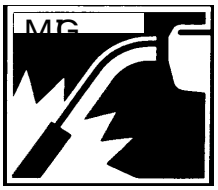
DAIHEN Corporation

# Welding torch for pull feeding unit for robot (Built-in shock sensor)

MIG

DAIHE



MTXCA-2534PS MTXCAW-5034P

## Instruction Manual

= Safety and Operation =

Instruction Manual No.
1L7581-E-1

## First thoroughly read this manual to operate the machine correctly.

- Installation, maintenance, and repair of this welding torch should be made by qualified persons or persons who fully understand welding machines for extra safety.
- Operation of this welding torch should be made by persons who have knowledge and technical skill to understand the contents of this manual well and handle the machine safely for extra safety.
- Regarding safety education, utilize courses and classes held by head/branch offices of the Welding Society/Association and the related societies/associations and qualifying examinations for welding experts/consultant engineers.
- After thoroughly reading this manual first, store it with the warranty in the place where the persons concerned can read at any time. Read it again as occasion demands.
- If incomprehensible, contact our offices. For servicing, contact our local distributor or sales representatives in your country. Our addresses and telephone numbers are listed in the back cover of this Instruction Manual.

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### AIR PLASMA CUTTING MACHINES

### ARC WELDING ROBOT

### $CO_2$ LASER EQUIPMENTS

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# NOTES ON SAFETY

## 1. Notes on Safety

- Before operating this product, you should first thoroughly read this Instruction Manual to operate the product correctly.
- Precautions in this Instruction Manual are described to prevent you and others from being injured and suffering loss in your property by having the product operated correctly and safely.
- This welding torch is designed and manufactured in due consideration of safety, but you should observe the handling precautions described in this Instruction Manual. If you fail to do so, there may occur an accident resulting in serious injury or death.
- Various ranks of accidents resulting in injury, death or damage may be caused by the mishandling of devices. The following safety alert symbols and signal words are used throughout this manual to identify various hazards and special instructions.

| | | |
|---|---|---|
| DANGER | : | Mishandling may create seriously dangerous situation that could cause serious injury or death to personnel. Limited situation of great urgency. |
| WARNING | : | Mishandling may create a dangerous situation that could cause serious injury or death to personnel. |
| CAUTION | : | Mishandling may create a dangerous situation that could cause medium or slight injury to personnel, or material damage. |

Hazards and special instructions identified by CAUTION are very important as well because neglecting them may occasionally cause serious injury or death to personnel. Do follow the instructions identified by all three safety alert symbols and signal words because they are all very important.

The meanings of "serious injury", "medium or slight injury" and "material damage" are as follows.

| | | |
|---|---|---|
| Serious injury | : | Injury with a sequela due to a loss of eyesight, injury, burn (high temperature and low temperature), electric shock, a bone fracture, poisoning and so on as well as injury that requires hospital treatment or long treatment as an outpatient. |
| Medium or slight injury | : | Injury, burn, electric shock and so on that require no hospital treatment nor long treatment as an outpatient. |
| Material damage | : | Damage to property, and direct and incidental / consequential damage due to the damage to devices. |

| | | |
|---|---|---|
| Ref.: IMPORTANT | : | IMPORTANT statements identify special instructions necessary for the most efficient operation. |

# IMPORTANT SAFEGUARD

## 2. Precautions for Safety

2.1 Read, understand, and comply with all safety rules described at the beginning of the welding power source manual in addition to the following before initiating arc welding operations.

| | |
|---|---|
| ⚠ WARNING | ● Observe the following to prevent a serious accident that results in a serious injury or a death |

1) This welding torch is designed and manufactured in due consideration of safety, but you should observe the handling precautions described in this Instruction Manual. If you fail to do so, there may occur an accident resulting in a serious injury or a death.
2) Related laws and regulations and your company's standards should be observed in constructing input power source, selecting an installation area, handling/storing/piping high pressure gas, storing welded products, and disposing wastes.
3) Keep out of the moving zone of a welding machine and the welding area.
4) A person with a pacemaker should not go near the operating welding machine and the welding area unless his or her doctor permits. A welding machine generates a magnetic field around it during powered, and that will have a bad effect on the pacemaker.
5) Installation, maintenance and repair of this welding torch should be done by qualified personnel or those who fully understand a welding torch for further safety.
6) Operation of this welding torch should be done by personnel who have knowledge and technical skill to be able to understand the contents of this manual well and to handle the wire feeding reducer safely.
7) This welding torch must not be used for purposes other than welding.

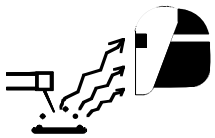
2.2 Observe the following to prevent an electric shock.

| | |
|---|---|
| ⚠ WARNING | ● Do not touch live electrical parts . |
|  | ● Touching live electrical parts can cause fatal shock or severe burns. |

1) Only qualified personnel should do the grounding work of the welding power source and a workpiece, or a workpiece and powered peripheral jigs while abiding by domestic regulations.
2) Do not touch live electrical parts.
3) Always wear dry insulating gloves and other body protection. Do not wear torn or wet gloves and work clothes.
4) Before doing the installation, inspection, maintenance, etc. of this product, be sure to turn off all the input power sources and check, several minutes later, that there is no charging voltage since the condenser and the like may have been recharged.
5) Do not use cables with insufficient capacity, with damage, or with naked conductors.
6) Be sure to tighten the connections of cables and insulate them in order to prevent personnel from touching those parts easily.
7) DO NOT use a welding machine with its case or cover removed.
8) Secure a firm foothold before initiating work. DO NOT perform work with an unstable foothold or with a foothold at a height of two meters or above.
9) Make periodic inspection and maintenance. Damaged parts should be repaired before use.
10) Turn off POWER switch when not in use.

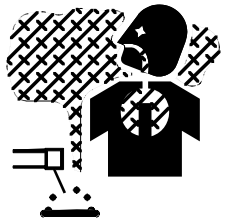
# IMPORTANT SAFEGUARD (continued)

2.3 All the personnel in and around the working area including an operator should wear appropriate protection to protect themselves from arc rays, spatters, slag and noise produced by welding.

| | |
|---|---|
| ⚠ WARNING | ● Install a lightproof wall where arc is generated.<br>● Wear appropriate eye, ear, and body protection. |
|  | ● Arc rays may cause inflammation of eyes and burns on skin<br>● Spatter s and slag may cause eye troubles and burns.<br>● Noise may cause hearing problems. |

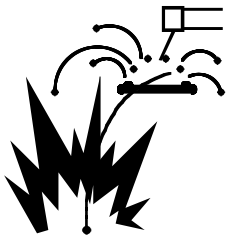
1) Wear lightproof glasses or a welder's shield helmet with a proper shade of filter when welding or watching a welder work.
2) INSTALL ARC PROTECTIVE CURTAINS in between an operator and arc rays.
3) WEAR PROPER SAFETY GLASSES in work area at all times.
4) WEAR PROPER EAR PROTECTION.
5) WEAR PROPER BODY PROTECTION including woolen clothing, flameproof apron and gloves, leather leggings, high boots and leather arm and shoulder gauntlets.
6) WEAR PROPER SAFETY GLASSES to protect eyes and skin from spatters and slag.

2.4 All the personnel in and around the working area including an operator should wear appropriate protection to protect themselves from fumes and gases produced by welding.

| | |
|---|---|
| ⚠ WARNING | ● DO NOT inhale fumes and gases generated by welding.<br>● Ventilate the area sufficiently and wear a welder's shield mask if necessary. |
|  | ● Fumes and gases generated by welding have a harmful effect on human body.<br>● Welding in a small area may cause suffocation due to the lack of air. |

1) KEEP YOUR HEAD out of fumes and DO NOT inhale any.
2) USE FORCED EXHAUST VENTILATION at the arc.
3) VENTILATE the area to prevent build-up of fumes and gases.
4) If ventilation is insufficient, USE APPROVED BREATHING DEVICES.
5) READ AND FOLLOW WARNING LABELS on all containers of welding materials.
6) Before use, READ AND UNDERSTAND the manufacture's instructions, Material Safety Data Sheets (MSDSs), and follow your employer's safety practices.
7) To prevent gas poisoning and suffocation, use a local ventilator or a respirator specified by your country's domestic laws.
8) Be sure to ventilate the area or wear a respirator by welding in a small place.
   A well-trained watchman should observe the work.
9) Do not weld near the place where degreasing, cleaning or spraying is carried out. The heat and rays
   of the arc can react with vapors to form highly toxic and irritating gases.
   If welding is carried out there, harmful gases may be produced.
10) Toxic fumes and gases are produced when coated steel is welded.
    Be sure to ventilate the area sufficiently or use a respirator.

2.5 Prevent fire, explosion, burns and injury caused by heated workpiece, spatters, slag, and arc sparks right after welding as described below.

| | |
|---|---|
| ⚠ WARNING | ● Do not weld near flammable materials.<br>● Watch for fire: keep a fire extinguisher nearby.<br>● NEVER do welding on inflammables such as a piece of wood or cloth.<br>● Do not weld on closed containers. |
|  | ● Be sure to tightly connect the welding cable. Heated workpiece, spatters, slag and arc sparks right after welding may cause fire.<br>● Incomplete cable connections, incomplete contacts in the current circuit of the workpiece such as steel frames may cause a fire due to the heat generated when powered.<br>● Arc generated on containers of inflammables such as gasoline may cause an explosion.<br>● Welding of airtight tanks and pipes may cause a bursting.<br>● Touching a heated workpiece, spatters, slag or arc sparks will cause a serious burn. |

1) KEEP FLAMMBLE MATERIALES out of the robotic cell.
2) Welders should wear appropriate protection such as flameproof leather gloves, work clothes with long sleeves, a leg cover, a flameproof leather apron in order to prevent burns caused by touching heated workpiece, spatters, slag and arc sparks right after welding..
3) WATCH for fire.
4) Have a fire extinguisher nearby. Operators should know how to use it.
5) DO NOT touch heated workpiece and peripheral jigs with inflammables such as a piece of wood or cloth. Doing so might cause not only a fire but also burns.
6) DO NOT put heated workpiece close to inflammables right after welding.
7) Remove inflammables from the place where welding is carried out so that spatters and slag will not strike them.
8) Do not use inflammable gases near the welding sight.
9) Tighten and insulate the cable connections completely.
10) Connect the cables on the workpiece side as close to the welding area as possible to prevent the welding current from traveling along unknown paths and causing electric shock and fire hazards.
11) A gas pipe with gas sealed in, an airtight tank and a pipe must not be welded because they might explode.
12) NEVER do welding on inflammables such as a piece of wood or cloth.
13) When welding a large-size structure such as a ceiling, floor, wall, etc., remove any inflammables hidden behind a workpiece.

For reference purposes

**PRINCIPAL SAFETY STANDARDS**

Safety in Welding and Cutting, ANSI Standard Z49.1, from American Welding Society.

