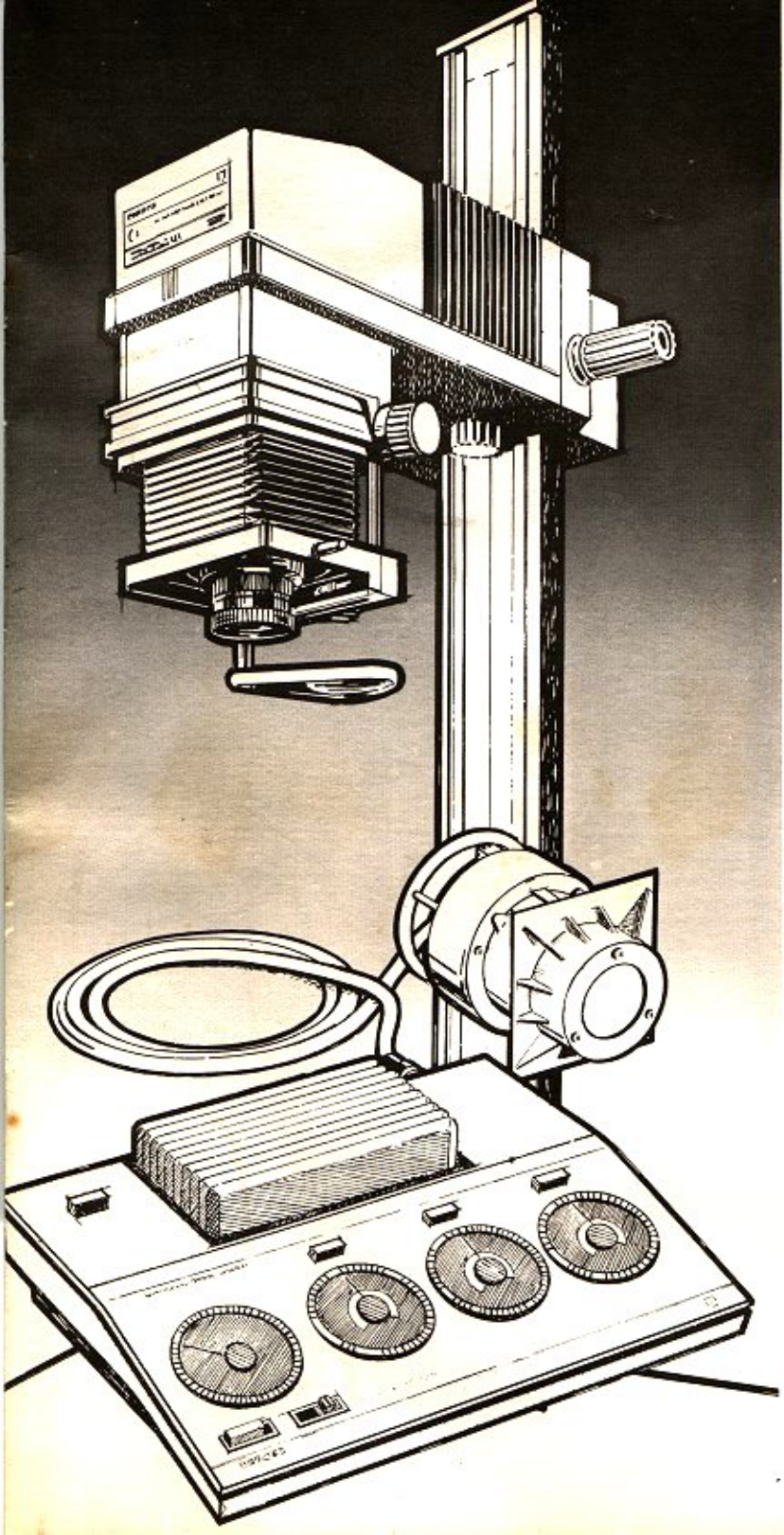


PCS 150

INSTRUCTIONS FOR USE

PHILIPS

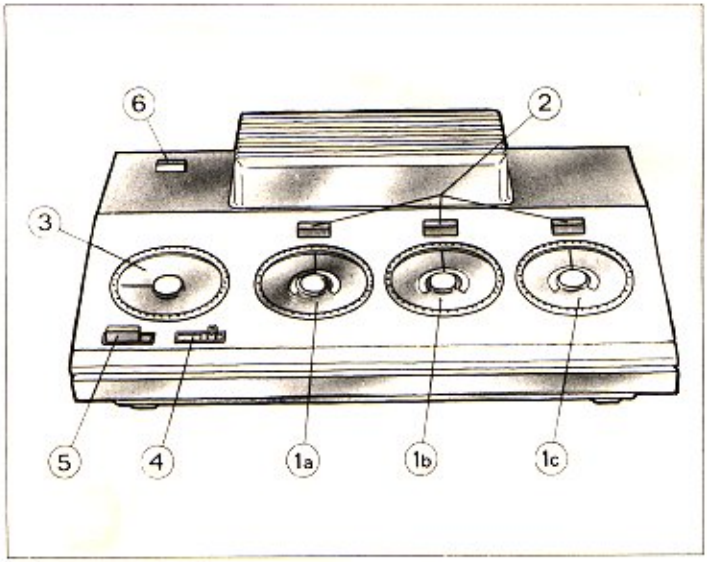


Fig. 1

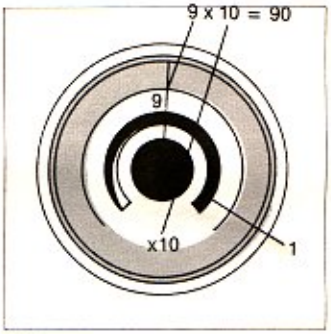


Fig. 2

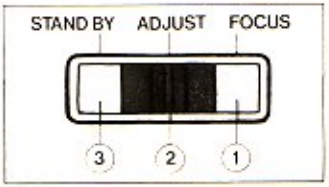


Fig. 3

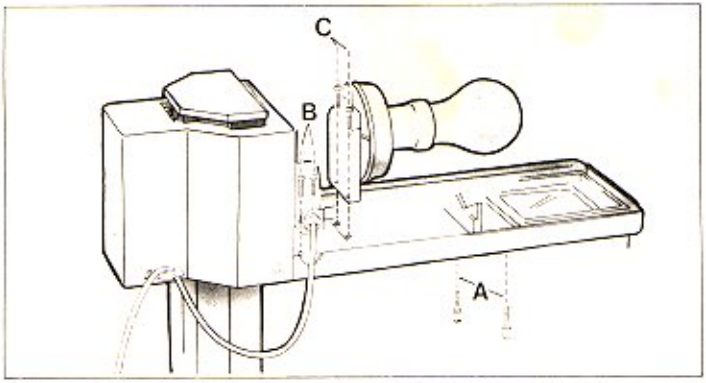


Fig. 4

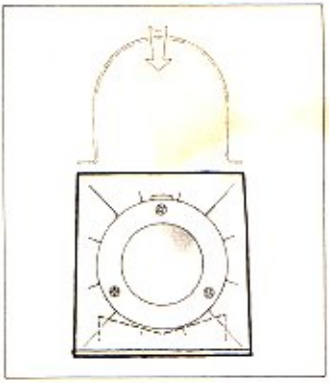


Fig. 5

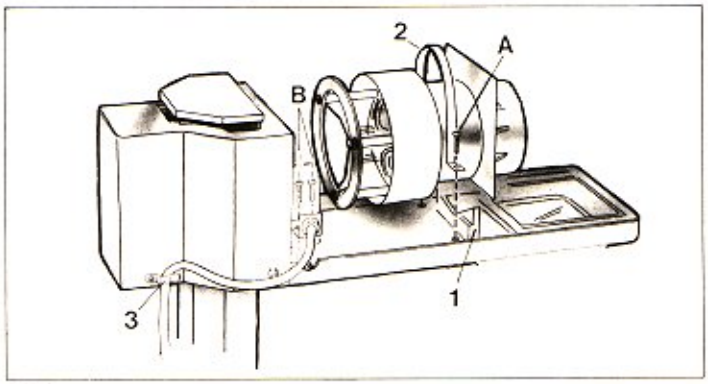


Fig. 6

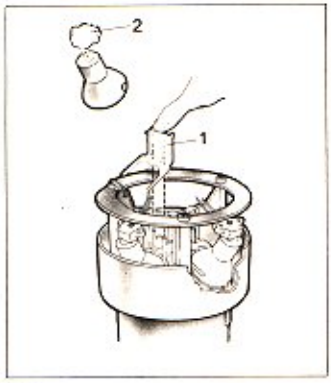


Fig. 7

INTRODUCTION

Philips has combined the advantages of both the additive and subtractive systems, without their relative disadvantages. The ETC System uses the three primary colors for additive printing—(TRI) but with a single exposure—(ONE)...TRI-ONE!

Instead of unstable filters of varying densities, the Tri-One system uses permanent, narrow band, dichroic filters with unique color characteristics. These filters closely match the color sensitivity of photographic papers. The brightness of each channel is electronically controlled and, as a result, so is the color output of the system.

The control of the light source is carried out at baseboard level through the Electronic Tri-One Control Unit. The Control Unit displays, in a logical, straightforward way, all color changes. This "system" has great advantages for negative printing