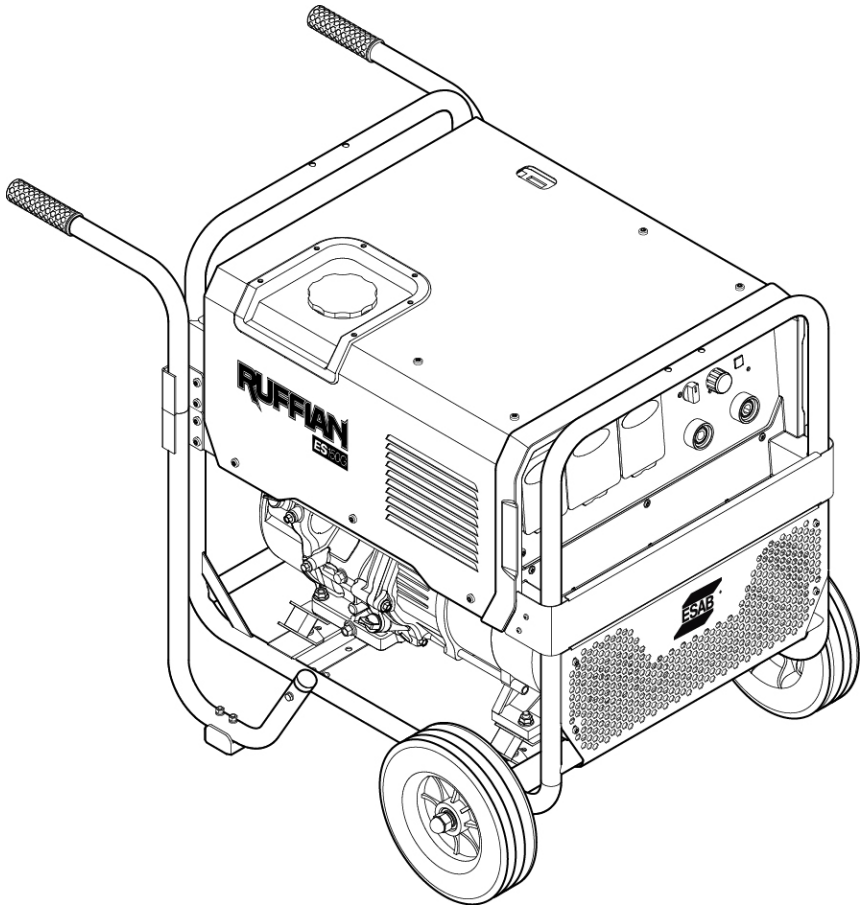
Ruffian ES 150G EDW

Engine Driven Welder MMA 150A



Instruction manual

0463 905 001 GB 20220907

Valid for: Serial number:
HA229YY-XXXXXX

1 SAFETY

1.1 Meaning of symbols

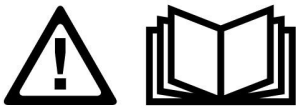
As used throughout this manual: Means Attention! Be Alert!

DANGER!
Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.

WARNING!
Means potential hazards which could result in personal injury or loss of life.

CAUTION!
Means hazards which could result in minor personal injury.

WARNING!
Before use, read and understand the instruction manual and follow all labels, employer´s safety practices and Safety Data Sheets (SDSs).



1.2 General safety precautions for arc welding

WARNING!
These Safety Precautions are for your protection. They summarize precautionary information from the references listed in Additional Safety Information section. Before performing any installation or operating procedures, be sure to read and follow the safety precautions listed below as well as all other manuals, material safety data sheets, labels, etc. Failure to observe Safety Precautions can result in injury or death.

PROTECT YOURSELF AND OTHERS

Some welding, cutting and gouging processes are noisy and require hearing protection. The arc, like the sun, emits ultraviolet (UV) and other radiation and can injure the skin and eyes. Hot metal can cause burns. Training in the proper use of the processes and equipment is essential to prevent accidents. Therefore:

1. Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching.
2. Always wear safety glasses with side shields in any work area, even if welding helmets, face shields and goggles are also required.
3. Use a face shield fitted with the correct filter and cover plates to protect your eyes, face, neck and ears from sparks and rays of the arc when operating or observing operations. Warn bystanders not to look at the arc and not to expose themselves to the rays of the electric-arc or hot metal.
4. Wear flameproof gauntlet-type gloves, heavy long-sleeve shirt, cuffless pants, high-topped shoes, and a welding helmet or cap for protection, to protect against arcrays and hot sparks or hot metal. A flameproof apron may also be desirable as protection against radiated heat and sparks.
5. Hot sparks or metal can lodge in rolled up sleeves, trouser cuffs, or pockets. Sleeves and collars should be kept buttoned and open pockets eliminated from the front of the clothing.

6. Protect other personnel from arc rays and hot sparks with a suitable non-flammable partition or curtains.
7. Use goggles over safety glasses when chipping slag or grinding. Chipped slag may be hot and can fly for long distances. Bystanders should also wear goggles over safety glasses.

FIRES AND EXPLOSIONS

The heat from flames and arcs can start fires. Hot slag or sparks can also cause fires and explosions. Therefore:

1. Protect yourself and others from flying sparks and hot metal.
2. Move all combustible materials well away from the work area or cover the materials with a protective non-flammable covering. Combustible materials include wood, cloth, sawdust, liquid and gas fuels, solvents, paints, and coating paper, etc.
3. Hot sparks or hot metal can fall through cracks or crevices in floors or wall openings and cause a hidden smoldering fire or fires on the floor below. Make certain that such openings are protected from hot sparks and metal.
4. Do not weld, cut, or perform other hot work until the work piece has been completely cleaned so that there are no substances on the work piece which might produce flammable or toxic vapors. Do not perform hot work on closed containers, they may explode.
5. Have fire extinguishing equipment handy for instant use, such as a garden hose, water pail, sand bucket, or portable fire extinguisher. Be sure you are trained in its use.
6. Do not use equipment beyond its ratings. For example, an overloaded welding cable can overheat and create a fire hazard.
7. After completing work, inspect the work area to make sure there are no hot sparks or hot metal that could cause a fire later. Use fire watchers when necessary.

ELECTRICAL SHOCK

Contact between live electrical parts and earth can cause severe injury or death. DO NOT use AC welding current in damp areas, if movement is confined, or if there is danger of falling. Therefore:

1. Be sure the power source frame (chassis) is connected to the earth ground of the input power.
2. Connect the workpiece to a good electrical earth ground.
3. Connect the work cable to the workpiece. A poor or missing connection can expose you or others to a fatal shock.
4. Use well-maintained equipment. Replace worn or damaged cables.
5. Keep everything dry, including clothing, work area, cables, torch/electrode holder and power source.
6. Make sure that all parts of your body are insulated from both the work piece and from the ground.
7. Do not stand directly on metal or the ground while working in tight quarters or a damp area; stand on dry boards or an insulating platform and wear rubber-soled shoes.
8. Put on dry, hole-free gloves before turning on the power.
9. Turn off the power, before removing your gloves.
10. Refer to ANSI/ASC Standard Z49.1 for specific grounding recommendations. Do not mistake the work lead for an earth cable.

ELECTRIC AND MAGNETIC FIELDS

May be dangerous. Electric current flowing through any conductor causes localized Electric and Magnetic Fields (EMF). Welding and cutting current creates EMF around welding cables and welding machines. Therefore:

1. Welders with pacemakers fitted should consult their doctor before welding. EMF may interfere with some pacemakers.
2. Exposure to EMF may have other health effects which are unknown.
3. Welders should use the following procedures to minimize exposure to EMF:
   a) Route the electrode and work cables together. Secure them with tape when possible.
   b) Never coil the torch or work cable around your body.
   c) Do not place your body between the torch and work cables. Route cables on the same side of your body.
   d) Connect the work cable to the workpiece as close as possible to the area being welded.
   e) Keep the welding power source and cables as far away from your body as possible.

FUMES AND GASES

Fumes and gases, can cause discomfort or harm, particularly in confined spaces. Shielding gases can cause asphyxiation. Therefore:

1. Keep your head out of the fumes. Do not breathe the fumes and gases.
2. Always provide adequate ventilation in the work area by natural or mechanical means. Do not weld, cut, or gouge on materials such as galvanized steel, stainless steel, copper, zinc, lead beryllium or cadmium unless positive mechanical ventilation is provided. Do not breathe in the fumes from these materials.
3. Do not operate near degreasing and spraying operations. The heat or arc can react with chlorinated hydrocarbon vapors to form phosgene, a highly toxic gas, and other irritant gases.
4. If you develop momentary eye, nose, or throat irritation while operating, this is an indication that the ventilation is not adequate. Stop work and take the necessary steps to improve ventilation in the work area. Do not continue to operate if physical discomfort persists.
5. Refer to ANSI/ASC Standard Z49.1 for specific ventilation recommendations.
6. WARNING: This product when used for welding or cutting, produces fumes or gases that contain chemicals known to the State of California to cause birth defects and in some cases cancer (California Health & Safety Code §25249.5 et seq.)

CYLINDER HANDLING

Cylinders, if mishandled, can rupture and violently release gas. A sudden rupture of cylinder valve or relief device can injure or kill. Therefore:

1. Locate cylinders away from heat, sparks and flames. Never strike an arc on a cylinder.
2. Use the proper gas for the process and use the proper pressure reducing regulator designed to operate from the compressed gas cylinder. Do not use adapters. Maintain hoses and fittings in good condition. Follow the manufacturer's operating instructions for mounting a regulator to a compressed gas cylinder
3. Always secure cylinders in an upright position, by chain or strap, to suitable hand trucks, undercarriages, benches, wall, post or racks. Never secure cylinders to work tables or fixtures where they may become part of an electrical circuit.
4. When not in use, keep cylinder valves closed. Have valve protection cap in place if regulator is not connected. Secure and move cylinders by using suitable hand trucks.

WARNING!

FALLING EQUIPMENT CAN INJURE

- Only use the two handles at the same time to lift unit. Do NOT use running gear, or anyother accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit.
- Keep cables and cords away from moving vehicles when working from an aerial location.

WARNING!

EQUIPMENT MAINTENANCE

Faulty or improperly maintained equipment can cause injury or death. Therefore:

1. Always have qualified personnel perform the installation, troubleshooting and maintenance work. Do not perform any electrical work unless you are qualified to perform such work.
2. Before performing any maintenance work inside a power source, disconnect the power source from the incoming electrical power.
3. Maintain cables, earthing wire, connections, power cord and power supply in safe working order. Do not operate any equipment in faulty condition.
4. Do not abuse any equipment or accessories. Keep equipment away from heat sources such as furnaces, wet conditions such as water puddles, oil or grease, corrosive atmospheres, and inclement weather.
5. Keep all safety devices and cabinet covers in position and in good repair.
6. Use equipment only for its intended purpose. Do not modify it in any manner.

CAUTION!

ADDITIONAL SAFETY INFORMATION

For more information on safe practices for electric arc welding and cutting equipment, ask your supplier for a copy of “Precautions and Safe Practices for Arc Welding, Cutting and Gouging.” Form 52-529.

The following publications are recommended to you:

1. ANSI/ASC Z49.1 - “Safety in Welding and Cutting”
2. AWS C5.5 - “Recommended Practices for Gas Tungsten Arc Welding”
3. AWS C5.6 - “Recommended Practices for Gas Metal Arc welding”
4. AWS SP - “Safe practices” - Reprint, Welding Handbook
5. ANSI/AWS F4.1 - “Recommended Safe Practices for Welding and Cutting of Containers That Have Held Hazardous Substances”
6. OSHA 29 CFR 1910 - "Safety and health standards"
7. CSA W117.2 - "Code for safety in welding and cutting"
8. NFPA Standard 51B, “Fire Prevention During Welding, Cutting, and Other Hot Work"
9. CGA Standard P-1, “Precautions for Safe Handling of Compressed Gases in Cylinders”
10. ANSI Z87.1, "Occupational and Educational Personal Eye and Face Protection Devices"

1.3 General safety precautions for engines and generators

MOVING PARTS

Moving parts, such as fans, rotors and belts can cause injury. Therefore:

1. Keep all doors, panels, guards, and covers closed and securely in place.
2. Stop the engine or drive systems before installing or connecting a unit.
3. Have only qualified people remove covers for maintenance and troubleshooting as necessary
4. To prevent accidental starting of equipment during service, disconnect negative (-) battery cable from battery.
5. Keep hands, hair, loose clothing and tools away from moving parts.
6. Reinstall panels or covers and close doors when service is finished and before starting engine.

