

ARTOS

ENGINEERING COMPANY

Machine Model	PF-11 PREFEEDER	Owners Manual		
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CUSTOMER SAFETY NOTICE

DANGER AREAS OF THE MACHINE:

- Avoid **DANCER ARM** while machine is in use.

DAILY SAFETY CHECKS:

Depress **MASTER START** button to ensure it is lit, depress **E-STOP** button to ensure it stops the machine, and check the **POWER SWITCH** to ensure it is off when the **PF-11** is not in use.



SAFETY WARNINGS!!



- The pre-feeder must be installed on a even surface.
- Avoid all contact with the wire as it transfers from the pre-feeder to the interfacing machine.
- Avoid all contact with the **DANCER ARM** as it accumulates the wire and transfers it to the wire processing machine.

GENERAL DESCRIPTION

The **PF-11** is a loose wire bundle pre-feeding system for use with a wire processing machine. The **PF-11** consists of a motorized feed wheel that pulls the wire from the wire source (barrel, box, or loose coil) through an adjustable wire guide and into a wire accumulation system. The wire accumulator will instantaneously supply wire to the wire processing machine, while the feed wheel replenishes the accumulator at a constant rate. The **PF-11** can either be interfaced with the wire processing machine or it can run stand alone.

LIMITS OF USE

The **PF-11** machine is intended for use in a dry indoor working environment. The machine cannot be exposed to liquid spray or mist, damage will result. Circuits should never be removed or tampered with or injury may result. The electrical cabinets should only be opened by trained and authorized personnel. Use of this machine for purposes other than those stated in the general description may result in damage to the machine or personal injury.

PF-11 SPECIFICATIONS

Height of loose bundle.

4-147534-510 standard base 995mm (39.2 inch) wire line.

1070mm (42.0 inches)

4-147534-520 Elevated base 1111mm (43.75 inch) wire line

1184mm (46.6 inches)

Loose bundle diameter.

Maximum 860mm (34 inches)

Electrical Specifications

115 or 230VAC operation. Switch selectable.

8Amps

Wire diameter

The wire guides have a maximum inner diameter of 5.5mm (.22 inches)

Payout Rate

Adjustable up to 10M/Sec (1968Ft./Min)

Mechanical for 4-147534-510 option

Overall dimensions, including extension arm over bundle.

610mm deep x 1412mm long x 1257 high

(24 inches deep x 55.61 inches long x 49.5 inches high)

Machine base, extension arm over loose bundle not included.

610mm deep x 876mm long x 1257 high

(24 inches deep x 34.5 inches long x 49.5 inches high)

Mechanical for 4-147534-520 option

Overall dimensions, including extension arm over bundle.

610mm deep x 1412mm long x 1373 high

(24 inches deep x 55.61 inches long x 54 inches high)

Machine base, extension arm over loose bundle not included.

610mm deep x 876mm long x 1373 high

(24 inches deep x 34.5 inches long x 54 inches high)

Shipping

Weight 250Lbs (113Kg)

