LUSTROUS CARBON FILMS,
KISH TRACKS

All cast iron sand castings.

Thin, shiny films of graphite which are distinctly outlined, generally folded and wrinkled in shape; they are found within a wall of the casting, where they cause a linear discontinuity in the structure. Generally they can be seen only by fracturing the casting. The defect is often accompanied by wrinkled seams at the casting surface.

Possible Cause
Hydrocarbons present in mold or core additives and binders, or in liquid parting compounds, volatilize and decompose to form films of "lustrous carbon" within the mold cavity. These films become entrained in the liquid metal and are trapped in the casting wall during solidification (especially when the flow of liquid metal has been turbulent).

Remedy
Reduce the proportion of materials in the molding and core sand mixtures which are capable of decomposing to form lustrous carbon; minimize use of liquid parting compounds on the pattern.

G 143 - Cast Iron, Green Sand
Fracture caused by a film of lustrous carbon inside the wall of a gray iron casting.

G 143 - Cast Iron, Green Sand
Wrinkles or "kish tracks" on a casting surface caused by the presence of films of lustrous carbon.
G 143 - Cast Iron, Green Sand
Flake of lustrous carbon removed from the wall of an iron casting.

Figure 250

G 143 - Malleable Iron, Green Sand
Fracture surfaces of a malleable iron fitting showing the presence of a film of lustrous carbon.

Figure 251

G 144
HARD SPOTS

Alloys of aluminum and copper.

Hard inclusions, more or less finely dispersed and sometimes rather large. In the case of aluminum die castings they may be found throughout the casting. They are usually detected during machining, finishing or surface treatment.

Possible Cause
Inclusions of corundum, spindel, silicon carbide or intermetallics rich in iron.

Remedies
- Use precautions in melting to avoid contamination.
- Allow sufficient holding time after melting to permit nonmetallic inclusions present to rise to the surface by decantation.
- Do not use cast iron crucibles coated with an improper wash.
- Do not use contaminated charge materials.

(See bibliography for G 111)

Figure 252

Hard spots which caused "comet tails" during polishing.