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Heavy industries taxila internship report

You read free preview pages from 8 to 13 do not appear in this preview. You read free preview pages from 17 to 26 do not appear in this preview. You read free preview pages from 31 to 42 do not appear in this preview. Heavy industry TaxilaHITTypeState belonged to enterprisesInvvo1971: 49 years ago (1971)HeadquartersTaxilaPunjab, PakistanArea servedPakistanKpe people Major General Siad Aamer Raza, HI (M). CHAIRMAN of the board of HIT Colonel Aqil Ahmed @, Si(M). Secretary of the HIT Board of ProductsAmunicaArillerysCombat Vehicles tanksServicesRDVebstehht.pk Heavy Industry Taxila (reporting name: HIT). (Urdu: (مصنعت [ان] سنگين مڪينسازي)) is a major defense, military contractor, engineering conglomerate, and military corporation located in Taksala, Punjab, Pakistan. HIT promotes, sells, enginrs, develops and conducts heavy engineering work for the Pakistani military and for civilian law enforcement. Leadership in HIT is provided by appointments made to the PRG by the Chief of Staff of the Army, who approves the appointment of the chairman. In addition to developing heavy work, HIT also provides military gear for the Pakistani military, building krypton and developing solid-state lighting technology. Major Battle Tanks (MBT) Al-Khalid II (under development) Al-Khalid/Al-Khalid I Al-zarr Infantry Combat Vehicles (IFV) Viper IFV - the IFV prototype was demonstrated at IDEAS 2018. The IFV is based on the APC Saad/M113 chassis with 6 road wheels, weighs 16 tons and has an applique armor. Viper can accommodate 13 fully equipped servicemen, and has a modified Turra 30 (RCWS) remotely operated weapon station, a Shipunov 2A42 30 mm Slovak automatic cannon, a Kalashnikov PKT 7.62 mm (MG) anti-tank guided missile (AT-6 Spandrel and smoke loads. Al-Hamza - IFV based on APC Saad, equipped with 25 mm automatic gun, export products, not in the service of the Pakistani army. Armored personnel carriers (APCs) of APC Saad are an armored personnel carrier based on the talha APC design. Modified with an extended body and six road wheels, a 14.5 mm machine gun, improved armor protection and a more powerful engine supplied by the German MTU. It can accommodate 13 fully equipped servicemen. Dragoon II - Armored mulirole vehicle built as part of a joint venture with DUMA Engineering. The Talha APC is an armored personnel carrier based on the M113 chassis with five road wheels and holds 11 fully equipped military personnel. 250 delivered to the Pakistani army by 2006. He may be replaced by Saad's APC. Maaz reconnaissance vehicles - anti-tank/anti-aircraft missile aircraft carrier Talha, armed with an anti-aircraft guided-missile, Baktar-Shikan and controlled by a crew of four. There is a capacity for eight additional rounds, and the rocket fire unit on the roof is removed into the cockpit for reloading. His version of Mouz is armed with either Anza or 70 air defense systems. The rocket fire unit on the roof is removed into the cockpit for reloading. Sackb is an armored command vehicle based on the Talha APC. Al-Kasawa is an armored logistics vehicle based on the Talha APC, an export product not in the service of the Pakistani army. Al-Hamid's engineering and auxiliary vehicles are an armored recovery vehicle based on the Saad APC. Mohafiz-series armored light utility vehicles - Mohafiz-II Internal Security Machine - based on Land Rover Defender. Mohafiz III (Defender) - Land Cruiser 79. The Mohafiz-IV is an upgraded version of the Mohafiz (vehicle) series based on the Land Cruiser 79. Weapons 125 mm smooth tank gun - for tanks Al-Khalid and Al-zarr. 155 mm self-propelled (SP) cannon - for self-propelled howitzer M109A2 (repair). Former Type 69-IIMP products are the main battle tank produced under license. Type 85-IIAP - Main battle tank produced under license. M113 - Armored personnel carrier is manufactured under license. (The APC Recovery Facility is still working) See also the Defense Of Science and Technology Organizations of Pakistan Armed Forces of Pakistan Ordnance Plants Links - HIT Contacts. Contact HIT. Contact HIT. Received on December 24, 2014. a b HIT Products. HIT products. Received on December 24, 2014. - The Associated Press of Pakistan. The Minister of Defense Production visits the heavy industry of Taxila. Associated Press in Pakistan. Archive from the original on September 23, 2015. Arg. Pakistan HIT presents Viper IFV. Janes.com. received on December 21, 2018. b c d e f ARG. Talha armored personnel carrier. Military-Today.com. received on March 22, 2012. - b c External Links Official site Heavy Mechanical Complex Official site HITEC (Heavy Industries Taxila Education City - official website