Typical Nameplate

Model PF11 2015
S/N PF11-00001-001-Q

Voltage 110VAC, PH 1, CY 50/60

Full Load Current 8 Amps ICCR 10kA

Electrical Diagram 7-147445

Assembly Diagram 4-147534

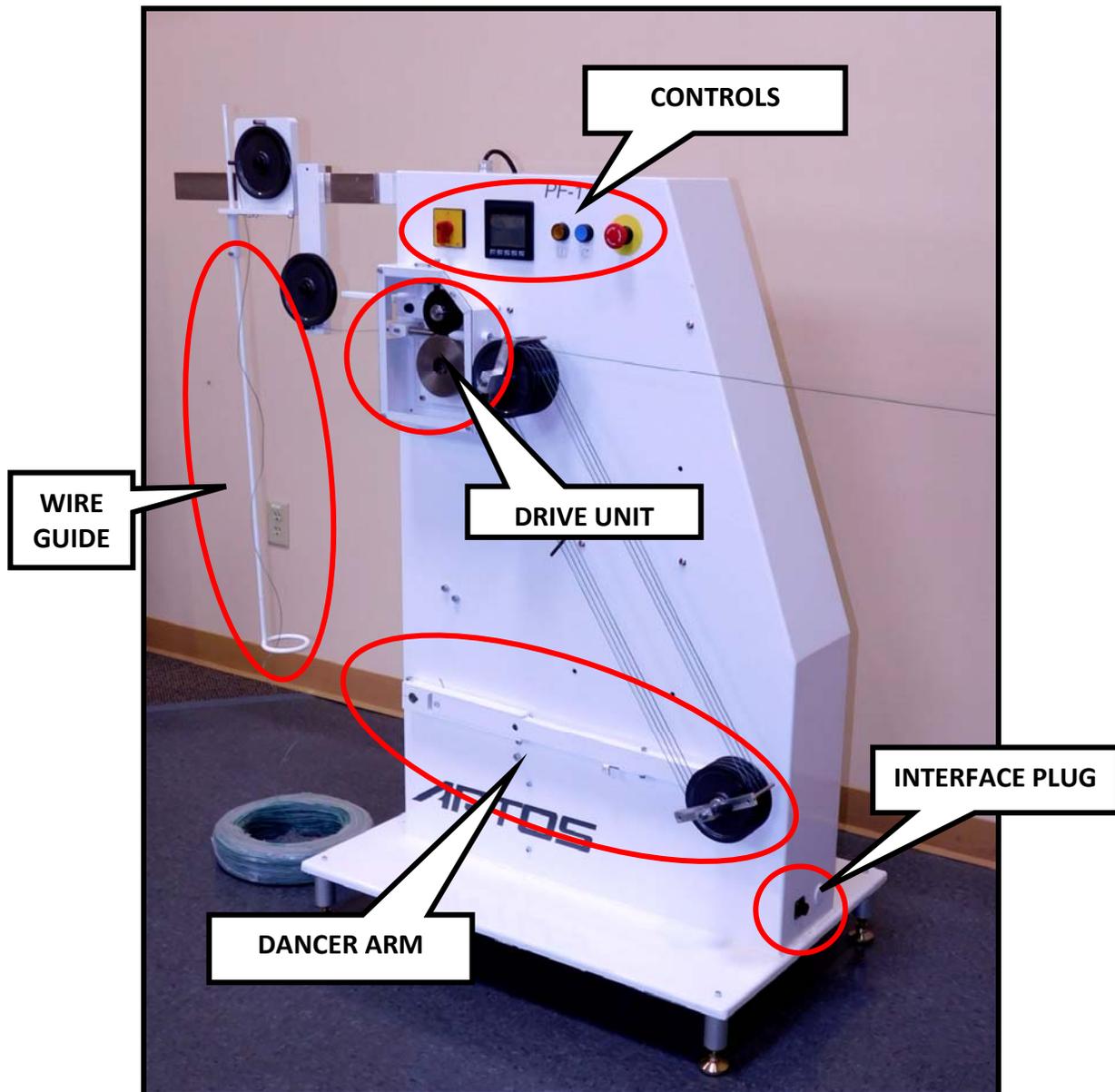
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MACHINE PART IDENTIFICATION



WIRE GUIDE: Keeps the wire in place and prevents the wire from moving around as it travels to the drive unit.

DANCER ARM: This is the main part of the wire accumulation system. When the wire processing machine pulls the wire, this arm moves up, activating the feed motor.

DRIVE UNIT: Runs the wire and transfer it to the Dancer Arm.

INTERFACE PLUG: Connects the PF-11 to the wire processing machine. If the PF-11 is running on stand alone then a jumper plug (5-147883) is required.

CONTROLS:

The operation controls of the **PF-11** are simple and convenient. No heavy lifting or pulling is required.



POWER SWITCH: ON/OFF switch. Turn **CLOCKWISE** to “I” symbol to turn ON and **COUNTERCLOCKWISE** to “O” symbol to turn off.



MAIN CONTROL SCREEN: Touch screen control pad used to configure the settings for the speed and amount of wire being transferred to the interface machine. Also displays any messages or errors while operating this machine.



MASTER START: Depressing this button will energize the machine and its controls. The button will be lit when the machine is active.



JOG FORWARD: Depressing this button will turn the wheels on the DRIVE UNIT causing the wire to be pulled forward into the accumulator.



EMERGENCY STOP: Depressing this button will deactivate all power from the machine controls. Rotate clockwise to release. **DO NOT PULL.**

PF-11 OPERATION SCREENS

The information screen displays machine operation functions and warnings (shown in the table below).

