

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

CO₂ /MAG

MTXC-3534P
MTXC-5034P

MTXCB-3534P
MTXCW-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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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 cause 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.

 WARNIN G	<ul style="list-style-type: none"> ● 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.


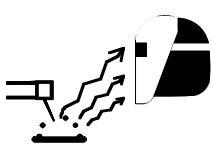
2.2 Observe the following to prevent an electric shock.

 WARNIN G	<ul style="list-style-type: none"> ● Do not touch live electrical parts .
	<ul style="list-style-type: none"> ● 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.


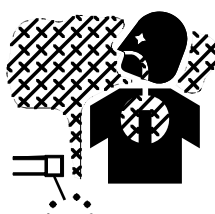
IMPORTANT SAFEGUARD (continued)

- 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 G	<ul style="list-style-type: none"> ● Install a lightproof wall where arc is generated. ● Wear appropriate eye, ear, and body protection.
	<ul style="list-style-type: none"> ● Arc rays may cause inflammation of eyes and burns on skin ● Spatter s and slag may cause eye troubles and burns. ● 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.


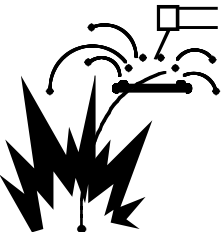
- 2.4 All the personnel in and around the working area including an operator should wear appropriate protection to protect themselves from fumes and gases produced by welding.

 WARNING G	<ul style="list-style-type: none"> ● DO NOT inhale fumes and gases generated by welding. ● Ventilate the area sufficiently and wear a welder's shield mask if necessary.
	<ul style="list-style-type: none"> ● Fumes and gases generated by welding have a harmful effect on human body. ● 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.

IMPORTANT SAFEGUARD (continued)

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

 WARNIN G	<ul style="list-style-type: none"> ● Do not weld near flammable materials. ● Watch for fire: keep a fire extinguisher nearby. ● NEVER do welding on inflammables such as a piece of wood or cloth. ● Do not weld on closed containers.
	<ul style="list-style-type: none"> ● Be sure to tightly connect the welding cable. Heated workpiece, spatters, slag and arc sparks right after welding may cause fire. ● 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. ● Arc generated on containers of inflammables such as gasoline may cause an explosion. ● Welding of airtight tanks and pipes may cause a bursting. ● 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.

IMPORTANT SAFEGUARD (continued)

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.

PRECAUTIONS IN OPERATING

3. Precautions in operating

3.1 Duty cycle

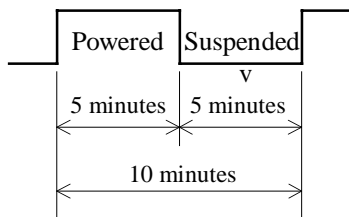


CAUTION

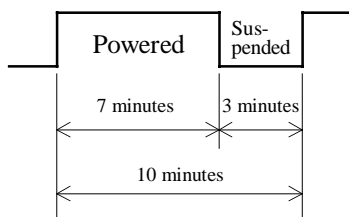
- Observe the following to prevent a serious accident that results in a serious injury or a death

Welding torch	Rated duty cycle
MTX-3531	
MTXC-3531	350A 50% (CO ₂)
MTXB-3531	250A 50% (MAG)
MTXCB-3531	
MTXW-5031	500A 70% (CO ₂)
MTXCW-5031	350A 50% (MAG)
MTX-5031	500A 50% (CO ₂)
MTXC-5031	300A 50% (MAG)

Operating cycle of 50% duty cycle





Operating cycle of 70% duty cycle




- The rated duty cycle of 50% means that the torch is operated at the rated welding current for 5 minutes out of 10 minutes and suspended for 5 minutes.
- 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 MTXCW-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.

PRECAUTIONS IN OPERATING


3.2 Inching

 WARNING	<ul style="list-style-type: none"> ● Do not look into the tip hole in inching to cheek. ● In inching, the welding torch tip must not be put near to your face, eye, and body.
	<ul style="list-style-type: none"> ● 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. ● 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● 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	<ul style="list-style-type: none"> ● Do not disassemble the shock sensor. If disassembled, gas leak and malfunction may be caused.
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Thank you for purchasing our DAIHEN CO₂ /MAG 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 CO₂ /MAG welding in combination with the pull feeding unit (L-7590).

The specifications are shown in table 1. (Refer to Fig. 1.1 - 1.4 for outline drawing.)

Table 1. Specifications of welding torch for pull feeding unit

Model	MTXC -3534P	MTXCB -3534P	MTXC -5034P	MTXCW -5034P
Torch shape	Curved			
Welding process	CO ₂ (MAG) welding			
Maximum applicable current	350A (250A)		500A (300A)	
Rated duty cycle	50% (50%)			70% (50%)
Applicable wire	Solid wire, Flux cored wire			
Applicable wire diameter	(φ0.8), (φ0.9), (φ1.0), (φ1.2), (φ1.4), (φ1.6)		(φ0.8), (φ0.9), (φ1.0), φ1.2, (φ1.4), (φ1.6)	
Nozzle cleaning	—	With air-blow function	—	
Cooling method	Air-cooled type			Water-cooled type
Shock sensor	Installed			
Mass	1.55 (kg)	1.6 (kg)	1.65 (kg)	1.75 (kg)

Note: 1. The welding process determines maximum applicable current and rated duty cycle.

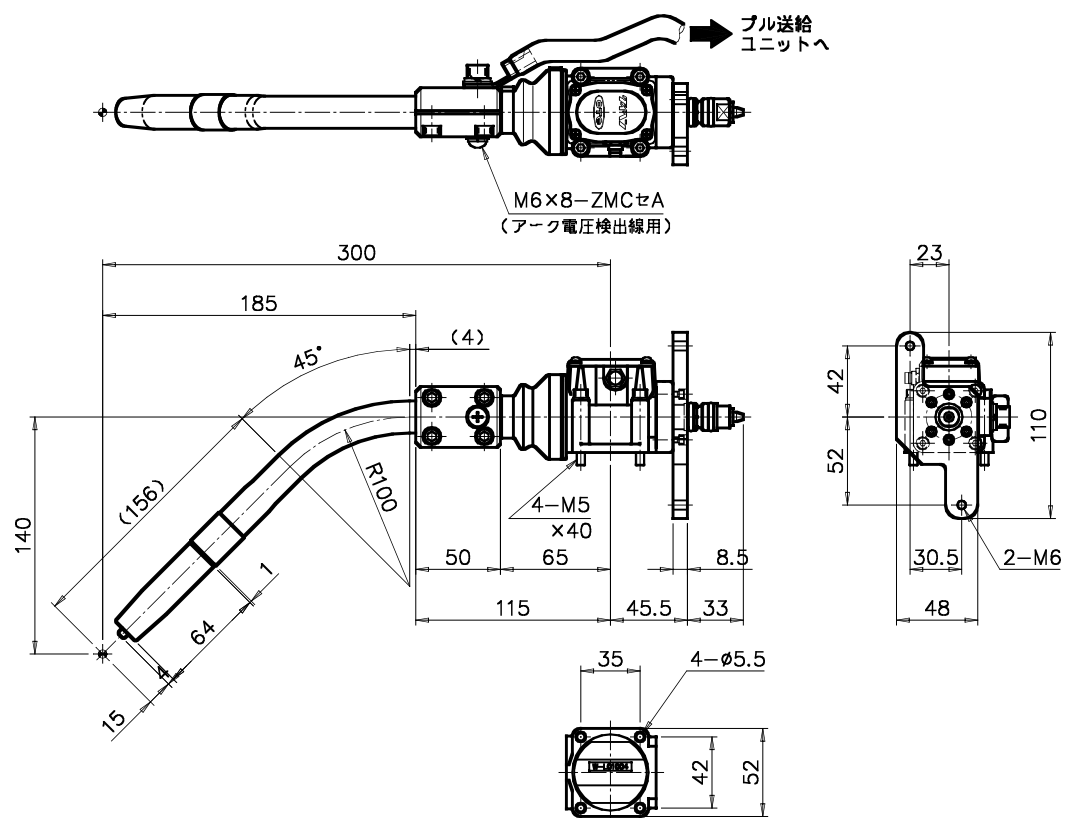
2. An Air Blow Unit is required to use the MTXCB-3534P. As for details, refer to the next chapter.

3. Water shall be supplied with a water tank (PU-301) while using the MTXCW-5034P.

4. Shock sensor

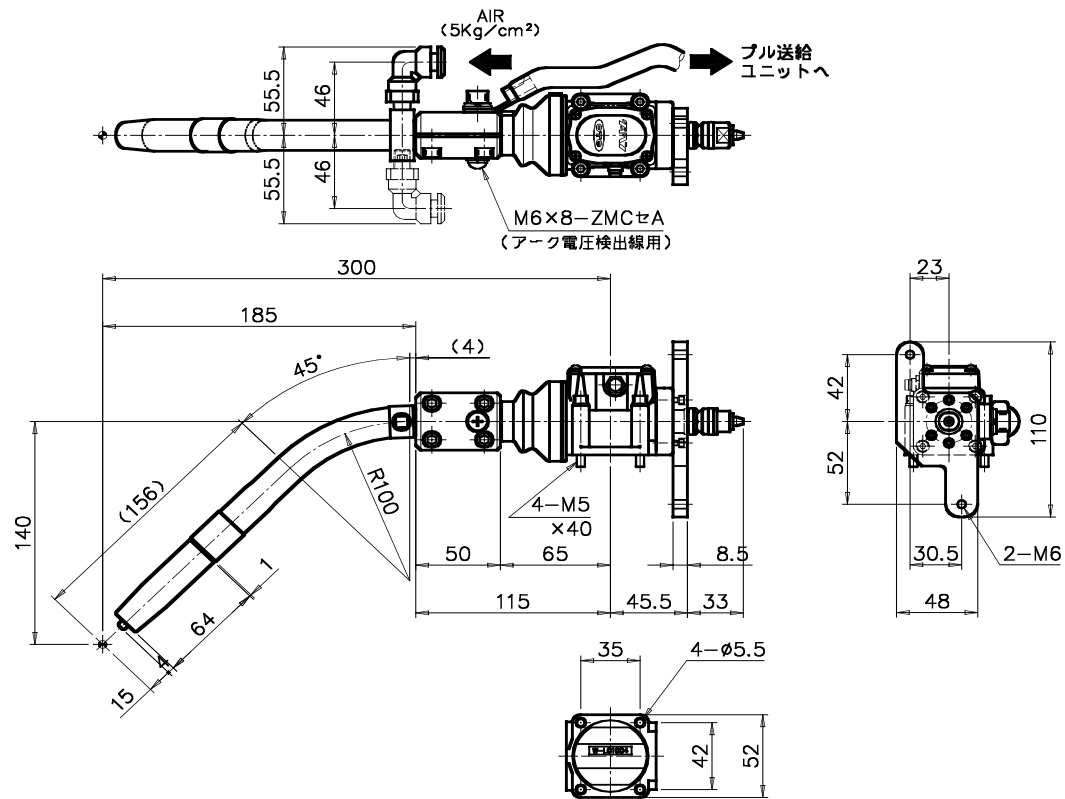
In robots for arc welding, a welding torch may contact a workpiece /jig. Then the welding torch may become deformed or the robot body may be damaged. To prevent such an accident, a shock sensor function is installed into this welding torch. If excessive external force is applied on the torch tip (nozzle), the nozzle is made to escape by the external force outputting external-force-detecting-signal on the way to immediately stop the robot operation.

