

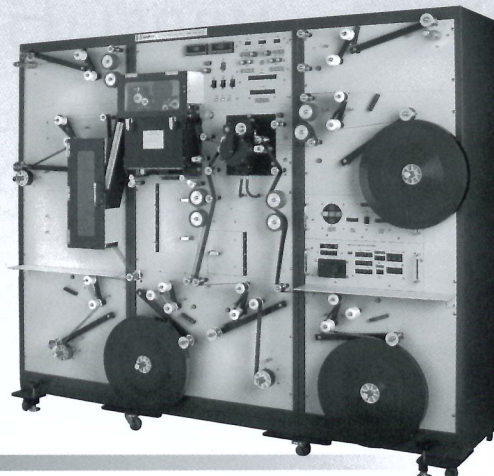
BHP Inc.

M O D E L

6131

Film
Group

Printer Specifications

**Power Requirements:**

Models 6131C and 6131E - Start-up 24 A at 230 VAC, 2 second surge; running 18 A at 230 VAC 4,000 W average.

Models 6131F and 6131R - Start-up 44 A at 230 VAC, 3 second surge; running 33 A at 230 VAC 7,600 W average.

Power Connection:

208/220/240 VAC single phase 50/60 Hz.

Model 6131F and 6131R**External Air Supply Requirement:**

40 lbs/in² (2.72 atm) at 10 ft³/min (283 liters/min).

Model 6131F and 6131R**Fume Exhaust Fan Requirement:**

500 ft³/min (14,200 liters/min) via 8 inch (20.3 cm) duct.

Wet Printing Liquid:

BHP Model 6131F and 6131R Printers are designed for use only with inhibited industrial grade perchloroethylene (tetrachloroethylene) which may be a health hazard if the 6131F or 6131R Printer is not installed and operated, and the liquid handled, in accordance with the instructions in the manual supplied with the Printer.

Printing Speeds:

Model 6131C - 120, 180, 240 and 480 feet/minute (2,200, 3,300, 4,400 and 8,800 meters/hour) bi-directional dry.

Model 6131E - 120, 240, 480 and 960 feet/minute (2,200, 4,400, 8,800 and 17,600 meters/hour) bi-directional dry; 120 and 240 feet/minute (2,200 and 4,400 meters/hour) bi-directional dry sub-title printing with optional 037632 Superimposure/Dual Raw Stock Kit.

Model 6131F - 120 and 180 feet/minute (2,200 and 3,300 meters/hour) unidirectional wet; 120, 180, 240 and 480 feet/minute (2,200, 3,300, 4,400 and 8,800 meters/hour) bi-directional dry.

Model 6131R - 120 and 180 feet/minute (2,200 and 3,300 meters/hour) unidirectional wet; 120, 180, 240 and 480 feet/minute (2,200, 3,300, 4,400 and 8,800 meters/hour) bi-directional dry; 120, 180 and 240 feet/minute (2,200, 3,300 and 4,400 meters/hour) bi-directional dry sub-title printing with optional 037899 Superimposure/Dual Raw Stock Kit.

Film Capacity:

Models 6131C and 6131F - 3,000 feet (915 meters)

Models 6131E and 6131R - 4,000 feet (1,220 meters)

Printing Apertures:

Conform to ANSI/SMPTE Standards; optical aperture for picture printing.

Edge Printing:

Inboard and outboard edge printing lights are provided on 35mm and 16-35/32 dry picture printing heads and on 16-35/32 sound printing heads, inboard only edge printing light on 16mm picture printing heads, 35mm wet picture printing heads and 35mm sound printing heads.

Picture Printing Light Source:

1,200 watt tungsten halogen lamp (BHP part 312748) and BHP/Bell & Howell dichroic mirror additive color light source system. An adjustable DC power supply is provided for the printing lamp.

Picture Printing Exposure Control:

Three BHP Electronic Light Valves separately modulate the red, green and blue components of the print exposure beam over a range of 73 steps of .025 Log E. 50 steps are accessible for automatic, scene-to-scene color/density changes through the Printer Control System. 24 steps are also accessible, in increments of 1/2 steps, as manual trim controls to compensate for emulsion, processing and other sensitometric variables. Light valves may be 'zero closed' to permit Zero cuts for A and B printing. The light valves are controlled through the Printer Control System by either a 3-1/2 inch floppy disk drive and data supplied from floppy disks formatted in the BHP Electronic Media File Format, or by a photo-electric program tape reader and data supplied via standard BHP/Bell & Howell program tapes.

