

KLUTCH[®]

TIG Torch

OWNER'S MANUAL



WARNING:

Read carefully and understand all **ASSEMBLY AND OPERATION INSTRUCTIONS** before operating. Failure to follow the safety rules and other basic safety precautions may result in serious personal injury.

Item# 44455

Thank you very much for choosing a KLUTCH product! For future reference, please complete the owner's record below:

Model: _____ Purchase Date: _____

Save the receipt, warranty and these instructions. It is important that you read the entire manual to become familiar with this product before you begin using it.

This machine is designed for certain applications only. The distributor cannot be responsible for issues arising from modification. We strongly recommend this machine not be modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted the distributor to determine if it can or should be performed on the product.

For technical questions please call the Northern Tool Welder Help Line at **1-877-304-0294**.

INTENDED USE

The KLUTCH TIG Torch is designed to connect to the KLUTCH ST-80i, KLUTCH ST-200i, KLUTCH Mig/Stick 220Si, or other welders capable of TIG welding and use a 10-25 Dinse Style connector. This is an air-cooled 17V style TIG torch and can be used for TIG welding up to 150 amps.

TIG welding does require the use of Argon shielding gas. The shielding gas replaces the flux that is used in stick welding, providing a more controlled and cosmetic weld. However, TIG welding is limited to areas inside or where wind can be controlled, preventing the shielding gas from blowing away.

You will need to attach this unit to an appropriate TIG welder as described above. You will also need to provide shielding gas, a gas regulator, and TIG filler rod to TIG weld with this unit.

GENERAL SAFETY RULES



WARNING: Read and understand all instructions. Failure to follow all instructions listed below may result in serious injury.



CAUTION: Do not allow persons to operate or assemble this ST200i until they have read this manual and have developed a thorough understanding of how the ST200i works.



WARNING: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions or situations that could occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

IMPORTANT SAFETY CONSIDERATIONS

1.1 Your Welding Environment

- Keep the environment you will be welding in free from flammable materials.
- Always keep a fire extinguisher accessible to your welding environment.
- Always have a qualified person install and operate this equipment.
- Make sure the area is clean, dry and ventilated. Do not operate the welder in humid, wet or poorly ventilated areas.
- Always have your welder maintained by a qualified technician in accordance with local, state and national codes.
- Always be aware of your work environment. Be sure to keep other people, especially children, away from you while welding.
- Keep harmful arc rays shielded from the view of others.
- Mount the welder on a secure bench or cart that will keep the welder secure and prevent it from tipping over or falling.

1.2 Your Welder's Condition

- Check ground cable, power cord and welding cable to be sure the insulation is not damaged. Always replace or repair damaged components before using the welder.
- Check all components to ensure they are clean and in good operating condition before use.

1.3 Use of Your Welder

▲ CAUTION

Do not operate the welder if the output cable, electrode, torch, wire or wire feed system is wet. Do not immerse them in water. These components and the welder must be completely dry before attempting to use them.

- Follow the instructions in this manual.
- Keep welder in the off position when not in use.
- Connect ground lead as close to the area being welded as possible to ensure a good ground.
- Do not allow any body part to come in contact with the welding wire if you are in contact with the material being welded, ground or electrode from another welder.
- Do not weld if you are in an awkward position. Always have a secure stance while welding to prevent accidents. Wear a safety harness if working above ground.
- Do not drape cables over or around your body.
- Wear a full coverage helmet with appropriate shade (see ANSI Z87.1 safety standard) and safety glasses while welding.
- Wear proper gloves and protective clothing to prevent your skin from being exposed to hot metals, UV and IR rays.
- Do not overuse or overheat your welder. Allow proper cooling time between duty cycles.
- Keep hands and fingers away from moving parts and stay away from the drive rolls.
- Do not point torch at any body part of yourself or anyone else.
- Always use this welder in the rated duty cycle to prevent excessive heat and failure.

1.4 Specific Areas of Danger, Caution or Warning



Electrical Shock

▲ WARNING

Electric arc welders can produce a shock that can cause injury or death. Touching electrically live parts can cause fatal shocks and severe burns. While welding, all metal components connected to the wire are electrically hot. Poor ground connections are a hazard, so secure the ground lead before welding.