	<p>FEED RATE:</p> <p>The screen displays the average speed (m/s) the PF-11 is feeding to the wire cutting machine. The speed functions are adjustable on this screen.</p>
	<p>PREFEEDER TIMEOUT:</p> <p>The screen displays when the interface machine is inactive for 1 hour. Both the PF-11 and the interface machine will go into E-STOP mode.</p>
	<p>INTERNAL E-STOP:</p> <p>The screen displays when the E-STOP of the PF-11 is depressed. All button functions are deactivated until E-STOP is released.</p>
	<p>EXTERNAL E-STOP:</p> <p>The screen displays when the E-STOP of the INTERFACE MACHINE is depressed. All button functions are deactivated until E-STOP is released.</p>
	<p>MAX TRAVEL LIMIT:</p> <p>The screen displays when the DANCER ARM travels beyond its highest maximum point. This may occur when the wire is jammed. This will stop the machine until the arm is set below the maximum travel point and then all functions will resume.</p>



ENTER PASSWORD:

The screen displays the **SYSTEM SCREEN** used to download software.

OPERATING THE PRE-FEEDER

The **PF-11** pays out wire based on the demand of the cutting machine. As the wire processing machine demands material, the **Dancer Arm** of the **PF-11** will rise. As the arm rises the drive unit will begin to pull wire from the coil. As the arm gets higher the drive unit gets faster. The highest speed is determined by the “**SPEED SETTING**”.

The PF-11 is also suitable in **STAND ALONE** which will require the jumper plug 5-147833 to allow the machine to run without it being interfaced.

ACTIVATING THE UNIT

Turn on power by rotating the POWER SWITCH clockwise.

When using the **PF-11** with an Artos CS 326 or any of the CR series, the two machines may be interfaced. If they are interfaced, when the wire processing machine is activated it will also master start the **PF-11**. If the E-stop is set on either machine then neither unit will master start. Therefore anything causing an Emergency stop condition on either machine will stop both machines to stop immediately.

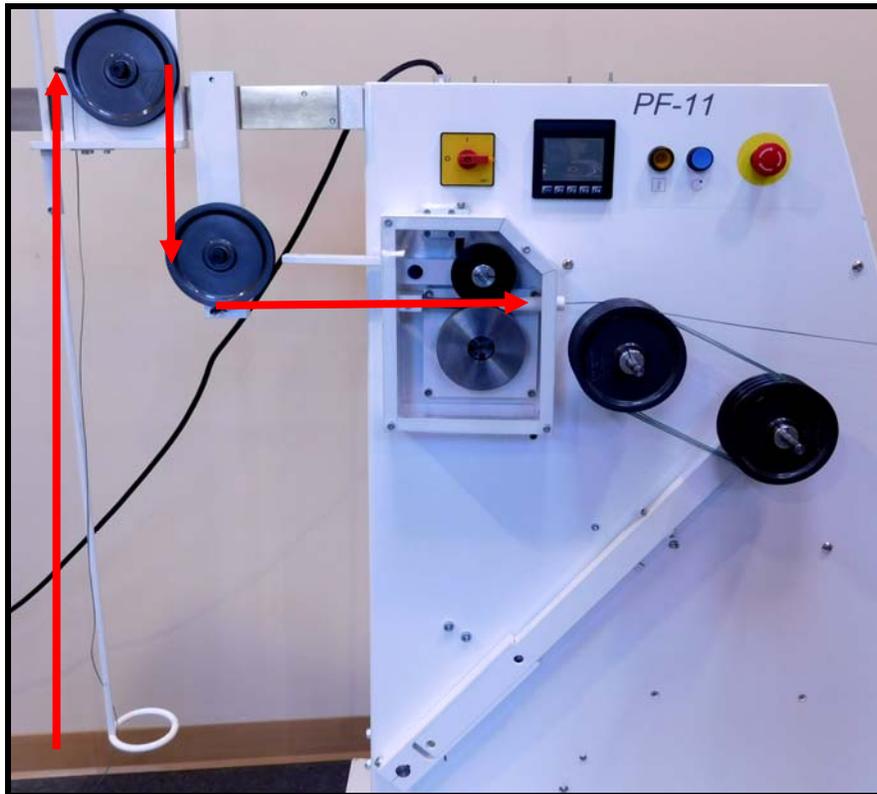
If the **PF-11** is configured for stand alone mode (the jumper plug 5-147833 installed) or if you want to activate only the PF-11, depress the MASTER START button. The unit will energize and all other control functions will be activated (when active the MASTER START button will be lit).

LOADING THE WIRE

The wire set up for the **PF-11** can easily be done and will only take a few short minutes (shown in the figure below).