as well as for making prints from slides and black and white negatives. In addition, slide duplication and the production of internegatives are two of the advanced techniques made easier by the Philips Tri-One.

The system is comprised of three parts. The PCS 130 Universal Color Enlarger (available separately), the PCS 150 Light Source, and the PCS 150 Control Unit.

Detailed instructions for using the enlarger are packed with each unit. The following instructions are limited to the PCS 150 Light Source and Control Unit.

THE SYSTEM

The Light Source

This is a complete unit, ready-to-install in the PCS 130 enlarger. The Light Source has three separate "cool beam" quartz halogen lamps with stationary dichroic filters. In addition, the low maximum wattage used reduces the heat produced so that the dichroic filters can always perform at their best.

The Control Unit

Convenient, baseboard level controls. Once the negative has been inserted and focused, the entire process of obtaining a proper color balance and exposing the print can be controlled without touching the enlarger itself.

THE CONTROLS

Three color channel controls, Fig. 1, #1a for the blue/yellow, #1b for green/magenta and #1c for the red/cyan. In addition, there is a separate, push button, on/off switch #2, Fig. 1, for each channel.

The built-in timer, #3, Fig. 1, is calibrated from 5 to 40 seconds and controls the duration of the exposure automatically.

Three function switch, #4, Fig. 1, for Stand by, Adjust, Focus.

In the focus position, #1, Fig. 3, all three color channels give maximum light intensity for focusing, negative positioning, masking, and all other functions where maximum "white" light is an advantage. As a result, settings which have been made on the individual color channels do not have to be changed.

In the Adjust position, #2, Fig. 3, the light being emitted by the light source corresponds with the values set on the illuminated, color channel dials. This setting is particularly advantageous when using a color analyzer.

In the Stand-by position, #3, Fig. 3, the light source itself is switched off and the illumination of the four dials on the Control Unit is reduced. Exposure can be carried out by pressing the start button, #5, Fig. 1.

INSTALLING THE LIGHT SOURCE

Remove the cover of the enlarger housing by unscrewing the two "coin slot" screws A, Fig. 4, underneath the housing and remove the cover by sliding upwards. Remove cable grip screws B (see Fig. 4) and then lampholder screws C. Use correct type of crossheaded screw driver.

