DOWNLOAD PDF PLATE 81-A. GASOLINE-DRIVEN AIR COMPRESSOR 123

Chapter 1 : Gas Driven Air Compressor, Gas Driven Air Compressor Suppliers and Manufacturers at calen

VMAC G30 gas driven air compressors include a patented 30 CFM rotary screw air compressor designed to produce full air power, % of the time, so you don't need an air receiver tank. Get jobs done faster, without interruption.

The improved system includes means defining a modular utility frame for carrying various support components of the system. Such support components may include a fuel storage tank, a start-up energy storage tank, a radiator, and power plant support apparatus. More particularly, the invention relates to improvements in mobile electric power generating systems of the type comprising an enclosed trailer for carrying prodigious electric power generating equipment. Such equipment typically has generating capacities ranging from about kilowatts up to and exceeding kilowatts. Trailer-mounted electric power generating equipment of the type described is designed as an independent, self-contained, source of electricity. The trailer is typically towed to a remote site, often in tropical or desert areas, where electric power is needed but unavailable through more conventional means. It is highly desirable that within a short time after arrival at the site, all necessary preparations will be promptly completed, so that large scale electric power generation can begin without prolonged delay. It is also desirable that these preparations be carried out with minimal skill, and without the aid of relatively sophisticated tools and equipment. In mobile electric power generating systems of the type described, it is also highly desirable that the system components be fabricated and assembled expeditiously, to minimize construction time and expense. In the past, however, such systems have typically been constructed in a relatively cumbersome and inefficient piece-by-piece manner. Such methods are not only somewhat costly and time consuming, they do not make maximum use of the limited trailer space available. Accordingly, it is an important object of the invention to provide improved systems apparatus, and improved methods of fabricating and assembling such systems to obtain heretofore unknown economies in trailer space and construction time. The frame includes means defining a fuel storage tank region for mounting a fuel storage tank, means defining a start-up energy storage tank region for mounting a start-up energy storage tank, means defining a radiator frame for mounting a radiator, and means defining a power plant support apparatus region for mounting power plant storage apparatus. In another aspect of the invention a method of fabricating a mobile electric power generation system is defined. The method includes the steps of installing a power plant on a trailer bed, securing power plant support means to a utility frame, and installing the utility frame on the bed. The mobile electric power generating system of the invention further includes a number of features which facilitate system assembly and operation. These features include panel means movable to define an access to the power plant and a canopy over said access, normally closed gate means which open automatically during a start-up condition of the power plant, a recessed exhaust system, apparatus which allows an operator of the system to readily determine whether there is adequate coolant in the radiator used to dissipate heat produced by the power plant, and a removable section to facilitate system assembly and maintenance. However, certain aspects of the invention itself, together with further objects and attendant advantages, will be best understood by reference to the following detailed description taken in connection with the accompanying drawings, in which: This embodiment includes a trailer 15, a trailer enclosure 20, a power plant 80, and a utility frame These components, which are combined to form a self-contained mobile electric power generating system, will be described in greater detail below. In general, trailer 15 includes a substantially flat bed 16, and a conventional tandem axle, eight-tire wheel structure Trailer 15 is arranged to be hitched to, and towed by, a tractor not shown in a manner well known in the art. Conventional supports 18 are secured to the underside of bed 16, and are arranged to help support the forward portion of trailer 15 when the tractor is not hitched thereto. With the exception of special computer brakes, trailer 15 generally conforms to all of the regulations promulgated by the United States Department of Transportation. Thus, in one preferred embodiment, trailer 15 is approximately 40 feet long and 8 feet wide, and with enclosure 20 attached, is approximately 12 feet, 7 inches in height. In this embodiment, enclosure 20 of trailer 15 is a hollow, five-sided shell comprising a pair of side walls 25, 26, a top wall 27, a front wall 28 and a rear wall Disposed in rear wall 29 are a pair of rear doors 24 which, when opened, provide an access to trailer bed 16 substantially equal in area to the cross-sectional area of enclosure The rearward portions of both side walls 25 and 26 define louvered portions Louvers 21, of similar construction to louvered portions 22, are defined in front wall A utility door 23, primarily used to provide access for personnel, is located near the forward end of side wall In this embodiment, removable section 30 of enclosure 20 is located substantially at the center thereof. Removable section 30 includes two canopies 31, and two platforms Canopies 31 may be opened to provide access to trailer bed 16 from outside trailer 15 and platforms 50 may be lowered after canopies 31 are opened, to form a work area adjacent to power plant Removable section 30, which forms an integral part of the enclosure 20 when mounted on trailer bed 16, may be lifted off of trailer 15 as a unit, permitting free access to the equipment therein, particularly the top and sides of power plant Power plant 80 typically includes an electric power generator 82, and an engine 81 for turning generator Power plant 80 may also include a control panel 83 for monitoring and operating both engine 81 and generator The generator 82, to which this engine is preferably connected, is a KW electrical generator manufactured by Kato Engineering Co. At least many of the support systems for power plant 80 are carried by a utility frame These support systems may include various fuel and air tanks, motors, heat dissipation means and other apparatus which are all described in greater detail hereinafter. The use of utility frame 90 for mounting the support systems for power plant 80 permits the systems to be installed within enclosure 20 as a single unit. This, of course, eliminates the need for separately installing all of the various tanks, motors, and other apparatus, thereby minimizing the time and costs of assembly, and providing maximum economies of space. The embodiment shown in FIG. Nonetheless, it can be expeditiously assembled, transported, operated and maintained. Still referring to FIG. Louvers 21, mounted in front wall 28, and louver portions 22 mounted in the rear sections of side walls 25, 26, are equipped with air filter elements not shown and thereby provide openings through which filtered air is drawn into the trailer for engine induction and engine and generator cooling. Induction air is exhausted from the trailer through an engine exhaust pipe Engine and generator cooling air is exhausted through a top opening 71 in top wall Though access to the interior of the enclosure 20 for machinery and personnel is provided by rear doors 24, and auxiliary access is provided by utility door 23, a more extensive access 19 is provided upon opening canopy panels 31 as illustrated in FIGS. More particularly, when opened, canopy panels 31 define access to the interior of enclosure 20, and when closed, they form an integral part of side walls 25, Canopy panels 31 are substantially rigid pieces coated on their inside surfaces with a layer of urethane foam not shown approximately 1 inch thick. This urethane layer provides structural strengthening as well as sound insulation. Panels 31 are fastened to side walls 25, 26 by hinges A strip of water-resistant fabric 33 is secured over each hinge 32 to retard the flow of rain water which might otherwise seep into the interior of enclosure As best shown in FIG. Each support rod 34 is a substantially rigid member capable of supporting the weight of canopy panel Each of support rods 34 defines a pivoted end 48 and a secured end Pivoted end 48 is pivotally attached to a canopy support rod mounting bracket 36 through a first pivot Each mounting bracket 36 is rotatably attached to a canopy panel 31 at a second pivot When canopy panel 31 is closed, the secured end 38 of each support rod 34 is fastened to a support rod storage bracket 39 extending from canopy panel When canopy panel 31 is opened, the secured end 38 of support rod 34 is fastened to a support rod securing bracket 49 shown in FIG. When so fastened, canopy panel 31 will be securely held in its open position. Movable platforms 50, which are preferably attached to enclosure 20, are rigid panels which serve as a work area adjacent to power plant 80 when in their open or horizontal position. As shown in FIG. Hinges 57 allow platforms 50 to be moved from a closed or vertical position inside of enclosure 20, shown in FIG. A platform locking plate 58 is attached to each end of platform 50 through a locking pivot The platforms 50 may be locked in their closed or vertical position by rotating locking plate 58 until it is captured in the space between the side walls 25, 26 and a locking flange Platforms 50 are supported in their open, horizontal position by platform support arms These support arms 51 are pivotally attached to support brackets 53 which are rotatably attached to a trailer side frame member 62 through support bracket pivots Support arm-receiving sockets 56 are provided in the outmost edge 63 of platforms 50 for holding platforms 50 in their open position. Spring clips 55 are provided on trailer side frame member 62 to hold support arms 51 against the trailer frame when platforms 50 are stowed in their vertical position. The procedure for opening canopy panels 31 and deploying platforms 50 from their closed positions can be best understood by referring to FIGS. First, each canopy panel 31 is manually raised to define access Access 19 renders the stowed canopy support rods 34 accessible from outside enclosure Secured ends 38 of support rods 34 are then lifted off of storage bracket Support rods 34 can then be pivoted about pivots 34 and 37 and attached to securing bracket 49 to maintain each canopy panel 31 in its open position. After canopy panels 31 have been moved to their open position, platforms 50 may be deployed. This is accomplished by rotating locking plates 58 until they are no longer secured between one of side walls 25, 26 and locking flange Platform 50 can then be swung outwardly on hinges To support the platforms 50 in their horizontal positions, platform support arms 51 are released from spring clips 55 and pivoted about the pivots 52 and 54 until the free ends 64 of support arms 51 are positioned within support arm receiving sockets Once deployed, the platform 50 provides a stable work area adjacent to the power plant Operating or service personnel can thus reach power plant 80 through access 19 defined by the opening of canopy panels Moreover, since the width of power plant 80 is typically somewhat less than, but substantially equal to the width of trailer bed 16, the work area provided by platforms 50 facilitate the movement and activity of personnel on trailer 15 even after power plant 80 has been mounted thereto. As previously discussed, trailer enclosure 20 is provided with a removable section which in the embodiment of FIG. Removable section 30 may be lifted off of trailer bed 16 to provide unrestricted top and side access to power plant Removable section 30 includes a top section 61 and a downwardly-extending frame portion 65 as shown in FIG. Canopy panels 31 are attached to frame portion 65 of removable section 30 with hinges 32, and gussets are installed in the upper corners of removable section When removable section 30 is mounted on trailer bed 16, gussets are aligned with facing gussets mounted at appropriate places on enclosure Fastening means cooperating with gussets and , secure removable section 30 of enclosure Weather stripping elements and , shown best in FIG. These weather-stripping elements are preferably fabricated from a flexible, rubberlike material. By covering the joint between removable section 30 and enclosure 20, weather stripping elements and inhibit water and other foreign material from entering the enclosure. These brackets are mounted near the four corners of top section 61 and serve as gripping means for cable hooks or the like not shown which are used to lift the entire center section 30 from enclosure 20 when it is being removed from, or installed on, trailer bed The cable hooks may be attached to a cable which is most conviently lifted with a crane or derrick. Another feature of this preferred embodiment can be best understood by referring to FIG. More particularly, in FIG. Disposed in floor 43 is a drain 44 for draining water from recess Also disposed in floor 43 is an exhaust pipe 42 equipped with a rain flap 45, and a rain skirt Rain skirt 46 provides a rainproof seal between exhaust pipe 42 and floor When removable section 30 is mounted on trailer bed 16 over power plant 80, including engine 81, exhaust pipe 43 is connected to an engine silencer 84 shown in FIG.

