

1

Engine

12

Crankshaft

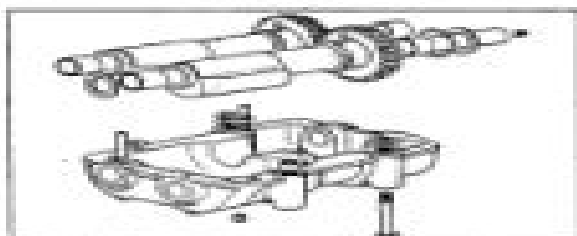


Fig. 37 - Counterbalance weights assembly components.

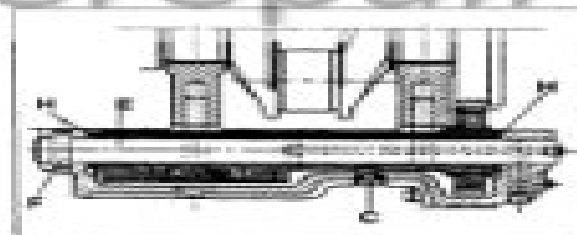
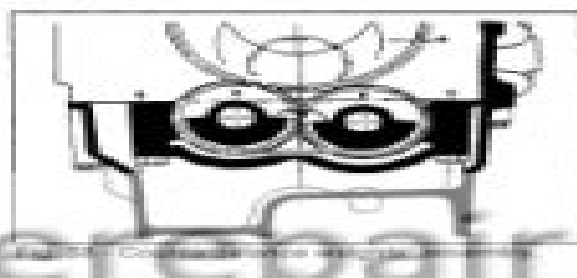


Fig. 39 - Counterbalance weights' section.



Fig. 40 - Counterbalance weights installed on engine.

FRUTTETO 75 - 85 II

Counterbalance weights for 4-cylinder engines

Specifications

end play of weights	mm	0.1 - 0.43
backlash between the teeth of the weights and those of the crown wheel on the crankshaft	mm	0.20 - 0.25
bushing nominal diameter	mm	26 ± 0.005
maximum wear	mm	26.150

Checks

Check the conditions of the internal surface of the weights' bushings.

Make sure that bushings' internal diameter does not exceed the prescribed values. Otherwise, replace them.

Once the bushings have been installed, they should be bored in order to bring them to the diameter prescribed in the related specifications table.

Installation and timing

Position the weights, marked by the letters S in the seat of its support, so that the engraved teeth of weight D also coincide, as shown in figure.

Install pins E, at the same time inserting shoulder washers H as appropriate.

Verify that the weights' end play is 0.1 to 0.43 mm.

Complete the installation by fastening the pin using lockpins F and the weights by means of screws G.

Fit the support complete with weights under the engine block so that the engraved teeth of weight S engages between the two engraved teeth of crown wheel B of the crankshaft. In addition, fit a number of shims G enough to obtain a clearance of 0.20 to 0.25 between the teeth of the crankshaft crown wheel and those of weight S.

Remove screw C and lock the screws fastening the weight support to the engine block, applying some Loctite 242.

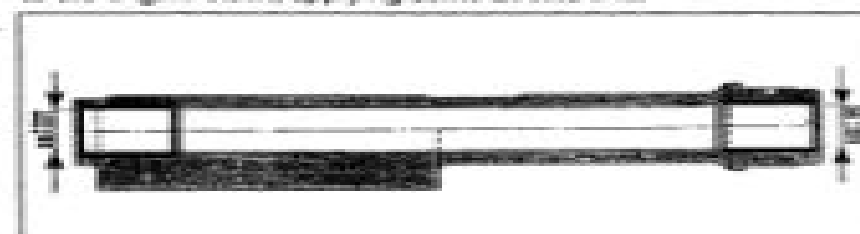


Fig. 41 - Installing weight bushings.

Same Frutteto 85 Service Manual

Y Pai



Same Frutteto 85 Service Manual:

Embark on a breathtaking journey through nature and adventure with Crafted by is mesmerizing ebook, Witness the Wonders in **Same Frutteto 85 Service Manual** . This immersive experience, available for download in a PDF format (*), transports you to the heart of natural marvels and thrilling escapades. Download now and let the adventure begin!

