During an emergency condition, the pressurized flow provided to the opening **58** of valve **50** rapidly decreases, thereby enabling the pressure balance piston **54** to be actuated toward the left, to the position as illustrated in FIG. **4**, by virtue of the pressurized flow provided through aperture **53**. Alternatively, actuation of piston valve **50** may be solenoid controlled in response to the rapid decrease in pressure of the main oil supply or a temperature sensor may be provided in the vicinity of the bearing **12** and may provide a triggering signal to a suitable solenoid operated valve for actuating piston **54** to the position as shown in FIG. **4**. At such time, as shown in FIGS. **3** and **4**, the emergency oil/mist lubrication system is operational, and the passageways **70** and **72** are opened, with aperture **64** being aligned with passageway **70**. At such time the emergency oil reservoir **40** is vented to the atmosphere via conduits **82** and **80** which extend through passageway **72**. In addition, pressurized air flow is provided via conduit **84**, through passageway **70** to aperture **53** and also to conduit **86** leading to the passageway **30** in the air aspirating nozzle **22**. The high pressurized air flowing through the passageway **30** emerges into the enlarged outlet **32** thereby effectively creating a partial vacuum in the nozzle **22** for aspirating lubricant from the emergency oil reservoir **40** via conduit **20** and passageway **28**. The fact that the emergency oil reservoir **40** is vented to the atmosphere assures that the withdrawal of the emergency oil from the reservoir **40** is at a controlled rate in order to prolong emergency lubrication to the bearing **12** for a sufficient period of time to enable the pilot of the aircraft to make the necessary emergency maneuvers. The intermixture of the pressurized air and the oil aspirated from the emergency oil reservoir **40** results in a fine mist of small droplets of oil **90** (see FIG. **3**) provided to the bearing **12**. The emergency lubrication mist **90** automatically continues to flow and impinge on the contacting bearing surfaces **12** at a slow metered rate until the emergency oil reservoir **40** is emptied. It is estimated that with an emergency oil reservoir **40** having a capacity of approximately 100 cubic centimeters of oil, the emergency oil/mist system will be capable of operating for approximately one-half of an hour during which time high pressurized mist **90** provided to the bearing **12** whould be sufficient lubrication for continued operation of the bearing **12**. In addition the pressurized air is effective to aid in cooling of the bearing.

Accordingly, there is provided a new and improved emergency oil/mist lubrication system which is formed as an integral part of the main lubrication system of a gas turbine engine and is designed to function as a mist lubricant generator in the event of failure of the main lubrication system. The emergency oil/mist lubrication system may be employed for bearings or gear box assemblies of a gas turbine engine, and the auxiliary or emergency reservoir has sufficient capacity to provide lubrication to the bearing assembly for approximately thirty minutes following failure of the main lubrication system. The subject system produces an ultrasonic impingement of the oil as it leaves the air aspirating nozzle **22** thereby creating extremely small droplets of uniform distribution of lubricant over the bearing. In addition, the flow of pressurized air to the bearing is effective in cooling the bearing during the emergency operation. The emergency oil/mist supply system can be actuated by a pressure balance piston-type valve or a suitable solenoid valve triggered by low oil pressure in the main supply system, or a solenoid valve which is triggered by suitable sensors for sensing excessive bearing temperatures.

While the invention has been described with respect to a specific embodiment thereof, it is readily apparent that various modifications, alterations, or the like may be apparent to those skilled in the art, and thus the invention is not to be limited by the illustrative embodiment, but by the spirit and scope of the following appended claims.

We claim:

1. An emergency lubricant/mist system for providing a pressurized spray of lubricant to a lubricated part for a limited period of time after failure of a main lubrication system comprising:

a source of pressurized lubricant;

air aspirating nozzle means directed to provide either a stream of lubricant or a spray of lubricant to the lubricated part;

conduit means interconnecting said source of pressurized lubricant to said nozzle means;

an emergency lubricant reservoir provided in said conduit means intermediate said source of pressurized lubricant and said nozzle means;

atmospheric vent means;

a source of pressurized air;

control means interconnecting: (1) said atmospheric vent means with said emergency lubricant reservoir; and (2) said source of pressurized air with said air aspirating nozzle means; said control means being operatively connected to said source of pressurized lubricant whereby when the main lubrication system is operational, said control means is operative to inhibit the flow of pressurized air from said source of pressurized air to said air aspirating nozzle means and to inhibit said emergency lubricant reservoir from being vented to the atmosphere, whereas upon failure of the main lubrication system, said control means is effective to vent the emergency lubricant reservoir and simultaneously allow pressurized air to be provided to the air aspiration nozzle means from the source of pressurized air, such that the pressurized air passing through the nozzle means is effective to aspirate lubricant from the emergency lubricant reservoir to create a pressurized spray of lubricant to said lubricated part.

2. An emergency lubricant/mist system for providing a pressurized spray of lubricant to a lubricated part for a limited period of time after failure of a main lubrication system as in claim **1** wherein said control means comprises a piston valve including an outer cylindrical casing and a piston slidably mounted therein, said cylinder including a plurality of aligned passageways extending therethrough, which passageways are connected to said atmospheric vent means, said source of pressurized air, said emergency lubricant reservoir, and the air aspirating nozzle means, with the position of the slidable piston being a function of the flow of pressurized lubricant.

3. An emergency lubricant/mist system for providing a pressurized spray of lubricant to a lubricated part for a limited period of time after failure of a main lubrication system as in claim **1** wherein said air aspirating nozzle means is generally tubular and includes two passageways leading to an enlarged outlet main passageway, with one passageway connected to said conduit means extending to the source of pressurized lubri-