ENGINE EXHAUST GASES

Engines produce harmful exhaust gases and can kill. Therefore:

1. Use equipment outside in open, well-ventilated areas.
2. If used in a closed area, vent engine exhaust outside and away from any building air intakes.

ENGINE FUEL

Engine fuel is highly flammable and can cause fire or explosion. Therefore:

1. Stop engine before checking or adding fuel.
2. Do not add fuel while smoking or if unit is near any sparks or open flames.
3. Allow engine to cool before fueling. If possible, check and add fuel to cold engine before beginning job.
4. Do not overfill tank - allow room for fuel to expand.
5. Do not spill fuel. If fuel is spilled, clean up before starting engine.

BATTERY ACID

Batteries contain acid and generate explosive gases. Sparks can cause battery gases to explode. Therefore:

1. Always wear a face shield when working on a battery.
2. Stop engine before disconnecting or connecting battery cables.
3. Do not allow tools to cause sparks when working on a battery.
4. Do not use welder to charge batteries or jump start vehicles.
5. Observe correct polarity (+ and -) on batteries.

1.4 User responsibility

Users of ESAB equipment have the ultimate responsibility for ensuring that anyone who works on or near the equipment observes all the relevant safety precautions. Safety precautions must meet the requirements that apply to this type of equipment. The following recommendations should be observed in addition to the standard regulations that apply to the workplace.

All work must be carried out by trained personnel well-acquainted with the operation of the equipment. Incorrect operation of the equipment may lead to hazardous situations which can result in injury to the operator and damage to the equipment.

1. Anyone who uses the equipment must be familiar with:
   - its operation
   - location of emergency stops
   - its function
   - relevant safety precautions
   - welding and cutting or other applicable operation of the equipment
2. The operator must ensure that:
   - no unauthorized person is stationed within the working area of the equipment when it is started up
   - no-one is unprotected when the arc is struck or work is started with the equipment
3. The workplace must:
   - be suitable for the purpose
   - be free from drafts
4. Personal safety equipment:
   - Always wear recommended personal safety equipment, such as safety glasses, flame-proof clothing, safety gloves
   - Do not wear loose-fitting items, such as scarves, bracelets, rings, etc., which could become trapped or cause burns
5. General precautions:
   - Make sure the return cable is connected securely
   - Work on high voltage equipment **may only be carried out by a qualified electrician**
   - Appropriate fire extinguishing equipment must be clearly marked and close at hand
   - Lubrication and maintenance must **not** be carried out on the equipment during operation

WARNING!
Do not use the power source for thawing frozen pipes.

CAUTION!
This product is solely intended for arc welding and related process that draw less than the kVA of the system.

ESAB has an assortment of welding accessories and personal protection equipment for purchase. For ordering information contact your local ESAB dealer or visit us on our website.

1.5 California Proposition 65 Warning

WARNING!
Welding or cutting equipment produces fumes or gases that contain chemicals known in the State of California to cause birth defects and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

WARNING!
Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling

WARNING!
For Gasoline Engines:
Engine exhaust contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

WARNING!
This product can expose you to chemicals including lead, which are known to the state of California to cause cancer and birth defects or other reproductive harm. Wash hands after use.

For more information, go to www.P65Warnings.ca.gov.

2 SÉCURITÉ

2.1 Signification des symboles

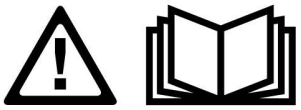
Tel qu'utilisé tout au long de ce manuel : Signifie Attention ! Être à l'affût!

DANGER!
Signifie des dangers immédiats qui, s'ils ne sont pas évités, entraîneront des blessures graves ou la mort immédiates.

AVERTISSEMENT!
Désigne les dangers potentiels qui pourraient entraîner des blessures corporelles ou la mort.

MISE EN GARDE!
Signifie des dangers qui pourraient entraîner des blessures corporelles mineures

AVERTISSEMENT!
Avant utilisation, lisez et comprenez le manuel d'instructions et suivez toutes les étiquettes, les pratiques de sécurité de l'employeur et les fiches de données de sécurité (FDS).



2.2 Précautions générales de sécurité pour le soudage à l'arc

AVERTISSEMENT!
Ces précautions de sécurité sont pour votre protection. Ils résument les informations de précaution des références répertoriées dans la section Informations de sécurité supplémentaires. Avant d'effectuer toute procédure d'installation ou d'utilisation, assurez-vous de lire et de suivre les consignes de sécurité répertoriées ci-dessous ainsi que tous les autres manuels, fiches signalétiques, étiquettes, etc. Le non-respect des consignes de sécurité peut entraîner des blessures ou la mort.

PROTÉGEZ-VOUS ET PROTÉGEZ-VOUS LES AUTRES

Sertains processus de soudage, de coupage et de gougeage sont bruyants et nécessitent une protection auditive. L'arc, comme le soleil, émet des rayons ultraviolets (UV) et d'autres rayonnements et peut blesser la peau et les yeux. Le métal chaud peut provoquer des brûlures. La formation à la bonne utilisation des procédés et des équipements est essentielle pour prévenir les accidents. Donc:

1. Portez un casque de soudage équipé d'un filtre de teinte appropriée pour protéger votre visage et vos yeux lorsque vous soudez ou regardez.
2. Portez toujours des lunettes de sécurité avec écrans latéraux dans toute zone de travail, même si des casques de soudage, des écrans faciaux et des lunettes de protection sont également nécessaires.
3. Utilisez un écran facial équipé du filtre et des plaques de recouvrement appropriés pour protéger vos yeux, votre visage, votre cou et vos oreilles des étincelles et des rayons de l'arc lors de l'utilisation ou de l'observation des opérations. Avertir les passants de ne pas regarder l'arc et de ne pas s'exposer aux rayons de l'arc électrique ou du métal chaud.
4. Portez des gants antidéflagrants de type gantelet, une chemise épaisse à manches

longues, un pantalon sans revers, des chaussures montantes et un casque ou une casquette de soudeur pour se protéger contre les rayons de l'arc et les étincelles chaudes ou le métal chaud. Un tablier antidéflagrant peut également être souhaitable comme protection contre la chaleur rayonnante et les étincelles.Des étincelles chaudes ou du métal peuvent se loger dans les manches retroussées, les poignets de pantalon ou les poches. Les manches et les cols doivent être maintenus boutonnés et les poches ouvertes éliminées du devant des vêtements.

5. Protégez les autres membres du personnel des rayons d'arc et des étincelles chaudes avec une cloison ou des rideaux ininflammables appropriés.
6. Utilisez des lunettes par-dessus des lunettes de sécurité lors du déchiquetage ou du broyage des scories. Les scories ébréchées peuvent être chaudes et voler sur de longues distances. Les spectateurs doivent également porter des lunettes par-dessus des lunettes de sécurité.

INCENDIES ET EXPLOSIONS

La chaleur des flammes et des arcs peut déclencher des incendies. Les scories chaudes ou les étincelles peuvent également provoquer des incendies et des explosions. Donc:

1. Protégez-vous et protégez les autres des projections d'étincelles et du métal chaud.
2. Éloignez tous les matériaux combustibles de la zone de travail ou recouvrez les matériaux d'un revêtement protecteur ininflammable. Les matériaux combustibles comprennent le bois, le tissu, la sciure de bois, les combustibles liquides et gazeux, les solvants, les peintures et le papier de revêtement, etc.
3. Des étincelles chaudes ou du métal chaud peuvent tomber à travers des fissures ou des crevasses dans les planchers ou les ouvertures des murs et provoquer un feu couvant caché ou des incendies sur le plancher en dessous. Assurez-vous que ces ouvertures sont protégées des étincelles chaudes et du métal.
4. Ne pas souder, couper ou effectuer d'autres travaux à chaud tant que la pièce n'a pas été complètement nettoyée afin qu'il n'y ait pas de substances sur la pièce susceptibles de produire des vapeurs inflammables ou toxiques. Ne pas effectuer de travaux à chaud sur des récipients fermés, ils peuvent exploser.
5. Ayez à portée de main un équipement d'extinction d'incendie pour une utilisation immédiate, tel qu'un tuyau d'arrosage, un seau d'eau, un seau de sable ou un extincteur portatif. Assurez-vous d'être formé à son utilisation.
6. N'utilisez pas d'équipement au-delà de ses valeurs nominales. Par exemple, un câble de soudage surchargé peut surchauffer et créer un risque d'incendie.
7. Après avoir terminé le travail, inspectez la zone de travail pour vous assurer qu'il n'y a pas d'étincelles chaudes ou de métal chaud qui pourrait provoquer un incendie plus tard. Utilisez des surveillants d'incendie si nécessaire.

CHOC ÉLECTRIQUE

Le contact entre des pièces électriques sous tension et la terre peut entraîner des blessures graves ou la mort. NE PAS utiliser le courant de soudage AC dans des zones humides, si le mouvement est confiné ou s'il y a un risque de chute. Donc:

1. Assurez-vous que le cadre de la source d'alimentation (châssis) est connecté à la terre de l'alimentation d'entrée.
2. Connectez la pièce à couper à une bonne terre électrique.
3. Connectez le câble de travail à la pièce à usiner. Une mauvaise connexion ou une connexion manquante peut vous exposer ou exposer d'autres personnes à un choc mortel.
4. Utilisez un équipement bien entretenu. Remplacez les câbles usés ou endommagés.
5. Gardez tout au sec, y compris les vêtements, la zone de travail, les câbles, le porte-torche/électrode et la source d'alimentation.
6. Assurez-vous que toutes les parties de votre corps sont isolées de la pièce à usiner et du sol.

7. Ne vous tenez pas directement sur du métal ou sur le sol lorsque vous travaillez dans des espaces restreints ou dans une zone humide ; se tenir debout sur des planches sèches ou une plate-forme isolante et porter des chaussures à semelles de caoutchouc.
8. Mettez des gants secs et non troués avant de mettre l'appareil sous tension.
9. Coupez l'alimentation avant de retirer vos gants.
10. Reportez-vous à la norme ANSI/ASC Z49.1 pour des recommandations de mise à la terre spécifiques. Ne confondez pas le fil de travail avec un câble de terre.

CHAMPS ÉLECTRIQUES ET MAGNÉTIQUES

Peut être dangereux. Le courant électrique circulant dans n'importe quel conducteur provoque des champs électriques et magnétiques (EMF) localisés. Le courant de soudage et de coupage crée des CEM autour des câbles de soudage et des machines à souder. Donc:

1. Les soudeurs équipés d'un stimulateur cardiaque doivent consulter leur médecin avant de souder. Les CEM peuvent interférer avec certains stimulateurs cardiaques.
2. L'exposition aux CEM peut avoir d'autres effets sur la santé qui sont inconnus.
3. Les soudeurs doivent utiliser les procédures suivantes pour minimiser l'exposition aux CEM :
   a) Acheminez les câbles d'électrode et de travail ensemble. Fixez-les avec du ruban adhésif lorsque cela est possible.
   b) N'enroulez jamais la torche ou le câble de travail autour de votre corps.
   c) Ne placez pas votre corps entre la torche et les câbles de travail. Acheminez les câbles du même côté de votre corps.
   d) Connectez le câble de travail à la pièce aussi près que possible de la zone à souder.
   e) Gardez la source d'alimentation de soudage et les câbles aussi loin que possible de votre corps.

FUMÉES ET GAZ

Les fumées et les gaz peuvent causer de l'inconfort ou des dommages, en particulier dans les espaces confinés. Les gaz de protection peuvent provoquer une asphyxie. Donc:

1. Gardez la tête hors des fumées. Ne pas respirer les fumées et les gaz.
2. Assurez toujours une ventilation adéquate dans la zone de travail par des moyens naturels ou mécaniques. Ne pas souder, couper ou creuser sur des matériaux tels que l'acier galvanisé, l'acier inoxydable, le cuivre, le zinc, le plomb, le béryllium ou le cadmium à moins qu'une ventilation mécanique positive ne soit fournie. Ne pas respirer les vapeurs de ces matériaux.
3. Ne pas utiliser à proximité d'opérations de dégraissage et de pulvérisation. La chaleur ou l'arc peuvent réagir avec les vapeurs d'hydrocarbures chlorés pour former du phosgène, un gaz hautement toxique, et d'autres gaz irritants.
4. Si vous développez une irritation momentanée des yeux, du nez ou de la gorge pendant l'utilisation, cela indique que la ventilation n'est pas adéquate. Arrêtez le travail et prenez les mesures nécessaires pour améliorer la ventilation dans la zone de travail. Ne continuez pas à opérer si l'inconfort physique persiste.
5. Reportez-vous à la norme ANSI/ASC Z49.1 pour des recommandations de ventilation spécifiques.
6. AVERTISSEMENT: Ce produit, lorsqu'il est utilisé pour le soudage ou le coupage, produit des fumées ou des gaz qui contiennent des produits chimiques reconnus par l'État de Californie comme pouvant causer des malformations congénitales et, dans certains cas, le cancer (California Health & Safety Code §25249.5 et seq.)