Heavy Industries Taxila (HIT) brochure heavy industrial tenders, The THE HTTPS://EN.WIKIPEDIA.ORG/W/INDEX.PHP?TITLE=HEAVY_INDUSTRIES_TAXILA&OLDID=993138244 THE FACTORY AND SETUP FACILITIES Welcome to the heavy industry Taxila heavy Industries Taxila was envisioned in the early seventies and its first production unit i.e. heavy Rebuild Factory (T-Series) went into production in 1980. CHAIRMAN'S VISION Major General Sier Aamer Raza, HI (M) HIT is part of the Prime Minister of The Defense Industry of Pakistan, which was established in the early 1970s with the aim of restoring existing tanks. Over the past four decades it has evolved into a large military-industrial base and is now involved in the manufacture and restoration of high-tech equipment like tanks, armored personnel carriers, cannons and other equipment associated with including security tools. It currently consists of six production units, units, facility and a leading research centre. Tank Al Khalid tanks are equipped with an integrated combat control system (IBMS) and a new active threat protection system. Explore Tank The Al-zarr is a state-of-the-art main battle tank (MBT) developed and manufactured by Heavy Industries Taxila (HIT) of Pakistan for the Pakistani Army. Explore STANAG LEVEL III Armored Safety Car Dragon 2 is a specially designed multipurpose wheeled armored safety vehicle with a high level of protection and outstanding mobility. Explore Command Vehicle Sakb is an armored command vehicle developed and manufactured in Pakistan by APC Heavy Industries Taxila (HIT). Explore With 12.7 mm Protection Talha is an armored personnel carrier (APC) developed and manufactured in Pakistan by APC Heavy Industries Taxila (HIT). Explore the logistics car Al Kaswa logistics car was developed by the heavy industry of Taksila who have considerable experience in the design, development and manufacture of armored fighting vehicles. Explore the Defender 110 Lightweight Armored Vehicle designed and manufactured in the heavy industry of Taxila (HIT) based on the chassis of a commercial vehicle. Explore the B6 Level protection armored safety vehicle designed and manufactured at the APC factory was based on the chassis of a commercial vehicle (Land Rover Defender). Explore the B7 Level Protection Armoured Security Veh Protector is the latest veh series Mohafiz designed and manufactured on the chassis of the Toyota Land Cruiser LC-79 with an upgraded suspension system to handle excess weight and provide better maneuverability in all types of terrain. Explore the Armored Guard Postal Square and the rectangular shape of the Armored Guard post for single and double men matching with and without the tower was manufactured by the APC. Explore NU Level III /PK Level III Bullet Proof Jackets, having a level of protection NIJ Level III (/ PK Level III, chemically inert, waterproof, weave, coil fastened, compressed proof, floatable. Learn about the author's ©2018 HEAVY INDUSTRIES TAXILA, PAKISTAN. You read free preview pages from 6 to 10 do not appear in this preview. You read free preview pages from 14 to 23 do not appear in this preview. 13 Comments 0 Loves Statistical News Be First as It's 1. 2014 HEAVY INDUSTRIES TAXILA PRESENTED: SHEHRYAR AL SEAMON: JULY 16-AUGUST 16 INSTITUTION: ENGINEERING UNIVERSITY (UET), TAXILA. (INTERNSHIP REPORT) 2. INTERVIEW: - HIT is one of the largest industries for the production of tank, armored personnel carriers and guns. HIT is fully operated under the control of the Pakistani army. This industry is mass-produced on a large scale. The industry has many sub-factories that produce a variety of tank or other products. Some of the sub-factories are: (1) DESCOM (2) HRFT (3) APC (4) M-SERIES (5) TF (6) My internship was at DESCOM and all the stores that I visited during the session, both according to all the details: details: LATHE MACHINE SHOP SHOP NO 2 ABOUT: CNC abbreviated Computer Digital Control. This is the E45 CNC machine. This is the 1st model of 1945. 3. CHUCKS: This machine has two cartridges; Chuck's collette and 3-jaw cartridge. It has a tower tool on which 12 instruments can be installed simultaneously; 6 live instruments and 6 dead instruments. The difference between living and dead instruments is that dead instruments cannot rotate around their axis. PROGRAM: This machine uses shop turn programming, which uses two more types; g-code programming and m-code programming. SYSTEMS: This machine uses 2 systems: WCS (World System Coordination) and MCS (Machine Coordination system). COORDINATES: This machine uses 3 coordinates; z-axis (used for length), x-axis (used for diameter) and c-axis (used for milling operations). RELATED: This machine has some limitations, i.e. 6300 rpm maximum limit, 220 mm limit in diameter and 310 mm limit in length. But this machine has a certain feature that it can simulate the desired part before any operation, a 3D model can be viewed before the process. 