<https://crm.avenza.com/files/uploaded-files/fetch.php/Samsung%20Washing%20Machine%20Automatic.pdf>

Table of Contents Same Frutteto 85 Service Manual

1. Understanding the eBook Same Frutteto 85 Service Manual
 - The Rise of Digital Reading Same Frutteto 85 Service Manual
 - Advantages of eBooks Over Traditional Books
2. Identifying Same Frutteto 85 Service Manual
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Same Frutteto 85 Service Manual
 - User-Friendly Interface
4. Exploring eBook Recommendations from Same Frutteto 85 Service Manual
 - Personalized Recommendations
 - Same Frutteto 85 Service Manual User Reviews and Ratings
 - Same Frutteto 85 Service Manual and Bestseller Lists
5. Accessing Same Frutteto 85 Service Manual Free and Paid eBooks
 - Same Frutteto 85 Service Manual Public Domain eBooks
 - Same Frutteto 85 Service Manual eBook Subscription Services
 - Same Frutteto 85 Service Manual Budget-Friendly Options
6. Navigating Same Frutteto 85 Service Manual eBook Formats

- ePub, PDF, MOBI, and More
- Same Frutteto 85 Service Manual Compatibility with Devices
- Same Frutteto 85 Service Manual Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Same Frutteto 85 Service Manual
 - Highlighting and Note-Taking Same Frutteto 85 Service Manual
 - Interactive Elements Same Frutteto 85 Service Manual
- 8. Staying Engaged with Same Frutteto 85 Service Manual
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Same Frutteto 85 Service Manual
- 9. Balancing eBooks and Physical Books Same Frutteto 85 Service Manual
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Same Frutteto 85 Service Manual
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Same Frutteto 85 Service Manual
 - Setting Reading Goals Same Frutteto 85 Service Manual
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Same Frutteto 85 Service Manual
 - Fact-Checking eBook Content of Same Frutteto 85 Service Manual
 - Distinguishing Credible Sources
- 13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
- 14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

Same Frutteto 85 Service Manual Introduction

In the digital age, access to information has become easier than ever before. The ability to download Same Frutteto 85 Service Manual has revolutionized the way we consume written content. Whether you are a student looking for course material, an avid reader searching for your next favorite book, or a professional seeking research papers, the option to download Same Frutteto 85 Service Manual has opened up a world of possibilities. Downloading Same Frutteto 85 Service Manual provides numerous advantages over physical copies of books and documents. Firstly, it is incredibly convenient. Gone are the days of carrying around heavy textbooks or bulky folders filled with papers. With the click of a button, you can gain immediate access to valuable resources on any device. This convenience allows for efficient studying, researching, and reading on the go. Moreover, the cost-effective nature of downloading Same Frutteto 85 Service Manual has democratized knowledge. Traditional books and academic journals can be expensive, making it difficult for individuals with limited financial resources to access information. By offering free PDF downloads, publishers and authors are enabling a wider audience to benefit from their work. This inclusivity promotes equal opportunities for learning and personal growth. There are numerous websites and platforms where individuals can download Same Frutteto 85 Service Manual. These websites range from academic databases offering research papers and journals to online libraries with an expansive collection of books from various genres. Many authors and publishers also upload their work to specific websites, granting readers access to their content without any charge. These platforms not only provide access to existing literature but also serve as an excellent platform for undiscovered authors to share their work with the world. However, it is essential to be cautious while downloading Same Frutteto 85 Service Manual. Some websites may offer pirated or illegally obtained copies of copyrighted material. Engaging in such activities not only violates copyright laws but also undermines the efforts of authors, publishers, and researchers. To ensure ethical downloading, it is advisable to utilize reputable websites that prioritize the legal distribution of content. When downloading Same Frutteto 85 Service Manual, users should also consider the potential security risks associated with online platforms. Malicious actors may exploit vulnerabilities in unprotected websites to distribute malware or steal personal information. To protect themselves, individuals should ensure their devices have reliable antivirus software installed and validate the legitimacy of the websites they are downloading from. In conclusion, the ability to download Same Frutteto 85 Service Manual has transformed the way we access information. With the convenience, cost-effectiveness, and accessibility it offers, free PDF downloads have become a popular choice for students, researchers, and book lovers worldwide. However, it is crucial to engage in ethical downloading practices and prioritize personal security when utilizing online platforms. By doing so, individuals can make the most of the vast array of free PDF resources available and embark on a journey of continuous learning and intellectual growth.