Safety and Health Standards, OSHA 29 CFR 1910, from Superintendent of Documents, U.S. Government Printing Office.

Recommended Practices for Plasma Arc Cutting, American Welding Society Standard AWS C5.2, from American Welding Society.

Recommended Safe Practices for the Preparation for Welding and Cutting of Containers That Have Held Hazardous Substances, American Welding Society Standard AWS F4.1, from American Welding Society.

National Electrical Code, NFPA Standard 70, from National Fire Protection Association.

Safe Handling of Compressed Gases in Cylinders, CGA Pamphlet P-1, from Compressed Gas Association.

Code for Safety in Welding and Cutting, CSA Standard W117.2, from Canadian Standards Association, Standards Sales.

Safe Practices For Occupation And Educational Eye And Face Protection, ANSI Standard Z87.1, from American National Standards Institute.

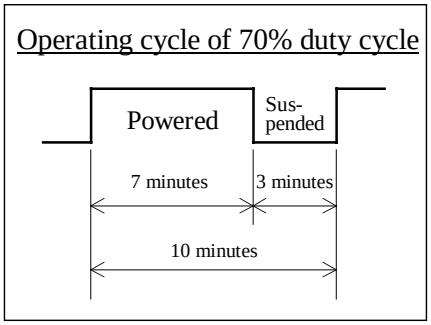
Cutting And Welding Processes, NFPA Standard 51B, from National Fire Protection Association.

# 3. Precautions in operating

## 3.1 Duty cycle

| CAUTION | ● Observe the following to prevent a serious accident that results in a serious injury or a death |
|---|---|

| Welding torch | Rated duty cycle |
|---|---|
| MTXCA-2534PS | 250A 70% |
| MTXCAW-5034P | 500A 70% |




- The rated duty cycle of 70% means that the torch is operated at the rated welding current for 7 minutes out of 10 minutes and suspended for 3 minutes.
- If the torch is operated at more than the rated duty cycle, the welding torch temperature rises over the allowable value to cause to be burnt and cause a burn.
- When MTXCAW-5034P is operated, feed water with a water pump without fail. If no water is circulated, the welding torch temperature rises over the allowable value to cause to be burnt and cause a burn.

## 3.2 Inching

| | |
|---|---|
| ⚠ WARNING | ● Do not look into the tip hole in inching to cheek.<br>● In inching, the welding torch tip must not be put near to your face, eye, and body. |
|  | ● Do not look into the tip hole in inching to check if the wire is fed. The wire may spring out and stick into your face, eyes, and body. It is very dangerous.<br>● In inching, the welding torch tip must not be put near to your face, eyes, and body. The wire may spring out and stick into your face, eyes, and body to injure. |

## 3.3 Replacement of Parts

| | |
|---|---|
| ⚠ CAUTION | ● To prevent burns, observe the following. |

- Do not directly touch the high-temperature parts of a nozzle, an electrode and so on.
- When welding, wear suitable protection such as leather gloves for welding.
- Do not replace torch tip elements before they cool off.

| | |
|---|---|
| ⚠ CAUTION | ● If any parts are damaged, replace them with new ones for further safety and better quality. |

- Be sure to place an order for replacement at our sales office or our agency.

| | |
|---|---|
| ⚠ CAUTION | ● Do not disassemble the shock sensor. If disassembled, gas leak and malfunction may be caused. |

Thank you for purchasing our DAIHEN MIG torch for a pull feeding unit.
Before you use this product, read this instruction manual thoroughly for correct use.

[Note] 1. The contents in this instruction manual are subject to change without notice.

2. We have carefully created this instruction manual to avoid as many errors. Even if any errors are found in the contents, we are not responsible for any damage caused by them.

3. No part of this instruction manual may be reproduced or stored in any form without the express written permission.

# 1. Specifications

This torch is used as a servo torch for MIG welding in combination with the pull feeding unit (L-7591).

The specifications are shown in table 1.1. (Refer to Fig. 1.1 ~1.3 for outline drawing.)

Table 1.1 Specifications of welding torch for pull feeding unit

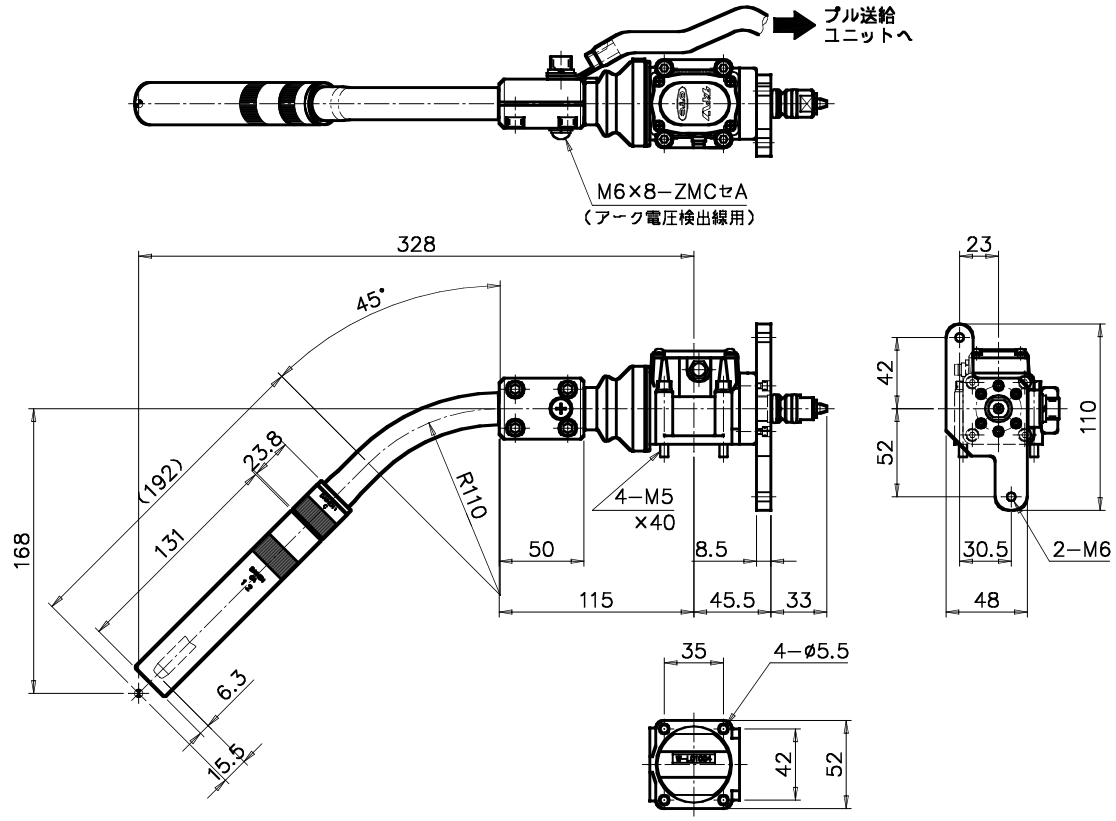
| Model | MTXCA-2534PS | MTXCAW-5034P |
|---|---|---|
| Torch shape | Curved | |
| Welding process | Welding process | |
| Maximum allowable current | 250A | 500A |
| Rated duty cycle | 70% | 70% |
| Applicable wire | Aluminum wire | |
| Applicable wire diameter | (φ1.0)、φ1.2 | φ1.2、(φ1.6) |
| Cooling system | Air-cooling | Water-cooling |
| Shock sensor | Built-in | |
| Mass | 1.75(kg) | 1.75(kg) |

Note)1. For use of .MTXCAW-5034P, use the water tank (PU-301) to supply water.

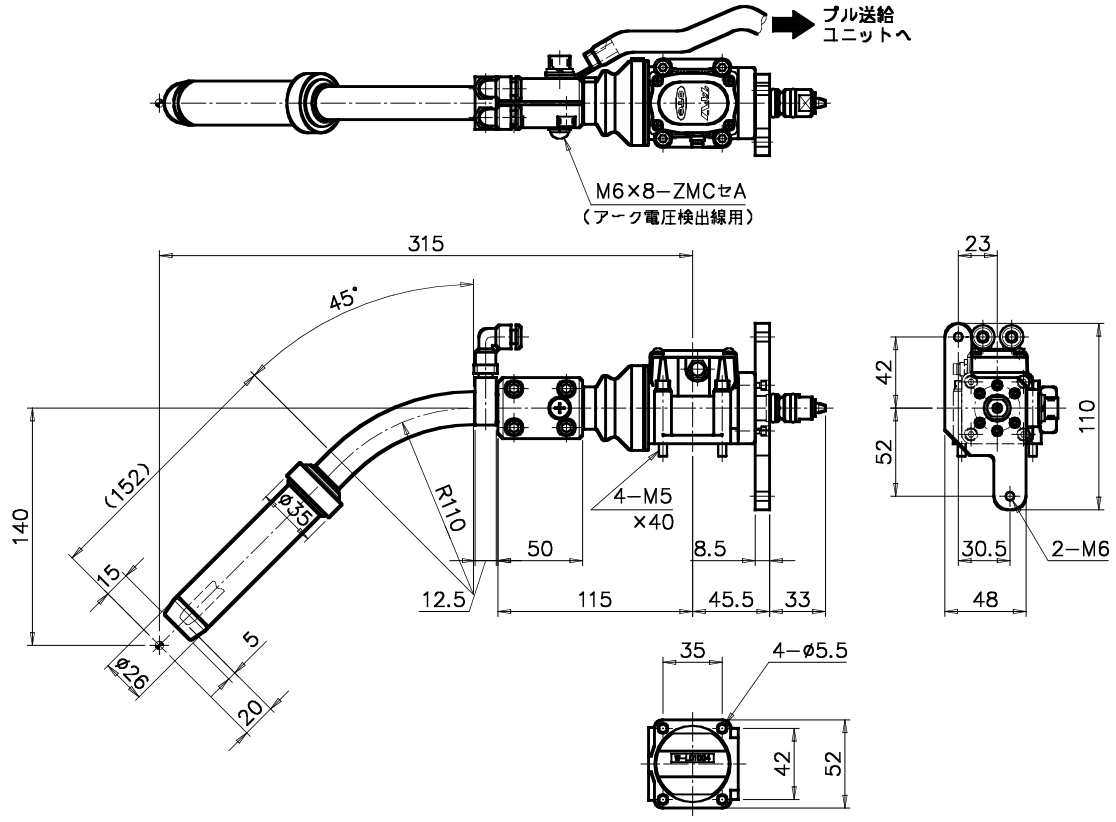
2. Shock sensor

In robots for arc welding, a welding torch may contact a workpiece /jig. Then the welding torch may become deformed or the robot body may be damaged. To avoid such an accident, this welding torch has a shock sensor function to stop the robot operation immediately. When excessive force is applied on the torch tip (nozzle part), the nozzle part will be moved by the force and outputs an output detecting signal on the way.