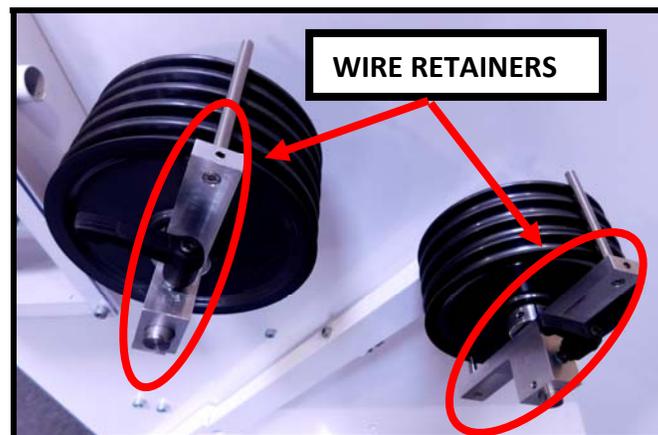
First, pass the wire up through the loop of **RING GUIDE** and over the left side of the first wheel. Bring the wire down the right side of the first wheel and under the left side of the second wheel.

Now insert the wire into the **DRIVE UNIT** and depress the **JOG FORWARD** button to bring the wire through.



Bring the **DANCER ARM** up and position the arm next to the other wheel and lock it in for an easier set up (as shown in the figure above).

Remove the **WIRE RETAINERS** from the two sets of wheels (as shown in the figure below).



After the **WIRE RETAINERS** are removed you can now set the wire onto the wheels.

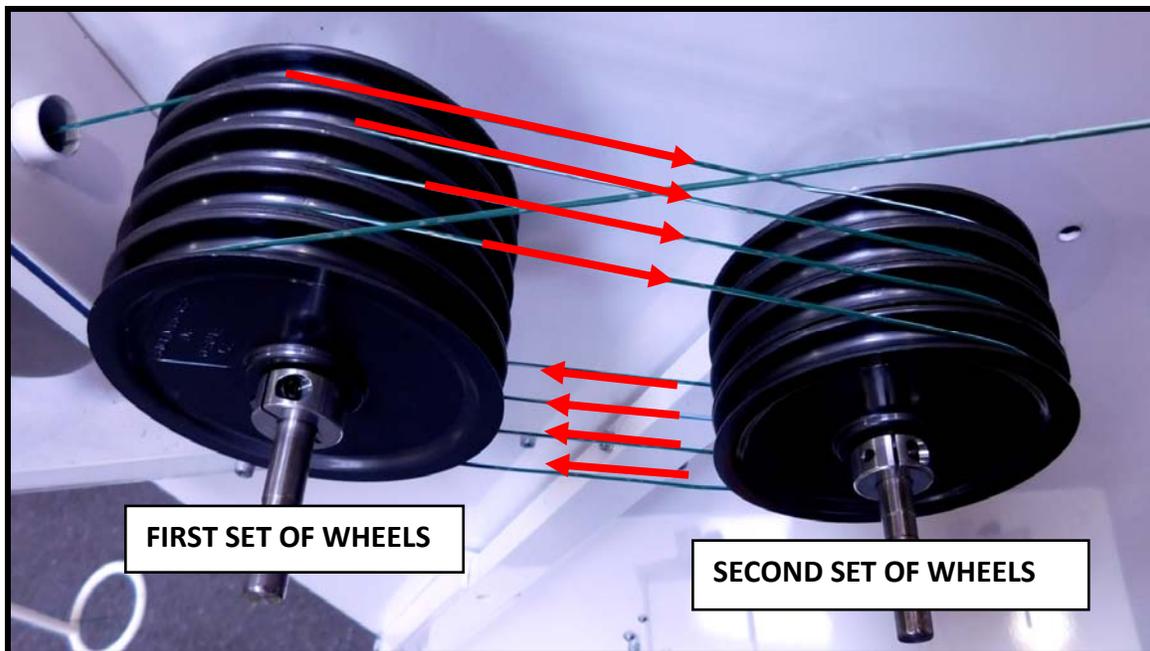
There are two ways to set the wire, one way is to wrap the wire directly from one pulley to the next, the other way is to cross the wire between each pulley. The method you choose is just a matter of which way runs the smoothest with your particular wire.

Loading by directly looping the wire from one pulley to the next.

The figure below shows an example of how to set the wire.

1. As the wire exits the **DRIVER UNIT** the wire should be placed over the first wheel on the **FIRST SET** of wheels.
2. Next, bring the wire over the first wheel of the **SECOND SET** of wheels, and bring it around and under the second wheel of the **FIRST SET**.
3. Loop over the same wheel and bring it over the second wheel of the **SECOND SET**.
4. Again, bring the wire under the third wheel of the **FIRST SET**, loop around and bring it over the third wheel of the **SECOND SET**. Continue to loop the wire around until all wheels of the **FIRST SET** and **SECOND SET** of wheels have the wire looped on them.