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Chapter 2 : Diesel/calendrierdelascience.com Power Plant

Refurbish your air compressor with new air compressor accessories. An air compressor is an essential household item that can make fastening materials, inflating tires and even painting easier.

A supercharger for internal combustion engines of the type having a carburetor, intake manifold, crankshaft, and a flywheel attached to the engine crankshaft, said supercharger operably utilizing the automobile flywheel for supplying compressed air to the carburetor and intake manifold, said supercharger comprising: The supercharger for engines as defined in claim 1 wherein said centrally located inlet opening in said output plenum housing and said centrally located outlet opening in said intake plenum housing circularly surround the engine crankshaft, and said intake plenum housing outlet opening is proximate said output plenum housing inlet opening such that air exiting said intake plenum housing enters said output plenum housing. The supercharger for engines as defined in claim 2 wherein said means to deliver the air so compressed to the carburetor and intake manifold includes an output air passage tube having two ends, one end of which is operably attached to the output plenum housing outlet opening, the other end operably attached to said carburetor and said intake manifold. The supercharger for engines as defined in claim 3 wherein said means to gather air for delivery to said output plenum housing for compression includes an intake air passage tube having two ends, the first end of which is operably attached to said intake plenum housing inlet opening and the second end of which is open to air proximate the engine. The supercharger for engines as defined in claim 4 further including an air filter, said air filter operably attached to said second end of said intake air passage tube whereby air entering said intake air passage tube must first pass through said air filter. The supercharger for engines as defined in claim 5 wherein said vanes which are attached to said flywheel are in close proximity said output plenum housing and further including air seals, said air seals operably attached to said air compression vanes, said air seals interposed between said compression vanes and said output plenum housing, said air seals preventing air from leaking between said air compression vanes. The supercharger for engines as defined in claim 6 further including a securing ring, said securing ring encompassing said centrally located outlet opening of said intake plenum housing and said centrally located inlet opening of said output plenum housing to secure said intake plenum housing to said output plenum housing and to prevent air leakage between said intake plenum housing and said output plenum housing. Field of the Invention The field of the invention is superchargers used on automobiles engines which also have flywheels connected to the crankshaft of the engine. Description of the Related Art In recent years, there has been a surge of interest in superchargers for automobile engines, especially in the consumer area. Automobile superchargers which deliver air to the engine for mixture with gasoline have fallen into two broad classes, the first and original type being that which derives energy for compressing the air from the engine crank shaft. The second type of supercharger, which draws on recent high temperature technology, places a turbine in the exhaust of the automobile engine as a source of energy to drive an air compressor, and is usually termed a turbosupercharger. With either type, a larger than usual amount of air is delivered to the automobile carburetor or to the intake manifold for a fuel injection system and ultimately to the cylinders. An example of the first type of supercharger is illustrated in the U. As the rotor rotates, air is drawn in and then expelled in the process of being pressurized. The device of Hilfiker is so constructed as to make use of the supercharger selectable. When the supercharger is not being used and when the automobile engine is idling, the rotor is situated at the center of the round chamber. By such means, air drawn into and discharged by the supercharger is not compressed, or if compressed, then compressed very little. However, when the supercharger is operating fully, the rotor is moved off center to an eccentric position so that more air enters the chamber whereupon the slideable vanes in the rotor compress the air and discharge it into the automobile cylinders. The rotor of the supercharger is driven by the engine crank shaft. A second patent of the first type is shown in the U. The supercharger is, however, a separate device apart from the engine and receives its rotational energy by means of pulleys and belts, one pulley being the engine flywheel. A third patent of the first type is illustrated by the U. As a result, the supercharger operates only when the clutch of the automobile is engaged. The second type of supercharger, as referenced above, places the high temperature turbine, such as one having blades made with ceramics or high temperature steel, directly in the path of the engine exhaust gases. The central shaft of this turbosupercharger is connected to a conventional type air compressor which compresses the air prior to entrance into the engine carburetor or intake manifold. As the present art stands, available superchargers are quite expensive and rather complicated to manufacture. As a consequence, if means and methods could be found to utilize present existing elements of an automobile engine and power train following the engine to construct the supercharger, the expense of superchargers may be reduced considerably. It is to this end that the subject invention is directed. More particularly, the subject invention installs air compressing type vanes upon one of the two circular faces of the automobile flywheel. A first donut shaped annular plenum is located proximate the engine block to receive intake air into its interior by one or more entrance openings, the openings to the plenum having a tubular conduit attached thereto. Prior to entrance of air into the intake conduit and into the first intake annular plenum, an air filter may be installed. Next, a donut shaped plenum constructed from sheet metal encompassing the portion of the flywheel with the vanes attached is installed, also encircling the driveshaft protruding from the automobile engine. Both plenums are situated between the engine block and the flywheel. The intake annular plenum is constructed such that it is open at its inner circular periphery so that air which enters the plenum exits the immediate area surrounding the engine driveshaft. Then, the intake air exiting the intake plenum at its inner periphery enters an inner peripheral opening of the output or second plenum. The output plenum, which is somewhat similar in construction to the intake plenum in that it is also a donut shaped annular plenum is situated immediately next to the intake annular plenum. Interiorly to the output plenum, the flywheel with the attached vanes rotates. In the preferred embodiment, the annular shaped sides of the output plenum are in close proximity to the tops of the vanes attached to the flywheel. Further, the part of each vane attached to the flywheel circular face nearest the driveshaft is greatest in width so that as the air incoming from the intake plenum is gathered by this end of the vane, it is thrown radially outward along the narrowing width of the vane and thereby gradually compressed until it reaches the outer peripheral side of the output plenum. In the preferred embodiment, the vanes were somewhat pyramidal in shape although this is one of several acceptable shapes. The vanes are preferably attached to the flywheel by welding although the flywheel and vanes could be manufactured as a single element. Continuing, a preferably single opening in the plenum outer peripheral side permits the compressed air to exit and travel through a tubular output conduit to the carburetor of the automobile or intake manifold of fuel injected engines. There it is mixed with gasoline to enter the cylinders of the vehicle engine. At the center opening of both the intake plenum and the output plenum, the two adjacent edges of the sheet metal plenums are joined by an annular "C" shaped band or ring so