3. The above mass includes torch only. Mass of a bracket or pull feeding unit is not included.

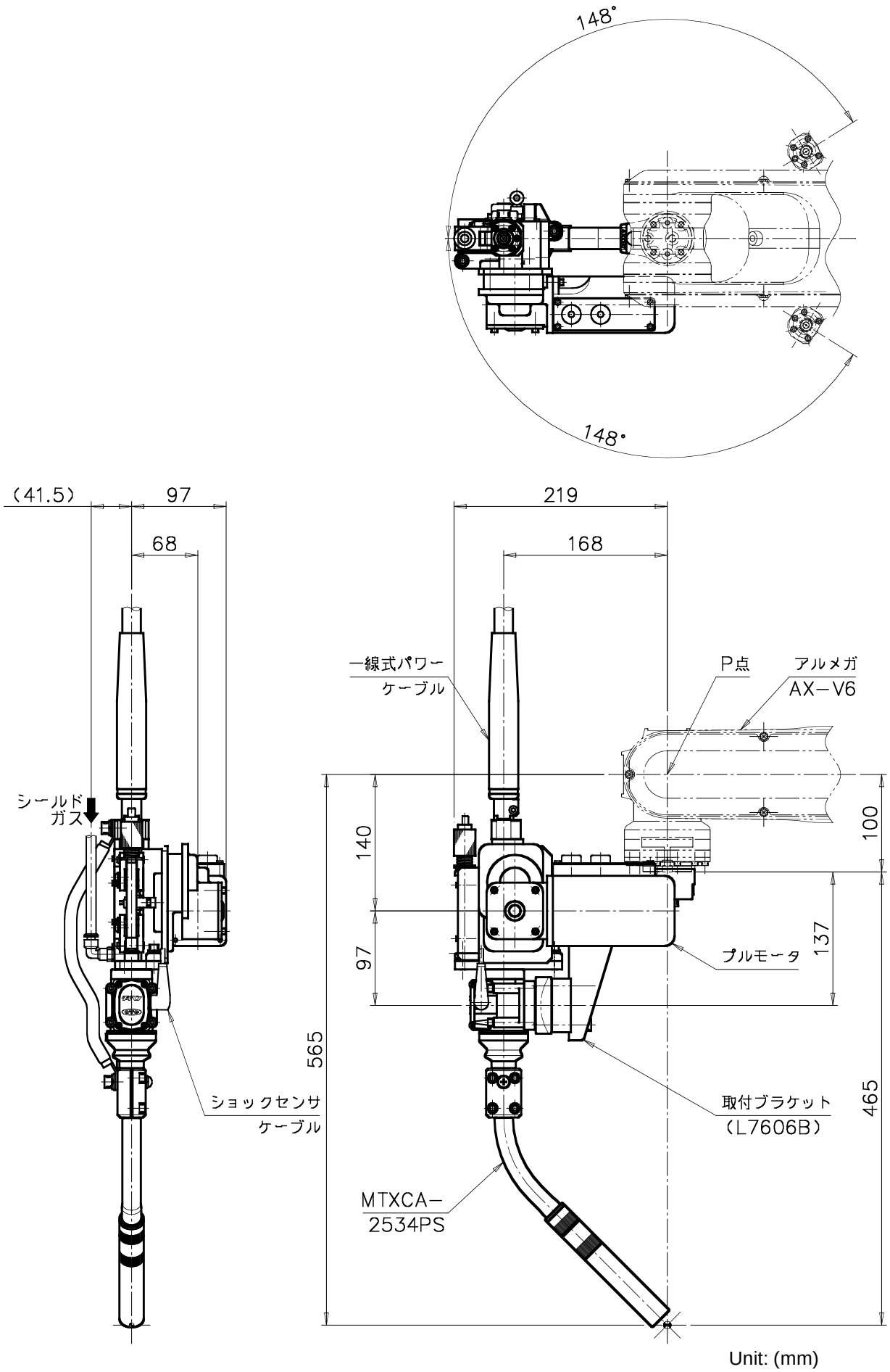



Mass 1.75 [kg]
Outline drawing of aluminum MIG curved torch (High-shield nozzle) MTXCA-2534PS (250A / Air-cooled / Shock sensor)




Mass 1.75 [kg]
Outline drawing of aluminum MIG curved torch MTXCAW-5034P (500A / Water-cooled / Shock sensor)

Fig. 1.1 Outline drawing Unit (mm)




Unit: (mm)

Fig. 1.2 Assembly drawing of pull feeding unit L-7591 + MTXC-2534PS

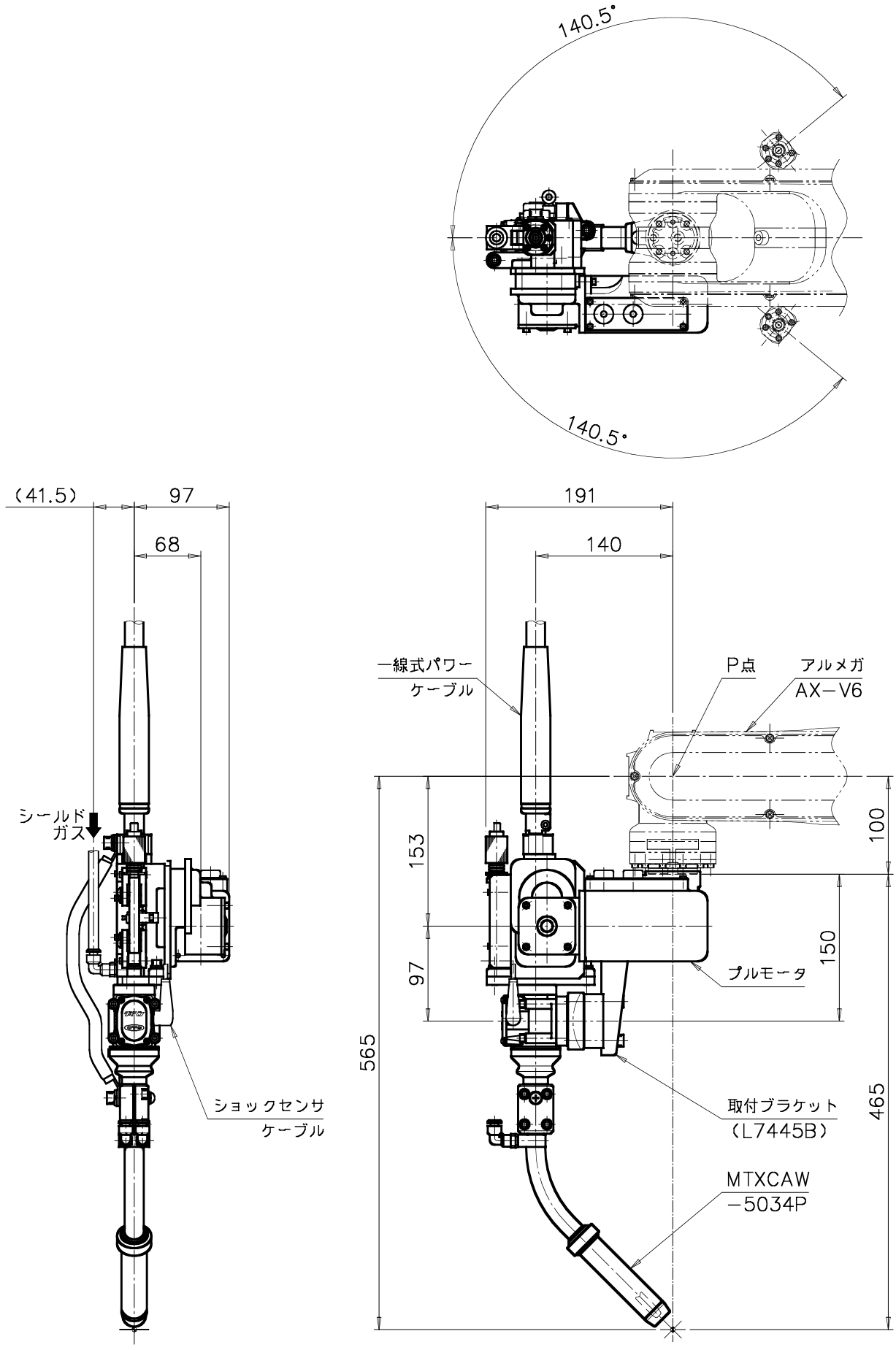



Fig. 1.3 Assembly drawing of pull feeder unit L-7591 + MTXC-3534P

# 2. Checking of Package Contents

## 2.1 Checking of Package Contents

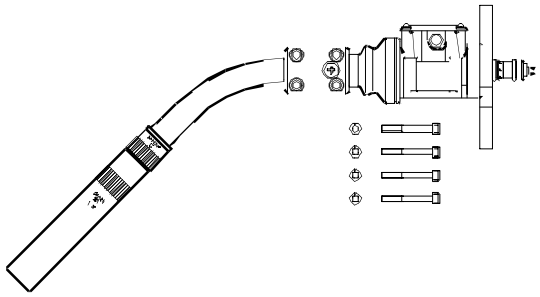
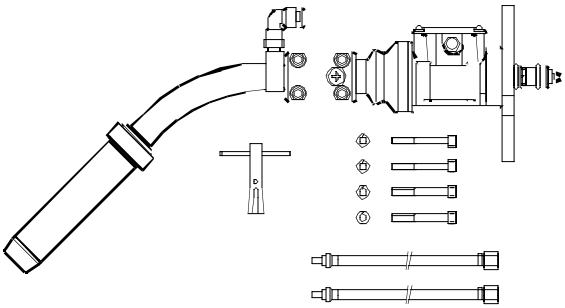
| MTXCA-2534PS | MTXCAW-5034P |
|---|---|
|  |  |
| **Welding torch body**<br>**Mounting bolt (M5×40)…...4 pieces**<br>**Spring washer (M5)…….4 pieces** | **Welding torch body**<br>**Mounting bolt (M5×40)…….4 pieces Hose for cooling water (6m)……..2 pieces**<br>**Spring washer (M5) ……..4 pieces Wrench……..1 piece** |

Fig. 2.1 Checking contents of package

Note 1. The torch MTXCW-5034P requires a water tank additionally.
A water tank (PU-301) shall be purchased separately.
2. The above mounting bolt (M5 ×40) is to mount a torch on a mounting bracket.
The bolts for mounting a pull feeder unit (L-7591) are included to the pull feeder unit.

## 2.2 Standard Assembly

Unpack and confirm that following parts are assembled.

Table 2.1 Standard assembly

| Applicable torch | Item | Part number | Q'ty. | Remarks |
|---|---|---|---|---|
| MTXCA-2534PS | Tip (1.2) | U4167H12 | 1 | Wire diameter ö1.2 |
| | Stop guide (3) | L7585E04 | 1 | |
| | Outlet guide (3) | L7585M04 | 1 | |
| MTXCAW-5034P | Tip (1.2) | K980B86 | 1 | Wire diameter ö1.2 |
| | Inner liner (1.2) | L7586H | 1 | |
| | Outlet guide (3) | L7585M04 | 1 | |

Note: The above parts are standard assemblies. Optional accessories are offered for the replacement parts so that a wide range of welding is available.
As for details, see "Chapter 7 Parts List".