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



Mass 1.55 [kg]

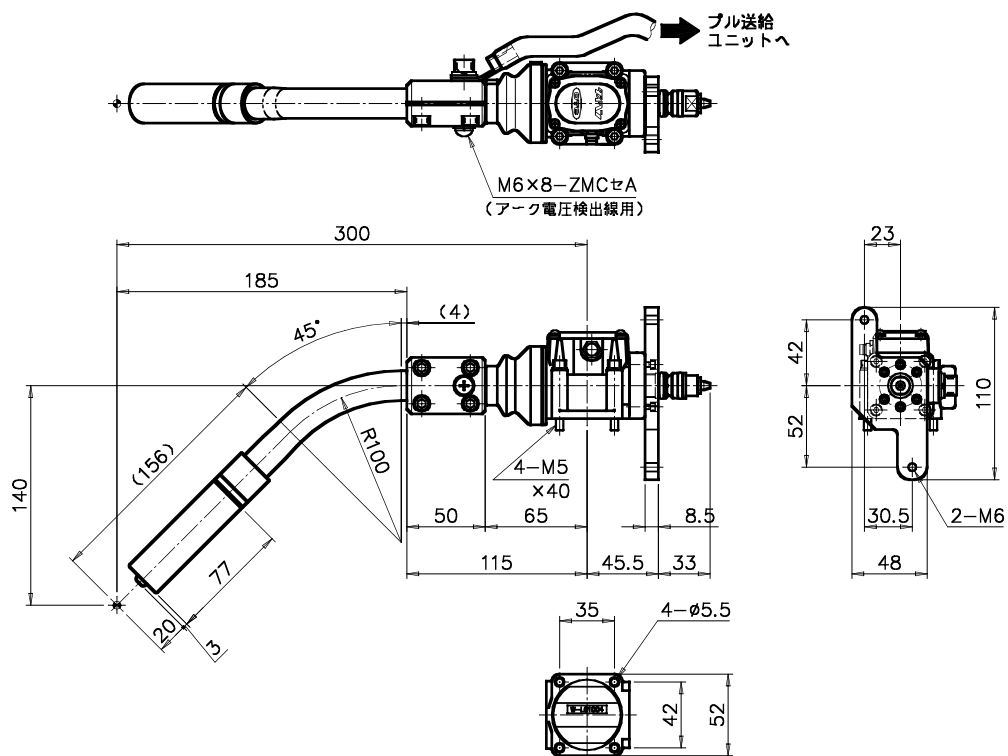
Outline drawing of CO₂/MAG curved torch MTXC-3534P (350A / Air-cooled / Shock sensor)



Mass 1.6 [kg]

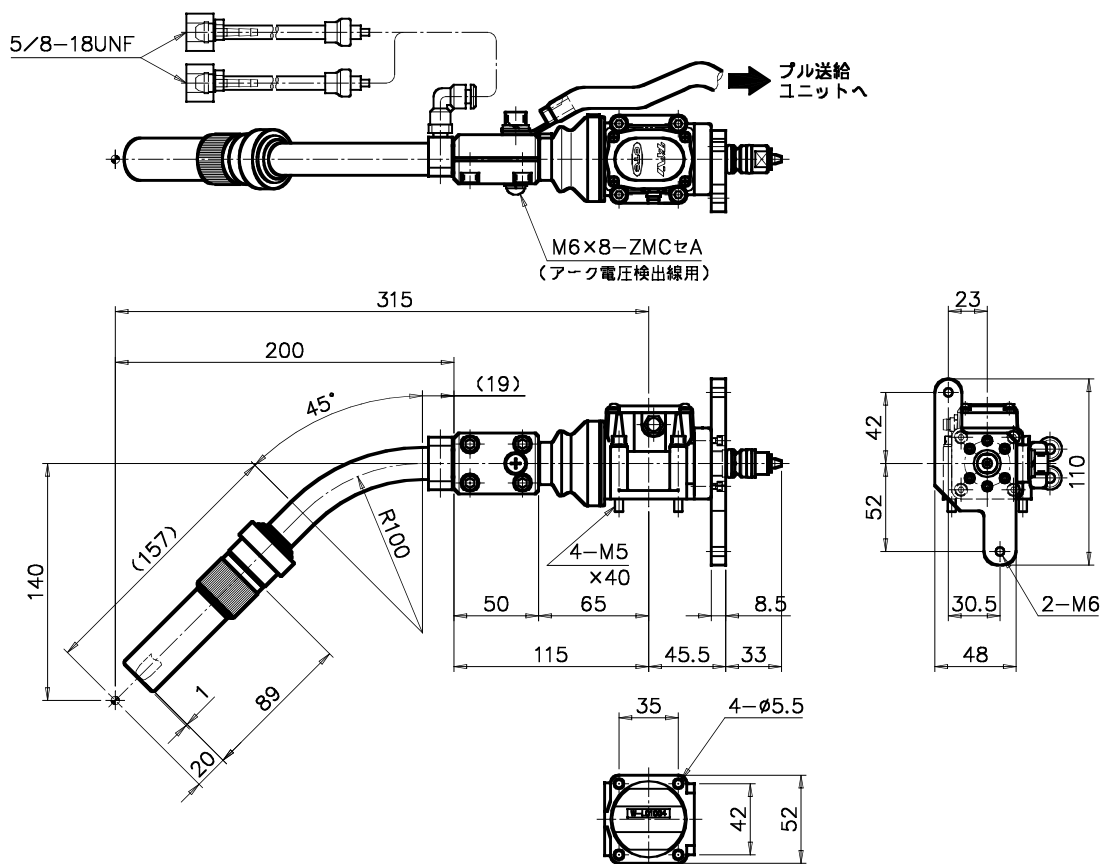
Outline drawing of CO₂/MAG air-blow curved torch MTXCB-3534P (350A / Air-cooled / Shock sensor)

Fig. 1.1 Outline drawing Unit (mm)



Mass 1.65 [kg]

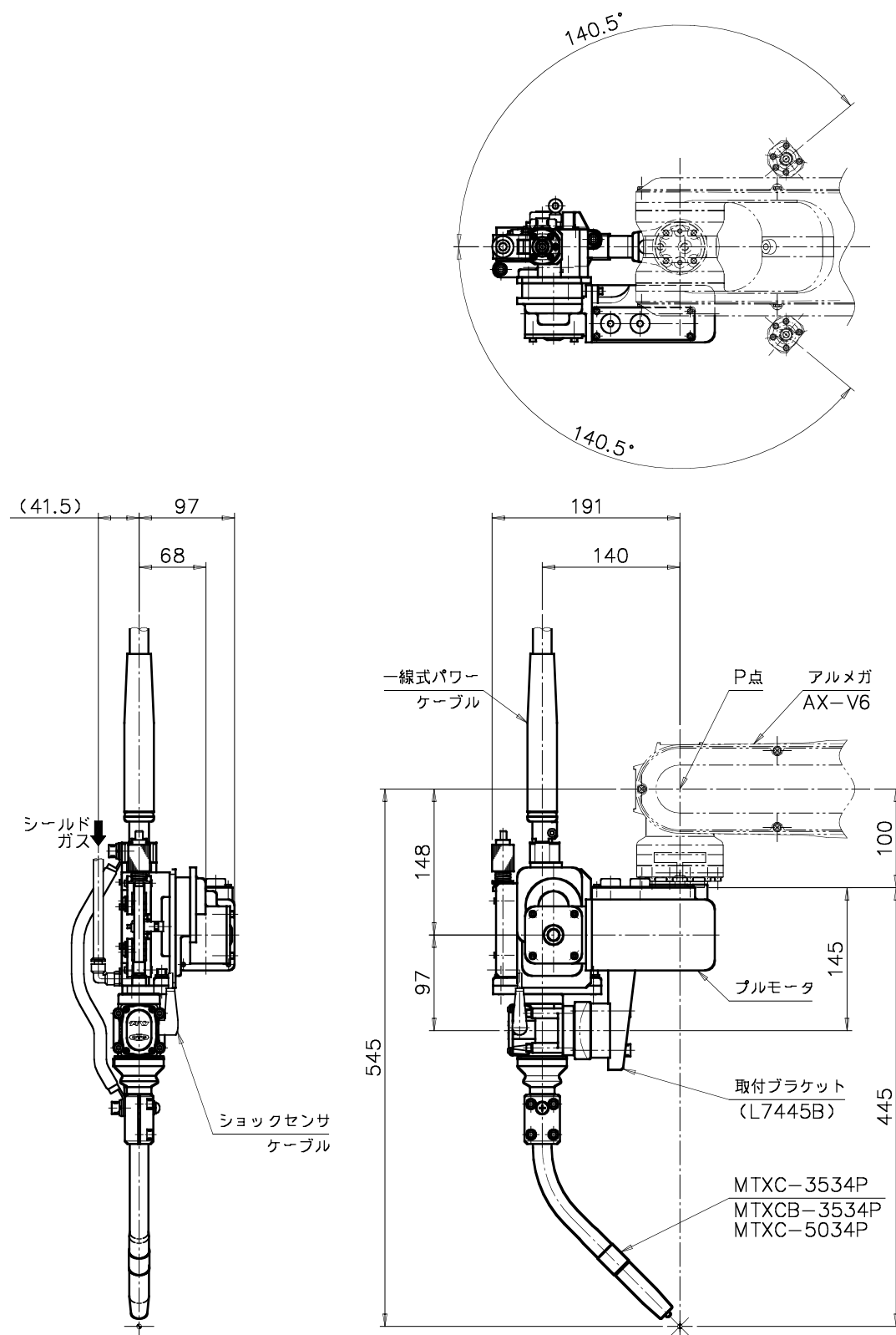
Outline drawing of CO₂/MAG curved torch MTXC-5034P (500A / Air-cooled / Shock sensor)



Mass 1.75[kg]

Outline drawing of CO₂/MAG curved torch MTXCW-5034P (500A / Water-cooled / Shock sensor)

Fig. 1.2 Outline drawing Unit (mm)



Unit: (mm)

Fig. 1.3 Assembly drawing of MTXC-3534P (MTXCB-3534P or MTXC-5034P) and pull feeding unit L-7590