that air may not escape radially from between the two annular plenums. The invention is useful in all internal combustion engines driving vehicles having flywheels, whether or not a manual transmission clutch engages the circular face of the flywheel opposite the vanes, or whether the driveshaft continues beyond the flywheel to an automatic transmission. Modification to the engine driveshaft and immediate area may be needed to be made to increase the space between the block of the engine and the flywheel to accommodate the inserted intake and output plenums although an alternate embodiment utilizes only an output plenum. Due to the construction of the air compressor portion of the subject supercharger, greatest delivery of air will be accomplished when the engine is running at its highest speed. Accordingly, it is an object of the subject invention to provide a supercharger for an automobile engine where the engine performance may be enhanced if air for combustion is delivered under pressure. It is another object of the subject invention to provide a supercharger for an automobile engine which is relatively inexpensively constructed and which utilizes as its air compressing means elements of the automobile already present. It is still another object of the subject invention to provide a supercharger for an automobile engine whereby the air compressing means consist of vanes attached to the existing automobile flywheel operating within an air chamber. Other objects of the invention will in part be obvious and will in part appear hereinafter. The invention accordingly comprises the apparatus possessing the construction, combination of elements, and arrangement of parts which are exemplified in the following detailed disclosure and the scope of the application which will be indicated in the claims. In various views like index numbers refer to like elements. Emerging from flywheel-clutch assembly 14 are a pair of air pipes or conduits for the purpose of conducting air to and from the invention, the first being input or intake air conduit Attached to the distal end of intake conduit 20 is air filter 19, filter 19 adapted to remove large air-borne particles from the air. Secondly emerging from flywheel-clutch assembly 14 is output air conduit 18, conduit 18 connecting at its opposite end to carburetor The subject automobile supercharger utilizing the automobile flywheel to receive input air via conduit 20 compresses that air by means of a vane type rotary air compressor, and transmits the received and compressed air to carburetor 22 by means of conduit The compressed air which is supplied to carburetor 22 is mixed with gasoline causing the gasoline to vaporize and then the vaporized gasoline is forced into the cylinders of automobile engine 12 under the pressure generated by the supercharger. In the case of an automobile engine with a fuel injection system, a carburetor is not used and the compressed air is delivered to the intake manifold proximate the cylinder valves where it mixes with sprayed gasoline to achieve vaporization. Referring next to FIG. In respect of the portion of automobile engine 12 shown in FIG. Flywheel 24, as is well known in the art, is a round disk having two circular faces, one of which is a smooth planar face and has teeth situated at its annular periphery for engagement by a starter motor shaft gear not shown. Pressing firmly against the flat smooth face of flywheel 24 is clutch and pressure plate assembly 26, a pressure plate urging the clutch up against flywheel 24 when it is desired to transmit the rotary motion of driveshaft 16 to the clutch and the drive train assembly following it which is not shown. Actual engagement between the flywheel and the clutch usually takes the form of an annular segmented pad attached to the clutch plate. All this is well known in the automotive art. The invention is shown in the addition of air compressing type vanes 28 to the outer peripheral portion of the second circular face of flywheel 24, that face used being opposite the face engaged by the clutch. As flywheel 24 rotates these vanes compress the air to deliver the air under pressure to the carburetor via output air conduit More particularly, shown in FIG. In the preferred embodiment, the intake plenum encircles driveshaft 16 and has one or more openings through outer peripheral wall 29 for incoming air, such as the opening connecting with input air conduit Front or forward side 30 of the plenum resides against the rear wall of engine Air incoming through conduit 20 enters the intake plenum and approaches the center area of the plenum. It exits the intake plenum through the open inner periphery of the annular plenum and makes nearly a complete reverse turn to enter the open inner periphery of the output plenum formed of forward wall 32 and outer peripheral wall The output plenum is also donut shaped and has one of its annular shaped sides Juxtaposed the annular shaped side of intake plenum. The output plenum also encircles driveshaft 16 and has only one outlet, namely an opening through the outer peripheral wall 36 which connects with output conduit The inner peripheral edge of the inner openings of wall 31 of the intake plenum and wall 32 of the output plenum are held together by annular "C" clamp and band 34, which also serves to prevent the escape of air radially from between the two plenums. Outer peripheral wall 36 and the rear portion of output conduit 18 do not touch pressure plate and clutch assembly 26, but approaches it very closely. This is necessary because the output plenum is stationary while the pressure plate and clutch assembly 26 rotate. Since air which is interiorly to the output plenum is under pressure, there may be an air leak at this point. A seal interposed outer peripheral wall 36 and pressure plate and clutch assembly 26 may be employed, although not shown. As the air moves from the intake conduit 20 into the intake plenum, it continues to the central circular opening where it exits to the central circular opening of the output plenum. As flywheel 24 rotates, vanes 28 engage this incoming air from the intake plenum to deliver it to the periphery of the flywheel. The air exits the output plenum through an opening and into output conduit 18 which conducts the air to the carburetor. As the air is initially engaged by the portion of vanes 28 nearest the interior opening of the output plenum, it is thrown circularly outward by rotating vanes 28, compressing the air, and forcing the air to exit under pressure into output conduit In the preferred embodiment of FIG. In addition appropriate sealing means may be employed to assure that little, if any, air should escape between the vanes whereby all of the air interiorly to the output plenum should be exhausted through the output conduit One possible method of sealing is to place a strip of sealing material, such as neophrine, on the top edge of each vane, the neophrine seal contacting and sliding upon the inside surface of the output plenum housing. As the automobile engine accelerates, flywheel 24 also responds in increased angular velocity and as the carburetor is demanding more air from the supercharger, more air is supplied. Also shown in FIG. As bell housing 40 continues to the rear of the automobile to the left in FIG. The subject invention is contained within bell housing 40 with two openings through the housing to accommodate the intake and output air conduits 20 and 18 respectively. Referring now to FIG. Centrally located in FIG. Vanes 28, which may be constructed of a metal such as steel or aluminum, are attached to flywheel 24 by welding, or as mentioned before, the flywheel may be initially formed with the vanes in place. Lastly, referring now to FIG. More particularly, in FIG. Air, now entering bell housing 40 through one or more openings 42, proceeds to the center area of bell housing 40 where it enters the inner circular opening of the output plenum. There the air is engaged by vanes 28 attached to flywheel 24, vanes 28 operating within output housing 32 in a sealed manner such as was described in connection with FIG. An example of such a seal is shown in FIG. As in the preferred embodiment, the incoming air is thrown in a radially outward circularly fashion to the outside periphery of flywheel 24 where it is compressed and from where it exits the output plenum by means of connecting output conduit