4. SPECIFICATIONS CNC LATHE E-45: Working range: 1) Swing overhead: Maximum 430 mm in diameter. 2) Maximum turn diameter: 220mm 3) Maximum turn length: 310mm 4) Distance between centres (spindle nose-tail live center): 687mm Travel: 5) Travel x: 160mm 6) Travel z: 310mm Main Spindle - Clip System: 7) Maximum cartridge size: 16 0 mm in diameter tool system: 8) Revolver-type tower direction, logic additionally with drive tool: 9) Instrument carrying fixtures according to DIN 69880: VDI 30 Tail Stock: 10) Travel (manual): 460mm 11) quill travel: 120 mm 12) To the villa diameter: 60 mm 5. Coolant Device: 13) Tank capacity: 230 litre Chip Conveyor: 14) 10-pole plug for assembly chip assembly line included in base machine: Color: 15) Light grey. Electric connection: 16) Electrical appliance: V 3/PE 400 17) Maximum function Voltage: -15 18) Frequency: 50/60 Hz Operating Conditions: Centigrade 10 to 35 Dimensions/Weight: 20) Axis turn height over floor: 1152mm 21) Tool height: 1940mm 6. FARO GAUGE: This is made in Switzerland and is a portable machine used to measure very precise sizes where the vernier caliper and screw sensor fails. Features: It has the following features; Dimensions - Reports that the tools and 3D caliper - installation Gauge It has a small probe in front, which at three on any surface makes it a reference and measures all sizes from this point of reference. The prob can be changed to any size by adjusting it in the sensor installation first. Reverse Engineering: Reverse engineering can be done with the Faro sensor, which means that partwork can be converted into a drawing. Scanner Before the prob, the rays are thrown and the image is converted, which is sent to the computer. It's called reverse engineering. Software is used that refines the shape from the Faro sensor to the computer so that pro-E software can read it. Manufacturing and engineering operations: there are 156 cars in store 2, including milling machines, machines, drilling machines and so on. The over-representation of these machines is as follows. 7. 1) Lathe Machine: There are about 64 machines, including engine machines, universal engine machines, towers, tower drum-type machines, the exact center of the machine and the numerical control machine. Facing, carving, turning, cone turning, boring operations can be done on these lathes. Only this carving operation cannot be performed on a Ikaah because it does not have a lead screw. Engines include simple lathes, precise engine straps, and a versatile engine. The difference is that the bed moves in a universal engine. Bolts with hexagon heads, spring holder, and joint ring can be made on these machines. The precision lathe engine is also an engine, but it is used for small jobs for precision and precision. The nit turret is different from the engine looms that the carving operation cannot be done on the tower looms and several tools can be held by its tool post. Seal rings are made at the towers lathe steel and cast iron. The numerical control machine is also a type of engine machine, but with a numerical machine with which the program is fed in the car and the operation is carried out in accordance with the program. Copying lathe is a lat that copies a pattern known as a copy pattern. To make a certain outline or curve, such as in the engine exhaust valve, a certain copy pattern is made with the same contours and curves and the prob moves above it. Whenever a prob takes a curve, the post tool also moves with it, hence making this particular form. Drum-like tower towers are also towers, but its instrument post is circular like a drum. 2) Mill Machines: There are 14 milling machines including versatile milling machines, vertical and horizontal milling machines, vertical knee-type milling machine, and spline milling machine. 8. The difference between the machine and the miller is that the machine is one point of operation performed while in milling machines surface contact operations are made. In universal milling machines, the bed moves. Vertical and horizontal milling machines have only different lines of work. Spine millers simply operate on spines in mines and other components. 3) Radial drilling machines: There are about 5 radial drilling machines. It is used for heavy work and for heavy drills such as drill in gudgeon pin. It is also used for accurate drills as well as for central accuracy. 