FAQs About Same Frutteto 85 Service Manual Books

How do I know which eBook platform is the best for me? Finding the best eBook platform depends on your reading preferences and device compatibility. Research different platforms, read user reviews, and explore their features before making a choice. Are free eBooks of good quality? Yes, many reputable platforms offer high-quality free eBooks, including classics and public domain works. However, make sure to verify the source to ensure the eBook credibility. Can I read eBooks without an eReader? Absolutely! Most eBook platforms offer web-based readers or mobile apps that allow you to read eBooks on your computer, tablet, or smartphone. How do I avoid digital eye strain while reading eBooks? To prevent digital eye strain, take regular breaks, adjust the font size and background color, and ensure proper lighting while reading eBooks. What the advantage of interactive eBooks? Interactive eBooks incorporate multimedia elements, quizzes, and activities, enhancing the reader engagement and providing a more immersive learning experience. Same Frutteto 85 Service Manual is one of the best book in our library for free trial. We provide copy of Same Frutteto 85 Service Manual in digital format, so the resources that you find are reliable. There are also many Ebooks of related with Same Frutteto 85 Service Manual. Where to download Same Frutteto 85 Service Manual online for free? Are you looking for Same Frutteto 85 Service Manual PDF? This is definitely going to save you time and cash in something you should think about.

Find Same Frutteto 85 Service Manual :

samsung washing machine automatic

samsung tv repair service centers

sanrio hello kitty mp3 player 512mb mp3 players owners manual

sanderson 725 manual

samsung syncmaster bx2235 service manual repair guide

sandf 2016 msds application forms

santrock essentials of lifespan development mcgraw hill

samurai shark english edition

santa fe 2008 cdri service manual

sanyo de ts755 manual

sangria recipe carrabbas

sandf forms for 2015 recruitment

sanrio hello kitty mp3 player 256mb mp3 players owners manual

[samsung tv repair phone number](#)

sangria recipe simple syrup

Same Frutteto 85 Service Manual :

[europe wikipedia](#) - Jan 09 2023

web les peuples germains apparaissent 2 000 ans avant j c au nord de l europe les peuples celtes s étendant quant à eux à partir de 1 200 ans avant j c sur la majeure partie du territoire du bassin des carpates à l est de la france

russie carte europe de l est mapcarta - May 01 2022

web la russie est un pays qui s étend de l europe de l est à l asie mapcarta la carte ouverte

[histoire de l union européenne 2000 2009 european union](#) - Dec 08 2022

web Évolution de l ue de 2000 à 2009 adhésion de 12 nouveaux pays cours légal de l euro et signature du traité de lisbonne

europe de l est le monde diplomatique - Jul 15 2023

web europe de l est 490 documents terme générique europe termes spécifiques biélorussie pays baltes russie ukraine roumanie moldavie recherche avancée

euro alanı tÜfe enflasyonu yıllık brent ham petrol isbank - Mar 31 2022

web euro alanı nda kasım ayında 10 seviyesinde aylık artış ekim de 0 2 ile piyasa beklentisinin altında gerçekleşti bu dönemde çekirdek pce deki yıllık artış 5 0 oldu Öte yandan kasım ayında 1 000 2 000 3 000 4 000

europe larousse - Jul 03 2022

web il regroupe maintenant 28 pays les pays de l europe de l ouest hormis la suisse et la norvège et les pays de l europe de l est hormis la russie la turquie et la plupart des républiques issues de l ex yougoslavie sauf la croatie et la slovénie

[panorama de l europe de l est jstor](#) - Sep 05 2022

web les pays d europe de l est dans le caem une intégration économique renforcée perspectives de croissance en europe de l est et commerce avec l ouest abbonamento per il 1988 l 90 000 per l estero l 80 000 l abbonamento va versato sul c c b n 10629 9 presso l agenzia n 2 della cassa di risparmio di trieste in via carducci 7

[europe de l est 1 2 000 000 by freytag berndt](#) - Feb 27 2022

web april 30th 2020 la plus grande partie de l europe reçoit des précipitations annuelles prises entre 500 et 1 500 mm toutefois le sud est de l espagne est une région semi aride puisque les pluviomètres n enregistrent en moyenne

enflasyonda dünya ikincisi olduk son dakika ekonomi haberleri - Jan 29 2022

web apr 5 2022 enflasyonda dünya ikincisi olduk ekonomide son 20 yılın en ağır tablosu yaşanırken enflasyon yüzde 61 14 e yükselerek rekor kırdı türkiye dünya enflasyon liginde ikinci sıraya

liste des pays d europe par superficie wikipédia - Apr 12 2023

web conseil de l europe union européenne superficie des territoires métropolitains situés en europe km 2 superficie totale des territoires km 2 russie 004 320 025 017 075 200 france 000551 695 2 000672 051 ukraine 000603 628 000603 628 espagne 000511 015 000518 000 suède 000450 295 000450 295 norvège 000324 220