Chapter 3 : Craftsman Parts List and Diagram : calendrierdelascience.com

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Chapter 4 : 15 HP 3 Cylinder 2-Stage Air Compressor Pump | Air Compressor Pumps

Keep the pressure constant on your pressure washer by replacing the valve plate on your air compressor. How to Maintain an Air Compressor This video will show you the steps to service and maintain your air compressor at home.

While it is true that higher intake temperatures for internal combustion engines will ingest air of lower density, this only holds correct for a static, unchanging air pressure. However, the heating of the air, while in the supercharger compressor, does not reduce the density of the air due to its rise in temperature. The rise in temperature is due to its rise in pressure. Energy is being added to the air and this is seen in both its energy, internal to the molecules temperature and of the air in static pressure, as well as the velocity of the gas. Inter-cooling makes no change in the density of the air after it has been compressed. It is only removing the thermal energy of the air from the compression process. Two-stroke engines[edit] In two-stroke engines , scavenging is required to purge exhaust gasses, as well as charge the cylinders for the next power stroke. In small engines this requirement is commonly met by using the crankcase as a blower; the descending piston during the power stroke compresses air in the crankcase used to purge the cylinder. Scavenging blowing should not be confused with supercharging, as no charge compression takes place. As the volume change produced by the lower side of the piston is the same as the upper face, this is limited to scavenging and cannot provide any supercharging. Larger engines usually use a separate blower for scavenging and it was for this type of operation that the Roots blower has been utilized. Turbocharging two-stroke engines is difficult, but not impossible, as a turbocharger does not provide any boost until it has had time to spin up to speed. Purely turbocharged two stroke engines may thus have difficulty when starting, with poor combustion and dirty exhausts, possibly even four-stroking. Some two-stroke turbochargers, notably those used on Electro-Motive Diesel locomotive engines, are mechanically driven at lower engine speeds through an overrunning clutch to provide adequate scavenging air. As engine speed and exhaust gas volume increase, the turbocharger no longer is dependent on mechanical drive and the overrunning clutch disengages. Simple two-stroke engines with ported inlet and exhaust cannot be supercharged since the inlet port always closes first. For this reason, two-stroke Diesel engines usually have mechanical exhaust valves with separate timing to allow supercharging. Regardless of this, two-stroke engines require scavenging at all engine speeds and so turbocharged two-stroke engines must still employ a blower, usually Roots type. This blower may be mechanically or electrically driven, in either case the blower may be disengaged once the turbocharger starts to deliver air. Automobiles[edit] "Blower" Bentley. The large "blower" supercharger , located in front of the radiator, gave the car its name. In , Gottlieb Daimler , of Daimler-Benz Daimler AG , was the first to patent a forced-induction system for internal combustion engines, superchargers based on the twin-rotor air-pump design, first patented by the American Francis Marion Roots in , the basic design for the modern Roots type supercharger. The first supercharged cars were introduced at the Berlin Motor Show: Keeping the air that enters the engine cool is an important part of the design of both superchargers and turbochargers. Compressing air increases its temperature, so it is common to use a small radiator called an intercooler between the pump and the engine to reduce the temperature of the air. There are three main categories of superchargers for automotive use: Centrifugal turbochargers â€" driven from exhaust gases. Centrifugal superchargers â€" driven directly by the engine via a belt-drive. Mechanically driven superchargers may absorb as much as a third of the total crankshaft power of the engine and are less efficient than turbochargers. However, in applications for which engine response and power are more important than other considerations, such as top-fuel dragsters and vehicles used in tractor pulling competitions, mechanically driven superchargers are very common. For this reason, both economy and the power of a turbocharged engine are usually better than with superchargers. Turbochargers suffer to a greater or lesser extent from so-called turbo-spool turbo lag; more correctly, boost lag , in which initial acceleration from low RPM is limited by the lack of sufficient exhaust gas mass flow pressure. Once engine RPM is sufficient to raise the turbine RPM into its designed operating range, there is a rapid increase in power, as higher turbo boost causes more exhaust gas production, which spins the turbo yet faster, leading to a belated "surge" of acceleration. This makes the maintenance of smoothly increasing RPM far harder with turbochargers than with engine-driven superchargers, which apply boost in direct proportion to the engine RPM. The main advantage of an engine with a mechanically driven supercharger is better throttle response, as well as the ability to reach full-boost pressure instantaneously. With the latest turbocharging technology and direct gasoline injection, throttle response on turbocharged cars is nearly as good as with mechanically powered superchargers, but the existing lag time is still considered a major drawback, especially considering that the vast majority of mechanically driven superchargers are now driven off clutched pulleys, much like an air compressor. Turbocharging has been more popular than superchargers among auto manufacturers owing to better power and efficiency. However, Audi did introduce its 3. Twincharging[edit] In the and World Rally Championships, Lancia ran the Delta S4 , which incorporated both a belt-driven supercharger and exhaust-driven turbocharger. The design used a complex series of bypass valves in the induction and exhaust systems as well as an electromagnetic clutch so that, at low engine speeds, boost was derived from the supercharger. In the middle of the rev range, boost was derived from both systems, while at the highest revs the system disconnected drive from the supercharger and isolated the associated ducting. The supercharger is at the rear of the engine at right A Centrifugal supercharger of a Bristol Centaurus radial aircraft engine. Superchargers are a natural addition to aircraft piston engines that are intended for operation at high altitudes. As an aircraft climbs to higher altitude, air pressure and air density decreases. The output of a piston engine drops because of the reduction in the mass of air that can be drawn into the engine. In addition, there is decreased back pressure on the exhaust gases. A supercharger can be thought of either as artificially increasing the density of the air by compressing it or as forcing more air than normal into the cylinder every time the piston moves down. With the reduced aerodynamic drag at high altitude and the engine still producing rated power, a supercharged airplane can fly much faster at altitude than a naturally aspirated one. The pilot controls the output of the supercharger with the throttle and indirectly via the propeller governor control. Since the size of the supercharger is chosen to produce a given amount of pressure at high altitude, the supercharger is oversized for low altitude. The pilot must be careful with the throttle and watch the manifold pressure gauge to avoid overboosting at low altitude. As the aircraft climbs and the air density drops, the pilot must continuously open the throttle in small increments to maintain full power. The altitude at which the throttle reaches full open and the engine is still producing full rated power is known as the critical altitude. Above the critical altitude, engine power output will start to drop as the aircraft continues to climb. Effects of temperature[edit] Supercharger CDT vs. Graph shows the CDT differences between a constant-boost supercharger and a variable-boost supercharger when utilized on an aircraft. As discussed above, supercharging can cause a spike in temperature, and extreme temperatures will cause detonation of the fuel-air mixture and damage to the engine. In the case of aircraft, this causes a problem at low altitudes, where the air is both denser and warmer than at high altitudes. With high ambient air temperatures, detonation could start to occur with the manifold pressure gauge reading far below the red line. A supercharger optimized for high altitudes causes the opposite problem on the intake side of the system. With the throttle retarded to avoid overboosting, air temperature in the carburetor can drop low enough to cause ice to form at the throttle plate. In this manner, enough ice could accumulate to cause engine failure, even with the engine operating at full rated power. For this reason, many supercharged aircraft featured a carburetor air temperature gauge or warning light to alert the pilot of possible icing conditions. Several solutions to these problems were developed: Two-speed and two-stage superchargers[edit] In the s, two-speed drives were developed for superchargers for aero engines providing more flexibility aircraft operation. The arrangement also entailed more complexity of manufacturing and maintenance. The gears connected the supercharger to the engine using a system of hydraulic clutches, which were initially manually engaged or disengaged by the pilot with a control in the cockpit. At low altitudes, the low-speed gear would be used in order to keep the manifold temperatures low. Later installations automated the gear change according to atmospheric pressure. In the