4) Honing machines: There are 2 honing machines; vertical and horizontal. Vertical honing is used for cylinders. It has a maximum diameter of 150 mm and a maximum depth of 400 mm. It has a fixture with oil stones used for and fines the inside sides of the cylinder and is made in such a way that one oil stone is accompanied by support and so on. It also has an extension of the pressure honing tool. It has a hydraulic and stroke system. It uses diesel as a cool liquid. Maximum delta 10 can be achieved on this 5) Amri-Boring Machines: There are 2 amri-boring machines used for wells in piston tanks. It has a hydraulic system and 2 pistons can work simultaneously. 6) Grinding machines: There are about 24 grinding machines including internal and external grinders, angular grinders, grinder, cutter grinders, gears teeth grinders and rotary table grinders. Corner resurfacing differs from others in that it can be done from any angle. Rotary table grinding is different in the sense that it has a table that rotates. Spindle grinding only grinds studs. All of these grinding operations have only one goal, which is to increase the finishing component. Gear teeth grinders only gnashing teeth gear. It has sanding wheels at the same angle as the corner of the teeth. 9. 7) Hobbit Machines: There are about 3 hobbing machines. This machine produces external gears, such as spurs gears, helical gears. He can't make gears in a step. This operation sets it apart from the gear formation machine, which makes internal gears and can also make gears in stride. 8) Bevel Gear Generator: There are about 6 beveled transmission generator machines that make direct as well as helical bevel gears. When the gears are manufactured, they are tested on a bevel gear tester which is at 90 degrees. To make helical bevel gears as well as straight sloping gears, cutting tool and work should at some angle. Bevel itself means that whose cross-section changes over length. 9) Brooch Machine: There is a 1 brooch machine that has a tool known as a brooch and it is available in different sizes. Used for internal operations and used for mass production. It makes internal incisions and splines. The brooch tool has external contractions over it forced through work that makes internal cuts and splines. 10) Demagnetizer: He demagnetizes the component. When the component is manufactured, it has some magnetic properties in it. TOOL MFR AND MAINT BRANCH SHOP NO 4 ABOUT: This store produces cutting tools and supports them when any tool is damaged. Below are the machines on which these tools are made. 10. 1) Release Of The Late: N Metalwork Machine Group Machine to handle the back surfaces of teeth multi-bladed cutting tools (e.g. the shape of cutters and crane borers) to give them a curved (liberated) shape. The instrument is a form tool whose shape is a mirror image of the shape of the work that will work; it is installed on a slide rest, and the working part is installed on pointed logs (directly or on the mundreile). The working piece rotates with a spindle. The slide-rest and shape tool is moved by a rotating camera, which also returns the slide rest to its original position when shape reaches the space of the charred instrument. 2) The Fraser Machine Tool: Fraser is a usage processing process cutters to remove the material from the working part of the promotion (or feeding) in the direction of the angle with the axis of the tool. It covers a wide 1L. A variety of different operations and machines on scales from small individual parts to large, heavy milling operations of gangs. It is one of the most commonly used processes in the industry and machine shops today to process parts to precise sizes and shapes. 3) Jig Boring Machine: In processing, boring is the process of increasing a hole that has already been drilled (or cast), using a single point cutting tool (or a boring head containing several such tools), such as in a dull gun barrel or engine cylinder. The dimensions between the piece and the bit of the instrument can be changed by about two axes to cut vertically and horizontally into the inner surface. Cutting tools are usually the same point, from the M2 and M3 high-speed steel or P10 and P01 carbide. A conical hole can also be made by washing its head. 4) Carving grinder: Carving is the process of creating a screw thread. Each year more screw threads are produced than any other element of the machine. While grinding the thread, the part and the tool perform several types of movement in relation to each other. The instrument revolves around its axis (main movement); Part rotates (circular feed); The wheel or part moves during each rotation in a straight line at a distance equal to the step of the thread (passable channel); and the wheel moves sideways relative to the part (side feed). Carving machines use single-dark wheels that work in the same direction (the most accurate method, but not very productive) or in both directions. 