- Wear dry protective apparel: coat, shirt, gloves and insulated footwear.
- Insulate yourself from the work piece. Avoid contacting the work piece or ground.
- Do not attempt to repair or maintain the welder while the power is on.
- Inspect all cables and cords for any exposed wire and replace immediately if found.
- Use only recommended replacement cables and cords.
- Always attach ground clamp to the work piece or work table as close to the weld area as possible.
- Do not touch the welding wire and the ground or grounded work piece at the same time.
- Do not use a welder to thaw frozen pipes.



Fumes and Gases

▲ WARNING

- Fumes emitted from the welding process displace clean air and can result in injury or death.
- Do not breathe in fumes emitted by the welding process. Make sure your breathing air is clean and safe.
- Work only in a well-ventilated area or use a ventilation device to remove welding fumes from the environment where you will be working.
- Do not weld on coated materials (galvanized, cadmium plated or containing zinc, mercury or barium). They will emit harmful fumes that are dangerous to breathe. If necessary use a ventilator, respirator with air supply or remove the coating from the material in the weld area.
- The fumes emitted from some metals when heated are extremely toxic. Refer to the material safety data sheet for the manufacturer's instructions.
- Do not weld near materials that will emit toxic fumes when heated. Vapors from cleaners, sprays and degreasers can be highly toxic when heated.



UV and IR Arc Rays

▲ DANGER

- The welding arc produces ultraviolet (UV) and infrared (IR) rays that can cause injury to your eyes and skin. Do not look at the welding arc without proper eye protection.
- Always use a helmet that covers your full face from the neck to top of head and to the back of each ear.
 - Use a lens that meets ANSI standards and safety glasses. For welders under 160 Amps output, use a shade 10 lens; for above 160 Amps, use a shade 12. Refer to the ANSI standard Z87.1 for more information.
 - Cover all bare skin areas exposed to the arc with protective clothing and shoes. Flame-retardant cloth or leather shirts, coats, pants or coveralls are available for protection.
 - Use screens or other barriers to protect other people from the arc rays emitted from your welding.
 - Warn people in your welding area when you are going to strike an arc so they can protect themselves.



Fire Hazards

▲ WARNING

- Do not weld on containers or pipes that contain or have had flammable, gaseous or liquid combustibles in them. Welding creates sparks and heat that can ignite flammable and explosive materials.
- Do not operate any electric arc welder in areas where flammable or explosive materials are present.
 - Remove all flammable materials within 35 feet of the welding arc. If removal is not possible, tightly cover them with fireproof covers.
 - Take precautions to ensure that flying sparks do not cause fires or explosions in hidden areas, cracks or areas you cannot see.
 - Keep a fire extinguisher close in the case of fire.
 - Wear garments that are oil-free with no pockets or cuffs that will collect sparks.
 - Do not have on your person any items that are combustible, such as lighters or matches.
 - Keep work lead connected as close to the weld area as possible to prevent any unknown, unintended paths of electrical current from causing electrical shock and fire hazards.
 - To prevent any unintended arcs, cut wire back to ¼" stick out after welding.



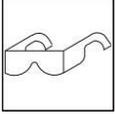
Hot Materials

⚠ CAUTION

Welded materials are hot and can cause severe burns if handled improperly.

-Do not touch welded materials with bare hands.

-Do not touch MIG gun nozzle after welding until it has had time to cool down.



Sparks/Flying Debris

⚠ CAUTION

Welding creates hot sparks that can cause injury. Chipping slag off welds creates flying debris.

-Wear protective apparel at all times: ANSI-approved safety glasses or shield, welder's hat and ear plugs to keep sparks out of ears and hair.



Electromagnetic Field

⚠ CAUTION

-Electromagnetic fields can interfere with various electrical and electronic devices such as pacemakers.

-Consult your doctor before using any electric arc welder or cutting device

-Keep people with pacemakers away from your welding area when welding.

-Do not wrap cable around your body while welding.

-Wrap MIG gun and ground cable together whenever possible.

-Keep MIG gun and ground cables on the same side of your body.



Shielding Gas Cylinders Can Explode

⚠ WARNING

High pressure cylinders can explode if damaged, so treat them carefully.

-Never expose cylinders to high heat, sparks, open flames, mechanical shocks or arcs.

-Do not touch cylinder with MIG gun.

-Do not weld on the cylinder

-Always secure cylinder upright to a cart or stationary object.

-Keep cylinders away from welding or electrical circuits.