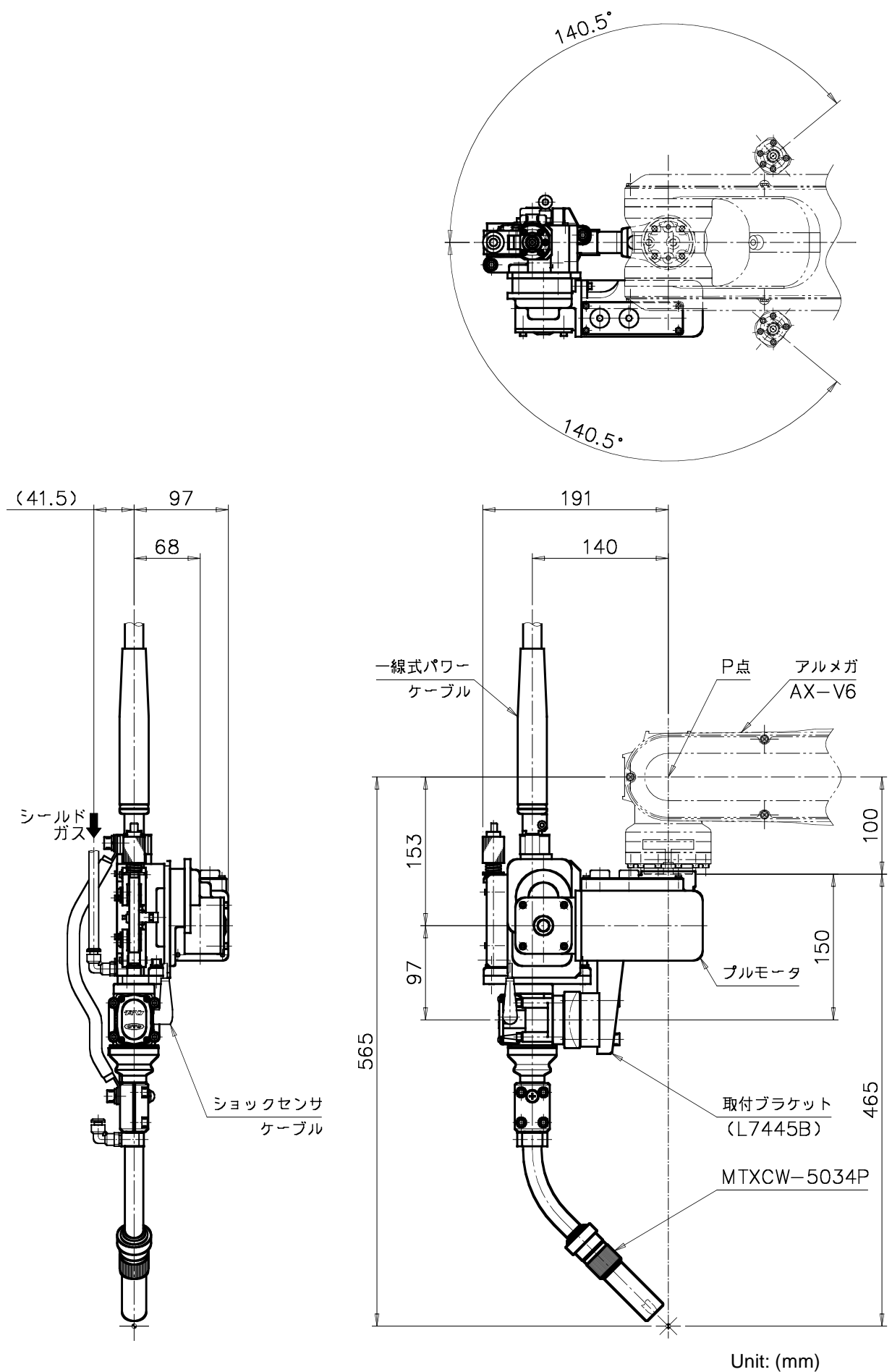


Fig. 1.4 Assembly drawing of MTXCW-5034P and pull feeding unit L-7590

2. Checking of Package Contents

2.1 Check of Package Contents

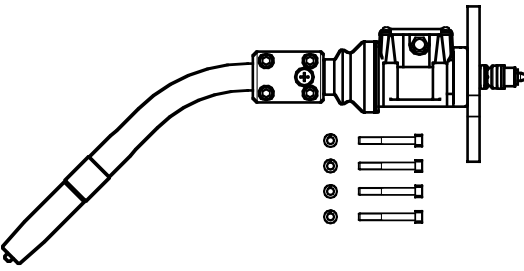
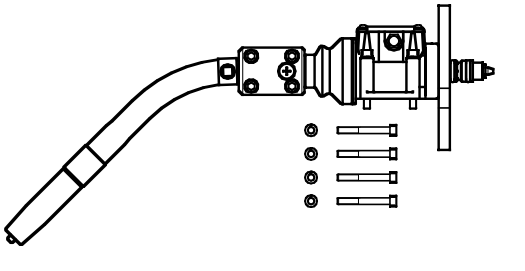
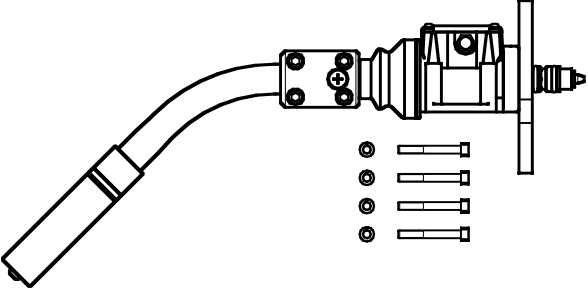
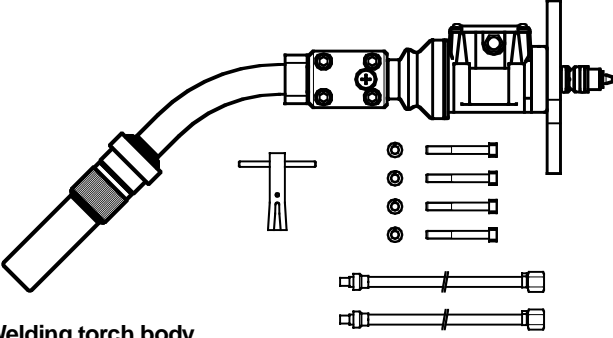
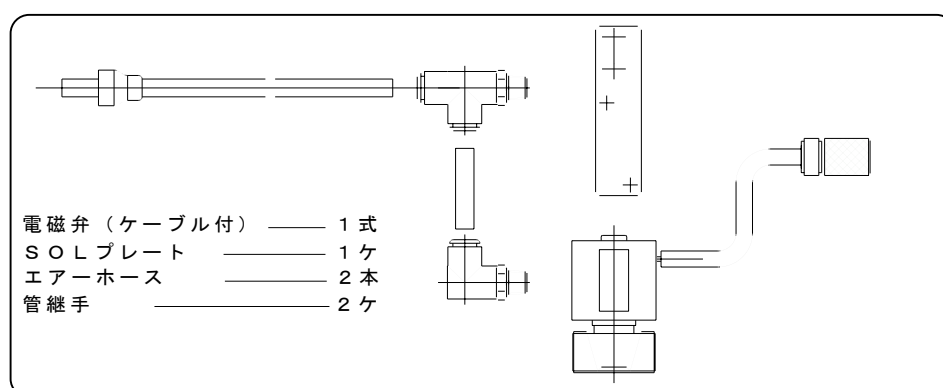
MTXC-3534P	MTXCB-3534P
 <p>Welding torch body Mounting bolt (M5×40).....4 pieces Spring washer (M5)..... 4 pieces</p>	 <p>Welding torch body Mounting bolt (M5×40).....4 pieces Spring washer (M5).....4 pieces</p>
MTXC-5034P	MTXCW-5034P
 <p>Welding torch body Mounting bolt (M5×40).....4 pieces Spring washer (M5).....4 pieces</p>	 <p>Welding torch body Mounting bolt (M5×40).....4 pieces Spring washer (M5)4 pieces Hose for cooling water (6m).....2 pieces Wrench.....1 piece</p>

Fig. 2.1 Checking contents of package

Note: 1 An air-blow torch MTXCB-3534P requires an air-blow hose and an Air Blow Unit besides this torch.

Purchase separately the Almega AX / EX manipulator L7470A.



2. The torch MTXCW-5034P requires a water tank additionally.

A water tank (PU-301) shall be purchased separately.

3. The above mounting bolt (M5 ×40) is to mount a torch on a mounting bracket.

The bolts for mounting a pull feeding unit (L-7590) are included in the pull feeding 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
MTXC-3534P	Contact tip (0.9)	L7250B02	1	For wire diameter $\phi 0.9$
	Inner liner (0.9 - 1.2)	L7328C03	1	
	Outlet guide (1)	L7581B01	1	
MTXCB-3534P	Contact tip (0.9)	L7250B02	1	For wire diameter $\phi 0.9$
	Inner liner (0.9 - 1.2)	L7509B01	1	
	Outlet guide (1)	L7581B01	1	
MTXC-5034P	Contact tip (1.2)	L7250B04	1	For wire diameter $\phi 1.2$
	Inner liner (0.9 - 1.2)	L7583C02	1	
	Outlet guide (2)	L7581B02	1	
MTXCW-5034P	Contact tip (1.2)	L7250B04	1	For wire diameter $\phi 1.2$
	Inner liner (0.9 - 1.2)	L7584C02	1	
	Outlet guide (2)	L7581B02	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, the parts for following wire are assembled.

Torch for 350A: For wire diameter $\phi 0.9$

Torch for 500A: For wire diameter $\phi 1.2$

Change parts according to the wire size to use.
(Refer to "Chapter 7 Parts List".)



IMPORTANT

1. Check the wire diameter to change parts.
Use of parts other than specified may cause failure.
2. The pull feeding unit (L-7590) is built with the parts for wire diameter $\phi 0.9$.
When using the torch for 500A or the parts of wrong wire diameter, change the parts built-in the pull feeding unit.

3. Mounting and Adjusting Procedure for Welding Torch

3.1 Mounting Torch (Mounting Bracket) and Pull feeding unit

A mounting bracket ASSY is available for all the torch. (Refer to the following table.)

Table 3.1. Torch and mounting bracket ASSY

Applicable torch	Mounting bracket ASSY		
	Assembly drawing No.	Drawing No. of L bracket	Remarks
MTXC-3534P MTXCB-3534P MTXC-5034P MTXCW-5034P	L7445B	L7445B03	