Uniformity of Illumination:

Within .025 log E across aperture width.

Print Resolution:

50 line pairs/mm at center, edges and corners of standard film frame image using EK 5302/7302 or equivalent raw stock printed from SMPTE Registration Test Film.

Print Steadiness:

Printed image movement will not exceed that of negative by more than .0007 inch (.02 mm) in either vertical or horizontal direction.

Sound Printing Apertures:

Conform to ANSI/SMPTE Standards. 35mm Digital Optical Sound Printing Head (BHP part 038562) conforms to ANSI SMPTE 111 Standard and provides four separate exposure apertures for analog sound track/Digital Theater Systems sync track, Dolby Digital sound track, and Sony SDDS sound tracks.

Optical Sound Printing Light**Sources/Exposure control:**

19 VDC, 80 watt lamp (BHP part number 314930) and fiber optics relay system for analog sound tracks. 35mm Digital Optical

Sound Printing Head (BHP part 038562) supplied with a second 19 VDC, 80 watt lamp light source (BHP part 038526) to permit separate control of exposure to the analog/DTS and Dolby Digital sound track areas. 35mm Digital optical Sound Printing Head (BHP part 038562) also supplied with two separate 12 VDC, 20 watt lamps and acrylic light guides to provide exposure to the two Sony SDDS sound track areas. Exposure to all tracks is controlled through separate DC voltage adjustments and subtractively with separate filters.

Control Data Standards:

Printer control data may be entered either from 3-1/2 inch floppy disks containing control data formatted in the BHP Electronic Media File Format as generated by the BHP Printer Control Editor® software, or from a 1 inch (25mm) width tape, punched in standard BHP/Bell & Howell additive color code, BHP/Bell & Howell frame count cuing code, or BHP/Bell & Howell composite color/FCC code.

Cue Information:

Frame count cuing only. Standard printer Models internally switchable for both 16mm and four part 35mm operation and for either feet and frames or frames only FCC. Programmed for automatic first cue as standard.

Cue Memory:

Microprocessor control system capable of storing 2,500 scenes of color, fader control and FCC control data.

Cue Delay Calibration:

Cue delay settings are made from, and displayed in milliseconds on the PCS control panel.

Minimum Scene Lengths:**Minimum distance between color cues:**

Printing Speed	Frames	
	35mm	16mm
120 ft/min	3	4
180 ft/min	3	5
240 ft/min	3	6
480 tumin	5	10
960 ft/min	9	18

Maximum Recommended Light Changes:

Printing Speed	Steps	
	35mm	16mm
120 ft/min	30	20
180 ft/min	26	16
240 ft/min	23	13
480 tumin	15	9
960 ft/min	8	5

Printer Specifications**Picture/Sound Negative****Synchronization:**

Sync distance between picture and sound printing apertures:

Models 6131C and 6131E -

Format	Frames
35mm	21-1/2
16mm	54

Models 6131F and 6131R -

Format	Frames	
	Dry	Wet
35mm	40-3/4	41
16mm	101	103

Negative Leader Length:

Minimum negative leader length for speed stabilization before printing first scene:

Model 6131C -

Printing Speed	Threading Leader	Total Leader
120 ft/min	7 ft (2.1m)	10 ft (3.0m)
180 ft/min	7 ft (2.1m)	10 ft (3.0m)
240 ft/min	7 ft (2.1m)	10 ft (3.0m)
480 ft/min	7 ft (2.1m)	14 ft (4.3m)

Model 6131E -

Printing Speed Wet	Threading Leader	Total Leader
120 ft/min	8 ft (2.4m)	10 ft (3.1m)
240 ft/min	8 ft (2.4m)	10 ft (3.1m)
480 ft/min	8 ft (2.4m)*	15 ft (4.6m)
960 ft/min	8 ft (2.4m)*	40 ft (12.2m)

*10 feet (3.1m) with optional Ramp Exposure Control System

Model 6131F -

Printing Speed Wet	Threading Leader	Total Leader
120 ft/min	11 ft (3.4m)	14 ft (4.3m)
180 ft/min	11 ft (3.4m)	14 ft (4.3m)