MANUTENTION DES CYLINDRES

Les bouteilles, si elles sont mal manipulées, peuvent se rompre et libérer violemment du gaz. Une rupture soudaine du robinet de la bouteille ou du dispositif de décharge peut blesser ou tuer. Donc:

1. Placez les bouteilles loin de la chaleur, des étincelles et des flammes. Ne jamais amorcer un arc sur un cylindre.
2. Utilisez le gaz approprié pour le processus et utilisez le régulateur de réduction de pression approprié conçu pour fonctionner à partir de la bouteille de gaz comprimé. N'utilisez pas d'adaptateurs. Maintenez les tuyaux et les raccords en bon état. Suivez les instructions d'utilisation du fabricant pours le montage d'un régulateur sur une bouteille de gaz comprimé.
3. Fixez toujours les bouteilles en position verticale, à l'aide d'une chaîne ou d'une sangle, à des diables, des châssis, des bancs, des murs, des poteaux ou des supports appropriés. Ne fixez jamais les bouteilles à des tables de travail ou à des appareils où elles pourraient faire partie d'un circuit électrique.
4. Lorsqu'il n'est pas utilisé, gardez les robinets de la bouteille fermés. Avoir le capuchon de protection de la valve en place si le régulateur n'est pas connecté. Fixez et déplacez les bouteilles à l'aide de diables appropriés.
5.

AVERTISSEMENT!
LA CHUTE D'ÉQUIPEMENT PEUT BLESSER

- Utilisez uniquement les deux poignées en même temps pour soulever l'appareil. N'utilisez PAS de train de roulement ou tout autre accessoire.
- Utilisez un équipement d'une capacité adéquate pour soulever et soutenir l'unité.
- Si vous utilisez des fourches de levage pour déplacer l'unité, assurez-vous que les fourches sont suffisamment longues pour dépasser le côté opposé de l'unité.
- Tenez les câbles et les cordons éloignés des véhicules en mouvement lorsque vous travaillez à partir d'un emplacement aérien.

AVERTISSEMENT!

ENTRETIEN DU MATÉRIEL

Un équipement défectueux ou mal entretenu peut entraîner des blessures ou la mort. Donc:

1. Faites toujours effectuer les travaux d'installation, de dépannage et d'entretien par du personnel qualifié. N'effectuez aucun travail électrique à moins d'être qualifié pour effectuer de tels travaux.
2. Avant d'effectuer tout travail de maintenance à l'intérieur d'une source d'alimentation, débranchez la source d'alimentation de l'alimentation électrique entrante.
3. Maintenez les câbles, le fil de mise à la terre, les connexions, le cordon d'alimentation et l'alimentation électrique en bon état de fonctionnement. N'utilisez aucun équipement en mauvais état.
4. N'abusez d'aucun équipement ou accessoire. Gardez l'équipement à l'écart des sources de chaleur telles que les fournaises, les conditions humides telles que les flaques d'eau, l'huile ou la graisse, les atmosphères corrosives et les intempéries.
5. Gardez tous les dispositifs de sécurité et les couvercles de l'armoire en place et en bon état.
6. N'utilisez l'équipement que pour l'usage auquel il est destiné. Ne le modifiez en aucune manière.

MISE EN GARDE!

INFORMATIONS DE SÉCURITÉ SUPPLÉMENTAIRES

Pour plus d'informations sur les pratiques de sécurité pour les équipements de soudage et de coupage à l'arc électrique, demandez à votre fournisseur un exemplaire des « Précautions et pratiques de sécurité pour le soudage à l'arc, le coupage et le gougeage ». Formulaire 52-529.

Les publications suivantes vous sont recommandées:

1. ANSI/ASC Z49.1 - "Sécurité du soudage et du coupage"
2. AWS C5.5 - "Pratiques recommandées pour le soudage à l'arc au gaz tungstène"
3. AWS C5.6 - "Pratiques recommandées pour le soudage à l'arc sous gaz et métal"
4. AWS SP - "Pratiques sûres" - Réimpression, manuel de soudage
5. ANSI/AWS F4.1 - « Pratiques de sécurité recommandées pour le soudage et le découpage de conteneurs ayant contenu des substances dangereuses »
6. OSHA 29 CFR 1910 - "Normes de sécurité et de santé"
7. CSA W117.2 - "Code de sécurité en soudage et coupage"
8. Norme NFPA 51B, "Prévention des incendies pendant le soudage, le découpage et autres travaux à chaud"
9. Norme CGA P-1, « Précautions pour la manipulation sécuritaire des gaz comprimés en bouteilles »
10. ANSI Z87.1, « Oeil et visage personnels professionnels et éducatifs Dispositifs de protection"

2.3 Consignes générales de sécurité pour les moteurs et les générateurs

PIÈCES MOBILES

Les pièces mobiles telles que les ventilateurs, les rotors et les courroies peuvent provoquer des blessures. Donc:

1. Gardez toutes les portes, panneaux, protections et couvercles fermés et solidement en place.
2. Arrêtez le moteur ou les systèmes d'entraînement avant d'installer ou de connecter une unité.
3. Demandez uniquement à des personnes qualifiées de retirer les couvercles pour l'entretien et le dépannage si nécessaire
4. Pour éviter tout démarrage accidentel de l'équipement pendant l'entretien, débranchez le câble de batterie négatif (-) de la batterie.
5. Gardez les mains, les cheveux, les vêtements amples et les outils éloignés des pièces mobiles.
6. Réinstallez les panneaux ou les couvercles et fermez les portes lorsque l'entretien est terminé et avant de démarrer le moteur.

GAZ D'ECHAPPEMENT MOTEUR

Les moteurs produisent des gaz d'échappement nocifs et peuvent tuer. Donc

1. Utilisez l'équipement à l'extérieur dans des zones ouvertes et bien ventilées.
2. En cas d'utilisation dans une zone fermée, ventilez les gaz d'échappement du moteur à l'extérieur et loin de toute prise d'air du bâtiment.

CARBURANT MOTEUR

Le carburant des moteurs est hautement inflammable et peut provoquer un incendie ou une explosion. Donc:

1. Arrêtez le moteur avant de vérifier ou d'ajouter du carburant.
2. N'ajoutez pas de carburant pendant que vous fumez ou si l'appareil est à proximité d'étincelles ou de flammes nues.
3. Laissez le moteur refroidir avant de faire le plein. Si possible, vérifiez et ajoutez du carburant au moteur froid avant de commencer le travail.
4. Ne remplissez pas trop le réservoir - laissez de la place pour que le carburant se dilate.
5. Ne renversez pas de carburant. Si du carburant est renversé, nettoyez-le avant de démarrer le moteur.

BATTERY ACID

Batteries contain acid and generate explosive gases. Sparks can cause battery gases to explode. Therefore:

1. Portez toujours un écran facial lorsque vous travaillez sur une batterie.
2. Arrêtez le moteur avant de débrancher ou de brancher les câbles de la batterie.
3. Ne laissez pas les outils provoquer des étincelles lorsque vous travaillez sur une batterie.
4. N'utilisez pas la soudeuse pour charger des batteries ou démarrer des véhicules.
5. Respectez la polarité (+ et -) des piles.

2.4 Responsabilité de l'utilisateur

Les utilisateurs d'équipements ESAB ont la responsabilité ultime de s'assurer que toute personne travaillant sur ou à proximité de l'équipement respecte toutes les précautions de sécurité pertinentes. Les précautions de sécurité doivent répondre aux exigences qui s'appliquent à ce type d'équipement. Les recommandations suivantes doivent être respectées, en plus des réglementations standard qui s'appliquent au lieu de travail.

Tous les travaux doivent être effectués par du personnel formé et familiarisé avec le fonctionnement de l'équipement. Une utilisation incorrecte de l'équipement peut entraîner des situations dangereuses pouvant blesser l'opérateur et endommager l'équipement.

1. Toute personne utilisant l'équipement doit connaître :
   - son fonctionnement
   - l'emplacement des arrêts d'urgence
   - sa fonction
   - les précautions de sécurité pertinentes
   - soudage et coupage ou autre opération applicable de l'équipement
2. L'exploitant doit s'assurer que:
   - aucune personne non autorisée ne se trouve dans la zone de travail de l'équipement lors de sa mise en marche
   - personne n'est sans protection lorsque l'arc est amorcé ou que le travail commences avec l'équipement
3. Le lieu de travail doit:
   - être adapté à l'objectif
   - être exempt de courants d'air
4. Équipement de sécurité personnelle:
   - Portez toujours l'équipement de sécurité personnel recommandé, tel que des lunettes de sécurité, des vêtements ignifuges, des gants de sécurité
   - ○ Ne portez pas d'articles amples, tels que foulards, bracelets, bagues, etc., qui pourraient se coincer ou provoquer des brûlures
5. Précautions générales :
   - Assurez-vous que le câble de retour est correctement connecté
   - Les travaux sur les équipements à haute tension ne doivent être effectués que par un électricien qualifié
   - L'équipement d'extinction d'incendie approprié doit être clairement identifié et à portée de main
   - La lubrification et l'entretien ne doivent pas être effectués sur l'équipement pendant le fonctionnemen

AVERTISSEMENT!
N'utilisez pas la source d'alimentation pour dégeler des tuyaux gelés.

MISE EN GARDE!
Ce produit est uniquement destiné au soudage à l'arc et aux processus connexes qui consomment moins que le kVA du système.

ESAB propose un assortiment d'accessoires de soudage et d'équipements de protection individuelle à l'achat. Pour plus d'informations sur les commandes, contactez votre revendeur ESAB local ou rendez-nous visite sur notre site Web.

2.5 Avertissement de la proposition 65 de la Californie

AVERTISSEMENT!
L'équipement de soudage ou de coupage produit des fumées ou des gaz qui contiennent des produits chimiques connus dans l'État de Californie pour causer des malformations congénitales et, dans certains cas, le cancer. (California Health & Safety Code Section 25249.5 et suivants)

AVERTISSEMENT!
Les bornes de batterie, les bornes et les accessoires connexes contiennent du plomb et des composés de plomb, des produits chimiques reconnus par l'État de Californie comme pouvant causer le cancer et des malformations congénitales ou d'autres troubles de la reproduction. Se laver les mains après manipulation

AVERTISSEMENT!
Pour les moteurs à essence:
Les gaz d'échappement du moteur contiennent des produits chimiques reconnus par l'État de Californie comme pouvant causer le cancer, des malformations congénitales ou d'autres troubles de la reproduction.

AVERTISSEMENT!
Ce produit peut vous exposer à des produits chimiques, dont le plomb, reconnus par l'État de Californie pour causer le cancer et des malformations congénitales ou d'autres troubles de la reproduction. Se laver les mains après utilisation.

Pour plus d'informations, rendez-vous sur www.P65Warnings.ca.gov.

3 INTRODUCTION

3.1 Overview

The **RUFFIAN ES 150G EDW** is an autonomous DC stick welder and AC generator in one compact package. EDW stands for Engine Driven Welder.

ESAB accessories for the product can be found in the "ACCESSORIES" chapter of this manual.