- When this torch is shipped, parts for φ1.2 wire are assembled.
Change parts according to the wire size to use.
(Refer to "Chapter 7 Parts List".)

**IMPORTANT**

1. Check the wire diameter to change parts.
Parts for wrong wire diameter may cause welding failure.
2. The pull feeding unit (L-7591) is built with the parts for wire diameter φ1.2.
Change the assembly parts of the pull feeding unit when using the parts of wrong wire diameter.

# 3. Mounting and Adjusting Procedure for Welding Torch

## 3.1 Mounting Torch (Mounting Bracket) and Pull Feeding Unit

A mounting bracket ASSY to use depends on your torch. (Refer to the following table.)

Table 3.1. Torch and mounting bracket ASSY

| Torch type | Mounting bracket ASSY | | |
|---|---|---|---|
| | Assembly drawing No. | Drawing No. of L bracket | Remarks |
| MTXCA-2534PS | L7606B | L7606B02 | High-shield nozzle is applicable |
| MTXCAW-5034P | L7445B | L7445B03 | |

Note: Above brackets are different only in the size of the L-bracket. (They are the same in the adjustment procedure and mounting procedure.)

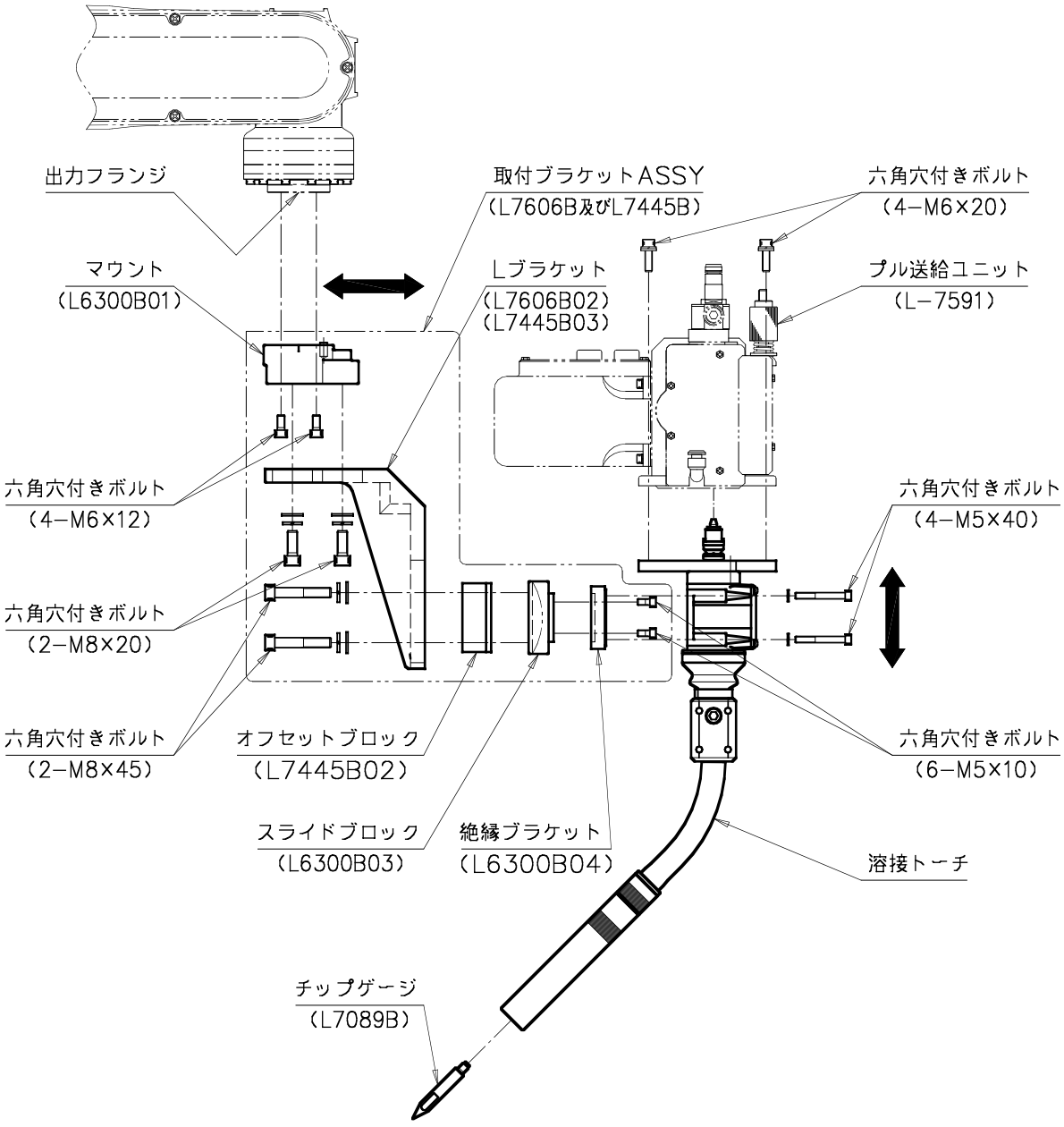



Fig. 3.1 Mounting torch (mounting bracket) and pull feeding unit

### 3.2 Mounting Torch Gauge

A torch gauge ASSY and a tip gauge are common to each torch.　(Refer to the following table.)

Table 3.2. Torch and torch gauge ASSY

| Torch type | Mounting bracket ASSY | | |
|---|---|---|---|
| | Item | Assembly drawing No. | Remarks |
| MTXCA-2534PS | Torch gauge ASSY(7) | L7614J | |
| MTXCAW-5034P | | | |