Battle of Britain the Spitfire and Hurricane planes powered by the Rolls-Royce Merlin engine were equipped largely with single stage and single speed superchargers. Horsepower was increased and performance at all aircraft heights. After the air was compressed in the low-pressure stage, the air flowed through an intercooler radiator where it was cooled before being compressed again by the high-pressure stage and then possibly also aftercooled in another heat exchanger. In some two-stage systems, damper doors would be opened or closed by the pilot in order to bypass one stage as needed. Rolls-Royce Merlin engines had fully automated boost control with all the pilot having to do was advance the throttle with the control system limiting boost as necessary until maximum altitude was reached. Turbocharger A mechanically driven supercharger has to take its drive power from the engine. This is where the principal disadvantage of a supercharger becomes apparent. The engine has to burn extra fuel to provide power to drive the supercharger. The increased air density during the input cycle increases the specific power of the engine and its power-to-weight ratio , but at the cost of an increase in the specific fuel consumption of the engine. In addition to increasing the cost of running the aircraft a supercharger has the potential to reduce its overall range for a specific fuel load. As opposed to a supercharger driven by the engine itself, a turbocharger is driven using the otherwise wasted exhaust gas from the engine. The amount of power in the gas is proportional to the difference between the exhaust pressure and air pressure, and this difference increases with altitude, helping a turbocharged engine to compensate for changing altitude. This increases the height at which maximum power output of the engine is attained compared to supercharger boosting, and allows better fuel consumption at high altitude compared to an equivalent supercharged engine. This facilitates increased true airspeed at high altitude and gives a greater operational range than an equivalently boosted engine using a supercharger. The majority of aircraft engines used during World War II used mechanically driven superchargers, because they had some significant manufacturing advantages over turbochargers. However, the benefit to operational range was given a much higher priority to American aircraft because of a less predictable requirement on operational range, and having to travel far from their home bases. The size of the ducting alone was a serious design consideration. For example, both the F4U Corsair and the P Thunderbolt used the same radial engine , but the large barrel-shaped fuselage of the turbocharged P was needed because of the amount of ducting to and from the turbocharger in the rear of the aircraft. The F4U used a two-stage intercooled supercharger with more compact layout. Nonetheless, turbochargers were useful in high-altitude bombers and some fighter aircraft due to the increased high altitude performance and range. Turbocharged piston engines are also subject to many of the same operating restrictions as those of gas turbine engines. Turbocharged engines also require frequent inspections of their turbochargers and exhaust systems to search for possible damage caused by the extreme heat and pressure of the turbochargers. Such damage was a prominent problem in the early models of the American Boeing B Superfortress high-altitude bombers used in the Pacific Theater of Operations during â€” In more recent times most aircraft engines for general aviation light airplanes are naturally aspirated , but the smaller number of modern aviation piston engines designed to run at high altitudes use turbocharger or turbo-normalizer systems, instead of a supercharger driven from the crank shafts. The change in thinking is largely due to economics. Aviation gasoline was once plentiful and cheap, favoring the simple but fuel-hungry supercharger. As the cost of fuel has increased, the ordinary supercharger has fallen out of favor. Also, depending on what monetary inflation factor one uses, fuel costs have not decreased as fast as production and maintenance costs have. Effects of fuel octane rating[edit] Until the late s all automobile and aviation fuel was generally rated at 87 octane or less. This is the rating that was achieved by the simple distillation of "light crude" oil.

Chapter 5 : Automobile supercharger utilizing flywheel - MANN; LESLIE

Other Air Compressors & Blowers; results. Save this search Ariel BL SUCTION valve gasket o-rings gas compressor CKT PEEK PLATE See more like this.