-Use the proper regulators, gas hose and fittings for the specific application.

-Do not look into the valve when opening it.

-Use protective cylinder cap whenever possible

1.5 Proper Care, Maintenance and Repair

⚠ DANGER

-Always have power disconnected when working on internal components.

- Do not touch or handle PC board without being properly grounded with a wrist strap. Put PC board in static proof bag to move or ship.

-Do not put hands or fingers near moving parts such as drive rolls of fan

KLUTCH TIG Torch USE AND CARE

- **Do not modify the KLUTCH TIG Torch in any way.** Unauthorized modification may impair the function and/or safety and could affect the life of the equipment. There are specific applications for which the **KLUTCH TIG Torch** was designed.
- **Always check of damaged or worn out parts before using the KLUTCH TIG Torch.** Broken parts will affect the **KLUTCH TIG Torch** operation. Replace or repair damaged or worn parts immediately.
- **Store idle KLUTCH TIG Torch** When **KLUTCH TIG Torch** is not in use, store it in a secure place out of the reach of children. Inspect it for good working condition prior to storage and before re-use.

TECHNICAL SPECIFICATIONS

Item	Description
Max Amperage	150 Amps
Cooling Method	Air-Cooled
Duty Cycle	35% @ 150 Amps
Suggested Tungsten	.020 to 1/16"
Torch Cable Length	9 ft.
Torch Style	17V
Weight	3 lbs.

KNOW YOUR TORCH

Description

This Air Cooled TIG torch is designed to operate with the ST-80i, ST-200i and MIG/Stick 200Si welders for DC lift start TIG welding on steels or stainless steels. This torch may also be used on other TIG welding units with Dinse 10-25 twist lock style weld terminals.

The Air Cooled TIG torch is rated at 150A at 35% duty cycle. This torch is ideal for light fabrication, welding repair and maintenance operations.



Torch Cable

The 9ft long torch cable delivers the welding current and shielding gas to the arc.

Gas Flow Valve

This torch gas connection goes directly to the inert regulator/flowgauge connected to your bottle of shielding gas. This valve controls the flow of shielding gas for welding.

Nozzle

Three nozzles are supplied with this TIG torch. These nozzles direct the flow of the shielding gas from the TIG torch to the arc

Collet

Three collets are supplied with the TIG Torch. They are sized to the size of the tungsten you will be using. They hold the tungsten into the TIG Torch.

Inert Gas Connection

This connection is used to connect your source of shielding gas to the TIG torch. Connect this connection to your shielding gas regulator.

INSTALLATION

1. INSTALLATION OF TIG TORCH

1.1 Remove the ground cable and the electrode holder from the weld output connections. Install the ground cable to the Positive (+) weld output connection.

1.2 Secure the ground clamp to the work piece

1.3 Connect a regulator to a bottle of ARGON gas. Then connect the gas connection from the TIG torch to the regulator.

1.4 Connect the TIG torch weld cable to the Negative (-) weld output connection.

1.5 Set desired amperage on the amperage control knob on the front panel of the welder.

1.6 Turn on the input power switch on the welder.

▲ CAUTION

Be aware that the TIG torch will be electrically HOT when the Input Power Switch on the welder is turned on.

1.7 Turn on the regulator on the bottle of shielding gas and adjust the regulator to approximately 20 CFH. Then open the shielding gas valve on the torch to start the flow of shielding gas.

▲ WARNING

EXPOSURE TO A WELDING ARC IS EXTREMELY HARMFUL TO THE EYES AND SKIN! Prolonged exposure to the welding arc can cause blindness and burns. Never strike an arc or begin welding until you are adequately protected. Wear flame-proof welding gloves, a heavy long sleeved shirt, trousers without cuffs, high topped shoes, and an ANSI approved welding helmet.

1.8 Touch the tungsten that is installed in the TIG torch, to the work piece and quickly pull away approximately 1/4" to create an arc.

DC TIG OPERATION

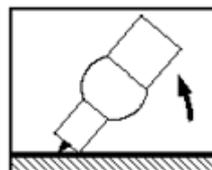
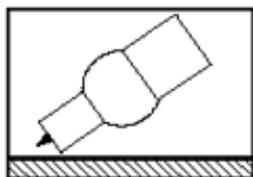
▲ WARNING

EXPOSURE TO A WELDING ARC IS EXTREMELY HARMFUL TO THE EYES AND SKIN! Prolonged exposure to the welding arc can cause blindness and burns. Never strike an arc or begin welding until you are adequately protected. Wear flame-proof welding gloves, a heavy long sleeved shirt, trousers without cuffs, high topped shoes, and an ANSI approved welding helmet.