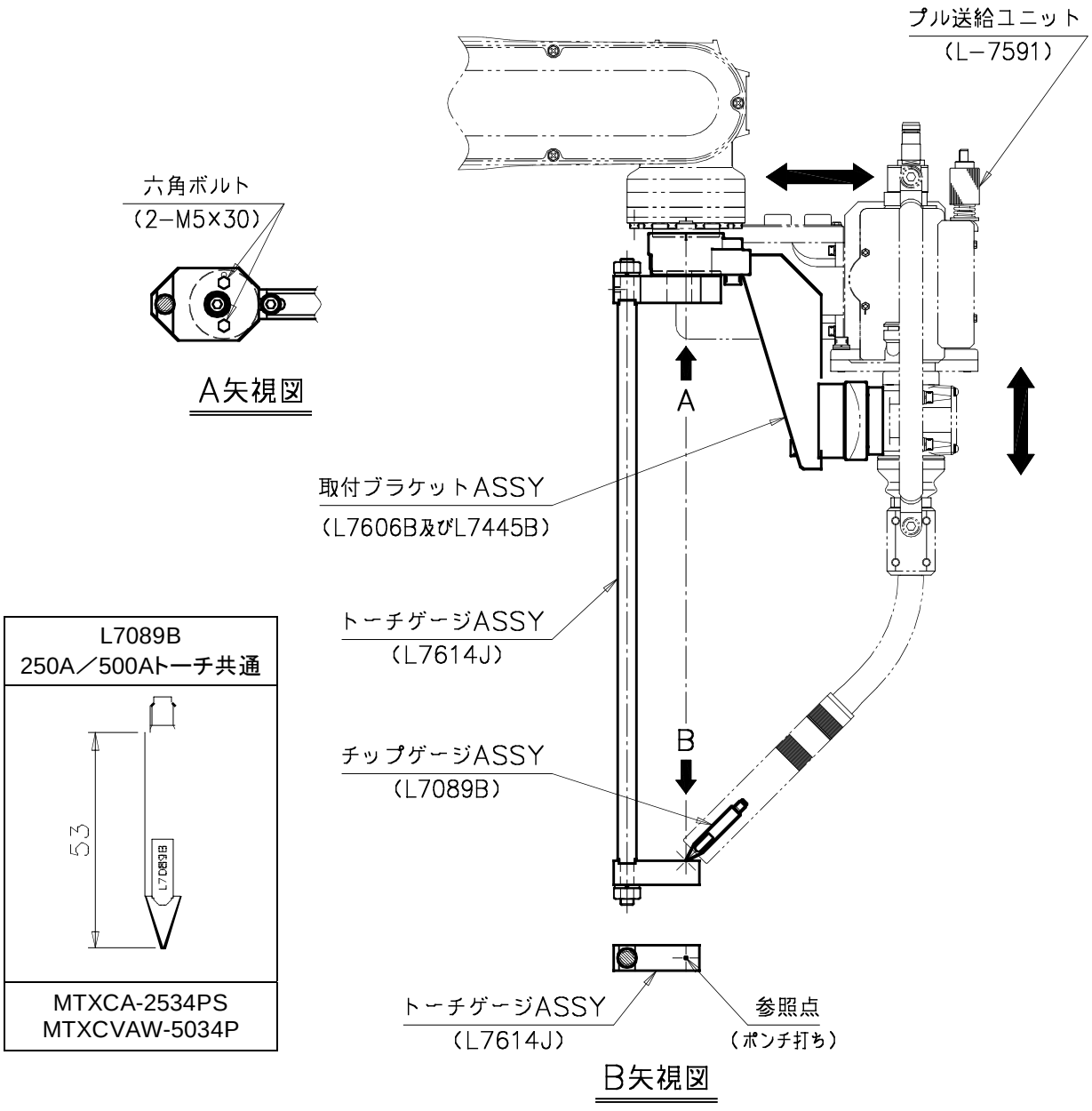



Fig. 3.2 Mounting torch gauge

### 3.3 Adjustment Procedure for Torch

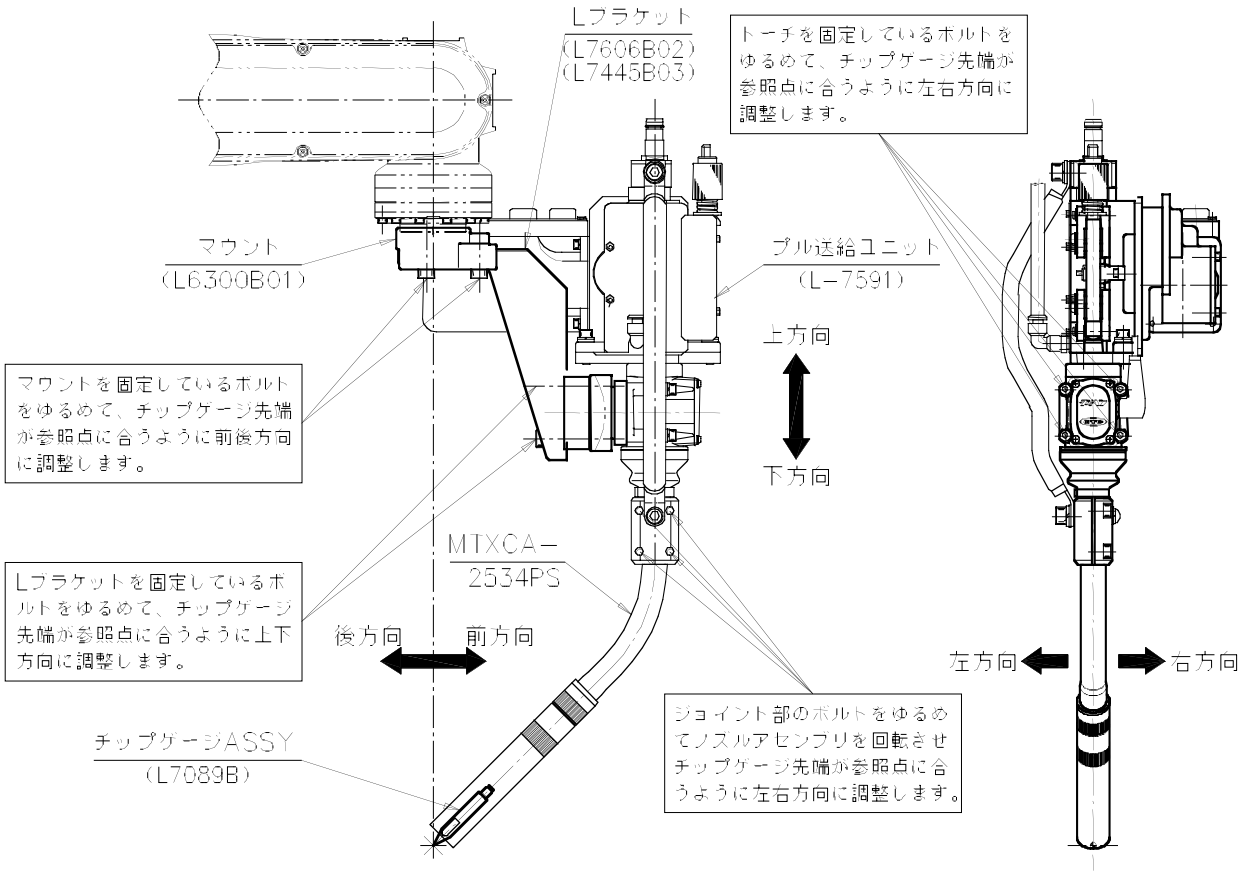



Fig. 3.3 Adjustment direction for torch

### 3.4 Connect Procedure of Water-Cooled Torch (MTXCAW-5034P)

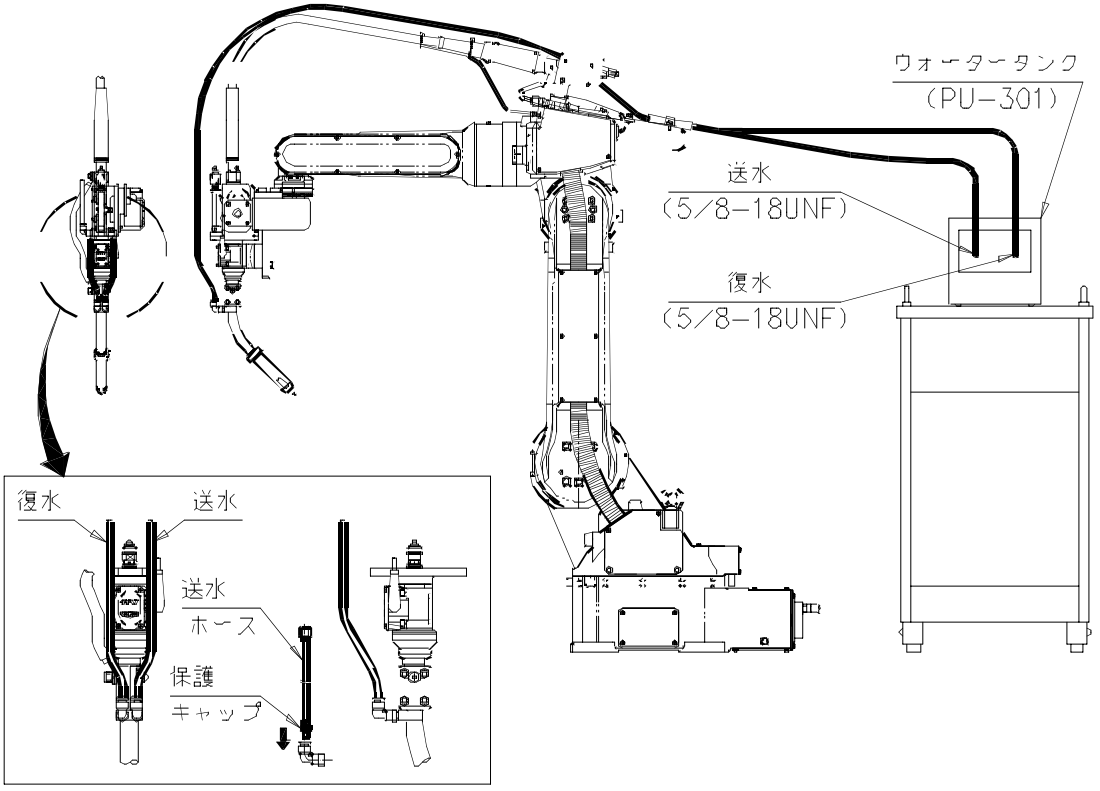



Fig. 3.4 Connection procedure for water-cooled torch

# 4. Setting of Robot Control

## 4.1 Confirmation of Tool Parameter

When a robot is delivered, the data (tool parameter) is set for use with the mounted welding torch. Confirm that the following data is set. When the torch is not changed, this data need not be changed.

Table 4.1 Almega AX (EX)-V6, 16, 6L

| Model | Parameter 1 | Parameter 2 | Parameter 3 | Parameter 4 | Parameter 5 | Parameter 6 |
|---|---|---|---|---|---|---|
| MTXCA-2534PS | 0.0 | 0.0 | 465.0 | -45.0 | 0.0 | 180 |
| MTXCAW-5034P | 0.0 | 0.0 | 465.0 | -45.0 | 0.0 | 180 |

Refer to the instruction manual for manipulator when data of table 4.1 is not set.

| Model | Instruction manual for reference |
|---|---|
| EX manipulator | Chapter 7 in “Utilizing features and functions (1L8300G-E-xx)” |
| AX manipulator | Chapter 4 in “Installation (1L8800A-E-xx) |

IMPORTANT

This servo torch is not available for the manipulators before AV /BV06.

Ask our sales engineers for availability, if you use this torch for the manipulators before AV/ BV06.

## 4.2 Operation Check for Shock Sensor

### 4.2.1 External Force To Operate Shock Sensor

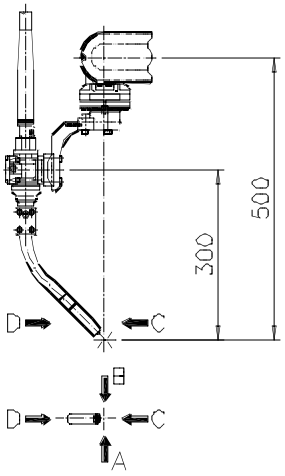



Table 4.2 Operating external force

| Direction | External force [kg] |
|---|---|
| A | 3.0 |
| B | 3.0 |
| C | 3.0 |
| D | 3.0 |

The left table shows the standard load to operate the shock sensor when external force applied on the tip of the torch operates shock sensor.

They may vary a little depending on torch type and torch length.

Fig. 4.1 Operating external force direction

### 4.2.2 Operation Check for Shock Sensor

○ EX manipulator

In the teaching mode, push the torch tip by hand to check if the message “| 10002-0100 mechanism shock sensor” will appear.

When the torch is unhanded, the message will disappear.

If the message does not appear, the cable may not be connected. Check the connection again.

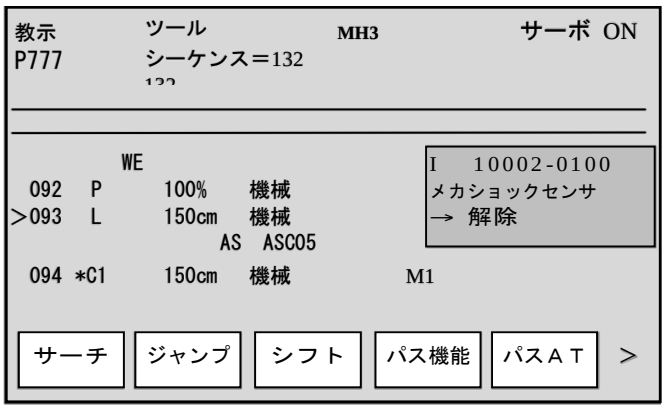



Fig. 4.2 Teaching pendant display (EX manipulator)

○ AX manipulator

Push the torch tip,

Check if the following message appears in the “[2] error monitor screen” (lower right figure).

Error type: Emergency stop error

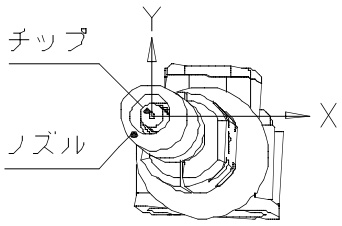
Error code: A4920

(For details, refer to Chapter 8 in Instruction Manual - Basic Operation (1L8800C-E-xx).)

If not, the cable may not be connected. Check the connection again.


Fig. 4.3 Teaching pendant display (AX manipulator)

## 5. Trouble Shooting

| Failure | Possible cause |
|---|---|
| No arc. | Loose connection or breaking of welding cable. |
| No smooth wire feeding<br>No constant wire feeding | Wire pressure of feed roll is not enough.<br>Tip is worn.<br>Inner liner is worn.<br>Guide tube (MTXCA-2534PS) is worn.<br>Stop guide(MTXCA-2534PS) is worn.<br>Outlet guide is worn.<br>Wire waste powder collects in a wire feeding line. |
| Wire adhesion on tip. | Wire feeding is not smooth.<br>Hole of tip became large.<br>The distance between tip and base material is too short. |
| Shock sensor can not be canceled. | Loose connection or break of shock sensor code.<br>Nozzle is bent.<br>※ When contact trouble occurs and the robot operation stops because of the detection signal of the shock sensor, first investigate the cause of the accident. Pay close attention while operating the robot or restoring the power without finding the cause. It may be hazardous.<br>For cancel procedure, refer to the instruction manual for robot controller (operation and teaching). |
| The widths of the cleaning on both sides are not the same. | ・Compared with the nozzle, tip body is eccentric.<br>(Eccentricity of tip end is over ±0.5mm.)<br>  |
| Aim deviation | Orifice is not mounted.<br>※ If an orifice is not mounted, spatter will be seen in the inside and conduction will occur between nozzle and tip body. That results in anomalous arc discharge and tip body bentness. |
| Poor shield characteristics | No specified tip and nozzle are used.<br>・Gas leaks from the outlet guide with a wire inserted.<br>※ Check the condition of O-ring in the outlet guide adaptor, outlet guide and stop guide (MTXCA-2534PS). Check if the parts of suitable wire diameter are used. |

# 6. Parts Change

## 6.1 Replacing Parts for Changed Wire Diameter

Check the wire diameter to use. Change the following parts depending on the wire diameter.