l union européenne faits et chiffres statista - Oct 06 2022

web jul 19 2023 croissance du pib dans les pays ue au t1 2019 croissance du produit intérieur brut réel pib dans les États membres de l ue au 1er trimestre 2019 par rapport au même trimestre de l année précédente basic statistique produit intérieur brut pib de l union européenne 2008 2018

europe de l est statista - Mar 11 2023

web données de marché sur europe de l est trouvez des statistiques rapports et données de marché concernant europe de l est sur statista com

heure actuelle pour europe de l est time is - Aug 04 2022

web sep 15 2023 europe de l est does not change between summer time and winter time l identifiant iana de fuseau horaire pour europe de l est est europe minsk décalage horaire depuis europe de l est comparer avec d autres fuseaux horaires lever et coucher du soleil durée du jour et heure du soleil pour europe de l est lever du soleil 06 20

europe de l est wikiwand - Feb 10 2023

web l europe de l est parfois appelée europe orientale est la partie orientale du continent européen elle désigne un espace dont les contours flous et variables ne coïncident pas toujours avec les frontières des pays concernés

europe de l est économie politique d une décennie de transition - Jun 02 2022

web dec 1 2010 europe de l est économie politique d une décennie de transition critique internationale vol 6 no 1 2000 pp 81 99 apa fr copier pagé j 2000 europe de l est économie politique d une décennie de transition critique internationale 6 81 99 doi org 10 3917 criei p2000 6n1 0081 doi

europe de l est 1 2 000 000 de freytag berndt decitre - May 13 2023

web découvrez europe de l est 1 2 000 000 le livre de freytag berndt sur decitre fr 3ème libraire sur internet avec 1 million de livres disponibles en livraison rapide à domicile ou en relais 9783707907537

heure normale d europe de l est wikipédia - Dec 28 2021

web l heure normale d europe de l est hnee en anglais eastern european time abrégé en eet est en avance de deux heures par rapport au temps universel coordonné elle est utilisée comme heure légale par certains pays d afrique d europe et du moyen orient pendant tout ou partie de l année ceux qui appliquent l heure d été

amazon fr europe de l est 1 2 000 000 freytag berndt livres - Jun 14 2023

web noté 5 retrouvez europe de l est 1 2 000 000 et des millions de livres en stock sur amazon fr achetez neuf ou d occasion
europe de l est wikipédia - Aug 16 2023

web l europe de l est parfois appelée europe orientale est la partie orientale du continent européen elle désigne un espace dont les contours flous et variables ne coïncident pas toujours avec les frontières des pays concernés

géographie de l europe wikipédia - Nov 07 2022

web traditionnellement l europe est divisée sur le plan économique en quatre points cardinaux l europe de l ouest l europe du nord l europe du sud et l europe de l est le concept d europe centrale a progressivement émergé après la fin de la guerre froide

the geometry of musical rhythm what makes a good rhythm good - Sep 15 2023

web apr 22 2014 toussaint s geometry presents a whirlwind tour of the world s rhythms from steady pulses to the rhythms of children s handclaps from popular patterns such as the 3 3 2 tresillo to the danceable c

the geometry of musical rhythm what makes a good rhythm good - Nov 05 2022

web the geometry of musical rhythm what makes a good rhythm good second edition edition 2 ebook written by godfried t toussaint read this book using google play books app on your pc android ios devices

the geometry of musical rhythm what makes a good rhythm good - May 11 2023

web pdf on dec 16 2014 william a sethares published the geometry of musical rhythm what makes a good rhythm good find read and cite all the research you need on researchgate

the geometry of musical rhythm what makes a good rhythm good - Mar 29 2022

web the geometry of musical rhythm what makes a good figure 1 shows the tresillo in two other notations standard rhythm good by godfried t toussaint boca raton fl musical notation and in the necklace notation

the geometry of musical rhythm what makes a good rhythm good - Feb 08 2023

web apr 19 2016 the geometry of musical rhythm what makes a good rhythm good is the first book to provide a systematic and accessible computational geometric analysis of the musical rhythms of the world it explains how the study of the mathematical properties of musical rhythm generates common mathematical problems that arise in a variety of

the geometry of musical rhythm what makes a good rhy - Jan 07 2023

web jan 11 2013 exploring the mathematical properties of good rhythms this book offers an original computational geometric approach for analyzing musical rhythm and its underlying structures with numerous figures to complement the explanations it is suitable for a wide audience from musicians composers and electronic music programmers to music