3.2 Equipment

The EDW is supplied with:

- 2 handles assemblies
- 2 wheels
- Hardware to install the wheels and the handles to the chassis
- EDW Instruction manual
- Engine Instruction manual

4 TECHNICAL DATA

ES 150G EDW	
Welder specifications	
Setting range (DC)	
Stick (SMAW)	20 A/20.8 V – 150 A/26 V
Permissible load at Stick (SMAW)	
60 % duty cycle	150 A/26 V
100% duty cycle	115 A/24.6 V
Open circuit voltage	78 V
Generator specifications	
Phases	Single-phase
Voltages	120/240 V AC
Frequency	60 Hz
Peak power	4.5 kVA/ kW
Continuous power	4 kVA/ kW
Max current (without welding)	34 A (120V AC); 17 A (240V AC)
Engine specifications	
Brand	Kohler
Model	Command PRO CH440
Power	14 HP
Fuel type	Gasoline
Cooling type	Air
Cylinders	One
RPM	3600
General specifications	
Tank fuel capacity	5.0 US gal. (18.93 L)
Operating temperature	-14° to +104 °F (-10° to +40 °C)
Transportation temperature	-4° to +131 °F (-20° to +55 °C)
Enclosure class	IP 23
Application class	S
Dimensions l×w×h	
Without wheels and handles	28.70 x 22.52 x 25.98 in. (729 x 572 x 660 mm)
With wheels and handles	40.83 x 28.74 x 31.61 in. (1037 x 730 x 803 mm)
Weight	
Without wheels and handles	223.8 lb (101.5 kg)
With wheels and handles	248 lb (112.5 kg)

Enclosure class

The **IP** code indicates the enclosure class, i.e. the degree of protection against penetration by solid objects or water.

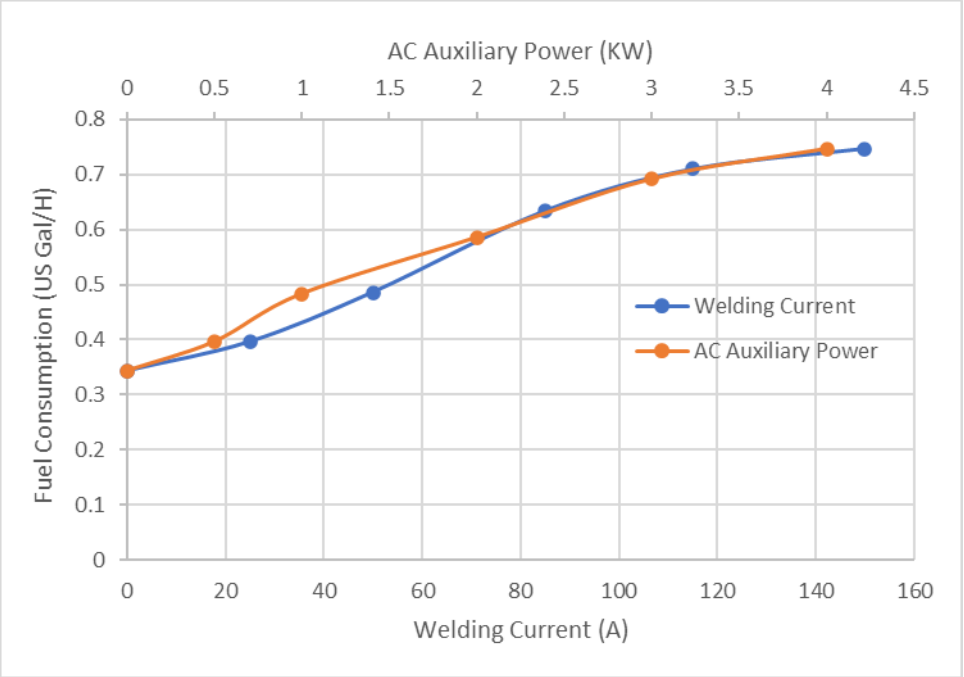
Equipment marked **IP23** is intended for indoor and outdoor use.

Application class

The symbol S indicates that the power source is designed for use in areas with increased electrical hazard.

4.1 Fuel consumption curves

The fuel consumption curves show the typical fuel use under welding or auxiliary generator loads.



4.2 Welding current & auxiliary output power simultaneously

The generator auxiliary power decreases as the welding current increases. Refer the below table which shows the relationship between welding out current and current available at each 120 V AC and 240 V AC receptacle.

WELDING & AC AUXILIARY POWER SIMULTANEOUS OUTPUT			
Welding Current (A)	**AC auxiliary power (KW)**	**120V AC current (A)**	**240V AC current (A)**
0	4	33	17
20	3.5	32	16
40	2.7	23	11.5
60	2.2	18.4	9.2
80	1.6	13.5	6.7
100	1	8.4	4.2
120	0.6	5	2.5
140	0.2	2	1
150	0	0	0

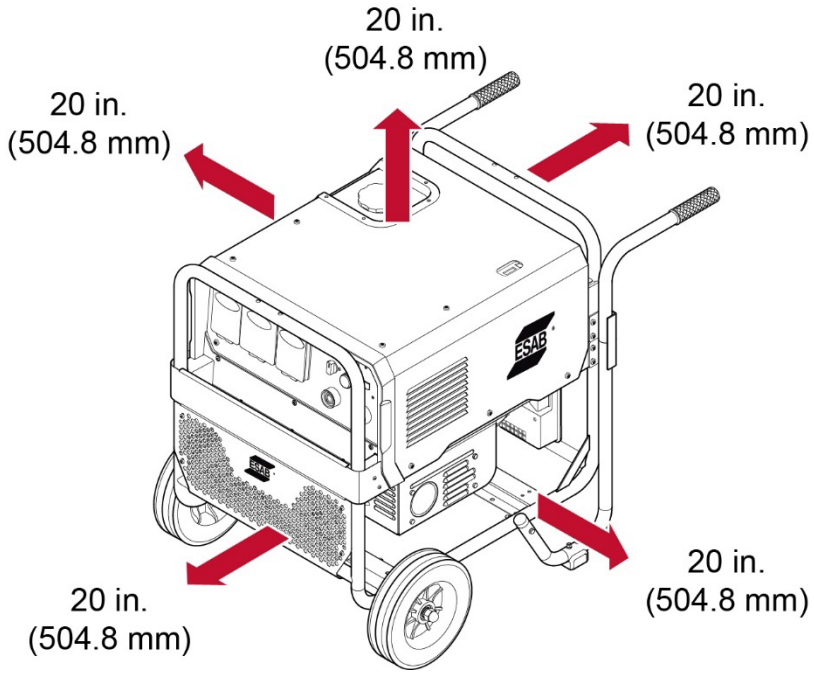
5 INSTALLATION

The installation must be carried out by a professional.

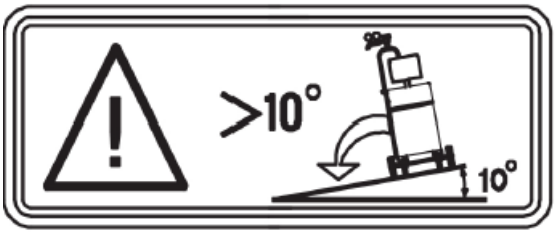
CAUTION!
This product is intended for industrial use. In a domestic environment this product may cause radio interference. It is the user's responsibility to take adequate precautions.

5.1 Location

Position the engine driven welder so that cooling air inlets and outlets are not obstructed.



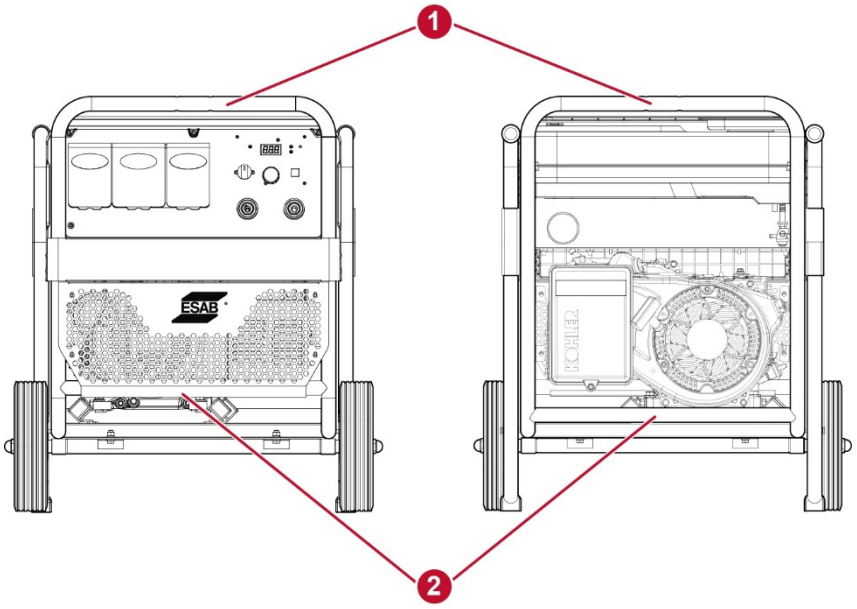
WARNING!
Secure the equipment - particularly if the ground is uneven or sloping.



5.2 Lifting instructions

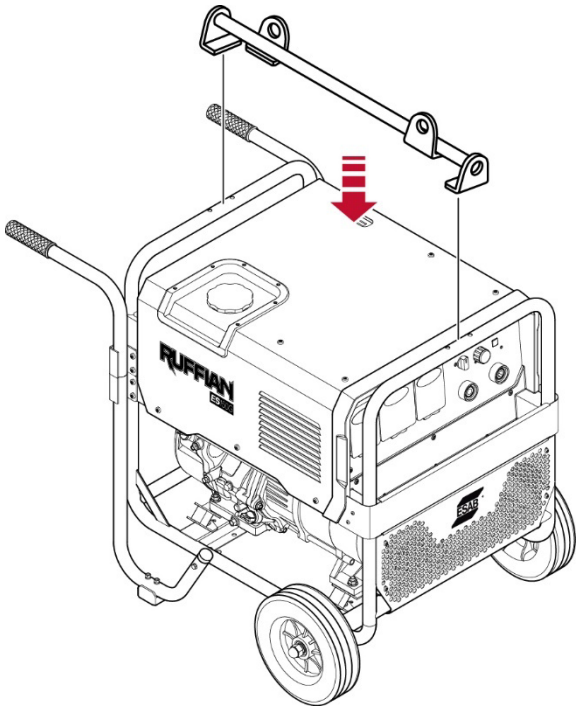
Manual and mechanical lifting must be done using both tubular handles.

Manual lifting requires two people, one on each side of the machine. To facilitate loading of the EDW in a truck, the low crossbars can be used.



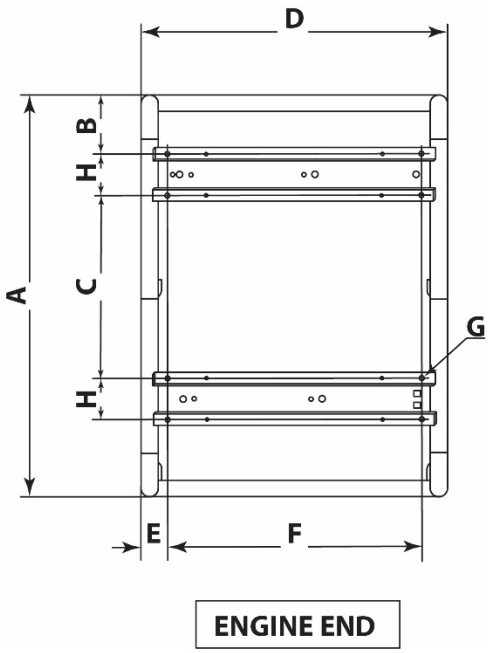
1 Tubular handles 2 Low crossbar

For mechanical lifting use the optional lifting eye included at Section 13-ACCESSORIES. The lifting eye (0707071001) includes the hardware needed to fix the device to the tubular handles of the machine.