[Torch]
- ⑤ Tip
- ⑥ Stop guide (for MTXCA-2534PS)
- ⑦ Inner liner (for MTXCAW-5034P)
- ⑧ Outlet guide

[Coaxial power cable]
- ⑨ Liner
- ⑩ Outlet guide

[Pull feeder unit]
- ⑪ Feed roll
- ⑫ Pressure roll
- ⑬ Inlet guide

When the welding wire diameter is changed, use parts suitable for the each wire diameter.

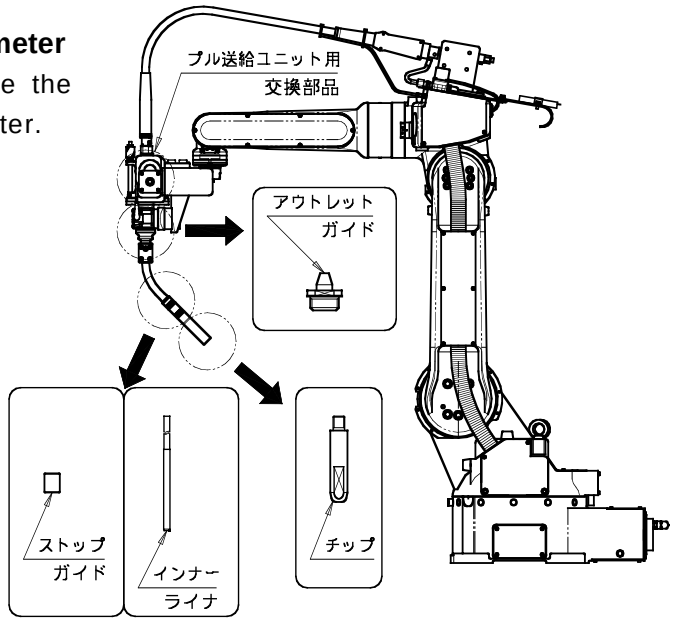


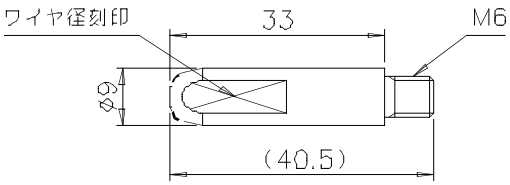

Fig. 6.1 Replacing parts in changing wire diameter

Followings are the list of the suitable parts.

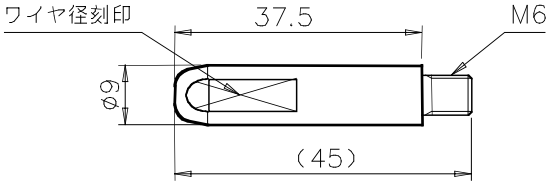
Note: For detailed information on a coaxial power cable, feed roll, pressure roll, and inlet guide, refer to the instruction manual of pull feeding unit.

● Standard
▲ Optional

Table 6.1 MIG tip to be used

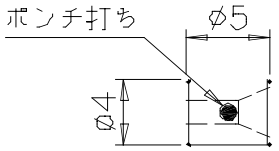
| Wire diameter / Torch model | φ1.0 | φ1.2 |
|---|---|---|
| Part number | U4167H13 | U4167H12 |
| Outline drawing |  | |
| MTXCA-2534PS | ▲ | ● |



| Wire diameter / Torch model | φ1.2 | φ1.6 |
|---|---|---|
| Part number | K980B86 | K980B88 |
| Outline drawing |  | |
| MTXCAW-5034P | ● | ▲ |

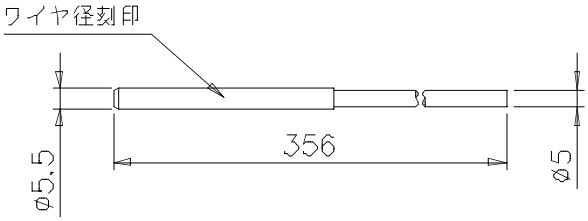
● Standard
▲ Optional

Table 6.2 Stop guide to be used

| Wire diameter / Torch model | φ1.0 | φ1.2 |
|---|---|---|
| Part number | L7585E03 | L7585E04 |
| Punching number | 2 | 3 |
| Outline drawing |   | |
| MTXCA-2534PS | ▲ | ● |

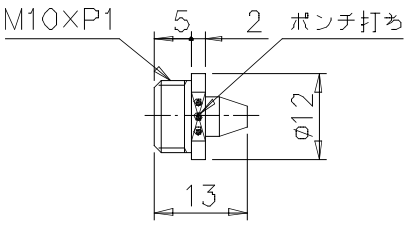
● Standard
▲ Optional

Table 6.3 Inner liner to be used

| Wire diameter / Torch model | φ1.2 | φ1.6 |
|---|---|---|
| Part number | L7586H | L7586J |
| Outline drawing |   | |
| MTXCAW-5034P | ● | ▲ |

● Standard
▲ Optional

Table 6.4 Outlet guide to be used

| Wire diameter / Torch model | φ1.0 | φ1.2 | φ1.6 |
|---|---|---|---|
| Part number | L7585M03 | L7585M04 | L7585M05 |
| Punching number | 2 | 3 | 4 |
| Outline drawing |   | | |
| MTXCA-2534PS | ▲ | ● | - |
| MTXCAW-5034P | - | ● | ▲ |

## 6.2 Parts Change Procedure

### 6.2.1 Common Parts

○ Change of outlet guide

① Remove the bolts (M6 x 20 [2 pieces]) with which the pull feeding unit and the torch are fixed.

② Remove the pull feeding unit from the torch.

③ Change of outlet guide

④ Reassemble the pull feeding unit and then bolts.

**IMPORTANT**

Be sure not to scratch the surface of O-ring assembled in the outlet guide adaptor when mounting a pull feeding unit on a torch.
A scratch on the O-ring causes a gas leakage resulting in a bad welding quality.

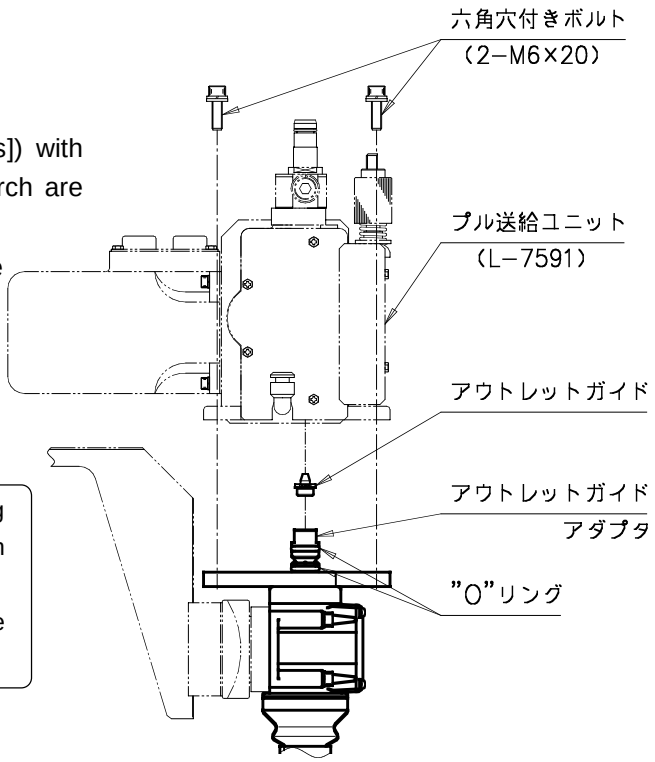



Fig. 6.2 Change of outlet guide

### 6.2.2 MTXCA-2534PS

○ Guide tube and stop guide

① Loosen the 4 bolts on the noise holder ASSY.

② Pull out the torch body ASSY from the nozzle holder ASSY.
(A guide tube is twisted into the inner liner in the torch body ASSY.)

③ Exchange the guide tube.

④ Exchange the stop guide.
(A stop guide is mounted in the inner liner in the torch body ASSY.)

⑤ Assemble the stop guide and the guide tube in order into the torch body ASSY.
(Insert the stop guide with smaller diameter side directed to the torch body ASSY. Insert the guide tube with the screw-cut-side directed to the torch body ASSY.)

⑥ Assemble the torch body ASSY and tighten the bolt.

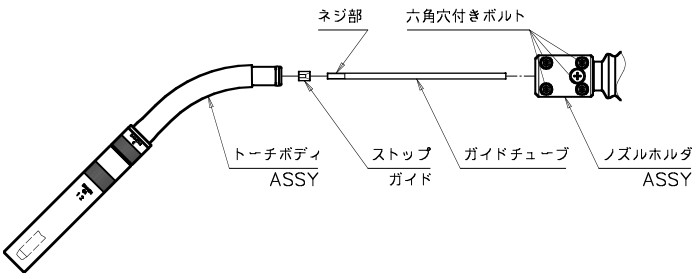



Fig. 6.3 Change of guide tube and stop guide

**IMPORTANT**

1. Be sure to keep the stop nut when changing the parts.
Use a stop guide. Otherwise a gas leakage will be caused resulting in a bad shield quality.
2. When the torch body ASSY is removed, adjust the torch tip with the torch gauge again.

### 6.2.3 MTXCAW-5034P

○ Inner liner

① Loosen the cap nut to remove the nozzle.

② Remove the tip nut.

(Copper part of the inner liner is out of the insulator.)

③ Change the inner liner.

(For inserting, point the copper part at the nozzle.)

④ Reassemble the tip nut and nozzle in order.

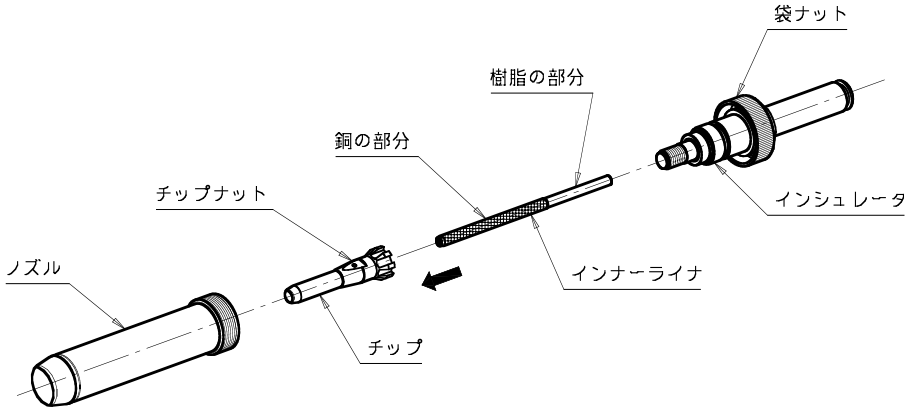



Fig. 6.4 Mounting process of inner liner

**IMPORTANT**

Before exchanging the nozzle, turn off the water tank. Otherwise water will leak.

