work on power presses used in cold stamping The operating power source should be locked out so that the equipment cannot be energized while it is being worked on If adjustments have to be made while the press is energized, the work must be carried out under the direct supervision of the maintenance supervisor

Suitable permanent work platforms should be installed for making brake adjustments and doing repair work at the surge tank and booster cylinders To prevent falls, maintenance men should not use portable straight ladders nor stand on parts of the press, such as the press crown or the backshaft

Major repair work on forging presses usually requires removal of bulky, heavy parts Tearing down of the rolling type clutch, flywheel, slide, pitman, and crankshaft requires special heavy-duty rigging used by skilled workmen trained in this type of work

The brake should be adjusted properly and kept in good repair Precautions must be taken to prevent the brake lining from becoming flooded with oil. A sheet steel disk about 2 in larger than the brake wheel, placed on the eccentric shaft back of the brake wheel, will help reduce the amount of lubricant on the brake

Pitman bolts should be securely tightened It may be necessary to design and make a socket or box end wrench with a strong heavy handle for the specific press

Flywheel hubs, clutch spline hubs, pinion gears, and brake wheels should not be permitted to become loose on the pinion shaft If they do become loose and run that way very long, keys and keyways will be ruined and the keys will break out a portion of the pinion shaft on one side of the keyway The keys on each side of the pinion shaft should be inspected periodically and driven tight if they are loose When a key will no longer stay tight, it should be replaced with a carefully fitted new key

When the hub or gear on the shaft becomes too loose, it will be impossible to hold the keys tight and the shaft will have to be turned down The inside of a steel hub should be welded and bored to a shrink fit on the new shaft size The keyways should be remachined and new keys made If the hub is cast iron, a tapered sleeve can be made or a new hub fitted to the shaft

Experienced repairmen warn against welding the flywheel end of the pinion shaft If normalizing of the welded section is not complete, a crack may start and allow the shaft to break and drop the rotating flywheel Crankshafts and backshafts on forging presses likewise should not be welded

The friction slip on a press should be tightened so that it will not creep even on heavy jobs If the friction slip is allowed to move a small amount with every forging, this movement will polish or glaze the friction surfaces and soon the friction slip will move more with each forging This movement will cause the friction surface to score the hub and clamp surfaces

Rotation of the flywheel on the friction hub will frequently wear or cut the inside diameter of the flywheel so that it runs off center To correct this condition, the inside diameter of the flywheel can be bored and fitted with a bronze bushing

Sometimes the eccentric shaft becomes cracked in the fillet on each side of the eccentric This defect is usually noticed when the shaft is taken out so that the main bearings can be checked or the shaft can be machined This crack should be examined carefully to determine its length, depth, and direction of travel If the crack is in a critical area where failure would permit the rolling clutch to drop off, then the shaft must be replaced

Other Forging Equipment

Hot trimming dies can be made from hardened chrome, nickel, carbon, and vanadium steels or from medium carbon steels with cutting edges which have been hard faced with a rod similar to a Haynes Stellite No 6 rod

Stellite should be used on the trimmer only, and not on both the trimmer and the punch A stellite punch should never work against a stellited punch die One or the other, preferably the punch, should be softer

Cold trim dies and punches are usually made from a high carbon, high chrome, molybdenum steel hardened and drawn to a 60 to 62 Rockwell C hardness In both hot and cold trimmers it is important for the designer to equalize the trim so that stresses are equally