Replace screws C when the lampholder has been removed. Slide ETC Light Source into position, Fig. 5, in prepared grooves, #1, Fig. 6, and fix bracket #2 with two screws A. Fix cable grip into position with screws B and replace cover. Fix cable into the cable fastener #3 at the side of the enlarger slide. **Remove heat absorbing filter and metal insert** from the filter drawer of the enlarger.

CONNECTING THE SYSTEM

Connect the multi-function plug, from the light source, to the socket at the rear of the Control Unit. (The Light Source can only be controlled through the ETC Control Unit.) Next, connect the Control Unit to a wall outlet. The ETC Control Unit can be switched on and off by the main switch #6, Fig. 1.

HOW TO GET STARTED

You may be an old hand at color printing, or you may be about to make your first color print. In either case, there is some basic information that will help you to familiarize yourself with your new Philips Tri-One Electronic Color System.

Until now, tri-color, or additive color printing, had to be done with three separate exposures. Although the results with the tri-color method were superior, the single exposure of the subtractive method permitted easier dodging and burning of the print. As this selective lightening and darkening of areas of the print was important to the custom printer, the subtractive method became more popular.

The Philips Tri-One System gives you the advantages of both systems, with none of the drawbacks. You get the color saturation and accuracy of tri-color, and the single exposure of subtractive!

At this time, most books and literature are geared toward the subtractive print, so we would like to give you some information which will help you get started.

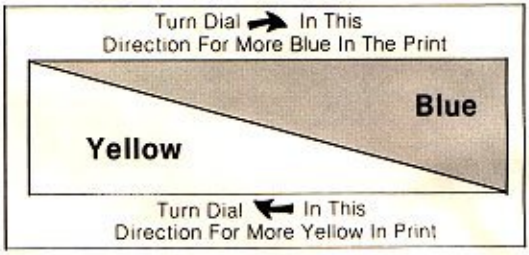
Before making your first color print, familiarize yourself with the three color channel controls, the timer, and the switch for focus, adjust and stand-by.

The major difference with the ETC Tri-One System is that there's no theory or math to learn in order to make a good color print.

On the face of each color channel dial are two color wedges, #1, Fig. 2, each wide at one end and narrow at the other—indicating more and less of that particular color. If you're printing from negatives, and the print appears to be too yellow, simply turn the yellow control dial in the direction of less yellow (towards the narrow end) from the original setting.

If you're printing from slides, a second set of appropriate color wedges is supplied with each Control Unit. Once again, to correct a print simply follow the direction of the color wedge.

The Philips Tri-One System is the only color enlarger that allows you to change your filtration settings without having to change your exposure.



MAKING YOUR FIRST GOOD PRINT

Each of your color control dials is calibrated for two colors. The first for yellow and blue, the second, for magneta and green, and the third for cyan and red. If you think of them as yellow, magenta, and cyan, (ignoring their blue, green, and red designations) you can then read the numbers off the dials just as you would do with any subtractive color head.

For example: When using Kodak's Ektacolor 74 RC paper, Kodak recommends a starting filter pack of 90 Yellow, and 50 Magenta. What they imply but do not mention, is that you have 0 Cyan in the filter pack. To dial this information into your new Philips Tri-One System, just set the yellow control dial at 90, the magenta control dial at 50, and cyan control dial at 0. Remember the dials are 10x, so that a setting of 90 is actually 9.

In selecting your actual filtration settings, be sure to incorporate the additional subtractive (white light) printing information given on the outside of the particular box of paper you are using. **Do not use the Red, Blue, and Green, Tri-Color information.**

	Yellow	Magenta	Cyan
Kodak's recommended starting filter pack	90	50	0
Typical "white light" filtration information printed on box of Kodak paper	+ 5Y	—15M	0
Resulting starting filter pack	95	35	0

Of course, because of varying conditions when you took the photograph, you may find a minor variation of 5 or 10 units from these recommendations, but we're sure you'll find the results more than acceptable as long as the film and the paper have been properly stored and processed.