12. 5) 3D CMM: The coordinate meter is a device to measure the physical geometric characteristics of an object. This machine can be manually controlled by the operator or controlled by a computer. The measurements are determined by a probe attached to the third moving axis of this machine. Probes can be mechanical, optical, laser or white, among others. A machine that takes readings in six degrees of freedom and displays these readings in a mathematical form known as CMM. The typical 3 CMM bridge consists of three axes, X, Y and W. These axes are orthogonal to each other in a typical three-dimensional coordinate system. Each axis has a scaling system that indicates the location of this axis. The machine will read input from the sensor, as it was sent by the operator or programmer. The machine then uses the coordinates X, Y, q of each of these points to determine the size and position with the accuracy of the micrometer normally. 6) CNC Wire Cut: 13. CNC wire cut is also known as CNC wire cut EDM, which runs the base on the electro spark principle. If there is a load, the EDM wire will slowly move towards the electrical work piece. The wire will be energized and create an electric spark between the wire CNC machines and work piece. An electric spark created between And the work piece will blur a small amount of piece work and wash off on the water deionizer to form a spark gap between the wire and the work piece. The electrical process of the spark will stop if it reaches the necessary depth. The size of the spark gap can be controlled as small as 0.0127mm. If there is no load, the machine will only run one cycle to the required depth and stop. SURFACE TREATMENT SHOP NO 6 Purpose: The Surface Processing Store is an electric thful shop. Electroplastication is the process of depositing the coating with electrolysis. The purpose of the electro-plates: - to improve the appearance of work. Prevention from corrosion. Reflection and decoration. Reclamation of undersized components. Prevent carburization and nits. To raise the solder. To increase electrical conductivity. Processes carried out in the store for the treatment of the surface: - coating zinc and coating cadmium. Copper coating. - Tin coating. Aluminium anodization. Silver coating. 14. - Copper oxidation. Chromium coating. Phosphating. Ferrous oxidation. Tin and lead coating. The general principle of electropolitics: In the composite solution, ions charged with electric shocks, whether negative or positive, move to opposite poles and continue to fold and deposit the thickness of the deposit on the surface of the component. Hydrogen and oxygen comes out on the surface of the solution that shows the current flowing. Time for this process is given depending on the thickness of the deposit. Surface equipment and processing process: East River: Key: a) Number of baths. b) Basic chemicals. c) The main process. d) Function. The main components that need to be washed. (f) Time of deposition and bathing time. j) zinc coating: (a) Number of gilets 4 b) zinc oxide, sodium cyanide, sodium hydroxide. c) Degrange, pickled cumbers, coating, passivation. d) Corrosion resistance. (e) Clip, spring, xersion bar, pipe, etc. (f) Time 20-30 min at room temperature. 2) Coverage of cadmium: a) Number of gilets No. 1 b) cadmium sulfate, sodium cyanide, sodium hydroxide. c) Degrange, pickled cumbers, coating, passivation. d) Preventing rust and seeping. (e) Nuts and washers (f) Time 20-30 minutes at room temperature. 3) Copper coating: (a) Number of gilets 2 b) Copper cyanide, sodium cyanide. 15. c) Debrasa, pickled cumbers, coating. d) Preventing carburization and rust. (e) Gears, shafts, nuts. (f) Time 1.5-2 sheers. 4) Tin plate: (a) Number of evisceration tanks 1 b) sodium stagnation, sodium hydroxide, sodium acetate. c) Degrange, pickled cumbers, coating. d) Solder ability, preventing nitrading. (e) Cylinder liners, timbals, connectors. (f) Time 40-50 minutes. 5) Aluminium anodizing: a) Number of dousing tanks 1 b) Sulphuric acid. c) Etching, bright, oxidation, coloring. d) The surface of solid and aluminum components. (e) The body of the telescope. (f) Time 20-30 b) Silver coating: (a) Number of gilets 1 b) Silver chloride, potassium cyanide. c) Degrants, mercury dipping, coating, passivation. d) Increase conductivity. e) Ring, connector. (f) Time 20-30 minutes. 