5.3 Overall tubular frame dimensions

HEIGHT	25-63/64 in. (660mm)
WIDTH	21-13/16 in. (554mm)
DEPTH	28-15/64 in. (723mm)
A	28-15/64 in. (723mm)
B	4-7/64 in. (104.5mm)
C	13-1/32 in. (331mm)
D	21-13/16 in. (554mm)
E	1-27/32 in. (47mm)
F	18-7/64 in. (460mm)
G	23-64 in. (9mm) Diameter
H	2-61/64 in. (75mm)

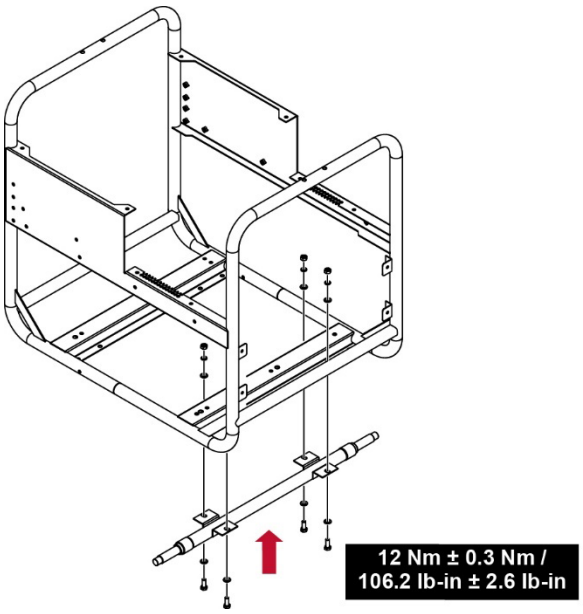


5.4 Assembly running gear

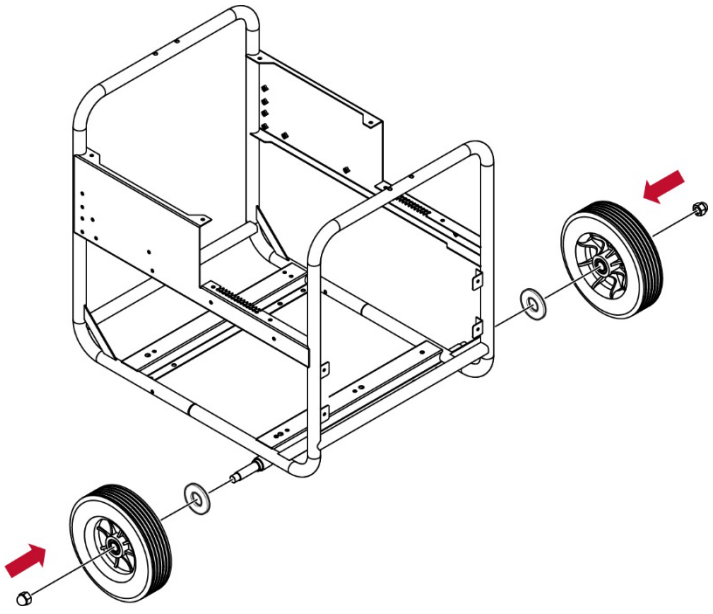
Included running gear parts		
	Description	**Quantity**
Front side assembly	Wheel	2
	Axel	1
	M16 Lid Nut	2
	M8x25 Bolt	4
	8mm Flat Washer	8
	8mm Spring Washer	4
	M8 Nut	4
Rear side assembly	Lower part left handle assembly	1
	Upper part left handle assembly	1
	Lower part right handle assembly	1
	Upper part right handle assembly	1
	M6x16 Hexagon Pan Head Screw	8
	M6x70 Bolt	2
	6mm Spring Washer	4
	M6 Nut	2
	6mm Flat Washer	2

Lift the machine approximately 12 inches off the ground and place on supports. Secure the unit to prevent it from falling.

1. Align the mounting holes in the Axle brackets with the mounting holes in the bottom of the frame.
2. Attach the Axle to the Frame using four M8 x 25mm Bolts, eight 8 mm Flat Washers, four 8 mm Spring Washers, and four M8 Nuts.



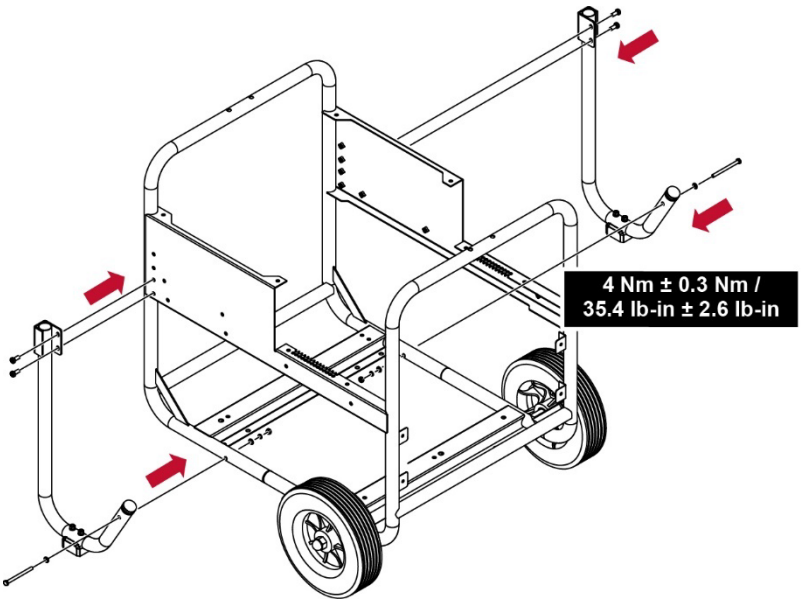
3. Slide a Wheel onto one end of the Axle followed by a 20mm flat washer. Secure in place with a Lid Nut. Repeat for the other side.



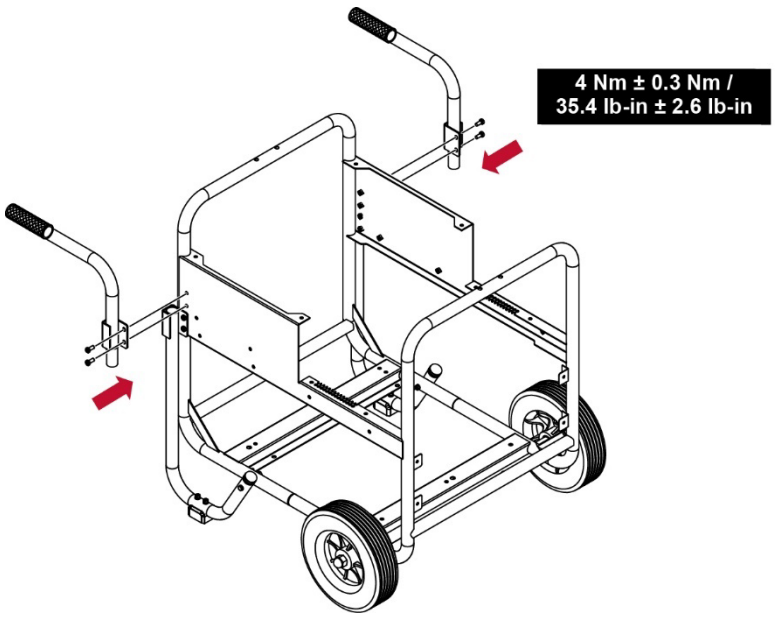
NOTE!

Each Handle Assembly is made up of an upper tubular part and a lower tubular part. The upper part fits into the lower part and each part have a bracket to be fixed to the frame with two screws. This allows the upper part of the Handle Assembly to be removable once installed on the machine.

4. Identify the right and left lower parts of each Handle Assembly.
5. Fasten the brackets of the lower parts to the frame using two M6 x 16mm Hexagon pan head screws at each side.



6. Fasten the lower ends of the Handles to the bottom of the Frame using a M6 x 70mm Bolt, 6 mm flat washer, 6 mm Spring Washer, and M6 Nut at each side.
7. Install the upper parts of each Handle Assembly and secure them to the frame using two M6 x 16mm Hexagon pan head screws at each side.



8. Make sure that all the hardware is tighten securely

5.5 Engine prestart checks

Inspect equipment before starting it. Check that air cleaner components and all shrouds, equipment covers, and guards are in place and securely fastened. Engine must be cold and on a level surface. If any problems are found, do not use equipment until fixed properly. The fluids need to be checked daily.

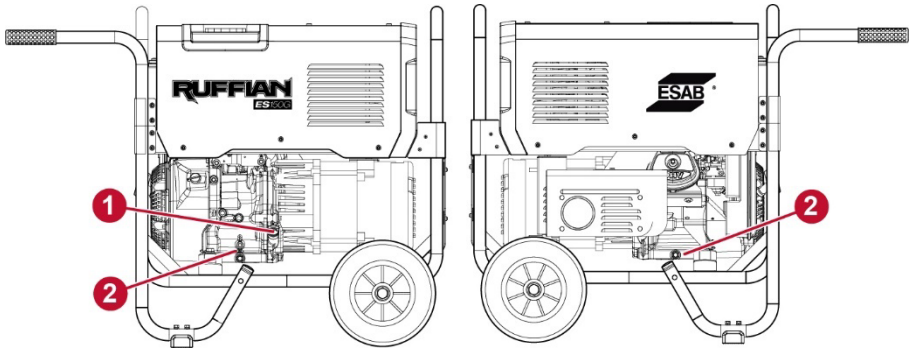
Oil

NOTE!

This unit has a low oil level shutdown switch to prevent starting an engine that is low on oil. However, some conditions may cause engine damage before the engine shuts down. Before each use check the oil level and do not use the low oil level shutdown system to monitor oil level.

Your Warranty is “invalid” if the engine is not properly filled before each use

1. Place the machine on a flat surface.
2. Clean and remove the dipstick by rotating it in counterclockwise and wipe it off with a clean lint free rag.
3. Reinsert the dipstick to check the oil level. The oil level should be at top level indicator of dipstick.
4. If the oil level is at or below the low mark add the appropriate type of oil until the oil level is at the proper level.
5. Install the dipstick by rotating clockwise.



1 Dipstick 2 Drain plugs

NOTE!

To improve cold weather starting, use correct grade oil for cold weather.

SAE 10W 30 oil is recommended for general use. (The SAE Viscosity Grade defines other viscosities to use in different average temperatures, see engine owner’s manual).

Fuel

WARNING!

TO PREVENT SERIOUS INJURY FROM FIRE:

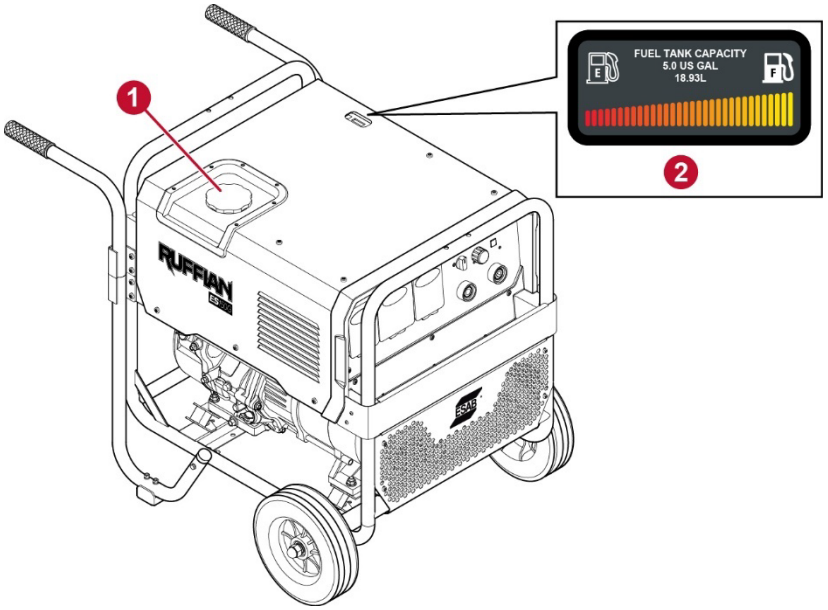
Do not fill the fuel if the engine is hot and allow it to cool down.

Fill the fuel tank in a well-ventilated area free from ignition sources.

Do not smoke near the fuel tank.

Do not turn on the engine when the odour of fuel is in the air.

1. Clean and remove the fuel cap.
2. Fill the fuel tank to about 1 inch under the fill neck with fresh gasoline that has been treated with a fuel stabilizer additive. Follow fuel stabilizer manufacturer's recommendations for use. Check the fuel level indication.
3. Then install the fuel cap again.
4. Remove any spilled fuel before starting the engine



1 Fuel cap 2 Fuel level indication

NOTE!

Do not use gasoline that has been stored in a dirty fuel container. It can cause particles to enter the carburetor, affecting the engine performance and/or causing damage.

Do not use gasoline containing more than 10% ethanol (E10). Do not use E85 ethanol.

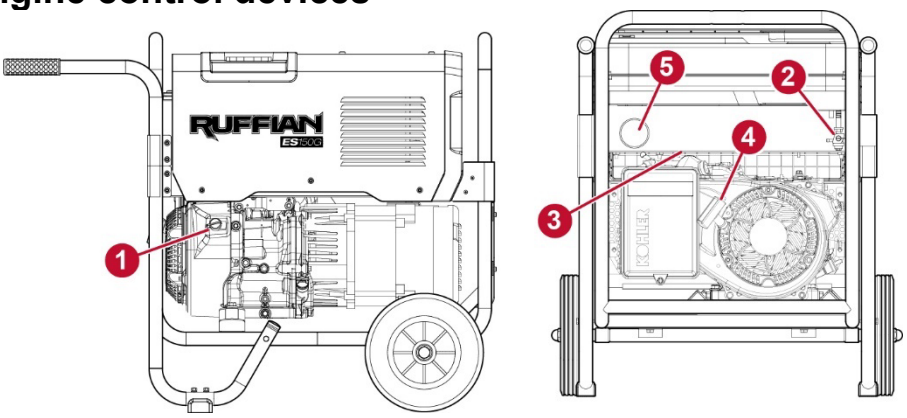
6 OPERATION

General safety regulations for handling the equipment can be found in the "SAFETY" chapter of this manual. Read it through before you start using the equipment!