After the wire is set, place the **WIRE RETAINERS** back onto their proper positions and now the **PF-11** ready to begin.

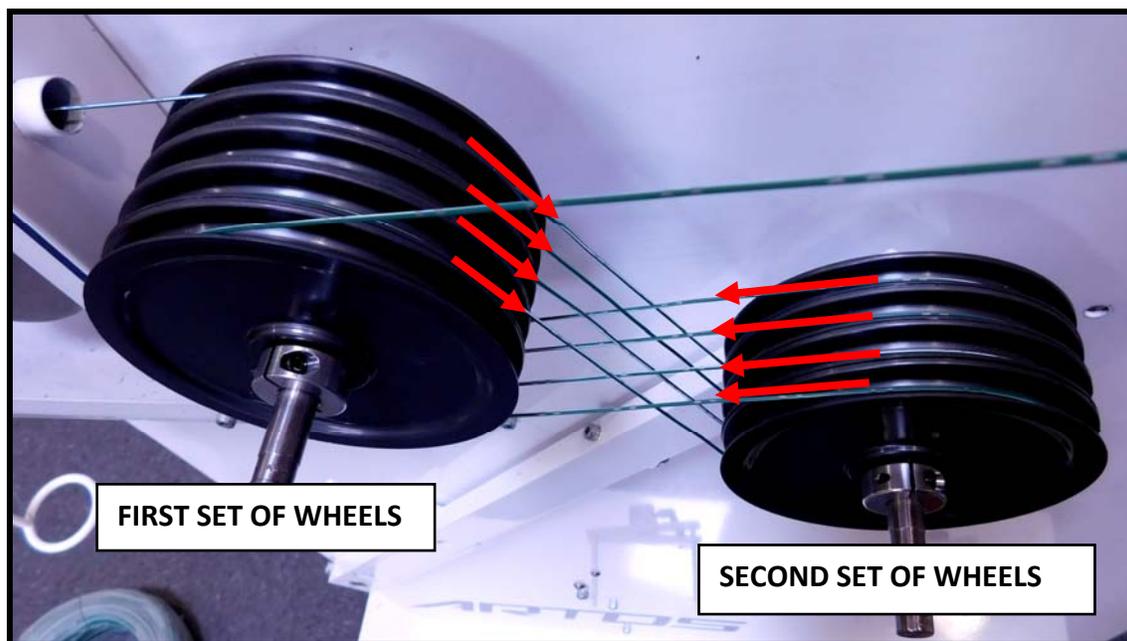


Loading by crossing the wire from one pulley to the next.

The figure below shows another example of how the wire can be set.

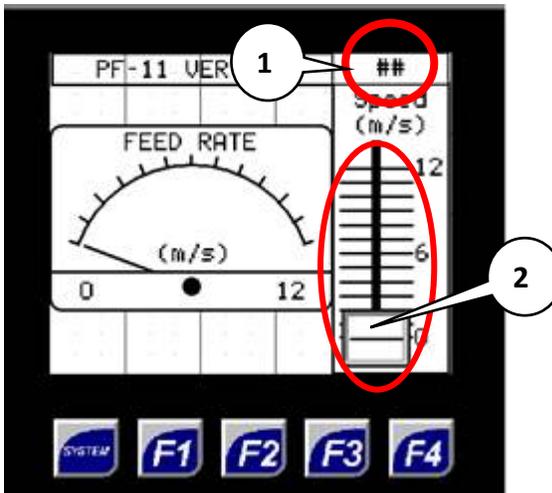
1. As the wire exits the **DRIVER UNIT** the wire should be placed over the first wheel on the **FIRST SET** of wheels.
2. Bring the wire under the first wheel of the **SECOND SET** of wheels and bring it around and under the second wheel of the **FIRST SET**.
3. Loop over the same wheel and bring it under the second wheel of the **SECOND SET**.
4. Again, bring the wire under the third wheel of the **FIRST SET**, loop around and bring it under the third wheel of the **SECOND SET**. Continue to loop the wire around until all wheels of the **FIRST SET** and **SECOND SET** of wheels have the wire running on them. The wire should have a crossing pattern if done correctly.

After the wire is set, place the **WIRE RETAINERS** back onto their proper positions and now the **PF-11** ready to begin.