Printing Speed Dry	Threading Leader	Total Leader
120 ft/min	11 ft (3.4m)	14 ft (4.3m)
180 ft/min	11 ft (3.4m)	14 ft (4.3m)
240 ft/min	11 ft (3.4m)	14 ft (4.3m)
480 ft/min	11 ft (3.4m)	18 ft (5.5m)

Model 6131R -

Printing Speed Wet	Threading Leader	Total Leader
120 ft/min	9 ft (2.7m)	13 ft (4.0m)
180 ft/min	9 ft (2.7m)	13 ft (4.0m)

Printing Speed Dry	Threading Leader	Total Leader
120 ft/min	8 ft (2.4m)	12 ft (3.7m)
180 ft/min	8 ft (2.4m)	12 ft (3.7m)
240 ft/min	8 ft (2.4m)	12 ft (3.7m)
480 ft/min	8 ft (2.4m)	15 ft (4.6m)

Electronic Fader/Ramp Exposure**Control System:**

BHP Electronic Fader available as an optional accessory with all Model 6131 Printers. Selectable preprogrammed ROMs match fader operation to the sensitometry of three different print stocks. Standard programmable fade lengths - 16, 24, 32, 48, 64, 96 and 128 frames. Fader functions only at 120 and 180 ft/min on Models 6131C, 6131F and 6131R and at 120 and 240 ft/min on Model 6131E. Minimum distance between fader cues:

Printing Speed	Frames	
	35mm	16mm
120 ft/min	4	5
180 ft/min	4	6
240 ft/min	4	6

The optional BHP Ramp Exposure Control System uses the Electronic Fader to minimize raw stock loss due to improper exposure during the time required for speed stabilization during Model 6131E printer start and

during the time required for the printer to stop when using printing speeds of either 480 or 960 feet per minute. After no more than 2 feet after printer start, exposure will be within .025 log E of normal running exposure.

Sub-title Printing:

Bi-directional dry superimposed sub-title printing may be done using both a picture negative and separate sub-title negative on either Model 6131E or 6131R printers equipped with the optional 037632 or 037899 Superimposure/Dual Raw Stock Kit at printing speeds up to 240 feet/minute (4,400 meters/ hour). Sub-title printing on Models 6131C and 6131F printers, and wet sub-title printing on Model 6131R printers is not possible at this time.

Sections Printing:

The Sections Printing System, located on the Operator Control Panel, provides an efficient means for automatically locating and printing any desired portion of a negative.

Negative Pull-Back:

The Pull-Back System, located on the Operator Control Panel, may be used to minimize "short-end" raw stock loss.

Film Cleaners:

Model 6131C - Particle Transfer Roller film cleaners for picture negative and sound negative, or vacuum film cleaners, with vacuum pump, for picture negative, sound negative and raw stock are available as options,

Model 6131E - Particle Transfer Roller film cleaners for picture negative, sound negative, lower raw stock and upper raw stock, or vacuum film cleaners, with vacuum pump, for picture negative, sound negative, lower raw stock and upper raw stock are available as options.

Model 6131F - Particle Transfer Roller film cleaners for picture negative and sound negative are available as options.

Model 6131R - Particle Transfer Roller film cleaners for picture negative, sound negative, lower raw stock and upper raw stock are available as options.

Counters:

Counters are provided on the Set-Up Control Panel for total hours operating time, picture lamp hours and sound lamp hours, and on the Printer Control System for cues, fades and printed footage.

Dimensions:

Model 6131C - 72 inches (183 cm) high, 58 inches (147 cm) wide, 30 inches (76 cm) deep.

Model 6131E - 72 inches (183 cm) high, 84 inches (213 cm) wide, 30 inches (76 cm) deep.

Model 6131F - 75 inches (191 cm) high, 58 inches (147 cm) wide, 30 inches (76 cm) deep.

Model 6131R - 75 inches (191 cm) high, 84 inches (213 cm) wide, 30 inches (76 cm) deep.

Weight:

Model 6131C - 1,000 pounds (450 kg)

Model 6131E - 1,200 pounds (540 kg)

Model 6131F - 1,250 pounds (570 kg)

Model 6131R - 1,450 pounds (660 kg)

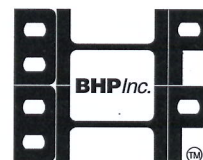
Shipping Weight:

Model 6131C - 1,330 pounds (600 kg)

Model 6131E - 1,650 pounds (750 kg)

Model 6131F - 1,580 pounds (720 kg)

Model 6131R - 1,900 pounds (860 kg)

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