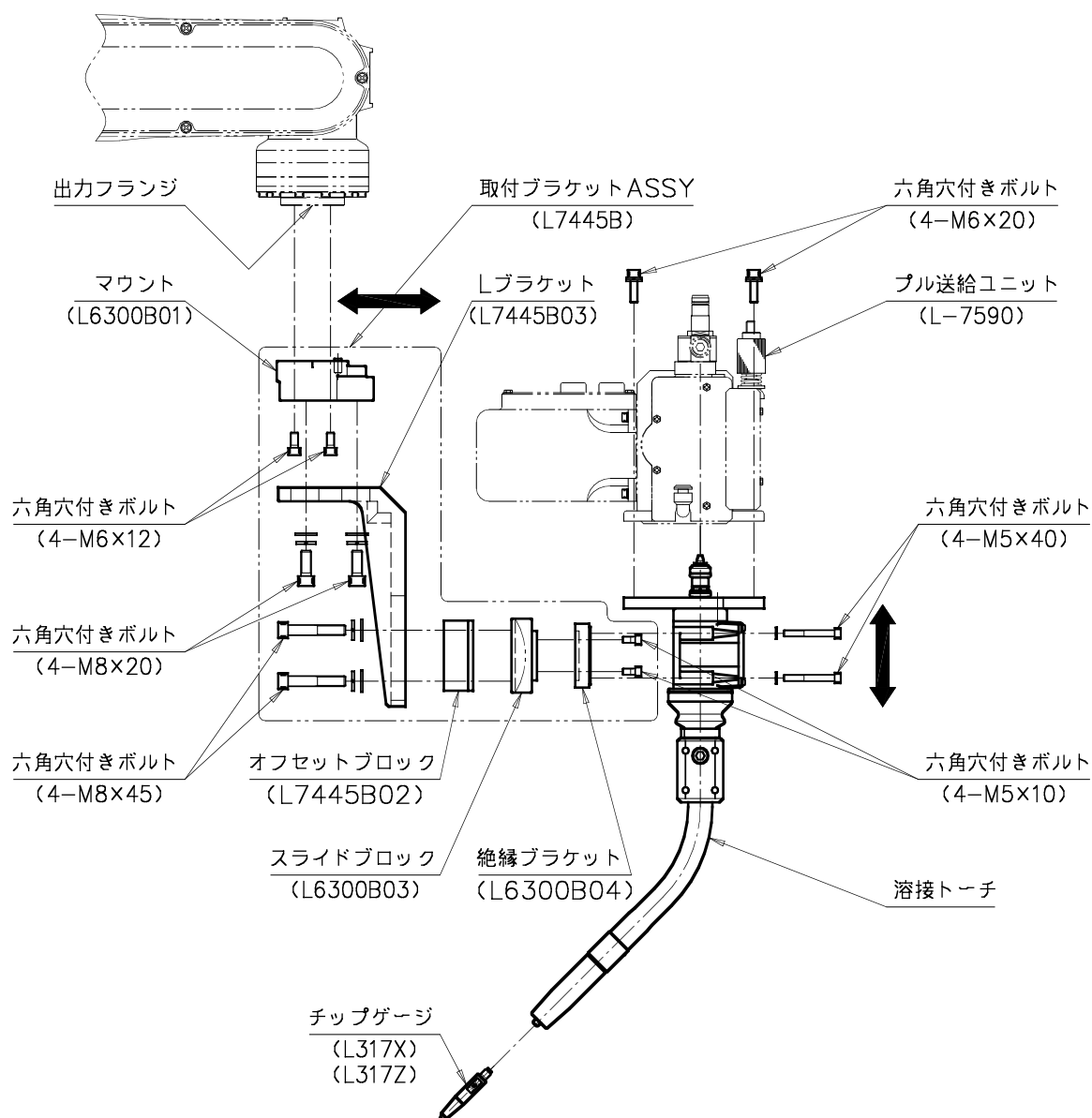


Fig. 3.1 Mounting torch (mounting bracket) and pull feeding unit

3.2 Mounting Torch Gauge

The torch gauge ASSY and tip gauge depend on the torch to use. (Refer to the following table.)

Table 3.2. Torch and torch gauge ASSY

Torch model	Torch gauge ASSY		
	Item	Assembly drawing No.	Remarks
MTXC-3534P MTXCB-3534P MTXC-5034P	Torch gauge ASSY(8)	L7614K	
MTXCW-5034P	Torch gauge ASSY(7)	L7614J	