SETTING THE FEED RATE

The rate at which the drive unit arm feeds wire into the dancer arm is dependent on the location of the dancer arm. At the lowest level the feed rate is 0. At the highest level the feed rate is equal to the programmed maximum rate. The maximum rate is adjustable between 0 and 12m/S.



Programming the maximum feed rate for the **PF-11** is quick and easy to manage. There are two ways to set the speed level (shown in the figure to the above).

1. The first option to setting the speed is pressing the top right-hand section of the control screen. A number pad will display at this time and this will allow you to manually enter the speed level of your choice.
2. The second option for speed settings is to drag the cursor icon with your finger up or down to the desired level of speed wanted.

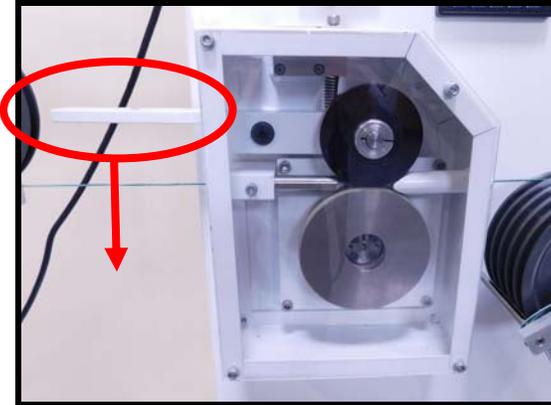
OPTIMIZING THE FEED RATE

To get the optimum performance from your **PF-11** and wire processing machine combination, it is best to set the **PF-11** output speed lower than the maximum speed of the wire processing machine. Ideally you want the drive unit to be pulling wire at a constant rate while the wire processing machine is in full operation. This will help prevent the wire from getting tangled in the loose bundle.

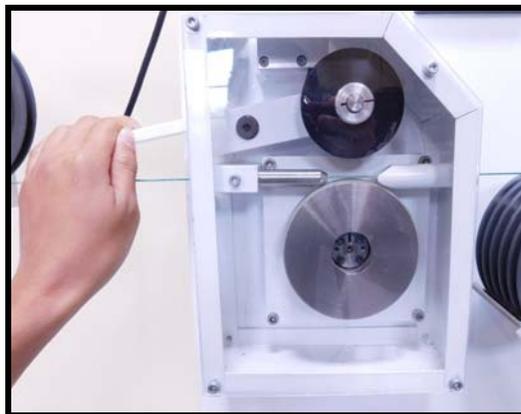
If the speed setting on the **PF-11** is set too low the **DANCER ARM** will reach the extreme top of its travel, it will then stop and display “**MAX TRAVEL LIMIT**” on the screen.

UNLOADING THE WIRE

To remove the wire on the **PF-11** first make sure the wire is removed from the wire processing machine.



Locate the release lever on the left side of the **DRIVE UNIT**. Simply pull the lever down and hold, to release the wire. Now pull the wire until it is completely removed from the PF-11.



INSTALLATION

PHYSICAL LOCATION

The PF-11 should be located on a level flat surface in front of the wire processing machine.

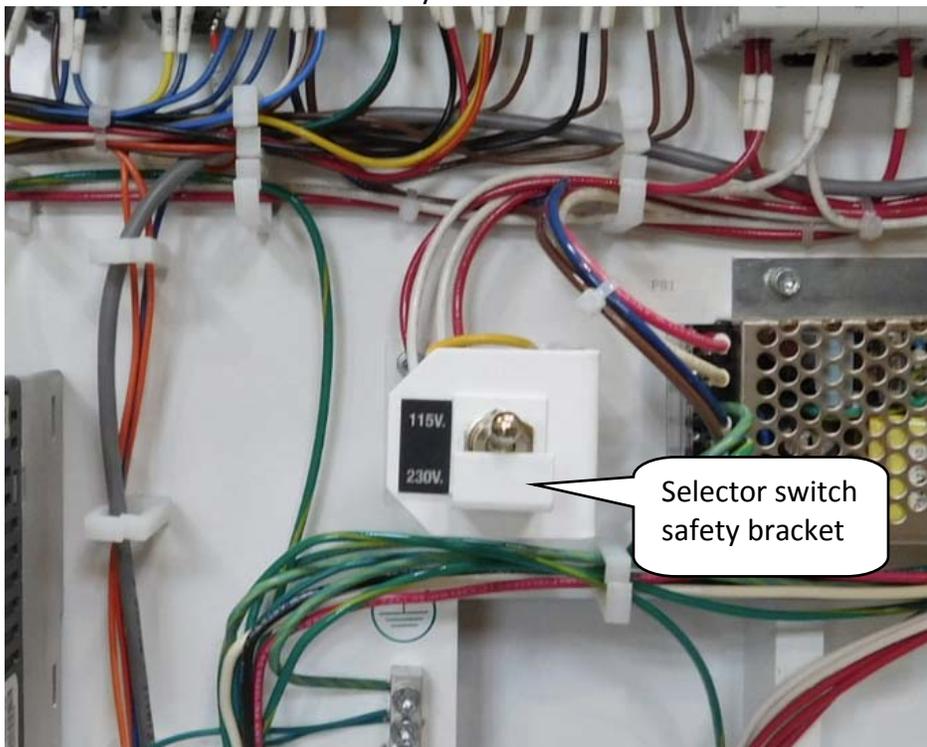
The wire line height of the PF-11 should be adjusted as close as possible to the wire line height of the wire processing machine. The standard base has a 995m (39.2 inch) wire line. The Elevated base has a 1111mm (43.75 inch) wire line. The difference between the bases are the length of the spacers used for mounting the feet.

