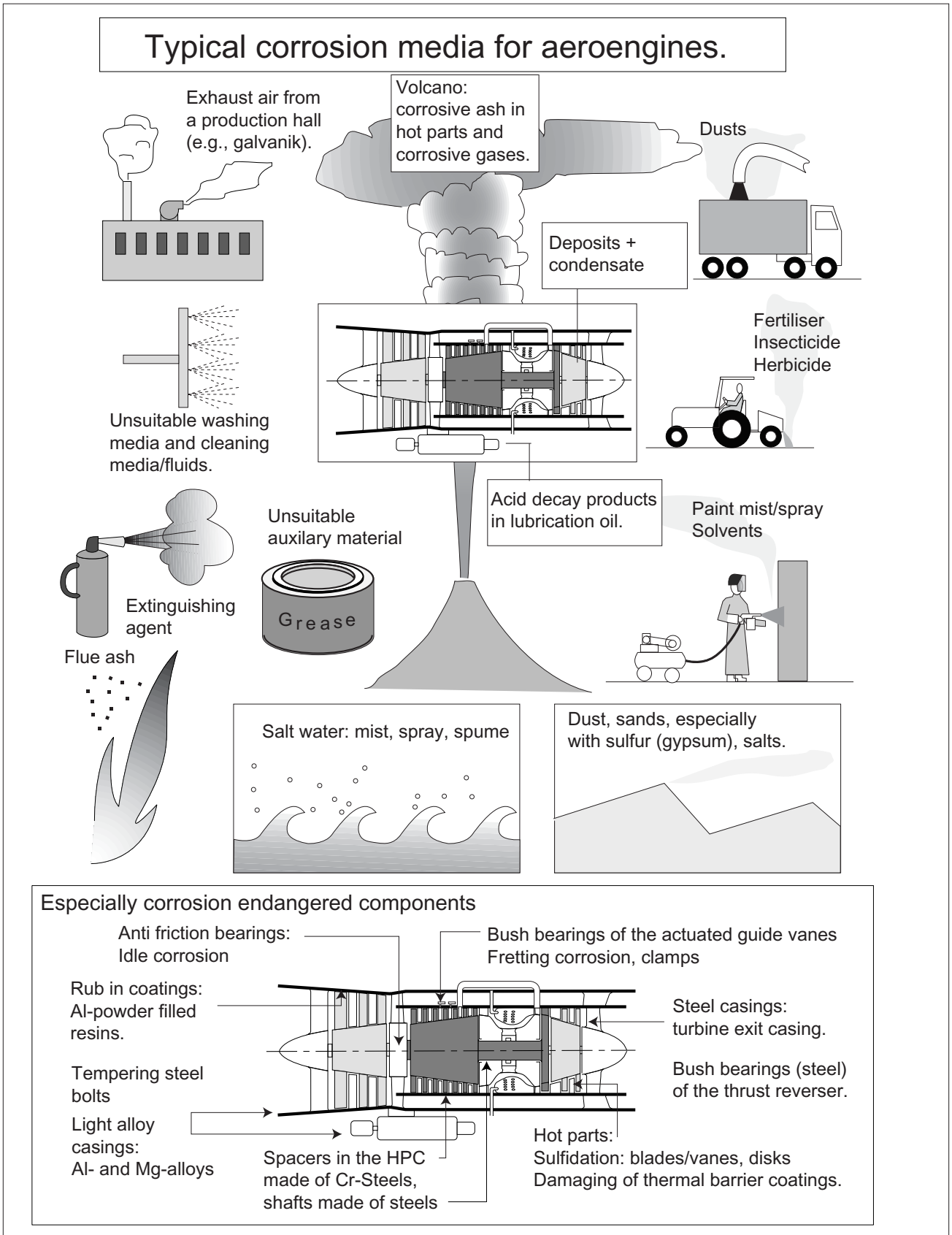
Typical corrosion media for aeroengines.
Exhaust air from a production hall (e.g., galvanik).
Volcano: corrosive ash in hot parts and corrosive gases.
Dusts
Deposits + condensate
Fertiliser
Insecticide
Herbicide
Unsuitable washing media and cleaning media/fluids.
Acid decay products in lubrication oil.
Paint mist/spray
Solvents
Unsuitable auxilary material
Grease
Extinguishing agent
Flue ash
Salt water: mist, spray, spume
Dust, sands, especially with sulfur (gypsum), salts.
Especially corrosion endangered components
Anti friction bearings: Idle corrosion
Bush bearings of the actuated guide vanes Fretting corrosion, clamps
Rub in coatings: Al-powder filled resins.
Steel casings: turbine exit casing.
Tempering steel bolts
Bush bearings (steel) of the thrust reverser.
Light alloy casings: Al- and Mg-alloys
Spacers in the HPC made of Cr-Steels, shafts made of steels
Hot parts: Sulfidation: blades/vanes, disks Damaging of thermal barrier coatings.