the geometry of musical rhythm what makes a good rhythm good - Jul 13 2023

web the geometry of musical rhythm shows the universality of mathematical applicability its math is simple its applications

deep and it shares the beauty of music despite the lack of exercises this book is ideal for a one time general education math course

the geometry of musical rhythm what makes a good rhythm good - May 31 2022

web dec 19 2019 a unique and seminal work of original and meticulously detailed scholarship this newly published second edition of the geometry of musical rhythm what makes a good rhythm good is unreservedly recommended as a core addition to both college and university library collections

the geometry of musical rhythm what makes a good rhythm good - Feb 25 2022

web the geometry of musical r the geometry of musical rhythm what makes a good rhythm good english select a language english français deutsch about us contact us tools services deposit accounts free newsletters new revised docs help support

the geometry of musical rhythm what makes a good rhythm good - Aug 14 2023

web dec 5 2019 the original edition of the geometry of musical rhythm was the first book to provide a systematic and accessible computational geometric analysis of the musical rhythms of the world

the geometry of musical rhythm what makes a good rhythm good - Oct 04 2022

web many concepts are illustrated with examples using a group of six distinguished rhythms that feature prominently in world music including the clave son exploring the mathematical properties of good rhythms this book offers an original computational geometric approach for analyzing musical rhythm and its underlying structures

the geometry of musical rhythm amazon com - Sep 03 2022

web feb 21 2013 the geometry of musical rhythm what makes a good rhythm good is the first book to provide a systematic and accessible computational geometric analysis of the musical rhythms of the world it explains how the study of the mathematical properties of musical rhythm generates common mathematical problems that arise in a variety of

the geometry of musical rhythm wikipedia - Oct 16 2023

web the geometry of musical rhythm what makes a good rhythm good is a book on the mathematics of rhythms and drum beats it was written by godfried toussaint and published by chapman hall crc in 2013 and in an expanded second edition in 2020

the geometry of musical rhythm what makes a good rhythm good - Aug 02 2022

web publication date 2013 topics musical meter and rhythm music theory rhythm publisher boca raton fl crc press collection inlibrary printdisabled internetarchivebooks contributor

the geometry of musical rhythm what makes a good - Dec 06 2022

web nov 25 2019 download citation on nov 25 2019 godfried t toussaint published the geometry of musical rhythm what makes a good rhythm good find read and cite all the research you need on

[the geometry of musical rhythm what makes a good rhythm good](#) - Apr 10 2023

web a novel model for the characterization of musical rhythms that is based on the pervasive rhythmic phenomenon of syncopation is presented and demonstrated through the analysis of the main rhythmic pattern of the song don t

[the geometry of musical rhythm what makes a good rhythm good](#) - Mar 09 2023

web ab the geometry of musical rhythm what makes a good rhythm good is the first book to provide a systematic and accessible computational geometric analysis of the musical rhythms of the world it explains how the study of the mathematical properties of musical rhythm generates common mathematical problems that arise in a variety of

the geometry of musical rhythm what makes a good - Jun 12 2023

web apr 19 2016 the geometry of musical rhythm what makes a good rhythm good is the first book to provide a systematic and accessible computational geometric analysis of the musical rhythms

[the geometry of musical rhythm what makes a good rhythm good](#) - Apr 29 2022

web dec 10 2019 the original edition of the geometry of musical rhythm was the first book to provide a systematic and accessible computational geometric analysis of the musical rhythms of the world it explained how the study of the mathematical properties of musical rhythm generates common mathematical problems that arise in a variety of seemingly

the geometry of musical rhythm what makes a good rhythm good - Jul 01 2022

web the original edition of the geometry of musical rhythm was the first book to provide a systematic and accessible computational geometric analysis of the musical rhythms of the world it explained how the study of the mathematical properties of musical rhythm generates common mathematical problems that arise in a variety of seemingly disparate

graphic design business plan sample upd 2023 ogscapital - Aug 06 2023

web jan 30 2018 graphic design business plan aims to become the best graphic design company within the next five years of our startup download business plan sample in pdf

[how to build your graphic design portfolio print pdf or](#) - Mar 01 2023

web feb 28 2020 a graphic design portfolio is a compilation of a designer s work both personal and professional in an easy to view format doesn t equate to a lack in personality you ll just need to predict how users will want to interact with the document and take care of those design needs at the outset pdf portfolios also run the risk of