The distance between the first pulley of the PF-11 and the wire infeed of the wire processing machine should be a minimum of 250mm. Check to make sure the Dancer arm does not come into contact with the wire processing machine when it is in the uppermost position.

INPUT VOLTAGE SELECTION

The PF-11 can be configured to operate with 115 or 230VAC input voltage. To change the input voltage:

1. Make sure power is disconnected.
2. Remove rear cover.
3. Loosen the selector switch safety bracket.



4. Set switch for desired voltage.
5. Tighten safety bracket and replace back cover.

CUTTING MACHINE INTERFACE

INTERFACE FUNCTIONALITY

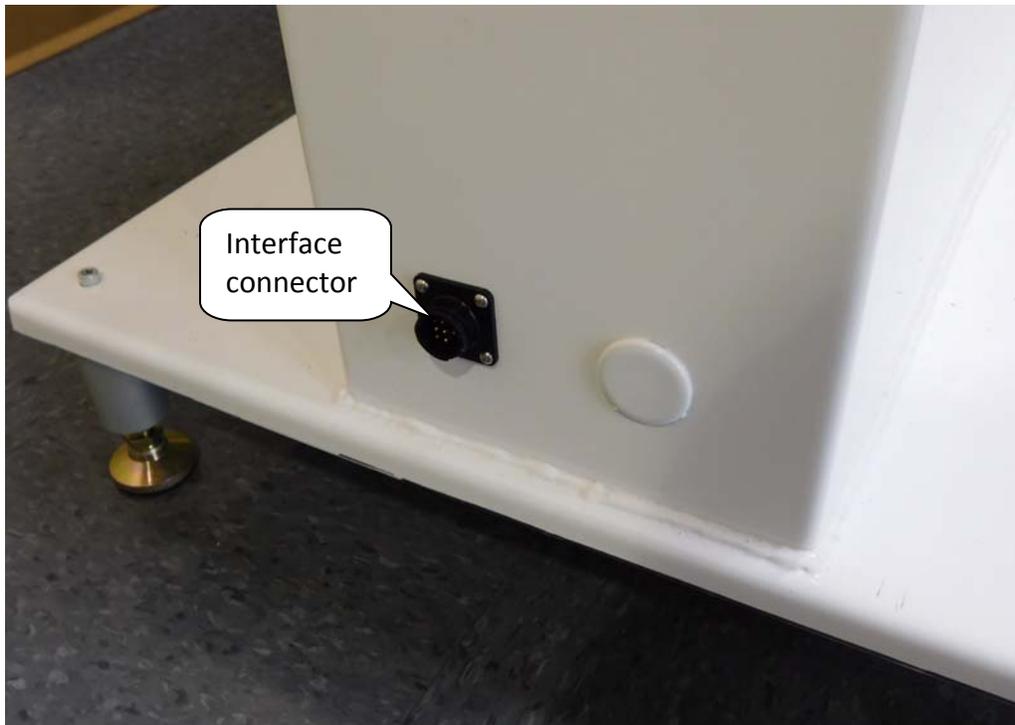
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The PF-11 is also suitable in **STAND ALONE** which will require the jumper plug 5-147833 to allow the machine to run without it being interfaced.

If the E-stop is set on either machine then neither will run. Therefore anything causing an Emergency stop condition on either machine will stop both machines immediately.