Ill. 19.2.2-1

Ill. 19.2.2-1: *Certain* ***aeroengine components*** *(frame below) are for specific media (Lit. 19.2.2-2)* ***endangered by corrosion*** *(volume 1, chapter 5.4.). This picture shows a survey of especially dangerous corrosion systems. Quite generally it can be determined, that the exposure to corrosion increases with the* ***down time****. This explains, why especially aeroengines* ***in military use*** *show aggravated corrosion. In addition there are operation conditions like* ***low-level flight*** *and/or* ***sea atmosphere****. Such conditions must be expected intensified on aircraft carriers.*

*In the foreward compressor on the blading region '****insect roughness****' can occur during operation near the ground (rolling, start, landing, test rig). This can also promote corrosive deposits and considerably deteriorate the operation characteristic of the compressor.*

In ***aeroengines*** *of* ***helicopters, agro planes and fire fighting planes*** *a low flight altitude promotes corrosion in contaminated air. Acording to the use* ***ash, water/sea water/condensate, fertilizer, herbizides, insecticides and industrial exhaust gas*** *can be ingested.*

*Not to underestimate is the danger, that during a certification/****approval runs and test runs*** *detrimental materials can be sucked in. Resides in the proximity of test rigs a* ***galvanic, chemical or cleaning shop*** *from experience especially attention is necessary (volume 4, Ill. 16.2.2.3-2.2). Especially military '****field test facilities****' (not inside a building) are potential endangered by damaging media. To these belong agro dusts but also industrial media like* ***paint mist*** *(volume1, Ill. 5.5-1). Thereby it must not be forgotten, that aeroengines can* ***intake media over far distances****. In such a case a connection may not be at once identifiable. This is especially true if the damage/ deterioration shows observable not until longer times.*

But also aeroengines of airliners can be submitted especially intensely acting corrosion media. To those belongs the not so seldom intake of ***volcanic ash*** *and/or of aggressive gases (Ill. 19.2.2-2 and volume 1 Ill. 5.3.2-15). Even if a* ***diminishment of the flow cross sections*** *and blocked cooling air holes (by overheating) dont occur as a spontaneous damage, those media act in the hot parts over a long time especially damaging. The for* ***ash deposites*** *typical high* ***phosphor and sulfur content*** *acts especially through* ***hotgas corrosion*** *respectively* ***sulfidation*** *shortening for the lifetime ot he hotparts.*

Not to underestimate is the damaging effect of fire ***extinguishants*** *(volume 1, Ill. 5.5-2). Are those ingested by the aeroengine, often a disassembly and an extensive cleaning is inevitable (Ill. 19.2.2-4). In a few hundred operation hours* ***aggressive decomposition products*** *(halogens like* ***chlorine*** *and* ***fluorine****) of the fire extinguishant can damage hot parts irreparable. Is fire extinguishant blown from behind into the low pressure turbine of a shut down aeroengine (flames after an aborted start; tail cone fire, volume 2, Ill. 9.0-3), the washing of the blading my be sufficient for cleaning. However thereby the valid specifications must be met very exactly.*

Unsuitable auxiliary media like ***not authorised/ certificated cleaning agents or lubrication grease*** *can trigger corrosion (Ill. 22.4.1-1). Thereby operation conditions like temperatures of the hot parts and/or the simultanous acting of other media can play a role.*