[profile document for graphic design services](#) - Apr 21 2022

web 2 profile document for graphic design services 2021 05 03 profile document for graphic design services downloaded from controlplane themintgaming com by guest mathias riggs graphic design hertford london profile design how to design a brand identity system adobe indesign tutorial booklet layout for print indesign

profile document for graphic design services - Aug 26 2022

web 2 profile document for graphic design services 2023 09 07 profile document for graphic design services downloaded from ftp dartgo org by guest mauricio cortez design brochure product catalog company profile and how to design a brand identity system adobe indesign tutorial booklet layout for print indesign tutorial

what does a graphic designer do and how do i become one - Jul 25 2022

web nov 1 2023 using various technologies a graphic designer creates useful meaningful and functional visuals the work depends mainly on a client or company s needs but general designer responsibilities may include developing visual assets to support a marketing campaign designing a graphic overlay for social media posts

9 sample graphic designer job descriptions pdf doc - Jan 31 2023

web file format pdf size 75 kb download now junior graphic designer job description is a template that captures the responsibilities of a junior graphic designer it is a simple format and can be modified by the organization as per its requirements you can also see marketing job descriptions

how to make a graphic design portfolio what to include - May 03 2023

web sep 28 2021 whether you are a full time graphic designer or even a freelancer a graphic design portfolio is valuable in the current job market if not significantly more than a traditional cv or resume in the digital age having a graphic design online portfolio will establish your personal brand on the internet for millions of people to access

best graphic design services providers g2 - Sep 26 2022

web oct 5 2023 graphic design agencies assist clients with the ideation and creation of outward facing materials to help capture a company s vision and draw the attention of potential and current customers graphic design services can include packaging and merchandise design signage art installations published materials logos and general

profile document for graphic design services alpaca awamaki - May 23 2022

web graphic design portfolio brochure templates creative 27 best freelance graphic designers for hire in december graphic design how to design your pdf portfolio professional graphic design cv example myperfectresume profile document for graphic design services downloaded from alpaca awamaki org by guest angelo

profile document for graphic design services - Feb 17 2022

web profile document for graphic design services graphic designer resume template 17 free word pdf free company profile template blugraphic 10 graphic design hacks that ll make you a pro designer 720 best company profile design images in 2019 company graphic designer resume 7 free sample example format

graphic design services logo design print design - Nov 28 2022

web check out all the graphic design services at designcrowd from logo design to print design and everything between find a design you ll love

graphic designer resume template 21 word pdf format - Jul 05 2023

web a graphic designer s resume is a document that contains the qualifications and competencies of a graphic designer a lot of graphic designers job positions are available in different industries and fields of expertise

35 best graphic design portfolio examples plus tips - Jun 04 2023

web feb 16 2023 a graphic design portfolio is a collection of a designer s work traditionally these would have been a folder or bound volume but nowadays a large majority of graphic designers have a document most likely a pdf that showcases the best of their design work from across their career more on what a designer might put in their portfolio below

business profile design document freelancer - Apr 02 2023

web graphic design word projects for 250 750 i am seeking an individual with good graphic design skills using a word document the talented freelancer will need to format a professional business profile in a word document the word document has

how to write a company profile for a graphics firm - Oct 08 2023

web a company profile is an important document for graphic firms pitching to new clients it also forms part of your firm s general marketing material such as website content or company

profile document for graphic design services pdf uniport edu - Mar 21 2022

web the fundamentals of graphic design places graphic design in its socio historical context discussing its influences and development it includes contributions of work from contemporary designers including pentagram why not associates and studio myerscough it is an ideal guide for anyone starting out or seeking a role in the world of

graphic design portfolio 9 examples format pdf - Dec 30 2022

web the quality of the samples that you will include in your graphic design portfolio can impact your brand as a graphic designer the way you present your work samples say a lot about your professional endeavors use high definition samples so you can present the depth color quality and even the subtle details of your works

free design templates infographic templates more visme - Sep 07 2023

web browse through 1000s professional templates for graphic design infographics presentations charts maps documents printables and more start now for free

profile document for graphic design services ai classmonitor - Jun 23 2022

web examples of creative graphic design resumes graphic design cv must haves what does graphic design do a graphic designer may work on a team that focuses on advertising marketing or web

graphic design rfp a step by step guide free template - Oct 28 2022

web nov 14 2022 a graphic design request for proposal rfp is an official document that announces a graphic design project

with a company open for bidding to qualified vendors it contains a detailed description and requirements