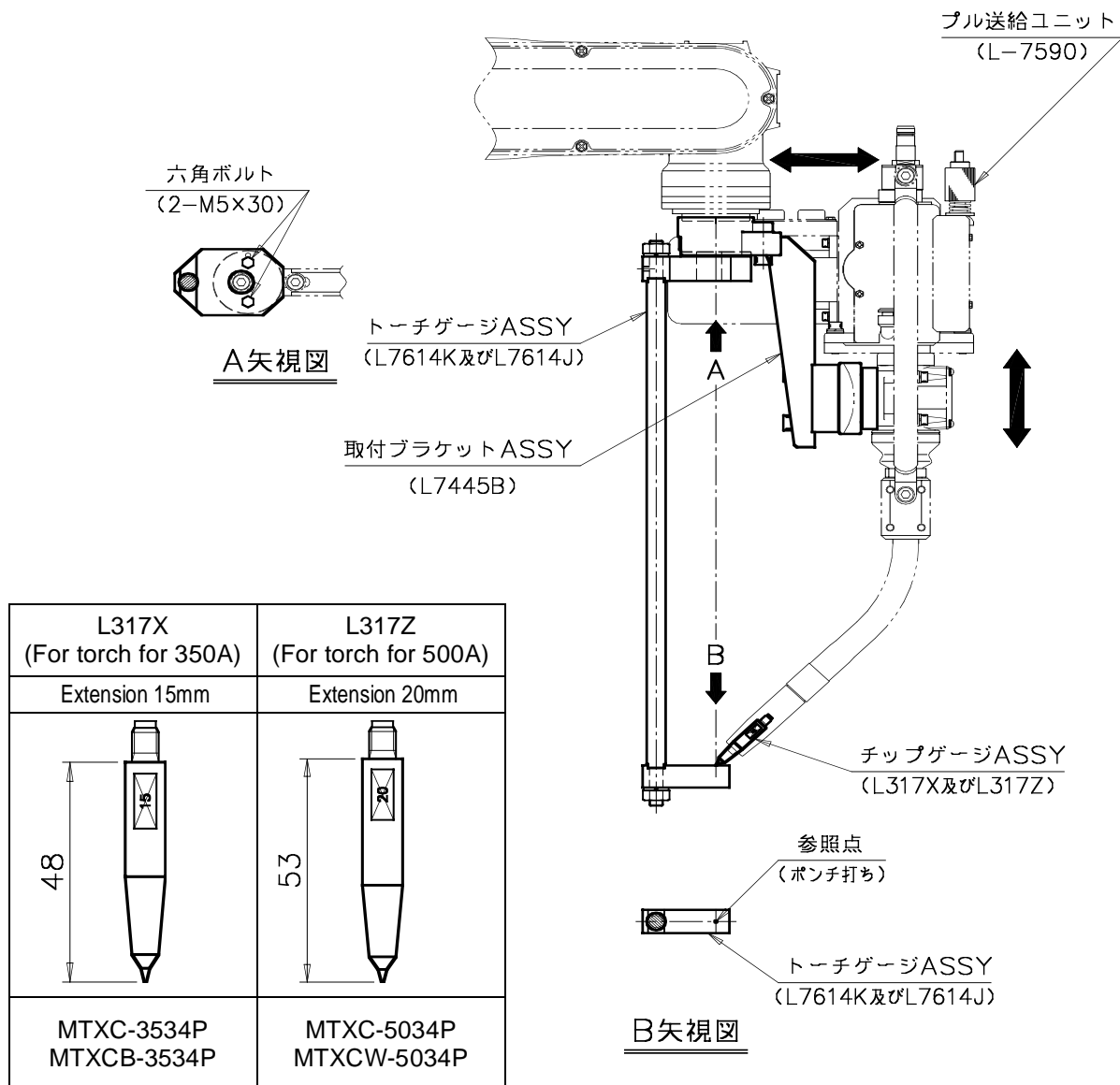


Fig. 3.2 Mounting torch gauge

3.3 Adjustment Procedure for Torch

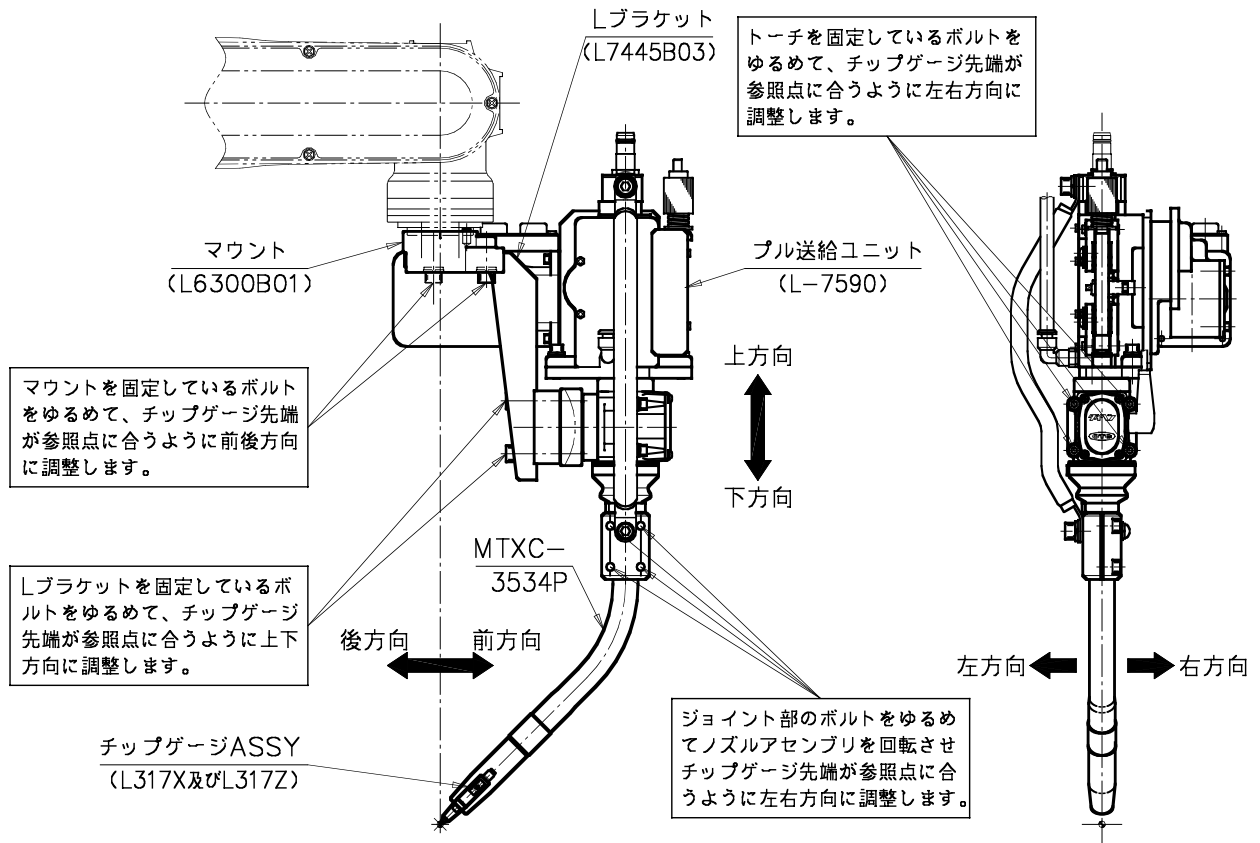


Fig. 3.3 Adjustment direction for torch

3.4 Connection Procedure for Water-Cooled Torch (MTXCW-5034P)

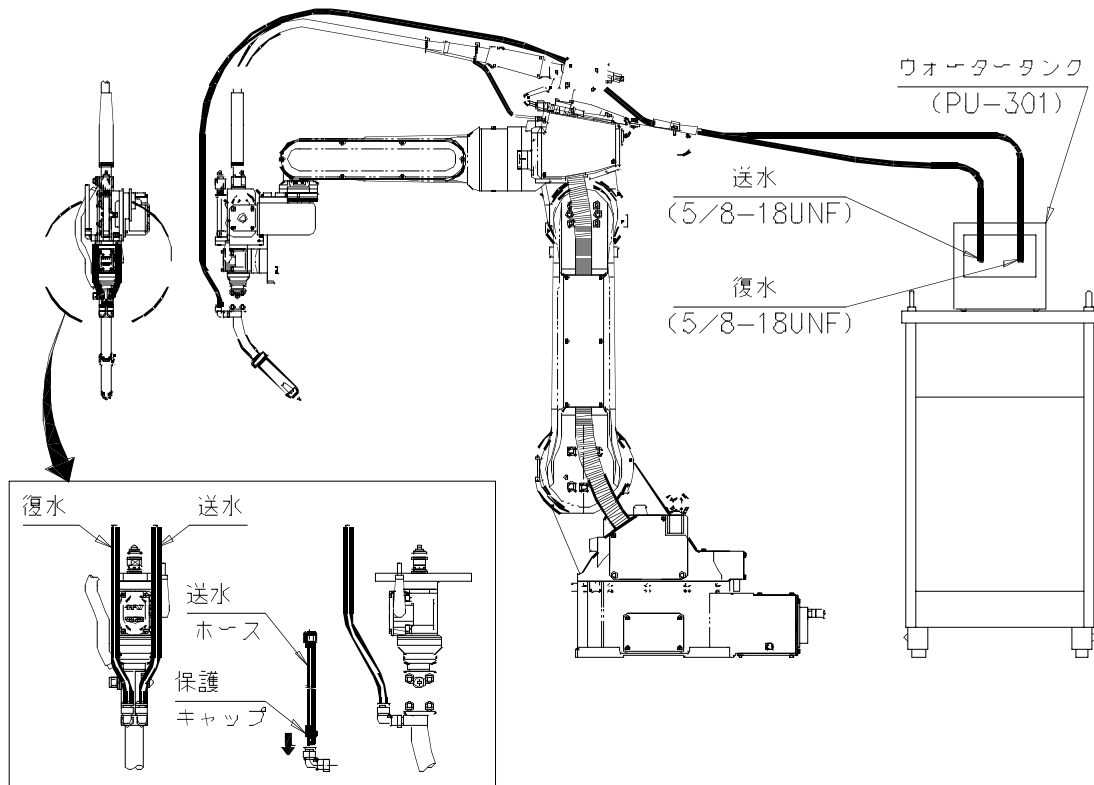


Fig. 3.4 Connection procedure for water-cooled torch

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. As long as the torch is not changed, this data need not be changed.

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

Torch model	Parameter 1	Parameter 2	Parameter 3	Parameter 4	Parameter 5	Parameter 6
MTXC-3534P MTXCB-3534P MTXC-5034P	0.0	0.0	445.0	-45.0	0.0	180
MTXCW-5034P	0.0	0.0	465.0	-45.0	0.0	180

If the data shown in table 4.1 is not set, see the instruction manual of your manipulator.

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)"

i 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

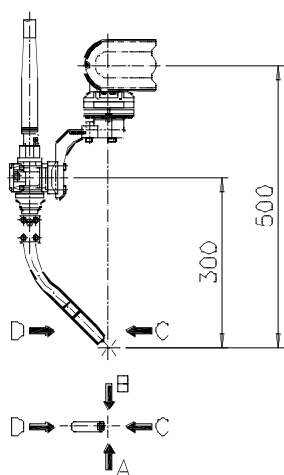


Table 4.2 Operating external force

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 a shock sensor when external force is applied on the torch tip.

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

Fig. 4.1 Operating external force direction

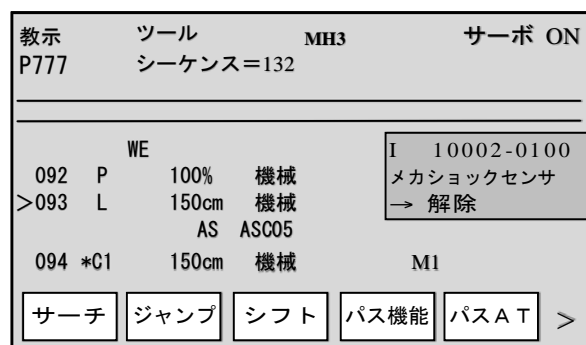
4.2.2 Operation Check for Shock Sensor

○ 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.



○ 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.



5. Trouble shooting

Failure	Possible cause
No arc.	Loose connection or break of welding cable.
No smooth wire feeding No constant wire feeding	Wire pressure at feed roll is not enough. Tip is worn. Inner liner is worn. Outlet guide is worn. Wire shaving powder collects in a wire feeding line.
Wire adhesion on tip.	Wire feeding is not smooth. Hole of tip became large. The distance between tip and base material is too short.
Shock sensor can not be canceled.	Loose connection or break of shock sensor code. Nozzle is bent. ※ 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. For releasing the contact, refer to the Instruction Manual of Robot Control (Operation and Teaching).
Aim deviation	Orifice is not mounted. ※ 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.

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 Inner liner
- ⑦ Outlet guide

[Coaxial power cable]

- ⑧ Liner
- ⑨ Outlet guide

[Pull feeding unit]

- ⑩ Feed roll
- ⑪ Pressure roll
- ⑫ Inlet guide

Suitable parts for the each wire diameter shall be required when the welding wire diameter is changed.

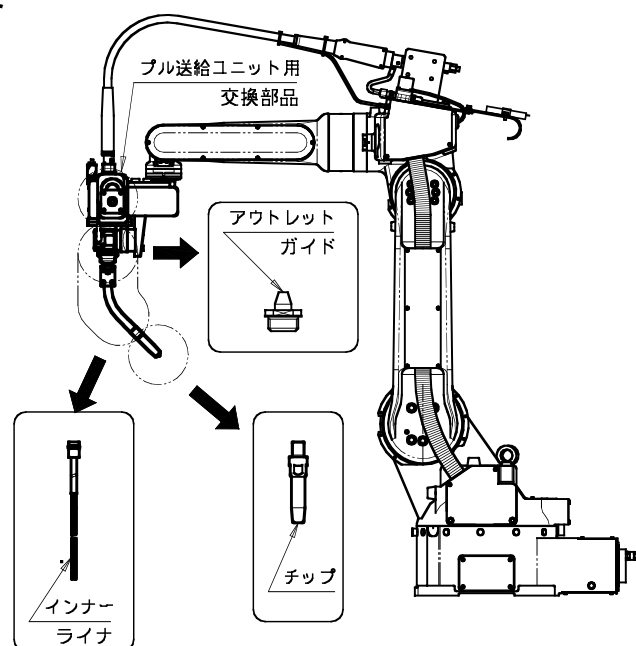


Fig. 6.1 Parts to be replaced for changed wire diameter

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.

Table 6.1 MIG tip to be used						● Standard Optional
Wire diameter Torch model	φ0.8	φ0.9	φ1.0	φ1.2	φ1.4	φ1.6
Part number	L7250B01	L7250B02	L7250B03	L7250B04	L7250B05	L7250B06
Outline drawing						
MTXC-3534P	▲	●	▲	▲	▲	▲
MTXCB-3534P	▲	●	▲	▲	▲	▲
MTXC-5034P	▲	▲	▲	●	▲	▲
MTXCW-5034P	▲	▲	▲	●	▲	▲

- Standard
- ▲ Optional

Table 6.2 Inner liner to be used

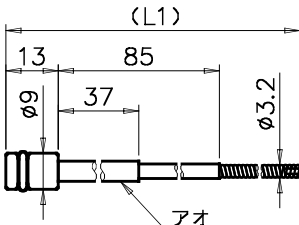
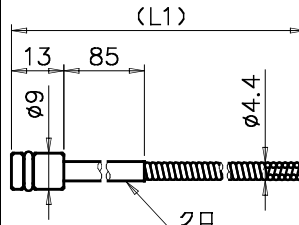
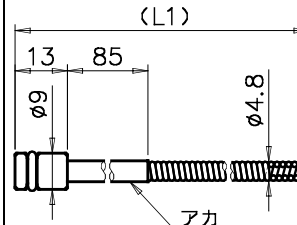
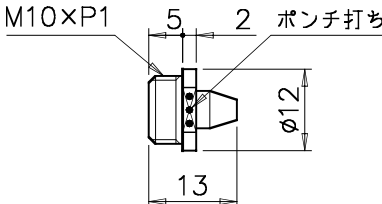
Wire diameter Torch model	φ0.6~φ0.8	φ0.9~φ1.2	φ1.2~φ1.6
Outline drawing			
Part number	L7328C05	L7328C03	L7328C04
MTXC-3534P	▲	●	▲
L1	L1=353.5mm		
Part number	L7509B03	L7509B01	L7509B02
MTXCB-3534P	▲	●	▲
L1	L1=150.5mm		
Part number	L7583C01	L7583C02	L7583C03
MTXC-5034P	▲	●	▲
L1	L1=335.5mm		
Part number	L7584C01	L7584C02	L7584C03
MTXCAW-5034P	▲	●	▲
L1	L1=350.5mm		

Table 6.3 Outlet guide to be used

- Standard
- ▲ Optional

Wire diameter Torch model	φ0.8~φ0.9	φ1.0~φ1.2	φ1.4~φ1.6
Part number	L7581B01	L7581B02	L7581B03
Punching number	1	2	3
Outline drawing			
MTXC-3534P	●	▲	▲
MTXCB-3534P	●	▲	▲
MTXC-5034P	▲	●	▲
MTXCW-5034P	▲	●	▲

6.2 Parts Change Procedure

○ Change of Outlet Guide and Inner Liner

- 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 the outlet guide.
- ④ Remove the outlet guide adaptor from the torch.
- ⑤ Change the inner liner.
(An inner liner is inserted into the outlet guide adaptor.)
- ⑥ Reassemble the outlet guide adaptor, 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 an outlet guide adaptor and a pull feeding unit.

A scratch on the O-ring causes a gas leakage resulting in a bad welding quality.

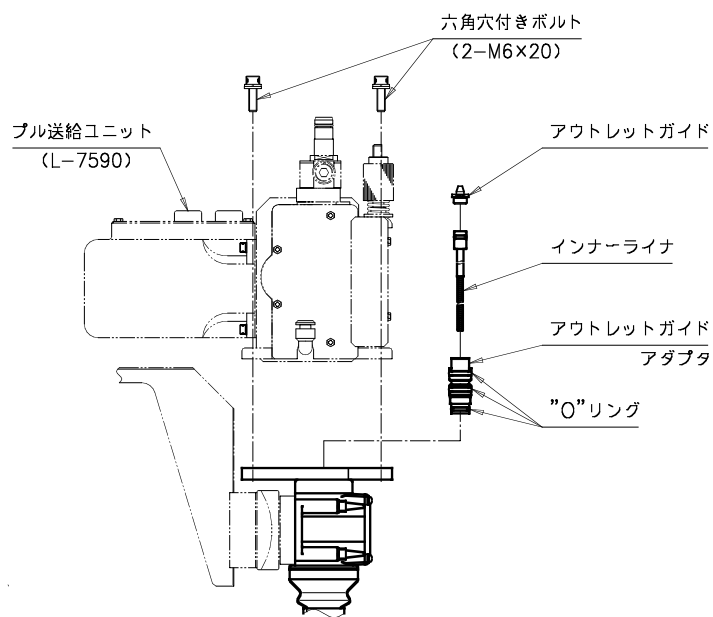


Fig. 6.2 Change of outlet guide and inner liner

6.3 Handling Instructions for Torch

- (1) Make sure to mount an orifice.

Orifice is an important component to prevent nozzle and torch body from shorting and gas from flowing turbulently.

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

- (3) 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.

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

- (5) Sludge or dust observed inside the liner (in a coaxial power cable), inner liner, or outlet guide causes wire power supply failure and welding failure. Clean up them with a compressed air system once every ten days.