At this point, we would like to make a further suggestion. You will notice that by setting the cyan knob at 0, you are at the minimum red position. If the resulting print were to turn out to be a little too red, it would be impossible to dial out the excess red by following the red color wedge. This would diminish one of the major advantages of your Tri-One System. Fortunately, there is a very simple solution. Add 20 to **each** of the three dials. This would change Kodak's starting recommendations to 110 Yellow, 70 Magenta, and 20 Cyan. These new settings will give you exactly the same color as the original settings of 90 Yellow and 50 Magenta, BUT, will allow you to remove up to 20 Red from a print, should the need arise. The only difference is that these new settings will require a slightly longer exposure time.

By following this simple procedure, any subtractive filter pack can easily be dialed into your Philips Tri-One System. Incidentally, if you are going to make an 8 x 10 print from a 35mm negative, a good starting exposure would be about 9 seconds at f/8.

COLOR PRINTING FROM SLIDES

When printing slides, the direction of rotation of the color control dials for correcting a specific color, is opposite that of printing color negatives. Each of the three color control dials on the control panel of the PCS 150, is color coded with a pair of color wedges around its center. One pair for yellow/blue, one for magenta/green, and lastly, one for cyan/red. These color wedges are oriented for printing from color negatives. The set of three additional color wedge pairs, enclosed with the PCS 150, are for use should you want to print from slides.

One last reminder, when printing from slides, longer exposures and bigger lens apertures lighten a print. Shorter printing times and smaller lens apertures darken it.

OPTIMUM PRINTING TIME AND LENS APERTURE

In conventional color printing, chosing an f stop dictates the exposure time for a well exposed print. For the first time, the Philips Tri-One System allows to you to change this relationship. Pick an f stop, and then pick the printing time you want to use. By adjusting the three color channels equally, you will get the right exposure with the printing time and f stop chosen, and the color balance remains unchanged.

If the enlarger is too bright and the printing time too short for your particular application, simply adjust the three color channel control dials. **For each thirty you add to all three control dials,** the overall exposure will be **reduced by one** f/stop as if you had stopped down the lens one stop.

For example:

	Yellow	Magenta	Cyan	
Original Settings	110	70	+ 20	5 sec @ f/8
ADD 30	+ 30	+ 30	+ 30	
New Equivalent Settings	140	100	50	10 sec @ f/8

NOTE: Each "10" added to all three dials equals 1/3 stop change. As long as the same amount is added to each channel, there will be no change in color, only density.

USING AN ANALYZER

Most people have found that because the Philips Tri-One System is so easy to use and understand, an analyzer is unnecessary. If you would like to use an analyzer with the Tri-One System, the procedure is identical to that used with any other analyzer/enlarger combination. Simply think of the three color control dials on the Tri-One control panel as Cyan, Magenta, and Yellow instead of Red, Green, and Blue, and follow the instructions which came with your analyzer.

You will also notice that when reading an unknown negative, it is not necessary to go over and over the reading procedure as you normally must do with a subtractive head. In a subtractive head, each of the color channels interacts with one another. As you adjust one, you are changing another. That is why you have to read the same negative over and over. With the Philips Tri-One, there is no interaction between channels. You simply "read" a negative once and you're finished!

BLACK AND WHITE PRINTING

Another unique feature of the Tri-One System is its ability to turn out top notch black and white prints. If you're using variable contrast B&W papers, you can simply dial in the various contrast grades on the Control Unit according to the chart below. The key feature of the Philips System is that when you change from one contrast grade to another, there is no need to change exposure! In addition, you gain an increased contrast range with a higher high contrast, and a lower low contrast, and the ability to select a stepless range of contrasts from Grade 0 to Grade 5.

There are two tables shown on the contrast grade chart. The first allows either Kodak or Ilford variable contrast papers to be printed with constant exposure settings. The second table permits either Kodak or Ilford variable contrast papers to be printed with the shortest possible exposure times. In this case, the exposure given the paper will have to be changed as you change from one paper grade to another. If the chart indicates "light off" simply press the on/off switch for that particular channel.

