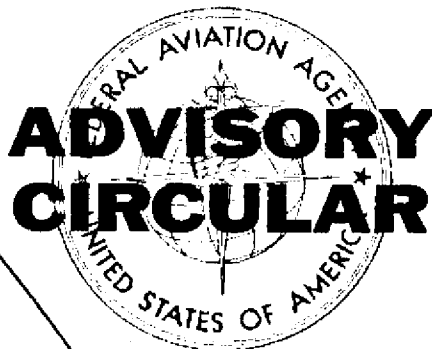


Federal Aviation Agency



AC NO: AC 150/5380-2

AIRPORTS

EFFECTIVE :

10/1/63

SUBJECT : SNOW REMOVAL TECHNIQUES WHERE IN-PAVEMENT
LIGHTING SYSTEMS ARE INSTALLED

*Cancelled
by 150/5380-2A
12-24-64*

1. **PURPOSE.** This circular provides information to the aviation community concerning the damage to in-pavement lighting fixtures by snowplows and recommended procedures to avoid such damage.
2. **BACKGROUND.** Runway centerline, exit taxiway turnoff, and touchdown zone light fixtures, as presently designed, rise gradually from the periphery of the unit at the pavement level to a height of 3/8-inch for centerline and 1/2-inch for touchdown zone light fixtures at the center. While these fixtures were designed to support known loads and to provide a relatively smooth surface which would not readily engage a snowplow blade, evidence indicates that they will not survive the attack of snowplows operating with the sharp blade edge riding the runway surface. Recent investigations of in-pavement lighting installations at several "snow belt" airports have revealed varying amounts of damage to light fixtures from snowplow operations. Gouged holes and/or surface cuts in the top fitting, broken lamps, broken and loose lenses, and misalignment have been attributed to snowplow operations.
3. **CURRENT PROBLEMS.** The extent of snowplow damage to in-pavement lighting fixtures is dependent upon a number of factors, including the type of equipment, the operating speed, the angle of attack of the plow blade, and the skill and responsibility of the vehicle operator. In order to prevent snowplow damage, it appears necessary to avoid blade contact with the light fixtures. This can be accomplished by either raising the plow blade in areas of in-pavement lighting or by using snow removal equipment other than snowplows or snow blowers in those areas.
 - a. **Raising the Snowplow Blade.** Experience with raising the snowplow blade hydraulically to clear the light fixtures has not proved desirable since this procedure lacks positive control of the blade height. As the equipment moves down the pavement, the blade tends to undulate and cause severe impact on the light fixtures. Experiments are being conducted with the use of rubber-tired dolly wheels to

raise the blade to the required height in the areas of the lights. This procedure should provide a positive method of keeping the blade above the fixtures.

- b. Using Equipment Other Than Plows and Blowers. Rotary brooms have been used successfully to remove snow from the in-pavement lighting areas. Although this procedure is more time consuming than using snowplows and snow blowers, no damage has been reported from using this equipment. Additionally, new apparatus such as jet-engine equipment and combination broom-blower equipment for snow removal are in the experimental stage. These types of equipment offer a future possibility of rapid snow removal without damage to the light fixtures.
4. RECOMMENDATIONS. Until such time as technological improvements in snow removal equipment, as discussed in the preceding paragraph, become a reality, it is recommended that the following procedure be used to avoid damage to in-runway lighting installations:
 - a. At the first sign of snow, turn the in-pavement lights on full intensity to help keep the lights as clear as possible. Lighted fixtures can be seen and avoided.
 - b. As soon as practicable, use rotary brooms to clear the in-runway lighting areas.
 - c. The snow displaced from these areas can then be removed from the runway by use of snow blowers or snowplows. The rounding off of sharp corners of the plow blades will help minimize damage due to inadvertent contact with a light fixture. Segmented snowplow blades, consisting of several spring loaded segments which will rise on contact with the fixtures, have proved to be less damaging to these fixtures than conventional blades, provided that the sharp corners of each segment are rounded off.
 - d. Light fixtures on the radii of taxiway turnoffs require special care due to their varying locations in the snowplow paths. Lighted fixtures and initial brooming should provide avoidance areas.
 - e. Figure 1 should be detached and placed in a conspicuous place to remind maintenance crews of the possibilities of snowplow damage to in-pavement lighting fixtures.

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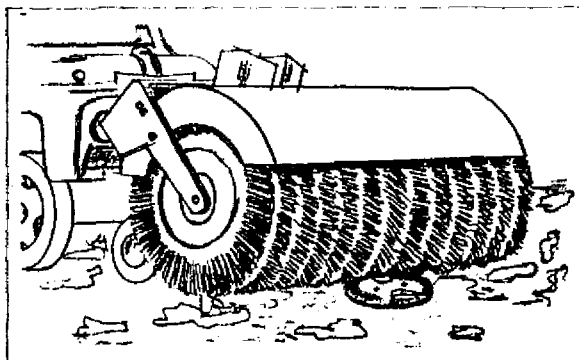
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Snow Removal Techniques Where In-Pavement
Lighting Systems Are Installed
Dated 10/1/63

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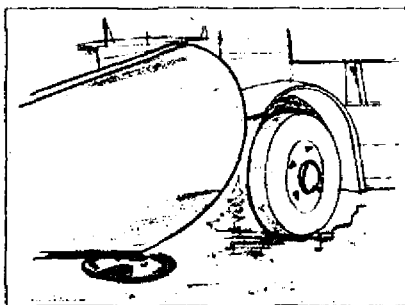

for Cole Morrow, Director
Airports Service

WARNING

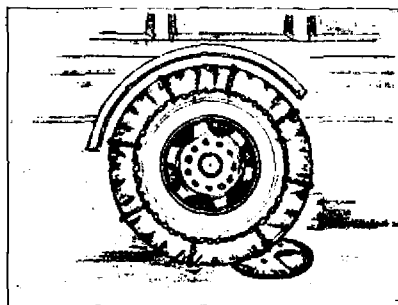
AVOID SNOWPLOW DAMAGE TO IN-PAVEMENT LIGHTS



DO USE ROTARY BROOM IN AREAS OF IN-PAVEMENT LIGHTS



DON'T PERMIT PLOW BLADE
TO CONTACT LIGHT FIXTURES



DON'T ALLOW TIRE CHAINS
TO CONTACT LIGHT FIXTURES



SNOWPLOW DAMAGE

RECOMMENDATIONS:

1. AT THE FIRST SIGN OF SNOW, TURN IN-PAVEMENT LIGHTS ON FULL INTENSITY TO HELP KEEP THEM CLEAR AND AID IN LIGHT LOCATION DURING SNOW REMOVAL.
2. USE ROTARY BROOMS TO CLEAR SNOW FROM THE AREAS OF THE LIGHT FIXTURES AS SOON AS POSSIBLE.
3. THE SNOW DISPLACED FROM THE AREAS OF THE LIGHTS CAN THEN BE REMOVED FROM THE RUNWAY BY USE OF CONVENTIONAL SNOWPLOWS OR SNOW BLOWERS.

FIGURE 1