NOTE!
When moving the equipment use intended handle. Never pull the cables.

WARNING!
Electric shock! Do not touch the workpiece or the welding head during operation!

6.1 Engine control devices



1 **Engine ON/OFF Switch:** It is used to enable or disable the ignition system of the engine

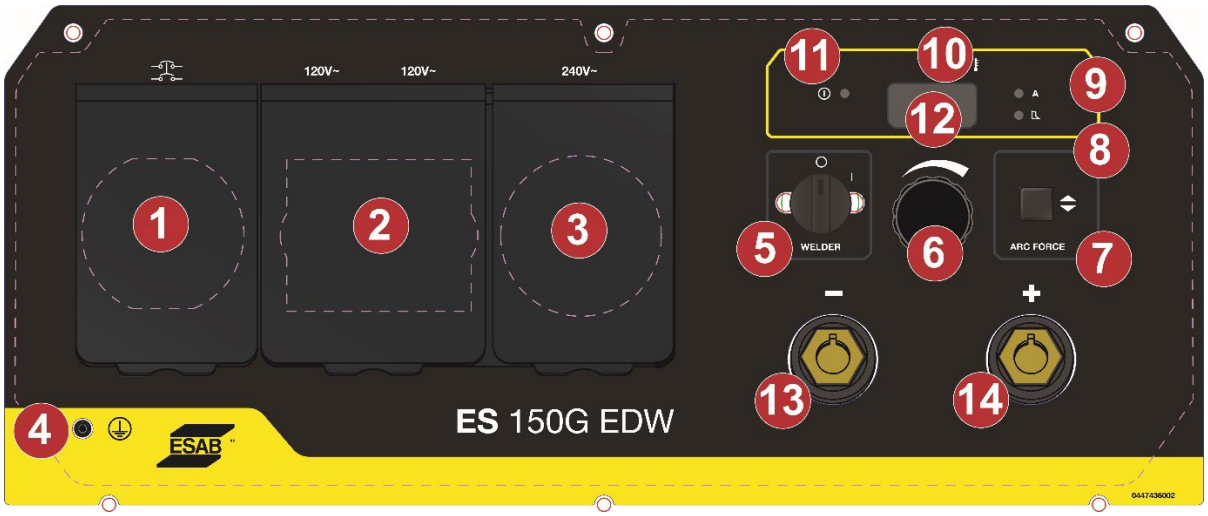
2 **Fuel Valve:** It is used to open or close the passage of gasoline from the fuel tank to the engine

3 **Choke Lever:** It is used to alter the air-fuel ratio entering the engine

4 **Retractable Starter:** It is used to start the engine manually

5 **Hour meter:** Only when the engine is running, the hour meter is illuminated and operates, then indicates total hours of the engine used

6.2 Front panel connections and control devices



1 **Circuit Breaker:** 20A circuit breaker that protects the Generator and receptacles from overloading

2 **120VAC GFCI Receptacles:** Two duplex 120VAC/20A GFCI receptacles (NEMA #5-20)

3 **240VAC Receptacle:** One 240VAC/50A receptacle (NEMA #6-50R)

4 **Grounding Terminal:** Used to have the unit grounded through a grounding wire (not included)

5 **Welder Power Switch:** Used to turn the welder ON or OFF

6 **Amperage/ARC FORCE Control:** Knob used to adjust the output current of the welder from 20A to 150A or the ARC FORCE between -10 and 10

7 **Amperage/ARC FORCE Selection:** Push button used to switch between output current or Arc Force adjustments. The digital display will show the corresponding setting value

8 **ARC FORCE Indication:** This light is lit when the ARC FORCE function is selected

9 **Amperage Indication:** This light is lit when the amperage setting is selected

10 **Fault indicator:** The light is lit when over temperature occurs and it automatically off when the temperature cools down

11 **ON/OFF Welder Indication:** This light is lit when the welder is turned ON and is off when the welder is turned OFF

12 **Digital Display:** It displays the settings values for the output current and the ARC FORCE function. When welding, it displays the measured values

13 **Negative welding terminal:** Return cable

14 **Positive welding terminal:** Welding cable

6.3 Connecting the EDW to ground

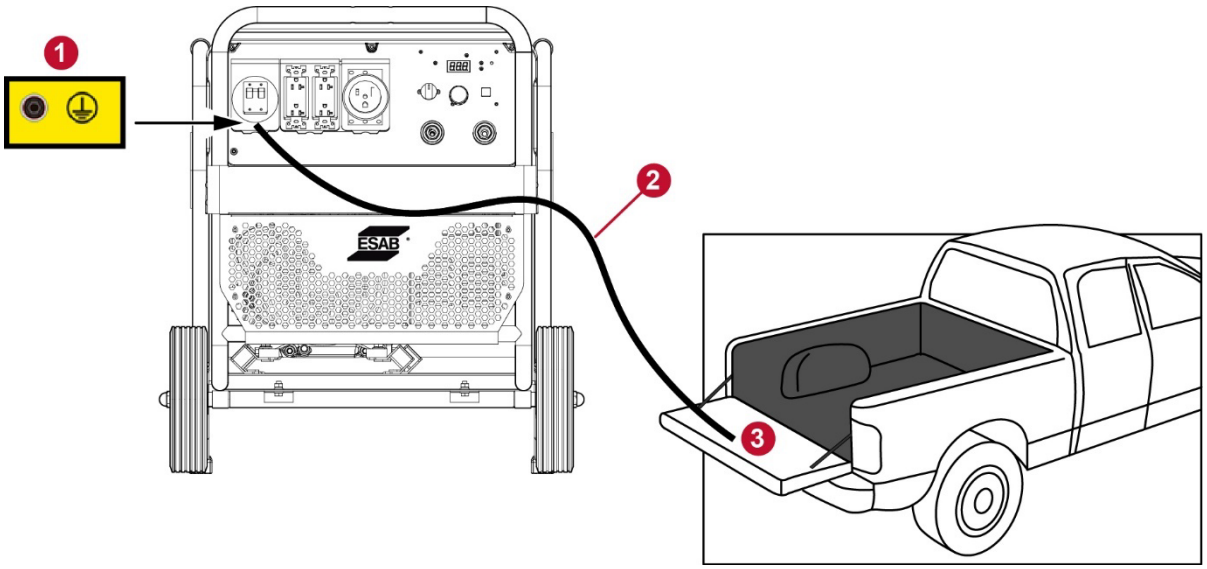
WARNING!
GFCI receptacles will not protect from electric shock if the machine is not grounded.

NOTE!
The auxiliary power outlets (120/240VAC) are not intended to power sensitive electronic equipment without the addition of an appropriate line conditioner and surge protector (both not included). Sensitive electronic equipment should be operated on approved inverter-type generators or pure sine wave generators

The engine driven welder must be properly grounded before use to prevent electric shock and static electricity. This should be performed by a qualified electrician.

Connect the grounding cable (2) between equipment ground terminal (1) to metal frame or trailer (3). Use #8 AWG or larger insulated copper wire.

Grounding the EDW to a trailer or truck



1 Equipment grounding terminal
2 Grounding Cable (Not Supplied)
3 Metal Frame or trailer

6.4 Connecting output terminals

The Ruffian ES 150G EDW is a DC (direct current) power source for STICK welding has Positive (+) and Negative (-) terminals for welding and return cables, in most cases the connection as follows:

Connect the return cable to the negative terminal on the power source. Secure the return cable's contact clamp to the workpiece, and make sure that there is a good contact between the workpiece and the output for the return cable on the power source.

NOTE!
The polarity of the welding cables depends on the type of electrode and their specifications. Before use, refer electrode's data sheet.

6.5 Selecting and preparing welding cables

Required copper gauge based on total length of cable leads in the circuit								
Welding Current (A)	**Total length of cable leads in the circuit**							
	100 Ft or less		150 Ft	200 Ft	250 Ft	300 Ft	350 Ft	400 Ft
	Duty Cycle							
	10% to 60%	60% to 100%	10% to 100%					
100	4 AWG	4 AWG	4 AWG	3 AWG	2 AWG	1 AWG	1/0 AWG	1/0 AWG
150	3 AWG	3 AWG	2 AWG	1 AWG	1/0 AWG	2/0 AWG	3/0 AWG	3/0 AWG

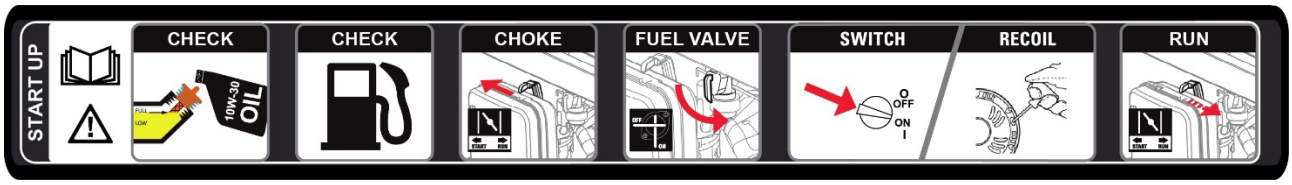
NOTE!
Weld cable size (AWG) is based on either 4 volts or less drop or a current density of not more than 300 circular mils per ampere. Use weld cable with insulation rating equal to or greater than the open-circuit voltage of the unit.

6.6 Starting and stopping the engine

NOTE!
Make sure that the fuel valve is closed before moving the unit or the carburetor may flood and make starting difficult.

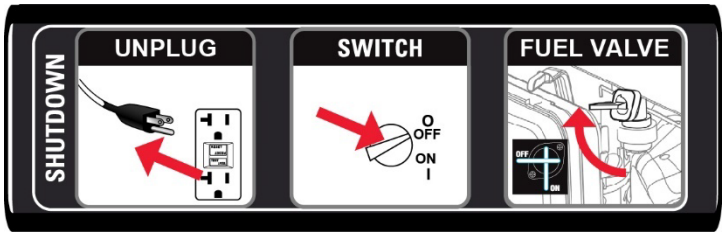
Starting the engine

1. To start a cold engine, move the Choke Lever to the START position (to the left). To restart a warm engine, you can leave the Choke Lever in the RUN position (to the right).
2. Open the Fuel valve in the counter-clockwise direction.
3. Turn the Engine ON/OFF Switch to the ON position.
4. Grip the Retractable Starter handle of the engine loosely and pull it slowly several times to allow the gasoline to flow into the engine's carburetor. Then pull the Retractable Starter handle until resistance is felt. Allow the cable to retract fully and then pull it quickly. Pull the Retractable Starter handle until engine starts.
5. Move the Choke Lever to the RUN position (to the right) as the engine warms



Stopping the engine

1. Before turning off the engine, turn off all electrical loads, then unplug them.
2. Turn the Engine ON/OFF Switch to the OFF position.
3. Close the Fuel valve in the clockwise direction.



6.7 Operating the welder

1. Once the engine is running it is possible to turn ON the welder. Move the *Welder Power Switch* to the position I to turn ON the welder. The *ON/OFF Welder Indication* is lit, the *Digital Display* shows the value of the last setting of the output current, and the *Amperage Indication (A)* is also on.
2. The output current is adjusted through the *Amperage/ARC FORCE Control knob*. The displayed value varies from 20A to 150A.
3. By pressing the *Amperage/ARC FORCE Selection* push button, the Digital Display shows the last setting values of the Arc force and the Indication light is lit.
4. The ARC FORCE value is adjusted through the *Amperage/ARC FORCE Control knob*. The displayed value varies from -10 to 10.

5. Once the welding begins the Digital Display shows the measured welding current/ Arc force.
6. To turn OFF the welder move the Welder Power Switch to position O.

6.8 Operating AC auxiliary power (Generator)

WARNING!
TO PREVENT SERIOUS INJURY: Connect only properly wired plugs to the receptacles. This should be performed by a qualified electrician.
Make sure that the receptacles (120 or 240 volts) tools and equipment are compatible with the electrical characteristics and rated capacities of the generator.