7) Copper oxidation: (a) Number of gilets 1 b) Potassium per sulfate, sodium hydroxide. c) Degrange, pickled cumbers, coating, oxidation. d) Preventing reflection. (e) Screw, washer, nuts. (f) Time 5-10 minutes. Western Hall: 1) Chrome coating: a) Number of gilets of tanks No 6 b) Chronic acid, sulphuric acid. c) Degrange, pickled cumbers, coating. d) Restoring insufficient component size. e) Gudgeon pin, shafts, bearings, seats. etc. 16. (f) Time 0.15-1.0 hours. d) Temperature 55-60 degrees Celsius. (h) Nickel coating: (a) Number of tank dousing 1 b) nickel sulfate, magnesium sulfate. c) Polish, defrase, coating. d) Reflection and decoration. (e) Reflectors, models. (f) Time 30-45 minutes at room temperature. 3) Phosphating: a) Number of tank cutters No. 1 b) Grandoin No-111 c) Debrasa, pickled cumbers, phosphates, seal. d) Under the coating for painting. (e) Covers, housing support, idle wheel. etc. (f) Time 40-60 minutes. d) Temperature 96-99 degrees Celsius. 4) Fe-oxidation: a) Number of gibleting tanks 2 b) sodium hydroxide, sodium nitrate. c) Degrange, pickled cumbers, seal oxidation. d) Resistance to corrosion without size breaks. (e) Guns, bridge block, sensor. (f) Time 40'501 minutes. d) Temperature 137-150 degrees Celsius. Process detail: East River: 1) zinc coating: Purpose: for corrosion protection and for decoration. Bath composition: zinc oxide, sodium cyanide, sodium hydroxide. Bath size: 2000x800x1000mm Process Flow: degreng, picky, zinc coating, passivation. Flow Process: degreasing, culling, copper coating. Capacity: 30DM2 Use: gears, shafts, nuts. 3) Copper boards; The goal: from corrosive stability, electrical conduction, prevention from carburization and jam. Bath composition: copper cyanide, sodium cyanide. Bath size: 1500x900x1000mm Flow Process: degreasing, culling, copper coating. Capacity: 30DM2 Use: gears, shafts, nuts. 3) Silver coating: Aim: to increase electrical conductivity and solder ability. Bath composition: silver chloride, potassium cyanide. Bath size: 400x300x300mm Flow Process: degreasing, dip in mercury, silver coating, passivation. Capacity: 0.02 DM2 Use: rotating rings, connectors, timbala, etc. 4) Copper oxidation: Purpose: Protection from light and decoration. Bath composition: potassium persulfate, sodium hydroxide. Flow process: skimming, culling, copper coating, oxidation. Use: screw washers, nuts, etc. West Hall: 1) Aluminium anodization: Purpose: For corrosive stability, decorating, preventing from reflection and hardness of the surface. Bath composition: sulphuric acid. Bath size: 600x600x800mm 18. Flow process: etching, lightening, anodizing, coloring. Capacity: 0.5DM2 Use: body, telescope case, etc. 2) Tin and lead coating Target: Protect against exposure, effect of motor oil and soften the shell from the hard rotating shaft. Bath composition: fluoboric acid, lead-fluorurat, tin fluoroburat. Bath size: 600x600x800mm 600x600x800mm stripping, skimming, picky, tin and lead coating. Cargo capacity: 0.5 DM2 Use: inserts, shild carriers, etc. 3) Nickel coating: Purpose: for decoration, corrosive stability and reflection. Bath composition: nickel sulfate, magnesium sulfate. Bath size: 1200x800x800mm Flow process: polishing, skimming, nickel coating, polishing. Capacity: 50DM2 Use: reflectors, etc. 4) Orosinex oxidation: Target: for corrosive stability. Bath composition: sodium nitrite, sodium hydroxide. Bath size: 1500x800x1000mm Flow process: degreasing, nibbles, oxidation, seals. Cargo capacity: 60 kg Use: parts cannon, block shutter, cam shafts, etc. 5) Chrome coating: 6) Phosphating: 7) Cadmium coating: 8) Tin coating: 19. HEAT TREATMENT PROCESS SHOP-8 Spring Production: Varieties No. 375 Internal Diameter - 1.2-100 mm External diameter - 1.8-120 mm Length - 2-1000 mm. Machine statement: 1) Electrical resistance furnace No. 8) Well type of gas carburization resistance furnace No. 3) Well type of furnace resistance hardening No. 3) 4) Salt bath furnaces No 7 5) High-frequency induction heating equipment No 2 6) Bevel Gear Queer Press No. 1 7) Queer Tanks No. 8 8) Sub-zero processing equipment No. 3 9) Hydraulic Press 1 10) Shot Explosive Machine No. 2 11) Sand Explosion 1 12) Hermatic dryer No. 1 13) Floor-type grinding No 3 14) Engine loom No. 1 15) Spring Spiral Machine No 1 16) Gas nitrating furnace No 2 17) Spring compressed Tester No. 3 18) Spring Tester fatigue No 1 19) Bench drill No 1 20) Double column sloping press No 1 21) Deep resistance furnace type well No 1 22) Hardness Tester No. 1 20. 24) Lead Bath Furnace No. 1 25) Magnetic Flow Detector No. 1 26) Vertical Polishing Machine No. 1 27) Metallurgical Microscope No. 1 28) High-temperature atmospheric resistance control furnace No. 1 Available opportunities: 1) Annealing/Normalization: Complete annealization/normalization of stress Free hardening - Press-hardening - Press-hardening - Deep Tempering 9) Tempering - Low tempering 4) Salt Bath Treatment: - Low Salt Bath Processing Temperature - Average Salt Bath Processing Temperature 6) Sub-zero processing: - up to 120 Celsius 7) Spring production: - up to 10 mm diameter wire 8) De-scaling: - Shot blast processes associated with spring production: Bellow With which springs are made: 1) The wire damage to the pulp of the engine. 