WIRING THE INTERFACE

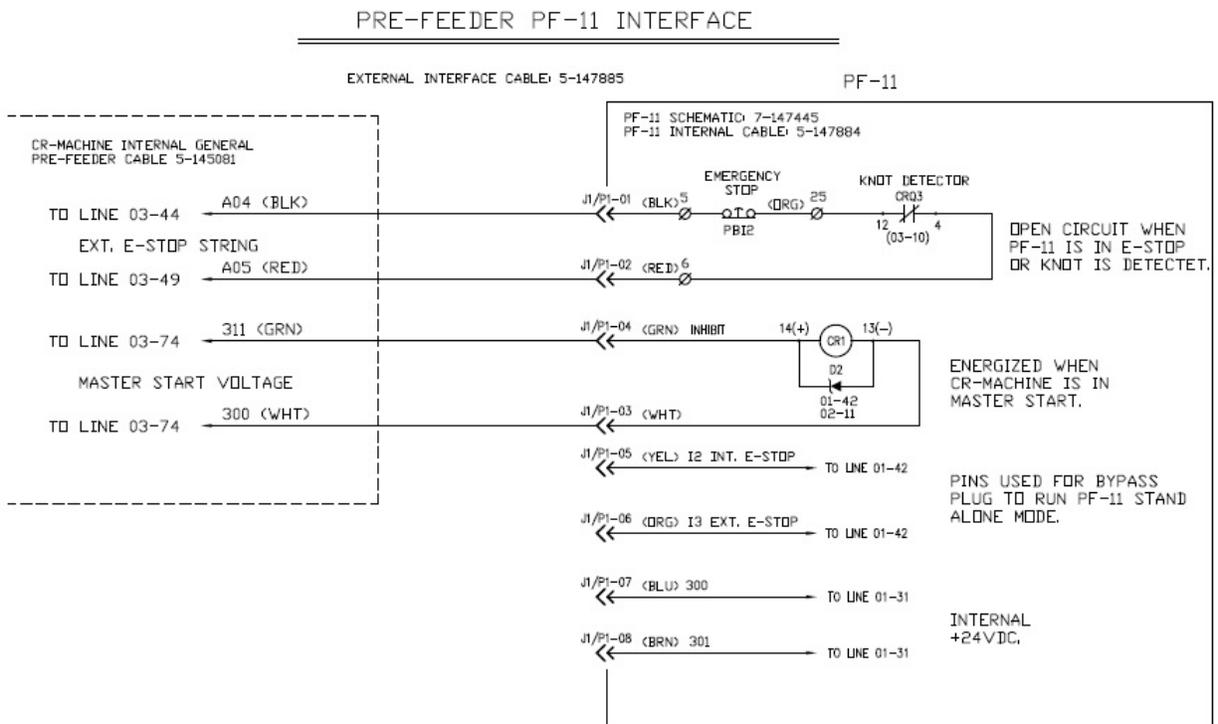
The pre-feeder connector in the wire processing machine can be pre-installed at the factory or customer installed. See below for installation instructions.



Mating connector	Artos part number	TE Connectivity Part number
9 pin CPC	911-578	206708-1
Cable clamp	911-579	206966-1
Crimp socket	916-593	1-66105-8

Pre-feeder connector pin out.

Pin number	Signal name	Function
1	5	External E-stop 1
2	6	External E-stop 2
3	300	Inhibit -
4	311	Inhibit +
5	12	Bypass input
6	13	Bypass input
7		N/C
8		N/C
9		N/C



Running the PF-11 without a connection to the wire processing machine.

Place a jumper between Pins 5 and 6 of the interface connector. This can be done by plugging in connector assembly 5-147833.

Pre-feeder connection functionality.

When the wire processing machine is interfaced properly the functionality will be as follows.

- You must first master start the wire cutting machine.
- The PF-11 will start automatically.
- To stop the line you can press the E-stop on either the PF-11 or the wire cutting machine and both units will shut down.

Relay logic for PF-11

- PF-11 E-stop string (connector pin 1 and 2) is open when the PF-11 is in E-Stop condition.
- Coil CR1 (connector pin 3 and 4) must be energized by the wire cutting machine, in order for the PF-11 to be put in master start by the operator or the cutting machine

MAINTENANCE

- Check the control buttons and switches to ensure they are working properly
- Check the feed wheel of the drive unit. If there is a groove worn in the rubber belt, replace the belt. You only need to order the belt **H-14097-2** not the steel wheel.
- Grease the two pivot bearings for the dancer arm one per year. Make sure to replace the back cover after you have done this.