I worked one job in a municipal powerplant in Bethany, Missouri. To accomodate that engine, they added onto their existing powerplant. The existing plant had started out as a steam station with recip engines. It was piped into the compressed air system. As time went on, a pair of Nordberg "Supair" diesels were added. These had some mechanism to change valve and injection timing under load to get best efficiency. U was working on the "new" engine- the Opposed piston F-M, getting it ready for startup. I was alone in the powerplant working one Saturday with one old shift operator. At that time, the powerplant was buying the bulk of its power from the grid and was using the diesels for peaking and standby. They got some subsidy money and were paid for having standby capacity, so it made sense to keep the old engines. We got to where we needed to be with the new O-P Fairbanks, and stopped for a break. I was looking over the oldest of the F-M engines. I believe it was a three cylinder model The old shift operator looked at me and said: The oldtimer told me what to do- we jacked over the old engine to make sure the cylinders were clear and not hydro locked, turned on the fuel oil from the day tank and cut compressed air to the engine. The oldtimer hit the starting air and the engine rolled over. An instant later, he moved the governor control to "run" and the engine took off running. We waited a few minutes with the engine running at about synch speed, then went to the board. We closed in the field breaker and the generator built voltage. It hasd the oldtime mechanical voltage regulator in a glass case. You get on the scope and breaker and give me and up or down for speed". I turned on the synchroscope, and signalled the old operator so I got a "fast scope". I adjusted the generator voltage. The synchroscope showed the governor was holding the old engine nice and stable. I grabbed the breaker handle and pulled it up, closing the breaker when the scope was at The oldtimer heard the breaker close in, so he simply turned up the speeder on the engine manually to get load up. We put full load on the old engine, maybe Kw. We then walked outside to hear the engine exhaust. The muffler was below ground, and the stack was a straight piece of exahust pipe about 18 or 20" diameter. The exhaust was a low, pleasant sound that probably didn;t annoy anyone. We had that old F-M on line for perhaps an hour, listening to it run. We tripped it offline and let it idle down for maybe 15 minutes. The shift operator sent me over to this other little town called Unionvile, Missouri. It was also a brick plant that had started out as a steam powerplant with recip engines. This was back in about , so there is no telling whether those old engines are stil out there in Missouri. The fact that the city fathers of delta, CO would keep their old plant intact and even allow tours is remarkable in this day and age. Most old plants were cut up long ago and the systems tied into grid power. Nowadays, peaking and standby units are mostly gas turbines with microprocessor controls and a significant amount of power needed to crank them up. The old F-M engines were true "black start" plants. Most had alittle gasoline driven compressor to make starting air. It was typically a Wisconsin engine or simialr that was rope started when all else failed. Those were good, basic powerplants that just sat there and ran if they were reasonably maintained. Many of those little municipal plants were originally "isolated buss" type plants- they stood alone and were not tied into the grid. With the heavy flywheels, those old F-M engines could and did smooth out the frequency and voltage when there were load swings. Nowadays, also, the units are mostly run automatically using Programmable Logic controllers and similar, so they run unmanned. Nothing is spit shined and nothing particularly interesting to see in the new plants that have replaced the likes of the one in Delta, Co. It is just great to see a little plant like that so well kept and fully operational. Thanks for posting the pictures and description.

DOWNLOAD PDF PLATE 81-A. GASOLINE-DRIVEN AIR COMPRESSOR 123

Chapter 6 : USB2 - Air compressor - Google Patents

Launch CRPP Creader Professional Description: The CRP P accesses Engine, Transmission, ABS and Airbag (SRS) systems. It features an intuitive interface and supports the latest OBD II test modes

The cylinder and the air storage container are detachably assembled to define an air chamber. A metal seat with a through hole is provided on top of the cylinder. A valve plug is spring-biased against the metal seat. The air storage container is provided with a pressure indicator, which includes a tube defining therein a first bore and a second bore, between which a tapered annular surface is formed. When the air pressure within the air storage container exceeds a predetermined pressure set for the air compressor, the pressure indicator allows excess air to flow into the first bore of the tube and sequentially pass through the tapered annular surface and an elongated opening to be released to the ambient environment, so that objects can be prevented from damages due to excessive inflations. Description The present invention relates to an air compressor and, more particularly, to an improved air compressor, which claims the Taiwan priority filing date of Oct. TECHNICAL FIELD OF THE INVENTION The present invention relates to an air compressor and, more particularly, to an improved air compressor, wherein an air storage container and a cylinder thereof can be detachably assembled to define an air chamber, an air passage design between the air storage container and the cylinder is provided for reducing the motion resistance of a piston body within the cylinder so that the piston body can conduct reciprocating motion more smoothly, a metal seat is embedded as a top element of the air passage design between the air storage container and the cylinder to ensure the sealing function of a valve plug thereof, and a pressure indicator is provided for an outlet of the air storage container for indicating the pressure of compressed air within the air storage container and releasing excess compressed air into the ambient environment without additional pressure relief valves, so that objects will not be excessively inflated to cause damages. DESCRIPTION OF THE PRIOR ART Conventionally, air compressors, especially the small air compressors being used for inflating objects such as tires and air cushions, employ an air storage container formed integrally on a cylinder to produce compressed air, wherein an air port is provided between the air storage container and the cylinder, and a valve plug is urged by a spring to normally seal the air port, one end of the spring being engaged with the valve plug, and the other end of the spring being attached by bolts to a top cap that is used to close a top opening of the air storage container. The disadvantage is that the valve plug and the spring are difficult to be assembled into the air storage container. Generally, conventional air compressors are provided with two outlets or ducts, one of which is installed with a circular pressure gauge and the other of which is connected with a hose that is provided with an air nozzle for inflating an object such as a tire. The circular pressure gauge can show the pressure of the compressed air within the air storage container for users. Since the circular pressure gauge, which employs a Bourdon tube as a pressure sensor, contains precision components, when it falls to the ground or experiences a large impact, the pressure gauge is prone to be damaged and thus loses its accuracy. In view of the foregoing, there is a need to provide an improved air compressor, wherein an air storage container and a cylinder thereof can be detachably assembled to define an air chamber, an air passage design between the air storage container and the cylinder is provided for reducing the motion resistance of a piston body so that the piston body can conduct reciprocating motion more smoothly, and a robust pressure indicator is provided for indicating the air pressure within the air storage container and releasing excess air into the ambient environment, without installing additional pressure relief valves, when the air pressure exceeds a predetermined pressure set for the air compressor. SUMMARY OF THE INVENTION One object of the present invention is to provide an improved air compressor, wherein an air storage container and a cylinder thereof can be detachably assembled to define an air chamber, and an air passage design between the air storage container and the cylinder is provided for reducing the motion resistance of a piston body within the cylinder so that the piston body can conduct reciprocating motion more smoothly. Another object of the present invention is to provide an improved air compressor, wherein a metal seat is embedded as a top element of the air passage design between the air storage container and the cylinder to ensure the sealing function of a valve plug thereof. A further object of the present invention is to provide an improved air compressor, wherein a pressure indicator is provided for an outlet thereof for indicating the pressure of compressed air within the air storage container and releasing excess compressed air into the ambient environment without additional pressure relief valves, so that objects will not be excessively inflated excessively cause damages. Other objects, advantages, and novel features of the present invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings. Furthermore, a large gear 73 is mounted to the main frame 7 to be engaged with the small gear A cylinder 6 is provided at the main frame 7. A piston body 76, which conducts reciprocating motion within the cylinder 6, is pivotally connected to a crank pin 75 that is fixed to a counterweight 74 being attached to the large gear The motor 71 can drive the small gear 72 to rotate the large gear 73, which swings the crankpin 75 to cause the piston body 76 to conduct reciprocation motion within the cylinder 6 for producing compressed air. The cylinder 6 has an open bottom 60, through which the piston body 76 can be fitted into the cylinder 6, and a top wall 61, on which a tubular projection 66 is formed see FIG. The tubular projection 66 defines therein a first through hole 62 including a first end and a second end , wherein the first through hole 62 communicates with the cylinder 6 at its first end A metal seat 64, which defines a second through hole , is provided on the tubular projection More specifically, the metal seat 64 is integrally embedded in the tubular projection 66, wherein the first through hole 62 communicates with the second through hole at its second end The first through hole 62 of the tubular projection 66 and the second through hole of the metal seat 64 constitute an air passage that communicates the air storage container 8 with the cylinder 6. The tubular projection 66 defines an annular groove at its outer surface to be fitted with a seal ring The cylinder 6 is provided with a first flange 65 at its surrounding wall, near its top wall The first flange 65 is provided with two opposite U-shaped holding portions , each of which defines a first recess A cylindrical air storage container 8 has an open bottom 81 and a closed top 88 and defines therein an inner space 82 terminating at the open bottom A plurality of spaced-apart ribs 89 is provided at an inner surface of the air storage container 8. The air storage container 8 is provided at its open bottom 81 with a second flange 85 of appropriate thickness, which is provided with two opposite U-shaped holding portions , each of which defines a second recess A central column 86 is provided at an inner surface of the closed top 88 of the air storage container 8 and extends downwardly at a predetermined distance. An annular protrusion 87 is provided at the inner surface of the closed top 88 of the air storage container 8, around the central column 86, thus defining an annular groove 80 therebetween. A valve plug 92, usually made of plastic, is placed on the metal seat 64 for sealing the second through hole thereof. In operation, the valve plug 92 may be moved at a high frequency, which tends to increase the temperature of the metal seat Since the metal seat 64 can undergo deformation due to high temperature, so that the sealing function of the valve plug 92 will not be affected. The air storage container 8 can be fitted over the cylinder 6 and rotated about the cylinder 6 to allow the second flange 85 of the air storage container 8 to slide in the first recesses of the cylinder 6 and allow the first flange 65 of the cylinder 6 to slide in the second recess of the air storage container 8, so that the air storage container 8 is detachably mounted to the cylinder 6, thereby sealing the cylinder 6 and defining an air chamber 99 therebetween see FIGS. This design facilitates a user to assemble the compression spring 93 and the valve plug 92 into the air storage container 8. After mounting the air storage container 8 onto the cylinder 6, one end of the compression spring 93 is urged against the valve plug 92 while the other end of the compression spring 93 is fitted around the central column 86 and received in the annular groove The central column 86 can limit the upward movement of the valve plug The length of the central column 86 can affect the speed of the valve plug 92 sealing the second through hole of the metal seat A longer column will limit the movement of the valve plug 92 more than a shorter column. Thus, if the central column 86 is long, the valve plug 92 will seal the second through hole quickly. On the other hand, if the central column 86 is short, the valve plug 92 will seal the second through hole slowly. The air chamber 99 defined between the air storage container 8 and the metal seat