2) The diameter is then tempered to 300-350 Celsius. 3) Wire Cutting 4) Shredding 5) Correction - Directness - Step Variation - Length 6) Re-hardening 7) Inspection 8) Surface processing FORGING PROCESS SHOP-12 22. Forging: Metal work required After heating is carried out by hitting a hammer or under pressure the press is called forging. Different types of machine parts of different shapes and sizes are produced by forging processes. Forging press: 1) Figure down the process: In the process, the length of the empty increases and the diameter of the empty decreases. 2) Precipitation process: In this process, the diameter of the gap increases and the length decreases. 3) The prunning process: the process by which the additional material that has flared out of the component/fins is removed by trimming the die is called the prunning process. 4) Bending process: 5) Heating process: 6) Materials: General materials are used to counterfeit components as underneath: 38 Crsl,A3, Steel-10, steel-40, steel-35, steel-41, steel-15, 20Cr2Ni4A, 18Cr2Ni4A. 7) Optical pyrometer: A tool used to measure high heat. 8) Tools: 10) Swages: Used to smooth round rods or round surfaces. 11) Fullers: They form tools that come in different shapes and sizes and can be manipulated to make grooves and hollows. 23. 12) Tonga: It is used for he's, which are made in many shapes and sizes. There are 3 types of forceps; Straight up-tongs - Curved tongs - Take tongs 13) Hand hammer: It is used in hand forging. There are three types; - Cross-hammer-hammer and hammer ball 14) Chisel: It is used to cut metal. Two types are used; Hot chisel - Cold chisel 15) Forging types: - Free forging - Open forging type - Die forging 16) Measuring devices: - Steel rules - Inside wicketkeepers - External wicketkeepers 17) Machines used in forging shop: a) Pneumatic hammer: It is used for medium and heavy forging. Maximum weight forged on a hammer weighing 250 kg, 9kg. Maximum weight forged on a hammer weighing 750 kg, 40-45 kg. 50kg hammer 345mm - Maximum weight forged by 250 kg hammer 1kg. Maximum weight forged at 750 kg hammer 8kg b) Press: - A double disc rubbing screw press is used to forge small and large components. An open type of sloping-capable press is used to trim fake components. 24. 18) Heating: Steel heating is a very important and basic operation in forging practice. If a piece of steel is heated, it becomes softer and its strenuous strength decreases and at the same time its plasticity and malleability increases. Structural changes in metals when their mechanical and physical properties are heated are also changing. 19) Safety Measurements: - Keep the shop clean, Metal scraps should be placed in a scrap box - Never use compressed air to clean the machine from chips - Keep hand tools in good condition 20) Pre-temperature forging dies: 250-300 Celsius 21) Machines and equipment: 1) Pneh hammer 250kg 2) Heat gas camera type 3) Pneumatic Hammer 750kg 4) Chamber type gas heating furnace 5) Chamber type gas heating furnace 6) Double disc rubbing screw 300ton 7) Open type double column press 80ton 8) Porous type end heating furnace 9) Box-type oven 10) Box-like resistance furnace 11) Brinell Hardness Tester 12) Floor-like grinder 13) ARC welding machine 14) Track pin heating machine 15) Black blacksmith oven 16) Surface plate 17) Shot blast-forming machine 18) Electric single-beam crane 19) Power stabbing Machine 20) One pillar of hydraulic press 90ton 21) Rockwell hardness tester 22) Hydraulic haircut machine 23) Power knife machine 24) Battery car 25. FOUNDRY PROCESS SHOP NO 10 SAND MULLER: Sand Muller is a machine that mixes and restores the ready-to-use texture of sand casting. Green sand is mostly cooked in the foundry. MOLDING: Patterns are used for casting. Without a template, casting cannot be done. There are two types of templates used; Wooden patterns, with which manual casting is made. Metal patterns that come in 2 parts. The sand from Muller's sand is then hand molded into their respective patterns. BUCKINGHAM: The mold is then baked in the oven for 4 hours at a temperature of almost 400 degrees Celsius. 