- (6) A wire stuck in the tip end (due to adhesion etc.) causes various failure such as a wire buckle in the liner and cut in the feed roll. Remove first the wire between the feed roll and tip end before inserting a new wire. If a wire is fed without removing the stuck wire, feeding failure or run out of arc may be caused.

- (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.

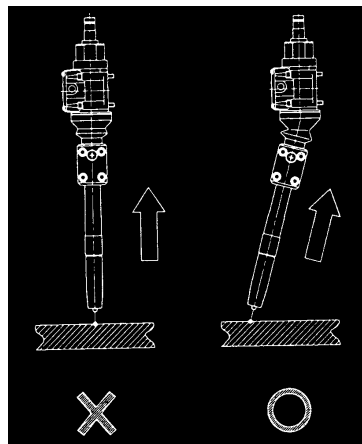


Fig. 6.3 Evacuating direction

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

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

Make sure not to damage the O-ring in the insulating bushing. The screw of the tip body may easily damage the O-ring when changing an O-ring of water-cooled torch (MTXCW-5034P).

(For mounting insulating bushing, use an attached applicator. [Refer to Fig. 6.8.]

A scratch on an O-ring causes water leakage.

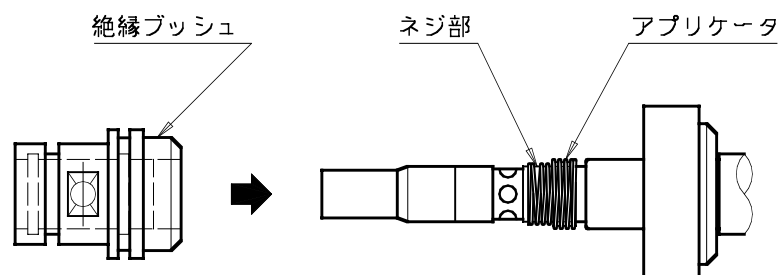


Fig. 6.4 Exchanging procedures of O-ring

7. Parts List

An adaptor ASSY, shock sensor unit, Hood ASSY, nozzle holder, and feeder cable are common parts. Nozzle fitting element is interchangeable for all the models. It can be replaced.

Note: 1. For changing these parts, torch mount and tool parameter shall be changed.

2. Assembly parts (inner 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 MTXC-3534P

Ref. No.	Part number	Item	Q'ty	Remarks
1	L 7 3 2 8 B	Shock sensor unit	1	
2	L 6 3 8 0 G	H o o d A S S Y	(1)	
3	L 7 5 8 1 B	A d a p t o r A S S Y	(1)	
4	L 7 5 8 5 B 0 1	A d a p t o r	1	
5	L 7 4 7 9 B 0 2	Outlet guide adaptor	1	
6	3 5 7 4 - 0 0 7	0 - r i n g	2	P12 (Viton)
7	3 5 7 4 - 0 1 7	0 - r i n g	1	P10 (Viton)
8	L 6 3 8 0 C	Nozzle holder ASSY	1	
9	L 7 5 8 5 C	Power supply cable ASSY	1	
10	L 6 5 5 0 B	N o z z l e A S S Y	1	
10-1	3 5 7 4 - 0 0 7	0 - r i n g	(1)	P12 (Viton)
11	L 6 3 8 0 F 0 2	T i p b o d y	1	
12	U 6 0 8 T	I n s u l a t o r	1	
13	L 6 3 8 0 F 0 1	Spring washer	1	
14	U 2 4 3 7 H 0 1	O r i f i c e	1	
15	L 6 3 8 0 F 0 3	Nozzle No. 8	1	
16	L 6 3 8 0 F 0 4	Nozzle No. 7	(1)	
17	L 7 5 8 1 D	Assembly part (0.8)	(1)	
17-1	L 7 2 5 0 B 0 1	Contact tip (0.8)	(1)	Optional accessory for wire diameter ϕ 0.8
17-2	L 7 3 2 8 C 0 5	Inner liner (0.6 - 0.9)	(1)	
17-3	L 7 5 8 1 B 0 1	Outlet guide (1)	(1)	
18	L 7 5 8 1 E	Assembly part (0.9)	1	
18-1	L 7 2 5 0 B 0 2	Contact tip (0.9)	(1)	Standard assembly part for wire diameter ϕ 0.9
18-2	L 7 3 2 8 C 0 3	Inner liner (0.9 - 1.2)	(1)	
17-3	L 7 5 8 1 B 0 1	Outlet guide (1)	(1)	
19	L 7 5 8 1 F	Assembly part (1.0)	(1)	
19-1	L 7 2 5 0 B 0 3	Contact tip (1.0)	(1)	Optional accessory for wire diameter ϕ 1.0
18-2	L 7 3 2 8 C 0 3	Inner liner (0.9 - 1.2)	(1)	
19-3	L 7 5 8 1 B 0 2	Outlet guide (2)	(1)	
20	L 7 5 8 1 G	Assembly part (1.2)	(1)	
20-1	L 7 2 5 0 B 0 4	Contact tip (1.2)	(1)	Optional accessory for wire diameter ϕ 1.2
18-2	L 7 3 2 8 C 0 3	Inner liner (0.9 - 1.2)	(1)	
19-3	L 7 5 8 1 B 0 2	Outlet guide (2)	(1)	
21	L 7 5 8 1 H	Assembly part (1.4)	(1)	
21-1	L 7 2 5 0 B 0 5	Contact tip (1.4)	(1)	Optional accessory for wire diameter ϕ 1.4
21-2	L 7 3 2 8 C 0 4	Inner liner (1.2 - 1.6)	(1)	
21-3	L 7 5 8 1 B 0 3	Outlet guide (3)	(1)	
22	L 7 5 8 1 J	Assembly part (1.6)	(1)	
22-1	L 7 2 5 0 B 0 6	Contact tip (1.6)	(1)	Optional accessory for wire diameter ϕ 1.6
21-2	L 7 3 2 8 C 0 4	Inner liner (1.2 - 1.6)	(1)	
21-3	L 7 5 8 1 B 0 3	Outlet guide (3)	(1)	

