam Type 30/30 air brake system

Standard: With a minimum 70% accuracy within 5 minutes according to the job breakdown

MATERIALS NEEDED:

- One (1) Engine with "S" Cam Air Brakes Type 30/30
- One (1) Score sheet per student
- One (1) Stop watch
- One (1) $\frac{9}{16}$ " Box End wrench
- One (1) Ruler
- One (1) Marking device
- One (1) Helmet
- One (1) Pair of safety goggles
- Two (2) Chock blocks
- One (1) Creeper

REFERENCES:

- CDF, Mobile Equipment Management Procedures Handbook, (6700)
- CDF, Fix-N-Fax #52, (May 1989)
- CDF, Fix-N-Fax #53, (December 1985)
- CDF, Vehicle Maintenance Procedure and Record, (Pamphlet 6805)

4313.13.2



Fire Protection Training

Procedures Handbook 4300

MOBILE EQUIPMENT

PREPARATION:

Operators of CDF vehicles are responsible for the maintenance and slack adjustment of air brake systems on any equipment they operate or drive. Brake adjustment is critical since it is impossible to force the brake lining to touch the brake drum if the push rod is not properly adjusted. The efficiency of the brake system decreases appreciably as the length of the push rod stroke approaches maximum stroke length. Prior to moving a vehicle the driver alone is responsible for ensuring that the braking system is in operating condition.



Fire Protection Training

Procedures Handbook 4300

HOW TO ADJUST S-CAM AIR BRAKES –
TYPE 30/30 – ENGINE, 1 PERSON

OPERATIONS

KEY POINTS

- | OPERATIONS | KEY POINTS |
|----------------------------|---|
| 1. Position vehicle | 1a. On level ground
b. On smooth surface or
c. On jack stands |
| 2. Set chock blocks | 2a. As per CDF policy
b. Use gloves
c. Attach cable
d. To anchoring eye
e. Skip this step for vehicle on jack |
| 3. Don helmets and goggles | |
| 4. Release spring break | 4a. Using in cab control
b. Push control knob to release brakes |
| 5. Mark push rod | 5a. Using marking device
b. At point where push rod enters brake pod
c. At backing plate hole |
| 6. Apply spring break | 6a. Using in cab control
b. Pull control knob to apply |
| 7. Measure push rod travel | 7a. Distance from backing plate hole to mark previously made on push rod |
| 8. Release spring brake | 8a. In cab control
b. Push control knob in to release brakes |

4313.13.2



Fire Protection Training

Procedures Handbook 4300

HOW TO ADJUST S-CAM AIR BRAKES –
TYPE 30/30 – ENGINE, 1 PERSON

OPERATIONS

KEY POINTS

9. Depress locking sleeve

9a. With $\frac{9}{16}$ " box end wrench

b. Maintaining pressure throughout adjustment

c. To disengage sleeve

10. Turn adjusting nut

10a. In direction necessary to shorten push rod throw

b. Clockwise or counter clockwise

1) Turning until adjusting nut no longer moves for vehicles resting on ground or

2) Brakes drag on vehicles on jack stand

11. Back off adjusting nut

11a. Turn adjustment nut in opposite direction

1) $\frac{1}{4}$ turn for vehicles resting on ground or

2) Until brake drums rub lightly when wheels spin (for vehicles on jack stand only)

12. Release pressure on locking sleeve

12a. Remove $\frac{9}{16}$ " wrench

b. May have to turn adjusting nut slightly back and forth until sleeve slides out fully

13. Apply spring brake

13a. In cab control

4313.13.2



Fire Protection Training

Procedures Handbook 4300

HOW TO ADJUST S-CAM AIR BRAKES –
TYPE 30/30 – ENGINE, 1 PERSON

OPERATIONS

KEY POINTS

14. Verify adjustment

- b. Pull control knob out
 - c. Cable spooled on evenly
- 14a. Measuring length of push rod travel
- 1) Maximum throw $1 \frac{1}{2}$
 - 2) Minimum throw $\frac{3}{4}$
- b. If not properly adjusted, repeat steps 8-10 in order to obtain desired throw range

4313.13.2



Fire Protection Training

Procedures Handbook 4300

HOW TO ADJUST S-CAM AIR BRAKES –
TYPE 30/30 – ENGINE, 1 PERSON

SUMMARY:

Students will practice until proficient.

EVALUATION:

A performance examination.

ASSIGNMENT:

To be determined by instructor(s).