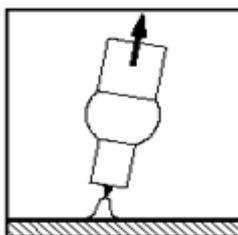
▲ CAUTION

Be aware that the TIG torch will be electrically HOT when the Input Power Switch on the welder is turned on.

1. Remove the ground cable and the electrode holder from the weld output connections. Install the ground cable to the Positive (+) weld output connection.
2. Secure the ground clamp to the work piece
3. Connect a regulator to a bottle of ARGON gas. Then connect the gas connection from the TIG torch to the regulator.
4. Connect the TIG torch weld cable to the Negative (-) weld output connection.
5. Set desired amperage on the amperage control knob on the front panel of the welder.
6. Turn on the input power switch on the welder.
7. Turn on the regulator on the bottle of shielding gas and adjust the regulator to approximately 20 CFH. Then open the shielding gas valve on the torch to start the flow of shielding gas.
8. Follow these steps for striking an arc while TIG welding.
 - 8.1 Open the shielding gas valve on the torch handle to begin gas flow.
 - 8.2 Rest the TIG torch nozzle on the work piece taking care to not touch the installed tungsten electrode.



- 8.3 Twist the torch to make contact between the work piece and the tungsten.
- 8.4 Lift torch away from the work piece about 1/8 inch.

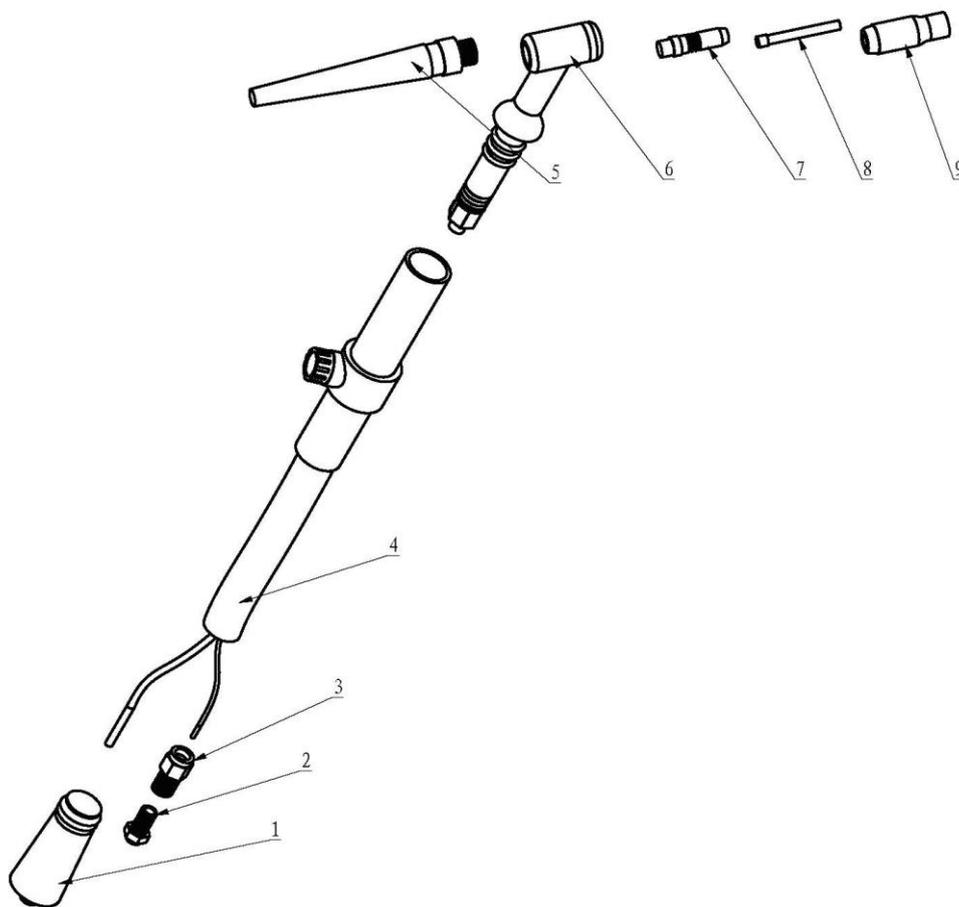


- 8.4 Move down the joint to be welded by pushing the torch.
- 8.5 Insert filler metal in the leading edge of the weld puddle as needed.