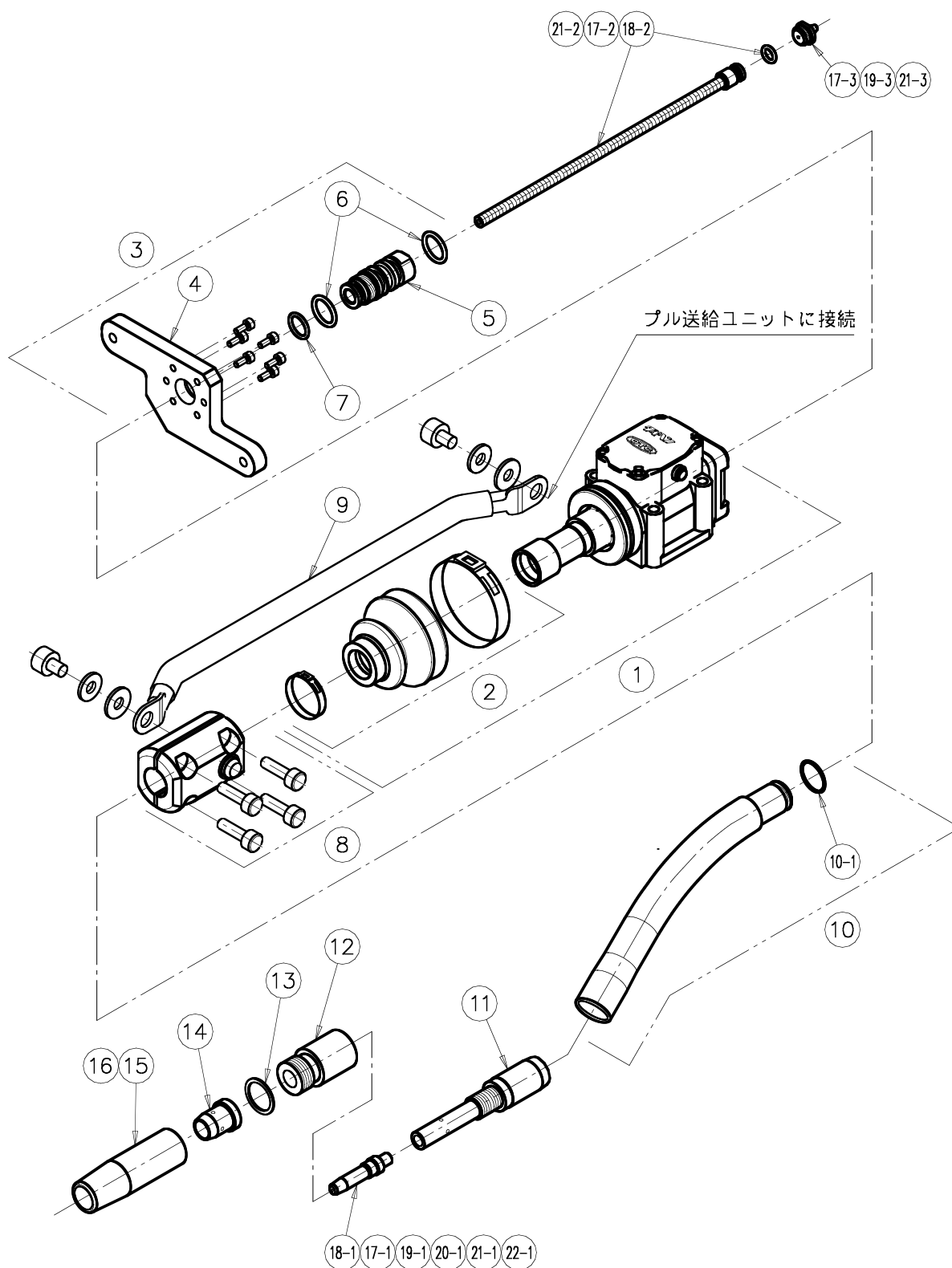


Fig. 7.1 Parts for MTXC-3534PS

Table 7.2 Parts list for MTXCB-3534P

Ref. No.	Part number	Item	Qty	Remarks
1	L 7 3 2 8 B	Shock sensor unit	1	
2	L 6 3 8 0 G	H o o d A S S Y	(1)	
3	L 7 5 8 1 B	A d a p t o r A S S Y	(1)	
4	L 7 5 8 5 B 0 1	A d a p t o r	1	
5	L 7 4 7 9 B 0 2	Outlet guide adaptor	1	
6	3 5 7 4 - 0 0 7	0 - r i n g	2	P12 (Viton)
7	3 5 7 4 - 0 1 7	0 - r i n g	1	P10 (Viton)
8	L 6 3 8 0 C	Nozzle holder ASSY	1	
9	L 7 5 8 5 C	Power supply cable ASSY	1	
10	L 6 5 8 7 D	N o z z l e A S S Y	1	
10-1	3 5 7 4 - 0 0 7	0 - r i n g	(1)	P12 (Viton)
11	L 6 5 8 6 C 0 1	T i p b o d y	1	
12	U 6 0 8 T	I n s u l a t o r	1	
13	L 6 3 8 0 F 0 1	Spring washer	1	
14	U 4 1 6 7 G 0 2	O r i f i c e	1	
15	L 6 3 8 0 F 0 3	N o z z l e (N o . 8)	1	
16	L 6 3 8 0 F 0 4	N o z z l e (N o . 7)	(1)	
17	L 7 5 8 2 C	Assembly part (0.8)	(1)	Optional accessory for wire diameter $\phi 0.8$
17-1	L 7 2 5 0 B 0 1	Contact tip (0.8)	(1)	
17-2	L 7 5 0 9 B 0 3	Inner liner (0.6 - 0.9)	(1)	
17-3	L 7 5 8 1 B 0 1	Outlet guide (1)	(1)	
18	L 7 5 8 2 D	Assembly part (0.9)	1	Standard assembly part for wire diameter $\phi 0.9$
18-1	L 7 2 5 0 B 0 2	Contact tip (0.9)	(1)	
18-2	L 7 5 0 9 B 0 1	Inner liner (0.9 - 1.2)	(1)	
17-3	L 7 5 8 1 B 0 1	Outlet guide (1)	(1)	
19	L 7 5 8 2 E	Assembly part (1.0)	(1)	Optional accessory for wire diameter $\phi 1.0$
19-1	L 7 2 5 0 B 0 3	Contact tip (1.0)	(1)	
18-2	L 7 5 0 9 B 0 1	Inner liner (0.9 - 1.2)	(1)	
19-3	L 7 5 8 1 B 0 2	Outlet guide (2)	(1)	
20	L 7 5 8 2 F	Assembly part (1.2)	(1)	Optional accessory for wire diameter $\phi 1.2$
20-1	L 7 2 5 0 B 0 4	Contact tip (1.2)	(1)	
18-2	L 7 5 0 9 B 0 1	Inner liner (0.9 - 1.2)	(1)	
19-3	L 7 5 8 1 B 0 2	Outlet guide (2)	(1)	
21	L 7 5 8 2 G	Assembly part (1.4)	(1)	Optional accessory for wire diameter $\phi 1.4$
21-1	L 7 2 5 0 B 0 5	Contact tip (1.4)	(1)	
21-2	L 7 5 0 9 B 0 2	Inner liner (1.2 - 1.6)	(1)	
21-3	L 7 5 8 1 B 0 3	Outlet guide (3)	(1)	
22	L 7 5 8 2 H	Assembly part (1.6)	(1)	Optional accessory for wire diameter $\phi 1.6$
22-1	L 7 2 5 0 B 0 6	Contact tip (1.6)	(1)	
21-2	L 7 5 0 9 B 0 2	Inner liner (1.2 - 1.6)	(1)	
21-3	L 7 5 8 1 B 0 3	Outlet guide (3)	(1)	

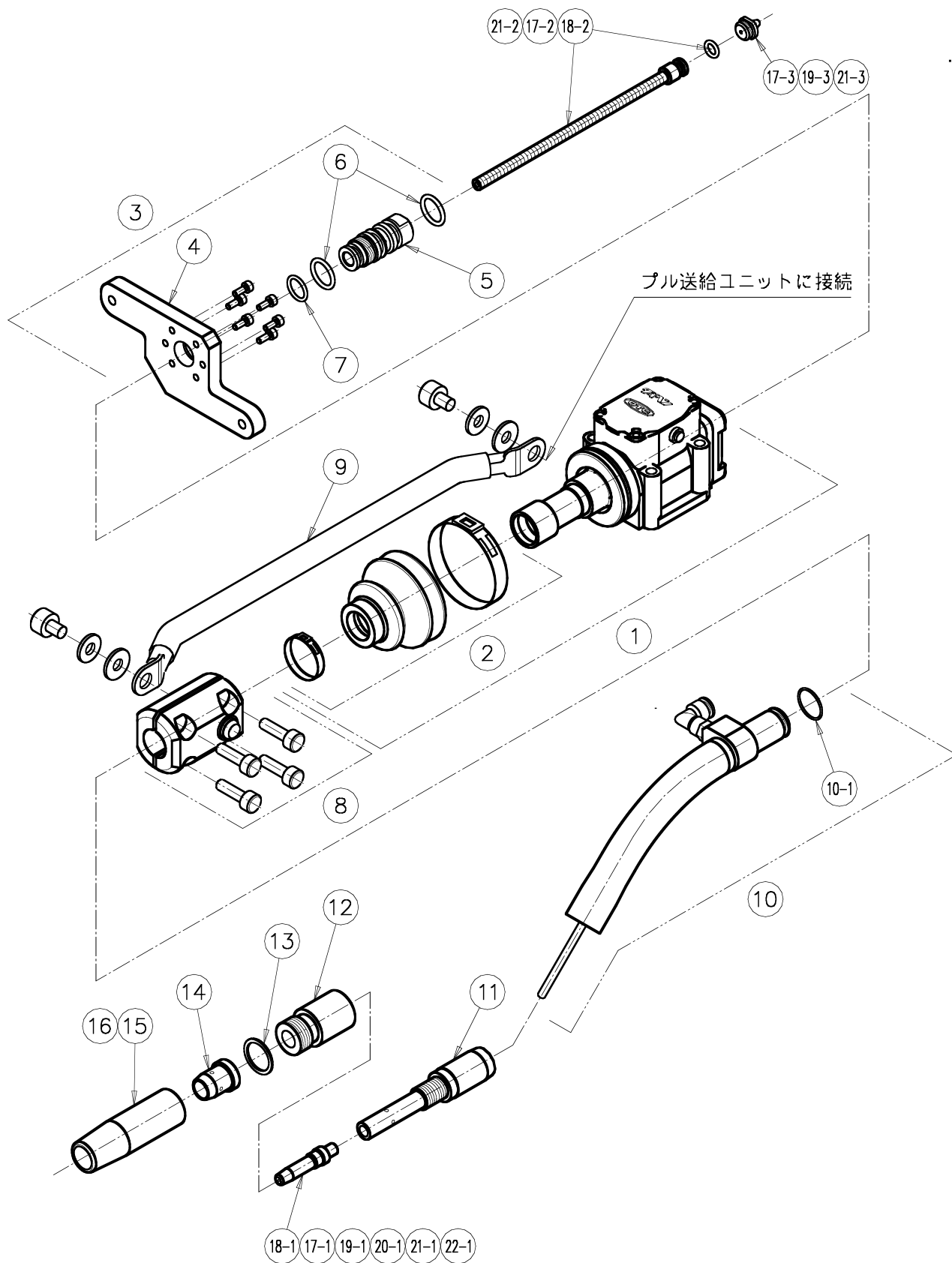


Fig. 7.2 Parts list for MTXCB-3534P

Table 7.3 Parts list for MTXC-5034P

Ref. No.	Part number	Item	Qty	Remarks
1	L 7 3 2 8 B	Shock sensor unit	1	
2	L 6 3 8 0 G	H o o d A S S Y	(1)	
3	L 7 5 8 1 B	A d a p t o r A S S Y	(1)	
4	L 7 5 8 5 B 0 1	A d a p t o r	1	
5	L 7 4 7 9 B 0 2	Outlet guide adaptor	1	
6	3 5 7 4 - 0 0 7	" 0 " r i n g	2	P12 (Viton)
7	3 5 7 4 - 0 1 7	" 0 " r i n g	1	P10 (Viton)
8	L 6 3 8 0 C	Nozzle holder ASSY	1	
9	L 7 5 8 5 C	Power supply cable ASSY	1	
10	L 6 5 7 4 B	N o z z l e A S S Y	1	
10-1	3 5 7 4 - 0 0 7	" 0 " r i n g	(1)	P12 (Viton)
11	K 1 7 6 9 C 0 1	T i p b o d y	1	
12	U 2 7 7 4 F	I n s u l a t o r	1	
13	L 6 5 7 3 C 0 2	S p r i n g w a s h e r	1	
14	U 2 7 7 4 E 0 3	O r i f i c e	1	
15	L 6 2 1 8 C 0 1	T i p h o l d e r	1	
16	U 2 7 7 4 E 0 1	Nozzle (No.12)	1	
17	U 2 7 7 4 E 0 4	Nozzle (No.10)	(1)	
18	L 7 5 8 3 D	Assembly part (0.8)	(1)	For wire diameter ϕ 0.8 Optional accessory
18-1	L 7 2 5 0 B 0 1	Contact tip (0.8)	(1)	
18-2	L 7 5 8 3 C 0 1	Inner liner (0.6 ~0.9)	(1)	
18-3	L 7 5 8 1 B 0 1	Outlet guide (1)	(1)	
19	L 7 5 8 3 E	Assembly part (0.9)	(1)	For wire diameter ϕ 0.9 Optional accessory
19-1	L 7 2 5 0 B 0 2	Contact tip (0.9)	(1)	
19-2	L 7 5 8 3 C 0 2	Inner liner (0.9 ~1.2)	(1)	
18-3	L 7 5 8 1 B 0 1	Outlet guide (1)	(1)	
20	L 7 5 8 3 F	Assembly part (1.0)	(1)	For wire diameter ϕ 1.0 Optional accessory
20-1	L 7 2 5 0 B 0 3	Contact tip (1.0)	(1)	
19-2	L 7 5 8 3 C 0 2	Inner liner (0.9 ~1.2)	(1)	
20-3	L 7 5 8 1 B 0 2	Outlet guide (2)	(1)	
21	L 7 5 8 3 G	Assembly part (1.2)	1	For wire diameter ϕ 1.2 Standard assembly part
21-1	L 7 2 5 0 B 0 4	Contact tip (1.2)	(1)	
19-2	L 7 5 8 3 C 0 2	Inner liner (0.9 ~1.2)	(1)	
20-3	L 7 5 8 1 B 0 2	Outlet guide (2)	(1)	
22	L 7 5 8 3 H	Assembly part (1.4)	(1)	For wire diameter ϕ 1.4 Optional accessory
22-1	L 7 2 5 0 B 0 5	Contact tip (1.4)	(1)	
22-2	L 7 5 8 3 C 0 3	Inner liner (1.2 ~1.6)	(1)	
22-3	L 7 5 8 1 B 0 3	Outlet guide (3)	(1)	
23	L 7 5 8 3 J	Assembly part (1.6)	(1)	For wire diameter ϕ 1.6 Optional accessory
23-1	L 7 2 5 0 B 0 6	Contact tip (1.6)	(1)	
22-2	L 7 5 8 3 C 0 3	Inner liner (1.2 ~1.6)	(1)	
22-3	L 7 5 8 1 B 0 3	Outlet guide (3)	(1)	