64 can receive the compressed air from the cylinder 6. In this embodiment, at least two outlets 83, 84 are provided at the air storage container 8, wherein the outlet 83 is joined with a pressure indicator, and the outlet 84 is connected with a hose 90 including an air nozzle The pressure indicator generally includes a tube 1, a cap 3, a stationary transparent plate 4, a slider 5, and a sleeve The tube 1 has a first segment 21 and a second segment The second segment 22, which is joined to the outlet 83 of the air storage container 8, defines therein a second bore The first segment 21, which is formed integrally with the second segment 22, has an open end 23 and defines therein a first bore that communicates with the second bore and terminates at its open end As shown in FIG. Thus, a tapered annular surface 10 is formed between an inner surface of the first segment 21, which defines the first bore , and an inner surface of the second segment 22, which defines the second bore The tapered annular surface 10, which is a generally conic surface for connecting the two tube segments, has a radius of r1 at its left and a radius of r2 at its right. Although this embodiment provides the tapered annular surface 10, which extends outwardly with the central axis C of the tube 1 in a linear path, a curved annular surface, which extends outwardly with the axis C of the transparent tube 1 in a curved path, can be used as well. Furthermore, the first segment 21 defines at its surrounding wall an elongated opening 25, with two opposing side rails 26, 27, extending from the tapered annular surface 10 to its open end A plurality of buffering blocks 28 is provided at the surrounding wall of the air storage container 8, around the outlet The tube 1 is provided at the open end 23 of the first segment 21 with external threads Furthermore, the tube 1 is provided at its surrounding wall with four L-shaped fixing arms 13, each fixing arm being provided with a snap-fitting hook at its end. The stationary transparent plate 4, which is a generally rectangular structure, has two side flanges 41 respectively at its top and bottom sides and defines a recessed space 43 at its back surface, between the two side flanges 41, wherein the recessed space 43 is parallel to the extending direction of the tube 1. The stationary transparent plate 4 defines at the side flanges 41 four openings 42, which can be inserted by the snap-fitting hooks of the fixing arms 13, so that the stationary transparent plate 4 can be detachably fixed onto the tube 1. Furthermore, the stationary transparent plate 4 has a first sidewall 40 at its left side and is provided with a marking line 45 thereon. The slider 5 generally includes a hollow cylindrical body and a panel The hollow cylindrical body has a closed end 51 and an open end 52 and defines therein an inner space 50 that terminates at the open end The cylindrical body of the slider 5 is provided with a first central tube 56 that extends from an inner surface of its closed end 51 and extends through its inner space The first central tube 56 of the slider 5 defines at its surrounding wall a plurality of slits extending along its lengthwise direction. The closed end 51 of the hollow cylindrical body of the slider 5 is formed with an inner step 57 around the first central tube The hollow cylindrical body of the slider 5 defines an annular groove 53 at its surrounding wall, near its closed end 51, to be fitted with a colored O-ring As such, the compressed air from the air storage container 8 can force the slider 8 to move towards the open end 52 of the tube 1. The displacement of the slider 5 can reflect the pressure of the compressed air. The panel 58, being a generally rectangular structure, is joined to the hollow cylindrical body of the slider 5 through a neck portion 55 formed at the outer surface of the hollow cylindrical body, near the open end 52, such that the panel 58 is parallel to the hollow cylindrical body. Furthermore, the panel 58 has a second sidewall at its right side and is provided with a plurality of protrusions on its top and bottom sides. The hollow cylindrical body of the slider 5 can be fitted into the bores , of the tube 1 and the neck portion 55 can be inserted through the elongated opening When the air compressor is stopped, the first sidewall 40 of the stationary transparent plate 4 is adjacent to the left side of the panel 58, and the second sidewall of the panel 58 is adjacent to the right side of the stationary transparent plate 4. The protrusions of the panel 58 are in contact with two opposing side surfaces 41 of the recessed space 43 to facilitate the panel 58 to move together with the hollow cylindrical body of the slider 5 along the recessed space 43 of the stationary transparent plate 4. Furthermore, the panel 58 is provided with a layer of pressure-indicating scale at its outer surface. The coiled compression spring 59 is fitted into the inner space 50 of the slider 5, around the first central tube 56, wherein one end of the coiled compression spring 59 is urged against the inner step 57 of the closed end 51 of the slider 5, as shown in FIG. The coiled compression