○ Tip

Change the tip by using an attached wrench.

(A nozzle need not be removed.)

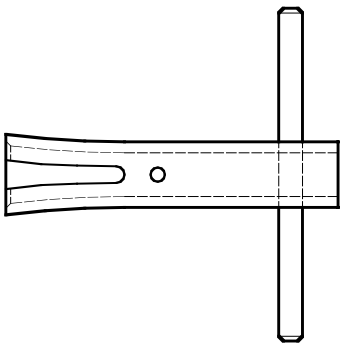


Fig. 6.5 Wrench for tip exchange

**IMPORTANT**

The tip can be also changed with the nozzle removed.

Before removing the nozzle, turn off the water tank(PU-301). Otherwise water will leak.

### 6.3 Handling Instructions for Torch

(1) Remove the spatter adhered to the nozzle and contact tip while few.

(2) The tip shall be DAIHEN genuine part.
A tip with an enlarged hole diameter causes failure conduction and wire swing. To avoid inconstant arc and aim deviation, change tips accordingly.

(3) Gas mass flow shall be 15 //min at least.

(4) Accumulated waste wire or dust inside the liner (in the coaxial power cable), inner liner, outlet guide, and stop guide cause wire feeding failure resulting in bad welding quality. Clean them once ten days with a compressed air etc.

(5) Precautions for installing inner liner
The outlet guide has a following structure, which prevents wire buckling and gives a margin for inner liner when the shock sensor operates.
・To insert the inner liner into the outlet guide adaptor (liner guide) in the shock sensor, the inner liner shall be inserted into the shaft of the liner guide.

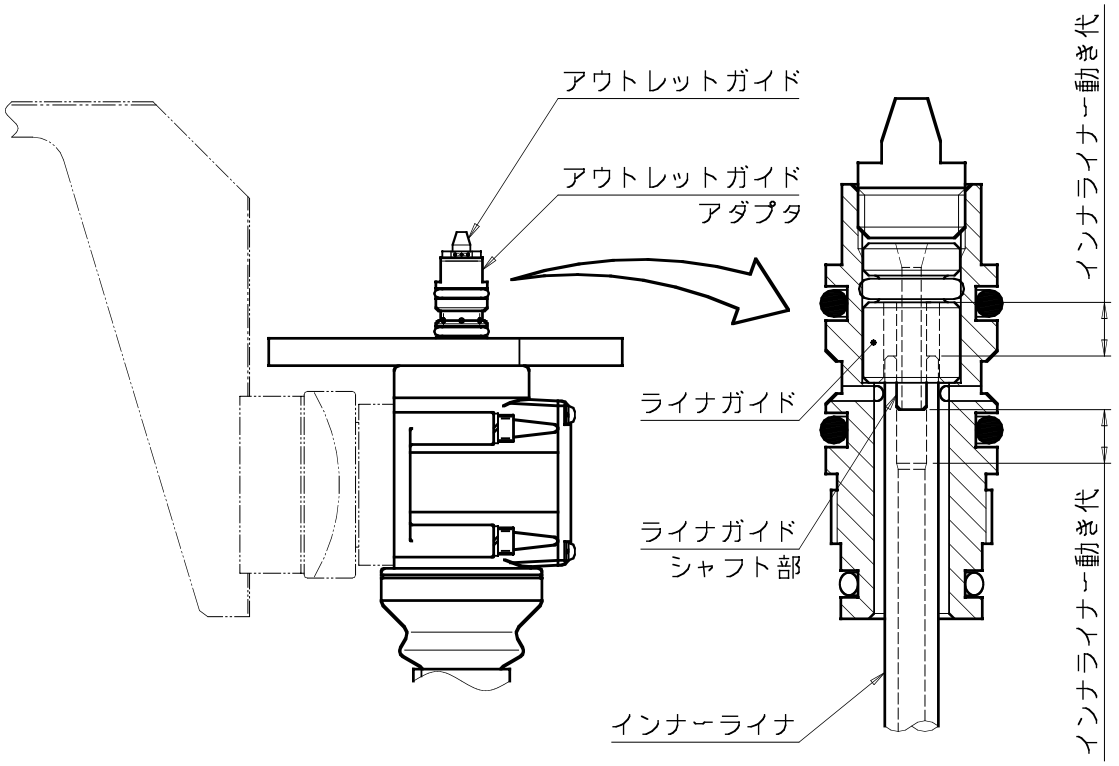



Fig. 6.6 Mounting of inner liner (in shock sensor)

(6) If the wire is stuck at the tip end, the wire will buckle in the liner or be cut in the feed roll. To prevent feeding failure or arc run out, remove the wire between the feed roll and tip end first before inserting a new wire.

(7) When it is taught to evacuate the torch from the work after welding, teach to pull up on the slant so that the shock sensor may work even if the wire and the base metal stick.

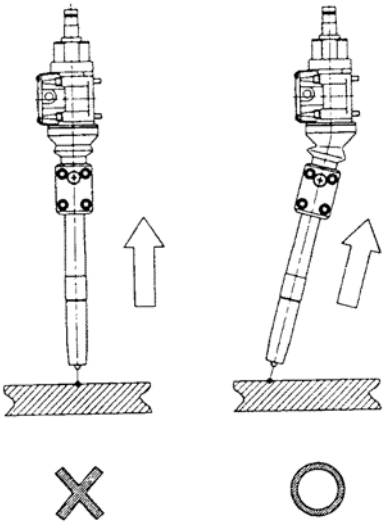


Fig. 6.7 Evacuating direction

(8) Shock sensor may somewhat deviate from the teaching point (torch aim position). (If the shock sensor operates, check the torch aim position again with a torch gauge.)

(9) Notice for changing O-ring (MTXCAW-5034P)

Make sure not to damage the O-ring in the insulator. The screw of the tip body may easily damage the O-ring when the O-ring of water-cooled torch is changed.

A scratch on an O-ring causes water leakage.

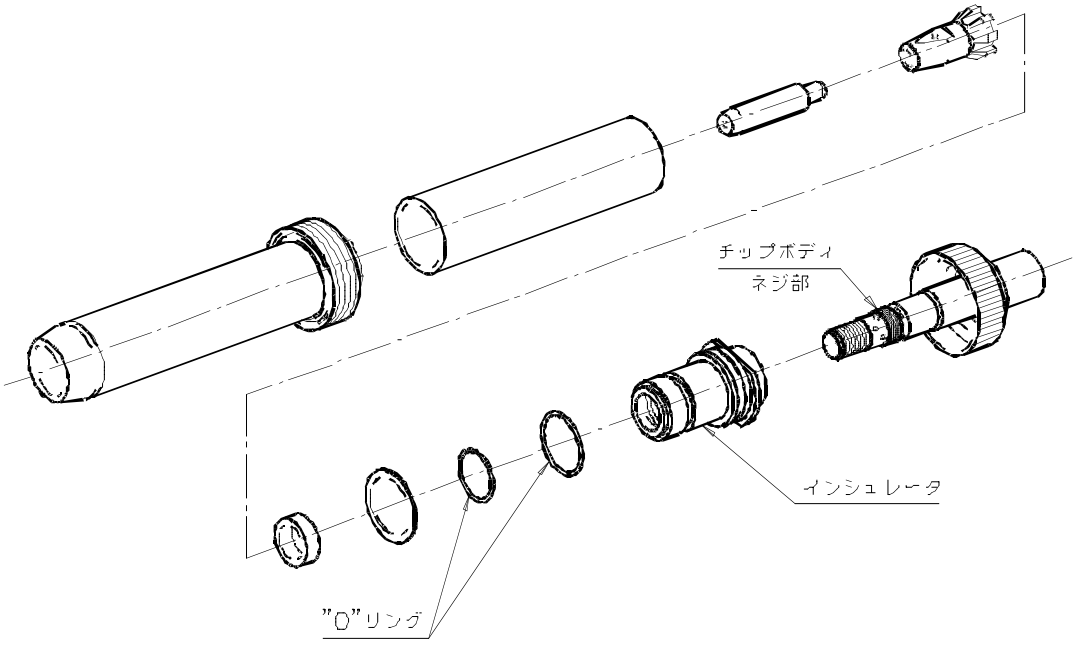



Fig. 6.8 Exchanging procedures of O-ring

# 7. Parts List

This torch has common adaptor ASSY, shock sensor unit, hood ASSY, nozzle holder, and feeder cable. Nozzle fitting element is interchangeable for all the models.

Note: 1. In replacing, torch mount shall be changed.

2. Assembly parts (liner and tip etc.) are not common. Make sure not to assemble wrong parts.

If the parts are getting worn out or damaged while using this torch, see the following table to place an order with our sales office or agent. Provide the product name and its part No. (or the specifications) for ordering.

Table 7.1 Parts list for MTXCA-2534PS

| Ref No. | Part number | Item | Q'ty | Remarks |
|---|---|---|---|---|
| 1 | L7328B | **Shock sensor unit** | 1 | |
| 2 | L6380G | **Hood ASSY** | (1) | |
| 3 | L7585M | **Adaptor ASSY** | (1) | |
| 4 | L7585B01 | Adaptor | 1 | |
| 5 | L7479B02 | Outlet guide adaptor | 1 | |
| 6 | 3574-007 | O-ring | 2 | P12 (Viton) |
| 7 | 3574-017 | O-ring | 1 | P10 (Viton) |
| 8 | L7585M01 | Liner guide | 1 | |
| 8-1 | 3570-106 | O-ring | (1) | P6 (Viton) |
| 9 | L6380C | **Nozzle holder ASSY** | 1 | |
| 10 | L7585C | **Power supply cable ASSY** | 1 | |
| 11 | L7585L | **Torch body ASSY** | 1 | |
| 11-1 | 3574-007 | O-ring | (1) | P12 (Viton) |
| 12 | L7585D01 | Tip body | 1 | |
| 13 | U4173L | Insulator | 1 | |
| 14 | L6573C02 | Spring washer | 1 | |
| 15 | U2774E03 | Orifice | 1 | |
| 16 | L7585D02 | Long nozzle(No.12) | 1 | |
| 17 | L7585E06 | Guide tube | 1 | |
| 18 | L7585F | Inner liner B | 1 | |
| 19 | L7585H | **Assembly part (1.0)** | (1) | Optional accessory part for wire diameter φ1.0 |
| 19-1 | L7585M03 | Outlet guide A(2) | (1) | |
| 19-2 | L7585E03 | Stop guide (2) | (1) | |
| 19-3 | U4167H13 | Tip (1.0) | (1) | |
| 20 | L7585J | **Assembly part A(1.2)** | 1 | Standard assembly for wire diameter φ1.0 |
| 20-1 | L7585M04 | Outlet guide A(3) | (1) | |
| 20-2 | L7585E04 | Stop guide (3) | (1) | |
| 20-3 | U4167H13 | Tip (1.2) | (1) | |