1. Check if the AC auxiliary power receptacles can handle the power required by the electrical equipment to be connected.
2. Start the engine and allows it to run and warm up for five minutes without electrical load connected to the AC auxiliary power receptacles.
3. It is a good practice to test the 120 V AC GFCI receptacles before each use as follows:
   a) Press Test Button on receptacle to trip the GFCI device.
   b) The Reset Button should pop up, cutting off electricity to the receptacle. If this test fails, do not use receptacle until it is repaired or replaced.
   c) Press the Reset Button in to enable again the output voltages at all the receptacles.
4. Move the Circuit Breaker upwards to the ON position to enable the output voltages at all the AC auxiliary power receptacles.
5. Plug in the electrical equipment.
   a) Connect the first item that requires more power.
   b) Connect “inductive” load appliances, tools, and equipment next. Inductive loads are small hand tools and some small appliances.
   c) Following that, connect any lights.
   d) Voltage sensitive appliances, tools, and equipment should be the last to be connected.

NOTE!
Do not connect the voltage sensitive items such as TVs, DVD players, microwaves, etc without a power line conditioner (not included).

6. After concluding the work, move the Circuit Breaker downwards to the OFF position and disconnect all the electrical loads form the receptacles.

NOTE!
Do not allow Generator to run out of fuel with loads connected.

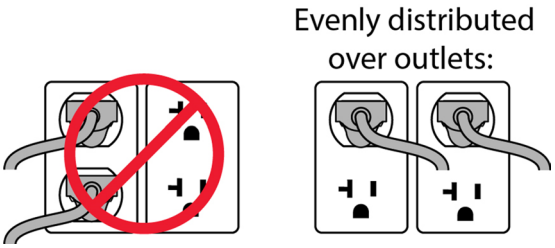
NOTE!
Failure to connect and operate can cause damage to the Generator and/or to the appliances, tools, and equipment connected and will invalidate the Warranty of this Generator.

NOTE!

The AC voltages levels (120VAC and 240VAC) are independent of the welder, but AC auxiliary power available at the receptacles decreases as the welding current increases.

NOTE!

To achieve output currents above 20A at the 120VAC output, distribute the electrical loads over the 2 receptacles. This is required as each receptacle can support 20A maximum.



7 AC AUXILIARY POWER GUIDE

NOTE!
A generator that is rated more than the minimum required maximum starting watts will last much longer than a generator that only supplies the exact watts needed.

7.1 AC Auxiliary Power supplied by the generator

1- LIMIT LOAD TO 90% OF GENERATOR NOMINAL OUTPUT.

Always start connecting the non-resistive (motor) loads from high to low power and then add resistive loads.

2- 5 SECONDS RULE.

If the motor connected does not start within 5 Seconds, turn off the machine to prevent the motor to be damaged. It may require more power than the generator supplied power.

7.2 AC Auxiliary Power required by the load

Before using the AC auxiliary power, check that the products to plug into that socket are rated below and within the maximum wattage of the generator.

1. Add up the running Watts for all items you would like to use at any given time. To calculate the power consumed by the load you can multiplied Volts and amps to get watts (volts x amps = watts).
2. Make sure that the products total ratings should not exceed the 4,000 running watts of the Generator.
3. Find the single highest starting watts for the selected items and add to the total.
4. Make sure that the products total ratings should not exceed the 4,500 maximum starting watts of the Generator.
5. Plug in and turn on the loads from the high to low watts.

7.3 Approximate AC Auxiliary Power requirements by loads

NOTE!
For most lights or heaters: there are no additional start-up watts.

JOB SITE	Rating	Starting Watts	Running Watts
Hand Drill	1/4"	350	350
	3/8"	400	400
	1/2"	600	600
Circular Saw	6-1/2"	500	500
	7-1/4"	900	900
	8-1/4"	1400	1400
Table Saw	9"	4500	1500
Air Compressor	1/2 HP	3000	1000
Bench Grinder	6"	1720	720
	8"	3900	1400
High Pressure Washer	1/2 HP	3150	950
	3/4 HP	4500	1400

FARM EQUIPMENT	Rating	Starting Watts	Running Watts
Grain Cleaner	1/4 HP	1650	650
Grain Elevator	3/4 HP	4400	1400
Mixers	1/2 HP	3300	1000
Farm duty motors	1/3 HP	1720	720
	1/2 HP	2575	975
	3/4 HP	4500	1400

HOUSEHOLD	Rating	Starting Watts	Running Watts
Froster		3100	800
Radio		50-200	50-200
Furnance Blower	1/8 HP	800	300
	1/6 HP	1250	500
	1/4 HP	1600	600
	1/3 HP	2100	700
	1/2 HP	3225	875
Lights bulbs		as indicated on the bulb	

8 MAINTENANCE

WARNING!

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL STARTING: Turn the Engine to “OFF” position. Allow the engine cools down and disconnect and ground spark plug lead before performing any inspection, maintenance, or cleaning procedures.

WARNING!

TO PREVENT SERIOUS INJURY, FIRE AND BURNS: Turn the Welder to “OFF” position, leave the electrode holder and ground clamp on a clean surface, non-conductive of electricity and heat, and allow all parts of the Welder to cool before service.

CAUTION!

Only persons with the appropriate electrical knowledge (authorized personnel) may remove the safety plates.

CAUTION!

The product is covered by manufacturer's warranty. Any attempt to carry out repairwork by non-authorized service centers or personnel will invalidate the warranty.

NOTE!

Regular maintenance is important for safe and reliable operation.

8.1 Engine routine maintenance

NOTE!

Make sure that this equipment meets US EPA Evaporative Standards and fuel system replacement parts meet EPA Evaporation Standards.

NOTE!

Service engine more often if used in severe conditions.

Area of maintenance	Before each use	Every 100 Hours or Annually (whichever comes first) [1]	every 300 hr. of use	Every 500 Hours or Annually (whichever comes first)[2]
Check engine oil level	✓			
Check and clean air filter element		✓		
Change engine oil		✓		
Clean cooling areas		✓		
Replace air filter element			✓	
Check fuel filter, clean or replace if needed			✓	
Check and adjust valve clearance when engine is cold			✓	
Replace spark plug and set gap				✓

1-Perform these procedures more frequently under severe, dusty, dirty conditions.

2-Contact Kohler authorized dealer to perform this service.

NOTE!
This engine should be operated in its original configuration below 4000 ft. (1219 meters). Operating this engine with the wrong engine configuration at a given altitude may increase its emissions, decrease fuel efficiency and performance, and result in damage to the engine. If this engine is operated at an altitude of 4000 ft. (1219 meters) or above, a high-altitude carburetor kit is required.

Kohler's part numbers

Spark Plugs----------25 132 19-S
Air Filter Element ----------17 083 18-S
Fuel Filter----------25 050 21-S
High altitude kit (4000~8000FT) ------- 17 755 10-S

NOTE!
See CH440 Kohler engine manual for complete engine care. Give engine specifications and serial number when ordering parts.

NOTE!
REPAIRS/SERVICE PARTS Kohler genuine service parts can be purchased from Kohler authorized dealers. To find a local Kohler authorized dealer visit https://kohlerpower.com/en/engines/dealers or call 1-800-544-2444 (U.S. and Canada).

8.1.1 Engine Oil Change

NOTE!
Dispose of used oil in accordance with local ordinances.

NOTE!
The Kohler CH440 has an Oil Capacity (Refill) of 1.16 U.S.qt (1.1L).

Inspect equipment before starting it. If any problems are found, do not use the equipment until fixed properly. The oil level needs to be checked daily. See the section 4.5 Engine prestart checks to find the position of the oil dipstick and the drain plugs at the engine.

1. Make sure the equipment is stopped and the engine is still warm and on a level surface.
2. Clean the area around oil dipstick and drain plugs. The engine has one drain plug at each side.
3. Place a drain pan underneath any of the crankcase's drain plug.
4. Remove the drain plug and the oil dipstick and drain the oil completely.
5. Reinstall the drain plug.
6. Fill crankcase with new oil to the specified level on the dipstick.
7. Reinstall the oil dipstick and tighten it secure

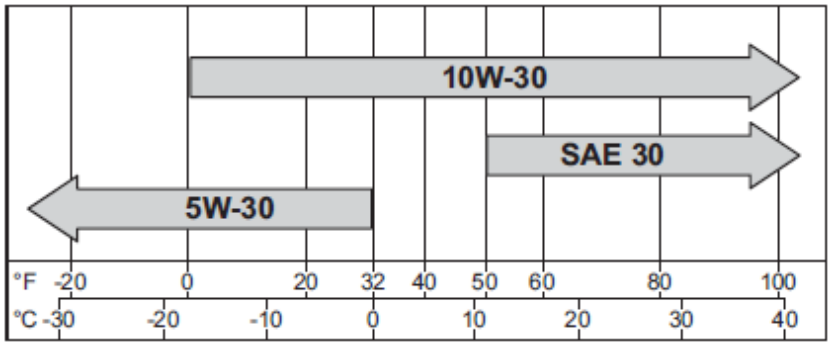
Oil Recommendations

NOTE!

To improve cold weather starting, use correct grade oil for cold weather.

SAE 10W 30 oil is recommended for general use. (The SAE Viscosity Grade defines other viscosities to use in different average temperatures, see engine owner's manual).

Oil must be API (American Petroleum Institute) service class SJ or higher. Select viscosity based on air temperature at time of operation as shown below.



8.1.2 Air filter element maintenance

NOTE!

The AIR CLEANER SYSTEM is CARB/EPA certified and components should not be altered or modified in any way.

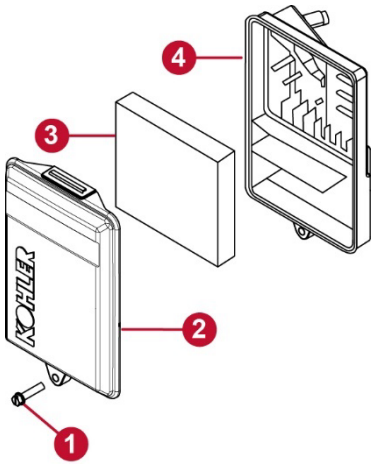
NOTE!

Operating engine with loose or damaged air cleaner components could cause premature wear and failure. Replace all bent or damaged components.

NOTE!

Running engine with cover positioned for cold weather operation in normal conditions can damage engine.

Low profile air filter components



1	Screw	3	Air filter foam element
2	Air filter cover	4	Air filter base

Replace or cleaning the low profile air filter components

1. Remove screw and air cleaner cover.
2. Remove foam element from base.
3. Replace if needed or wash the foam element in warm water with detergent. Rinse and allow to air dry.
4. Lightly oil foam element with new engine oil; squeeze out excess oil.
5. Reinstall foam element into base.
6. Reinstall cover and secure with screw.

8.1.3 Spark plug maintenance

NOTE!
Do not clean spark plug in a machine using abrasive grit. Some grit could remain in spark plug and enter engine causing extensive wear and damage.

Engine misfire or starting problems are often caused by a spark plug that has improper gap or is in poor condition.

Engine CH440 is equipped with following spark plug:

Gap	0.76 mm (0.030 in.)
Thread Size	14 mm
Reach	19.1 mm (3/4 in.)
Hex Size	15.9 mm (5/8 in.)

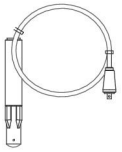
Replacing or cleaning and adjusting the spark plug

1. Disconnect spark plug cap from end of plug. Clean out debris from around spark plug.
2. Remove spark plug.
3. If the electrode is oily, clean it using a clean, dry rag. If the electrode has deposits on it, polish it using emery paper.
4. Check gap using wire feeler gauge. If possible, adjust gap to 0.76 mm (0.030 in.).
5. Install the adjusted spark plug into cylinder head if it is in a good condition or replace it by a new one. Torque the spark plug to 27 N·m (20 ft. lb.).

NOTE!
Tighten the spark plug properly, to avoid the engine overheating and block damage.

8.2 Welder routine maintenance

Maintenance schedule during normal conditions. Check equipment prior to every use.

Interval	Area to maintain		
Every 3 months	 Clean or replace unreadable labels.	 Clean weld terminals.	 Check or replace weld cables.
Every 6 months	 Clean inside equipment. Use dry compressed air with reduced pressure.		