spring 59 of the pressure indicator may slightly contact the inner surfaces that define the inner space 50 of the slider 5. The slider 5 is received in the tube 1 and forced by the coiled compression spring 59, so that the slider 5 is urged against the buffering blocks 28 provided on the air storage container 8. The outlet 83 communicates with the second bore of the second segment 22 of the tube 1, so that the compressed air within the air storage chamber 8 can flow into the second bore of the second segment 22 to force the slider 5 to move along the second bore and the first bore towards the open end 23, as shown in FIGS. The second central tube 31 defines therein a central hole that extends from a bottom wall thereof to an open end 32 thereof, wherein the bottom wall defines a vent , through which the compressed air from the air storage container 8 can be released into the ambient environment. The diameter of the central hole of the second central tube 31 of the cap 3 is greater the external diameter of the first central tube The external diameter of the second central tube 31 of the cap 3 is less than the internal diameter of the coiled compression spring The cap 3 is provided at its inner surface with internal threads 33 corresponding to the external threads 24 of the first segment 21 of the tube 1. The sleeve 14 is fitted around the inner base 30 of the cap 3. When mounting the cap 3 to the tube 1, the second central tube 31 of the cap 3 will receive the first central tube 56 of the slider 5. The cap 3 is mounted to the tube 1 by engaging the internal threads 33 of the cap 3 with the external threads 24 of the first segment 21 of the tube 1. The other end of the coiled compression spring 59 is inserted into the sleeve 14 and urged against the annular surface between the inner base 30 and the second central tube The compression of the coiled compression spring 59 can be adjusted by the depth of the cap 3 being threadedly mounted to the open end 23 of the first segment 21, so that the pressure of the compressed air can be measured more properly. When the air compressor is running, as shown in FIGS. The movement of the slider 5 will compress the coiled compression spring According to the pressure-indicating scale , the position of the marking line 45 provided on the stationary transparent plate 4, which reflects the pressure of the compressed air within the air storage container 8, can be clearly seen through by a user. After having completed an operation such as inflating a tire, the air compressor can be stopped. Therefore, the pressure indicator can return to its original state, as shown by FIGS. Furthermore, in operation, when the pressure of the compressed air within the air storage container 8 exceeds a permissible pressure set for the air compressor, the colored O-ring 54 can be moved together with the slider 5 to reach the tapered annular surface 10 of the tube 1 see FIG. At the same time, an excess of compressed air can sequentially pass through the first bore of the first segment 21, the inner space 50 of the slider 5, and the vent to be released into the ambient environment, as shown by the flow path B in FIG. Furthermore, the bottom wall can limit a further movement of the slider 5 to prevent the flow path B of the compressed air from being blocked see FIGS. As a summary, one feature of the present invention is that the air storage container 8 can be detachably mounted to the cylinder 6 to define an air chamber A second feature of the present invention is that the first through hole 62 of the tubular projection 66 can reduce the motion resistance of the piston body 76 within the cylinder 6, so that the piston body 76 can be moved more smoothly.

DOWNLOAD PDF PLATE 81-A. GASOLINE-DRIVEN AIR COMPRESSOR 123

Chapter 7 : Supercharger - Wikipedia

The compressor used in a water-cooled air conditioning system is short cycling. A service check determines that the suction pressure remains above the normal cut-in point during cycling and that the discharge pressure rapidly builds up to the cut-out point while running and gradually falls to the cut-in point during the off cycle.

Ram-Tek â€" solid steel, heavy gauge rods, designed for maximum performance and durability. Flow-Tek â€" concentric disc valves, deliver maximum air flow and reliability with low replacement costs, easily accessible design provides easy maintenance and durability. Industrial grade ball bearing for maximum performance and extended pump life. Built-in head unloaders designed for continuous run applications. Flywheel included on pump. Solid cast-iron cylinders, crankcase, flywheel, crankshaft, and valve plates. Large Steel Automotive-Type Filters not plastic. Large site glass for viewing your oil level. Eaton Compressor delivers overwhelming performance to ensure that they meet the needs of the most demanding environments. All our Products are designed with exacting tolerance and specifications to deliver all the power that is needed at the jobsite, garage or shop. This is our 15 HP, 3 Cylinder, 2-Stage, air compressor pump. The 15 HP air compressor pump will produce 35 CFM if ran with a 10HP motor at RPM This pump can go to PSI, but what we tell all of our customers is even though the compressor will go to a higher pressure, you should run it at the lowest pressure possible to maintain the air pressure needed. This will give you a higher CFM at a lower pressure and the compressor will run cooler with less compressor wear. This is true with any compressor on the market. Lower pressure combined with lower RPM will give you great results and a compressor that will last for many years. If you are looking for a 20 to year compressor pump. Minimum RPM on this pump is The Flywheel size is The reason this pump is so tough, is it is a 3-cylinder, or W design. If you look at the competition, they all offer reed valves or finger valves, but both are the same thing, just called different by some manufacturers. No matter what they are called, reed valves are a cheap design. With our unit, if you want to clean your valves, intake, or exhaust, you can take the valves out of the cylinder head by unbolting the valve retainer and just pull the valve right out of the head to inspect it. It is sealed with an aluminum washer under the valve seatno head gasket to fool with when removing valves. This 15 hp air compressor pump is all cast iron. It has solid cast iron cylinder, cylinder heads, crankcase, flywheel, crank, and forged steel connecting rods not aluminum! This style rod does not come close to a forged steel rod. I have seen many compressors over the 26 years of building compressors, and many of them break aluminum rods. These rods also have a replaceable bearing on the crank journal and on the wrist pin journal. This is what most of the competition do not have. This ensures good crank stability and long compressor bearing life. Each cylinder is all cast iron with no sleeves or aluminum. All cast iron prevents cylinder distortion and egg-shaped cylinders when pump gets hot. Many of the pumps you see on the market have one beltthis is three belt. Three belt ensures better belt gripage and longer belt life. This is very nice for continuous run applications such as gasoline driven or electric driven high duty cycle applications. Head unloaders are an air cylinder in each head. When air is applied to them, they open or push the intake valves open allowing the pump to go into a free wheel mode. The cylinders are still moving in a free wheel mode, but it cannot compress the air because the intake valve is held open. This pulls cool air into the cylinder. The cool air absorbs the heat in the pump and blows it back out the intake valve. This is nice when you are sandblasting, etc. Under heavy duty cycles. This pump has a site glass to view your oil level. This unit comes filled with oil and has filters on the unit. This item can be shipped to United States.

Chapter 8 : Psi Compressor, Psi Compressor Suppliers and Manufacturers at calendrierdelascience.com

GROUP AUGER GROUP AUGER DRIVE AND Compressor Air Dome. Figure Lubrication Valve. Figure Compressor Intake Check Valve. Figure Heater.

DOWNLOAD PDF PLATE 81-A. GASOLINE-DRIVEN AIR COMPRESSOR 123

Chapter 9 : USA - Utility frame for mobile electric power generating systems - Google Patents

calendrierdelascience.com offers gas driven air compressor products. About 62% of these are air-compressors, 1% are air-compressor parts. A wide variety of gas driven air compressor options are available to you, such as piston, screw, and diaphragm.