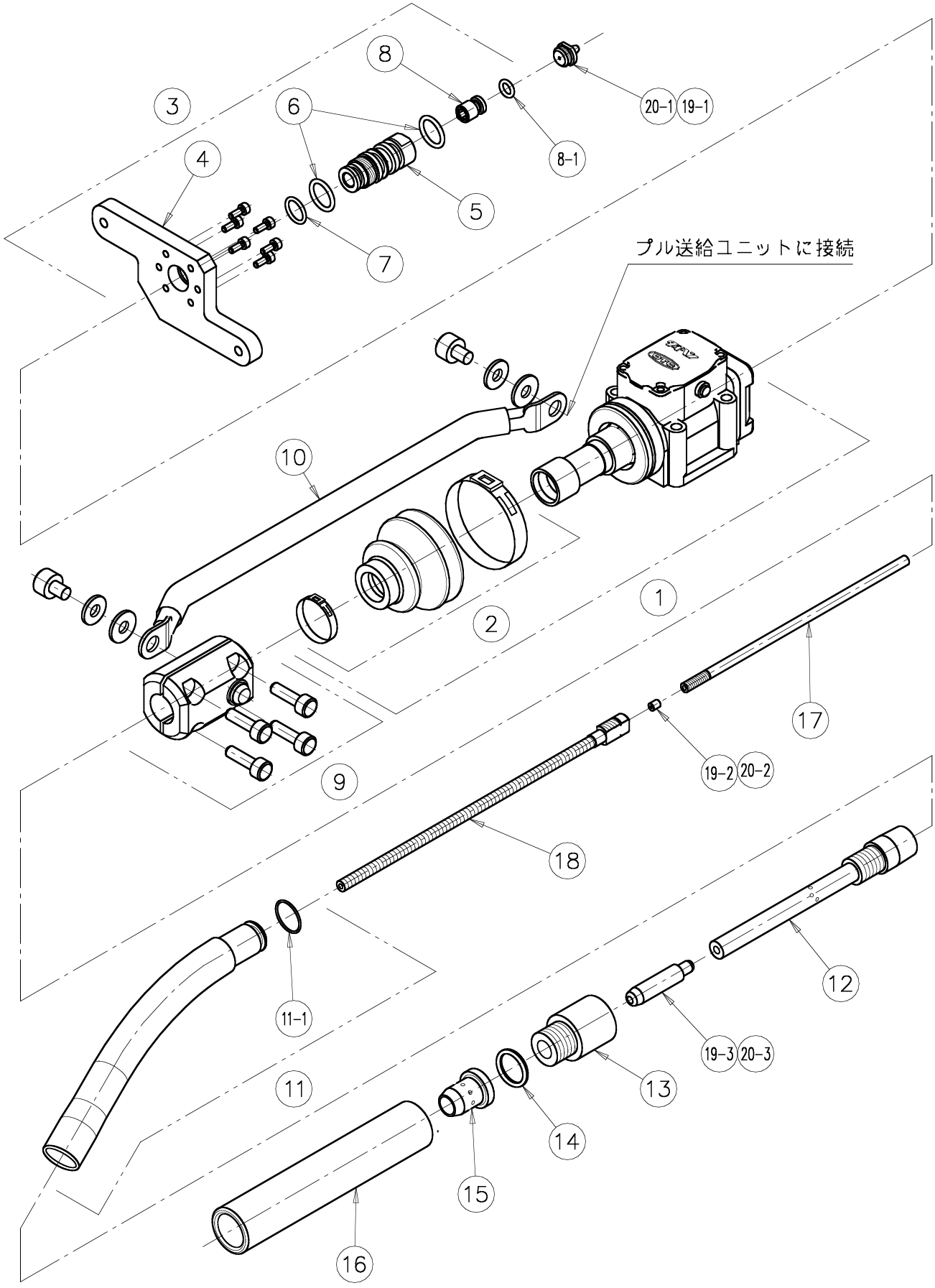



Fig. 7.1 Parts for MTXCA-2534PS

Table 7.2 Parts for MTXCAW-5034P

| Ref No. | Part number | Item | Q'ty | Remarks |
|---|---|---|---|---|
| 1 | L7328B | **Shock sensor unit** | 1 | |
| 2 | L6380G | **Hood ASSY** | (1) | |
| 3 | L7585M | **Adaptor ASSY** | (1) | |
| 4 | L7585B01 | Adaptor | 1 | |
| 5 | L7479B02 | Outlet guide adaptor | 1 | |
| 6 | 3574-007 | O-ring | 2 | P12 (Viton) |
| 7 | 3574-017 | O-ring | 1 | P10 (Viton) |
| 8 | L7585M01 | Liner guide | 1 | |
| 8-1 | 3570-106 | O-ring | (1) | P6 (Viton) |
| 9 | L6380C | **Nozzle holder ASSY** | 1 | |
| 10 | L7585C | **Power supply cable ASSY** | 1 | |
| 11 | L7586B | **Torch body ASSY** | 1 | |
| 11-1 | 3574-007 | O-ring | (1) | P12 (Viton) |
| 12 | U4430P04 | Cap nut | 1 | |
| 13 | U4430N | Insulator | 1 | |
| 13-1 | 3574-003 | O-ring | (1) | S22.4 (Viton) |
| 13-2 | 3574-006 | O-ring | (1) | P16 (Viton) |
| 14 | 3361-716 | Wave washer | 1 | BWW-625 |
| 15 | U4430P01 | Nut | 1 | |
| 16 | U4430P02 | Tip nut | 1 | |
| 17 | U4430H | **Nozzle ASSY** | 1 | |
| 18 | L7586F | **Assembly part A(1.2)** | 1 | Standard assembly for wire diameter φ1.2 |
| 18-1 | L7585M04 | Outlet guide A(3) | (1) | |
| 18-2 | L7586H | Inner liner (1.2) | (1) | |
| 18-3 | K9800B86 | Tip (1.2) | (1) | |
| 19 | L7586G | **Assembly part A(1.6)** | (1) | Optional accessory part for wire diameter φ1.6 |
| 19-1 | L7585M05 | Outlet guide A(4) | (1) | |
| 19-2 | L7586J | Inner liner (1.6) | (1) | |
| 19-3 | K9800B88 | Tip (1.2) | (1) | |
| 20 | L6571D | **Cooling water hose (1)** | 2 | 6m |
| 21 | L6571E | **Cooling water hose (2)** | (2) | 8m, Optional accessory |
| 22 | L6571F | **Cooling water hose (3)** | (2) | 10m, Optional accessory |

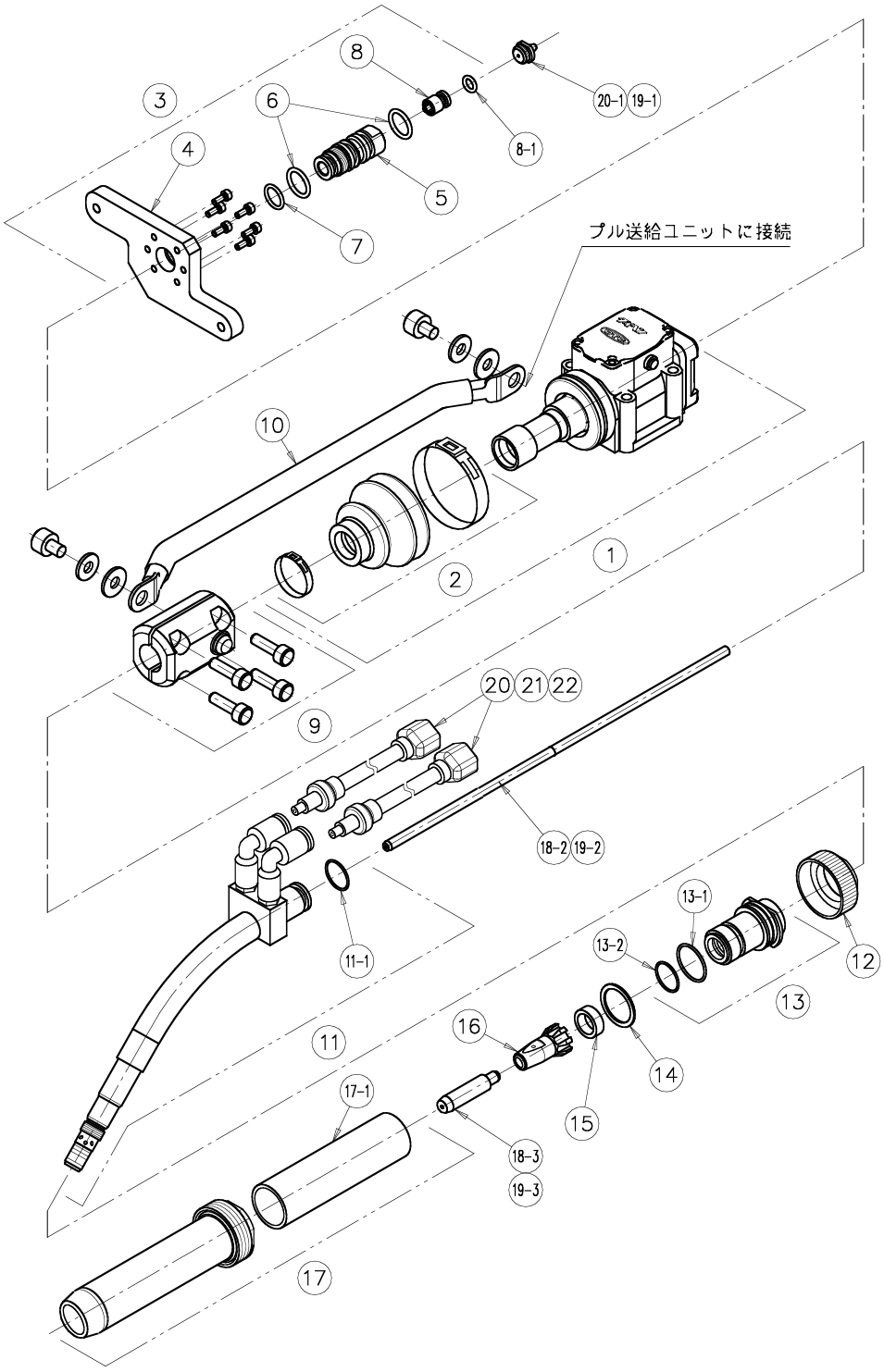



Fig. 7.2 Parts for MTXCAW-5034P