MAINTENANCE

- **Maintain your KLUTCH TIG TORCH.** It is recommended that the general condition of **KLUTCH TIG TORCH** be examined before it is used. Keep **KLUTCH TIG TORCH** in good repair by adopting a program of conscientious repair and maintenance. Have necessary repairs made by qualified service personnel.
- Periodically clean dust, dirt, grease, etc. from your torch.
- Replace power cord, ground cable, ground clamp, or electrode assembly when damaged or worn.

DIAGRAM & PARTS LIST



Reference #	Part#	Description	Qty.
1	2.07.57.963	DINSE CONNECTOR 10-25	1
2	2.07.55.617	GAS CONNECTOR CAP	1
3	2.02.02.029	GAS CONNECTOR	1
4	2.20.08.779	TORCH BODY	1
5-1	2.20.09.086	LONG BACK CAP	1
5-2	2.20.01.026	SHORT BACK CAP	1
6	2.20.02.226	TORCH STOCK	1
7	2.20.01.029	COLLET CAP	1
8-1	2.20.12.001	COLLET 1.0	1
8-2	2.20.12.002	COLLET 1.6	1
8-3	2.20.12.003	COLLET 2.0	1
9-1	2.20.04.601	NOZZLE #4 ϕ 6	1
9-2	2.20.04.602	NOZZLE #5 ϕ 8	1
9-3	2.20.04.603	NOZZLE #6 ϕ 10	1

For replacement parts please call **1-800-222-5381**. For technical questions contact our welder help line at 1-877-304-0294

WARRANTY

EFFECTIVE JULY 1, 2014

LIMITED WARRANTY

This warranty applies to the original purchaser and is subject to the terms and conditions listed below. This Limited Warranty is for new equipment sold after the above date, providing coverage for defects in material and workmanship at the time it is shipped from the factory.

Limited to the warranty periods below, Northern Tool + Equipment will repair or replace the item under warranty that fails due to defects in material and workmanship. Northern Tool + Equipment must be notified within 30 days of the failure, so as to provide instructions on how to proceed with the repair of your welder and warranty claim processing. Warranty period begins at the time the welder is purchased from Northern Tool + Equipment. **Keep your receipt as proof of purchase.**

Warranty Periods

Limited Warranty is divided into four categories. No Warranty, 90 days, 1 year and 3 year.

No Warranty

Normal wear items, MIG gun parts (contact tips, nozzle, contact tip adapter, MIG gun liner), drive roll, electrode holder, ground clamps, Plasma torch parts (nozzle, electrode, diffuser, cover) are considered consumable items and are not covered under warranty.

90 days

Parts for Northern Tool + Equipment welding carts and welding cabinets. This warranty covers the absence of or defective parts.

1 year

Parts and Labor on MIG gun parts (except those listed under normal wear items), cables, regulator, plasma torch (except those listed under normal wear items). Any shipping related to warranty repair is the responsibility of the customer.

1 year/3 year

Please see your product information to determine if your product has a 1 year or 3 year warranty. This warranty covers parts and Labor on items such as: transformer, reactor, rectifier, solenoid valve, PC Board, switches, controls, gas valve, drive motor, drive system other than drive roll and any other component that requires the removal of the sheet metal to access. Any shipping related to warranty repair is the responsibility of the customer.

Voiding Warranty

Warranty does not apply to: Shipping Damage, Misuse and abuse of the unit, alteration of the unit in any way.

Warranty Claim

This is a parts and labor warranty. **Do not return your unit.** Retain your receipt in the case a warranty claim is needed. No warranty will be provided without the original receipt from Northern Tool + Equipment. To make a warranty claim, call our welder help line at 877-304-0294, M-F 8:00 am to 5:00 PM Central time or email help@ntwelderhelp.com.

KLUTCH®

Distributed by
Northern Tool + Equipment Co., Inc.
Burnsville, Minnesota 55306
NorthernTool.com
Made in China