B & W PAPER GRADE/FILTER VALUE

KODAK Polycontrast Rapid RC Type II

CONSTANT EXPOSURE

Paper Grade	Blue	Green	Red
5	0	210	0
4½	0	120	0
4	10	60	10
3½	20	30	20
3	40	30	30
2½	55	20	20
2	75	10	10
1½	100	5	5
1	125	0	0
½	240	0	0
0	Light Off	0	0

SHORTEST EXPOSURE

Paper Grade	Blue	Green	Red
5	0	210	0
4½	0	120	0
4	0	50	0
3½	0	10	0
3	10	0	0
2½	35	0	0
2	65	0	0
1½	80	0	0
1	125	0	0
½	240	0	0
0	Light Off	0	0

ILFORD Multi-Grade

CONSTANT EXPOSURE

Paper Grade	Blue	Green	Red
5	0	Lt. Off	0
4½	15	210	15
4	10	160	5
3½	15	120	10
3	20	85	15
2½	30	65	30
2	55	55	40
1½	85	45	45
1	120	40	40
½	180	35	35
0	Light Off	35	35

SHORTEST EXPOSURE

Paper Grade	Blue	Green	Red
5	0	Lt. Off	0
4½	0	210	0
4	0	160	0
3½	0	110	0
3	0	70	0
2½	0	30	0
2	15	15	0
1½	40	0	0
1	80	0	0
½	145	0	0
0	Light Off	0	0

IMPORTANT

The Philips PCS 150 Electronic Color System has been designed as an intergral part of the illuminating system of the enlarger. It is mandatory to use the proper condenser/lens combination to avoid light fall off on the edges of the print.

Negative Size	Lens	Bottom Condenser
35mm	40/50 mm	91mm
2¼ x 2¼	75/80mm	135mm

The use of the proper lens/condenser combination insures outstanding color distribution to the corners of the print.

SLIDE DUPLICATING

The Philips Tri-One System can be easily converted into the ultimate slide duplicator. Once the proper filtration and exposure settings have been found, color correction becomes "a piece of cake." If a slide is to be duplicated and it is too green, simply dial out the green and no exposure correction needs to be made!

To convert the enlarger:

1. Rotate the head of the enlarger so that the lens is facing straight up.
2. Lower the head to the bottom of the column.
3. By turning the focusing knob, compress the bellows and remove the lens and the lens board.
4. Using a tripod or copying stand, position your camera facing down into the enlarging head
5. By using the optional mounted slide inserts for the negative carrier, you can quickly and efficiently handle each slide to be copied.

CHANGING A LAMP IN THE LIGHT SOURCE

Remove the enlarger housing cover by unscrewing the two coin-slot screws A, Fig. 4. Switch the Control Unit to the focus position to see which lamp has failed. Unplug the control unit from the wall socket. Unscrew securing bracket #2, Fig. 6, and remove the Light Source from the enlarger. Pull retaining clip #1, Fig. 7, towards the lamp and upwards at the same time to remove it. Now remove the lamp with its lampholder #2 and unplug the lamp. Carefully insert a new lamp. Place it in position and push the retaining clip into position, ensuring that it secures itself. Replace the Light Source in prepared grooves, replace securing bracket and then replace cover.

WARRANTY REGISTRATION

PLEASE...TAKE A MOMENT TO FILL OUT THE WARRANTY REGISTRATION CARD.

FROM TIME TO TIME WE PLAN TO SEND OUT NEWSLETTERS AND TECHNICAL BULLETINGS WITH THE LATEST TECHNIQUES FOR USING THE PHILIPS TRI-ONE ENLARGER AND COLOR HEAD.

WE CAN ONLY MAIL THEM TO YOU IF WE KNOW WHO YOU ARE!

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