8.3 Cleaning instruction

To maintain the performance and increase the lifetime of the power source it is mandatory to clean it regularly. How often depends on:

- the welding process
- the arc time
- the working environment

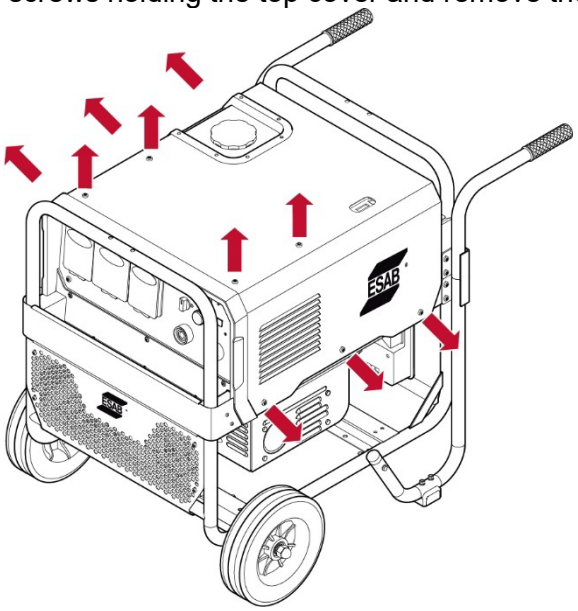
CAUTION!
Make sure that the cleaning procedure is done in a suitable prepared workspace.

CAUTION!
During cleaning, always wear recommended personal safety equipment, such as ear plugs, safety glasses, masks, gloves and safety shoes.

1. Turn off the engine.

WARNING!
Wait at least 30 seconds for the capacitors to discharge before continuing.

2. Remove the ten screws holding the top cover and remove the panel.



3. Clean the welder and front panel compartment of the engine driven welder, using dry compressed air with reduced pressure.
4. Make sure that there is no dust left on any part of the welder module.
5. After having finished cleaning the welder module, reattach the top cover with the ten screws.
6. Tighten the screws on the top cover with 3 Nm ± 0.3 Nm (26.6 in lb. ± 2.6).

9 TROUBLESHOOTING

Perform these checks and inspections before sending for an authorized service technician.

9.1 Welder troubleshooting

Type of fault	Corrective action
Stick (SMAW) welding problems	Check that the welding and return cables are correctly connected on the welder outputs.
	Make sure the return clamp has proper contact with the workpiece.
	Check the condition of the electrodes. Use dry electrodes.
	Check that the correct electrodes and polarity are being used. For polarity, check electrode packaging.
	Check that the correct welding current value is set.
	Adjust Arc Force
Welding current is interrupted during welding	Check whether the overheating light (thermal protection) at setting panel is ON. Continue with fault type "No Arc".
No arc	Check that the engine is running without problems
	Check that the Welder Power Switch is in ON position.
	Check that display is ON to verify that the welder is ON and has power.
	Check setting panel display the correct value.
	Check that the welding and return cables are connected properly.
Thermal protection trips frequently	Make sure that the recommended duty cycle for the weld current has not been exceeded.
	Make sure that the air inlets or outlets are not clogged.
	Clean the inside of the machine using routine maintenance methods.

9.2 AC Auxiliary power troubleshooting

Type of fault	Corrective action
No AC Auxiliary Power output	Check that the Circuit Breaker is in ON position.
	Check that the 120VAC GFCI is not tripped.
	Check receptacle wiring and connections.
	Contact your authorized service center for clean slip rings, install new brushes, check stator windings.
Erratic AC Auxiliary Power output.	Check the connection plugs.
	Check fuel level and fuel system.
	Maintain air cleaner and spark plug according to engine manual.
	Contact your authorized service center to check and adjust engine speed or the governor linkage for smooth, non-binding operation.

9.3 Engine troubleshooting

Type of fault	Corrective action
Engine does not start	Check fuel and oil levels and refill if necessary. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	Operate engine on level surface. Engine mounted on slope, could trigger the low oil shutdown.
	Check that the fuel valve is open and the Engine is in ON position before using retractable starter handle
	Check that the Choke lever is at the START position when engine is cold.
	Change the fuel with fresh gasoline if the engine was stopped for a long time.
	Check the fuel filter and fuel lines
	Check spark plug connection and condition. Replace the spark plug if required.
	Contact qualified technician to diagnose/ repair fuel system, head gasket, valves, or ignition system.
Engine stops during normal operation	Check fuel level. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	Secure spark plug cap.
	Check engine oil before use.
	Contact qualified technician to diagnose/ repair fuel system, head gasket, valves, or ignition system.
Engine knocks	Check fuel quality. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**
	Do not operate equipments at overload.
	Contact qualified technician to diagnose/ repair fuel system, head gasket, valves, or ignition system.
Unstable or sluggish engine speed	Check and adjust engine speed.
	Check fuel level and quality. Fill fuel tank with fresh 87+ octane stabilizer-treated unleaded gasoline. **Do not use gasoline with more than 10% ethanol (E15, E20, E85, etc.).**

10 ERROR CODE

The error code is used to indicate that a fault has occurred in the equipment. Errors are indicated by the letter "E" followed by the error code number shown in the display.

Error code	Description
E 1	*Temperature fault* The temperature of the welder is too high. A temperature fault is indicated by the **Fault indicator** on the control panel. **Action:** The error code will automatically disappear and the Fault indicator light will be turned off when the power source has cooled down and is ready for use again. If the error persists, contact a service technician.

11 ORDERING SPARE PARTS

CAUTION!

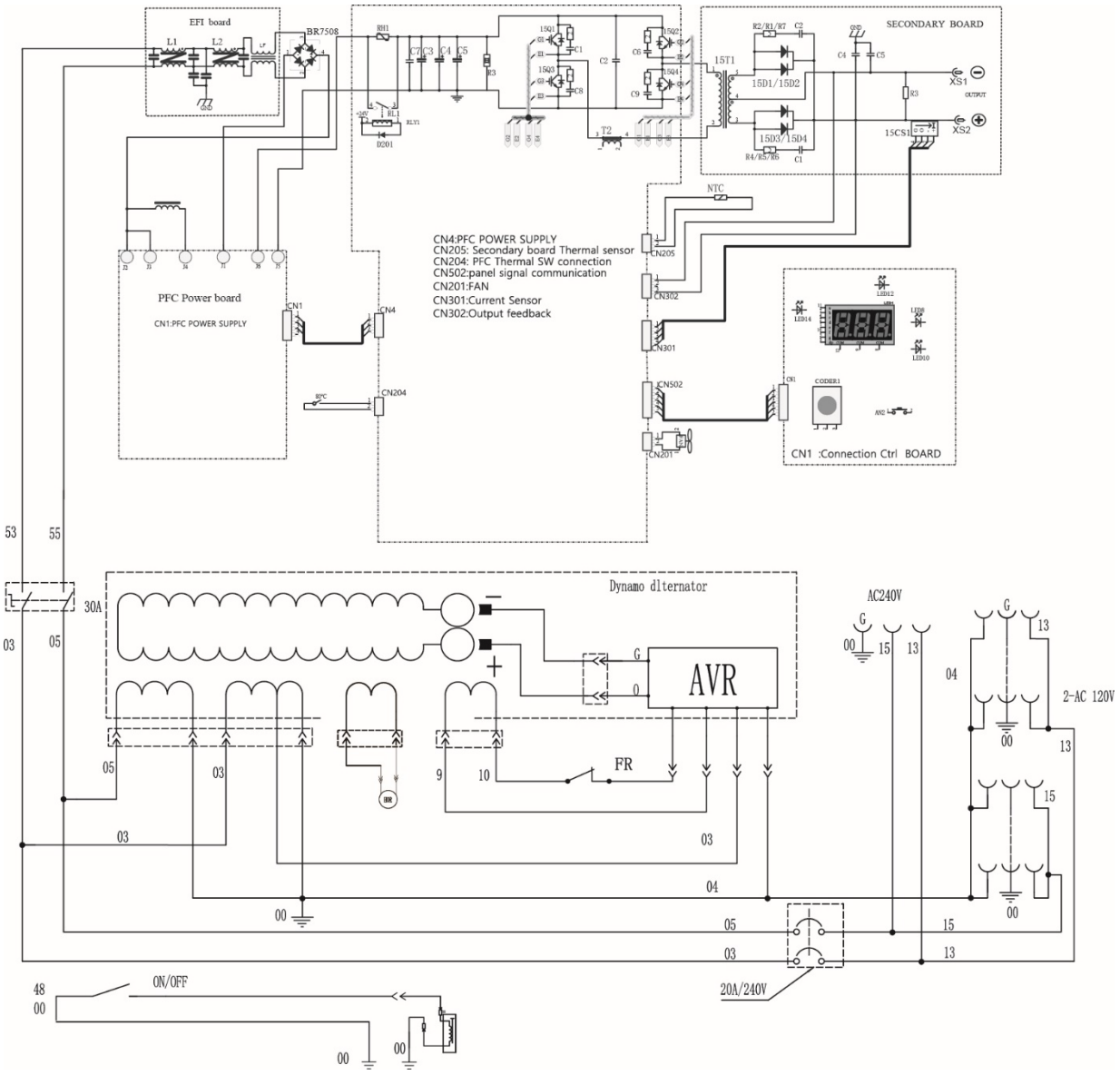
Repair and electrical work should be performed by an authorized ESAB service technician. Use only ESAB original spare and wear parts.

The Ruffian ES 150G EDW is designed and tested in accordance with the international and European standards **IEC 60974-1**. On completion of service or repair work, it is the responsibility of the person(s) performing the work to ensure that the product still complies with the requirements of the above standards.

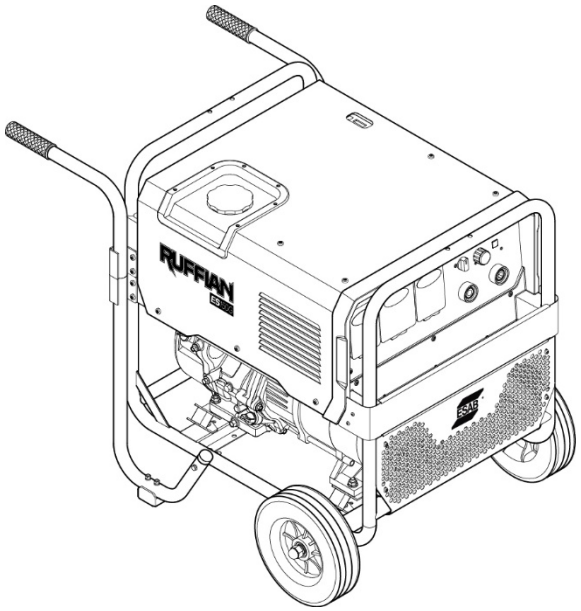
Spare parts and wear parts can be ordered through your nearest ESAB dealer, see esab.com. When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list. This facilitates dispatch and ensures correct delivery.

Spare parts and wear parts for the engine can be ordered from Kohler authorized dealers. To find a local Kohler authorized dealer visit https://kohlerpower.com/en/engines/dealers or call 1-800-544-2444 (U.S. and Canada).

BLOCK DIAGRAM



ORDERING NUMBERS

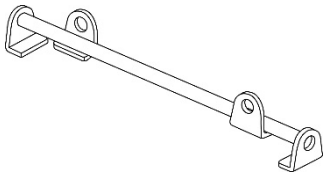
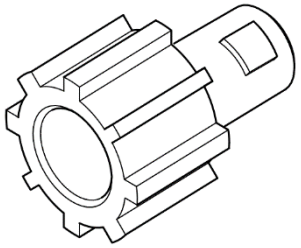


Ordering number	Denomination	Type	Notes
0707 070 150	Engine Driven Welder	RUFFIAN ES 150G EDW	CSA
0463 905 001	Instruction manual	RUFFIAN ES 150G EDW	CSA
0463 906 001	Spare parts list manual	RUFFIAN ES 150G EDW	CSA
0463 907 001	Service manual	RUFFIAN ES 150G EDW	CSA

The three last digits in the document number of the manual show the version of the manual. Therefore they are replaced with * here. Make sure to use a manual with a serial number or software version that corresponds with the product, see the front page of the manual.

Technical documentation is available on the Internet at: www.esab.com

ACCESSORIES

0707071001	Lifting Eye	
94251240	Tweco to Dinse Male Adapter Assembly	
0707071002	Protective Cover, ES 150G EDW	
WS200E13	Electrode Holder 200 A and Lead Assembly, 4m (13 ft), 50 mm	
WS200G10	Ground Clamp 200 A and Lead Assembly, 3 m (10 ft), 50 mm	

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For contact information visit esab.com

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http://manuals.esab.com