26. MOLD CLOSING: This is done in a scheme that has a rise from which the molten metal rises. Its purpose is to cover the shrinkage. The basic formula is that if 1 kg of casting needs to be done, then a height of 3 kg should be used. FURNACES: There are 3 furnaces; Dome furnace - COPPER COIL induction furnace: This is a machine used to melt metal. Copper is a very good conductor of electricity. The current is induced in copper coils that generate heat and the metal is melted. CASTING: There are 4 casting processes in the foremen shop; Vacuum casting, which produces rods made of aluminum and brass. There is a vacuum pump that sucks the molten metal into the die and the hard rod comes out. Centrifugal casting that produces rings. An investment casting that uses paraffin wax and a core of urea to make products. - Die casting ELECTRIC RESISTANCE FURNACE: It heats the metal at 800 degrees Celsius. WAX INJECTOR: This is a Chinese machine that automatically injects wax into die as required. He makes wax patterns. 27. CYCLONE SYSTEM: This is a German machine that coats. It has 2 tanks; primary and secondary. It covers 11 layers; Three layers are made by the upper tank and eight layers are made by a lower pot. OTHER MACHINES IN FOUNDRY SHOP: Infrared drying furnace - Silicon Mold Solutions and Expendable Cups - Shake Out - Tilting Machine CPM MILLING MACHINE SHOP K This is a 5-axis milling machine. It uses g-code and m-code for programming. It uses 27 no oil or machine oil as There is a tool device that measures the exact length and 28. the diameter of the new instrument. There are two buttons present: One is on top for length and the other is on the side, which is for diameter. A style is used to establish the origin. On Na there is a CN side and a manual side. On the CN side there is a rpm handle, a poop handle and a ripe handle. While on the manual side, there is a release handle for the cutter and arrow for the direction. It also has a tool fixture. Specifications: CB Ferrari A-17 Italy CNC Control: E520 SOFTWARE: o ELEXA o DAM TABLE SIZE: 1250-560mm POWER OF MOTOR: 10KW TRAVEL: o X-Axis (longitudinal) 1050mm o Y-Axis (Persept) 520mm o-Axis Axis (Vertical) 420mm o C-Axis (fraying head tit) from 90° to -90° o A-Axis (CNC division heads) 360° Precision : 0.001mm Tool magazine capacity: 19 tools 29. SP2 For 3D digitization (tracking) Coolant: 27 do not use oil as a Coolant opportunity: o Simple milling, o Grooving, o Drilling, o Boring, o Reaming, o Tapping

operation. o The machine is capable of producing complex workplaces with an internal and external contour. o Pockets and a conical profile with high accuracy. Controls: o CN o Manual incisors: o Key Path - anvil Cutter o Single Flute Cutter o End Mill Cutter o Direct Drill o Taper shirk drill Precision: CNC milling machine is so accurate because its head fix and has no game. It has motor systems instead of train transmissions, and also has a hydraulic system and pressure system, which increases its efficiency. Operation: Oil is under pressure, which sucks the tool and is fixed in the collet, and it cannot be released if the same oil pressure is not achieved. 30. Parts made on CNC Fraser Machine: 1) 2nd and 3rd body synchronizer speed. 2) Lever 3) Gear shaft 4) Stop 5) Hook 6) Pusher 7) Lower Extractor 8) Upper Extractor 9) Coke Lever Shaft CONTROL KK (D) O: The function of the KK is to produce parts as required. In-house products are products that are manufactured in stores. Its material is purchased before surgery, such as springs. Wender industries mean products made from Companies in Pakistan. Strategies: KK follows 3 strategies; Inspection of measurement; visual as well as radiographic (gamma rays). b) 2 tests; A destructive test in which the material is destroyed. Non-destructive test involving gamma rays. c) Check suitability in its application. Laboratory tests: - Physical test, which is rigidity and strenuous testing. 31. Chemical test in which items are tested at any work. WARNING FOR HEALTH - There were a lot of machines in stores that could give way out at a very high production rate, so they need to be active all the time and more good can come out of them than just used for almost a third of a year. Internees should be trained in some useful programs as well, which are related to their field and can be used in their work as new technologies are more based on computer programs to manage production. Internees can be trained to project on software like this it will be easier for them than getting a production project that is difficult. Some machines in some stores need to be cleaned and their parts need to be replaced for better production. (my observation) - The device Not used now days must be taken out of stores, so that a new machine can be installed. Comments: Wednesday was very good for studying all kinds of operations related to mechanical engineering. The staff were also very cooperative if anyone wanted to learn something they were more than willing to go in all the details. It's been a good experience in a great industry, and the knowledge we get will certainly have a great place for us. Us.

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