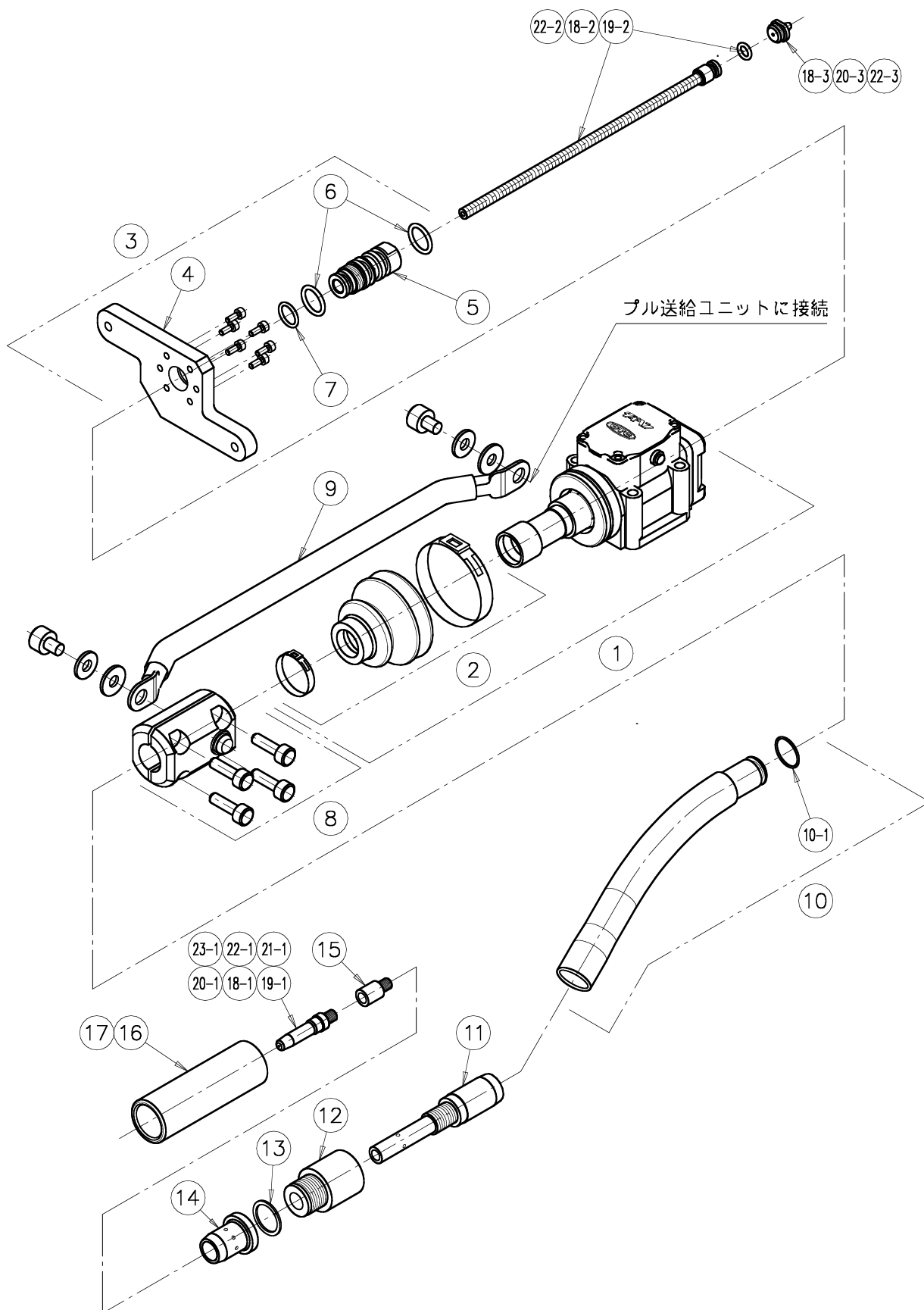


Fig. 7.3 Parts list for MTXC-5034P

Table 7.4 Parts list for MTXCW-5034P

Ref. No.	Part number	Item	Qty	Remarks
1	L 7 3 2 8 B	Shock sensor unit	1	
2	L 6 3 8 0 G	H o o d A S S Y	(1)	
3	L 7 5 8 1 B	A d a p t o r A S S Y	(1)	
4	L 7 5 8 5 B 0 1	A d a p t o r	1	
5	L 7 4 7 9 B 0 2	Outlet guide adaptor	1	
6	3 5 7 4 - 0 0 7	“ 0 ” r i n g	2	P12 (Viton)
7	3 5 7 4 - 0 1 7	“ 0 ” r i n g	1	P10 (Viton)
8	L 6 3 8 0 C	Nozzle holder ASSY	1	
9	L 7 5 8 5 C	Power supply cable ASSY	1	
10	L 6 5 7 2 B	N o z z l e A S S Y	1	
10-1	3 5 7 4 - 0 0 7	“ 0 ” r i n g	(1)	P12 (Viton)
11	L 6 5 7 1 C 0 1	Insulating bushing	1	
12	L 6 5 7 1 C 0 2	F r o n t b o d y	1	
13	L 6 5 7 1 C 0 3	N u t	1	
14	K 2 5 8 5 B 0 6	T i p b o d y (1)	1	
15	U 2 9 6 9 K 0 3	C a p n u t	1	
16	U 3 7 6 6 K 0 1	O r i f i c e	1	
17	3 5 7 4 - 0 0 6	“ 0 ” r i n g	1	P16 (Viton)
18	3 5 7 4 - 0 0 3	“ 0 ” r i n g	1	S22.4 (Viton)
19	3 5 7 4 - 0 0 2	“ 0 ” r i n g	2	S14 (Viton)
20	U 7 2 4 E 0 1	N o z z l e (N o . 1 2)	1	
21	U 7 2 4 E 0 8	N o z z l e (N o . 1 0)	(1)	
22	U 7 2 4 E 0 2	N o z z l e (N o . 8)	(1)	
23	L 7 5 8 4 D	Assembly part (0.8)	(1)	
23-1	L 7 2 5 0 B 0 1	Contact tip (0.8)	(1)	For wire diameter φ0.8 Optional accessory
23-2	L 7 5 8 4 C 0 1	Inner liner (0.6 ~0.9)	(1)	
23-3	L 7 5 8 1 B 0 1	Outlet guide (1)	(1)	
24	L 7 5 8 4 E	Assembly part (0.9)	(1)	
24-1	L 7 2 5 0 B 0 2	Contact tip (0.9)	(1)	For wire diameter φ0.9 Optional accessory
24-2	L 7 5 8 4 C 0 2	Inner liner (0.9 ~1.2)	(1)	
23-3	L 7 5 8 1 B 0 1	Outlet guide (1)	(1)	
25	L 7 5 8 4 F	Assembly part (1.0)	(1)	
25-1	L 7 2 5 0 B 0 3	Contact tip (1.0)	(1)	For wire diameter φ1.0 Optional accessory
24-2	L 7 5 8 4 C 0 2	Inner liner (0.9 ~1.2)	(1)	
25-3	L 7 5 8 1 B 0 2	Outlet guide (2)	(1)	
26	L 7 5 8 4 G	Assembly part (1.2)	1	
26-1	L 7 2 5 0 B 0 4	Contact tip (1.2)	(1)	For wire diameter φ1.2 Standard assembly part
24-2	L 7 5 8 4 C 0 2	Inner liner (0.9 ~1.2)	(1)	
25-3	L 7 5 8 1 B 0 2	Outlet guide (2)	(1)	
27	L 7 5 8 4 H	Assembly part (1.4)	(1)	
27-1	L 7 2 5 0 B 0 5	Contact tip (1.4)	(1)	For wire diameter φ1.4 Optional accessory
27-2	L 7 5 8 4 C 0 3	Inner liner (1.2 ~1.6)	(1)	
27-3	L 7 5 8 1 B 0 3	Outlet guide (3)	(1)	
28	L 7 5 8 4 J	Assembly part (1.6)	(1)	
28-1	L 7 2 5 0 B 0 6	Contact tip (1.6)	(1)	For wire diameter φ1.6 Optional accessory
27-2	L 7 5 8 4 C 0 3	Inner liner (1.2 ~1.6)	(1)	
27-3	L 7 5 8 1 B 0 3	Outlet guide (3)	(1)	
29	L 6 5 7 1 D	Cooling water hose (1)	2	6m
30	L 6 5 7 1 E	Cooling water hose (2)	(2)	8m, Optional accessory
31	L 6 5 7 1 F	Cooling water hose (3)	(2)	10m, Optional accessory

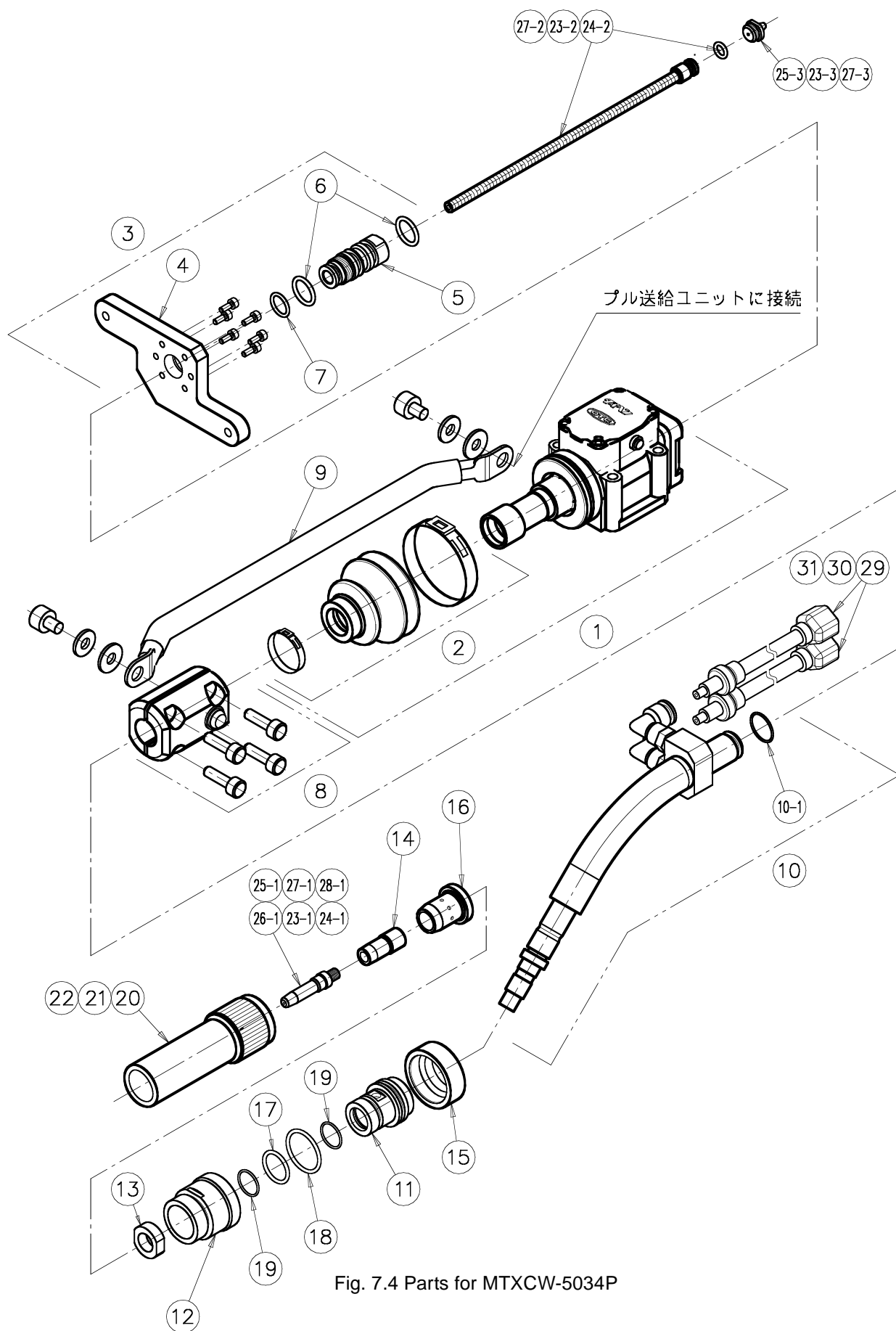


Fig. 7.4 Parts for MTXCW-5034P