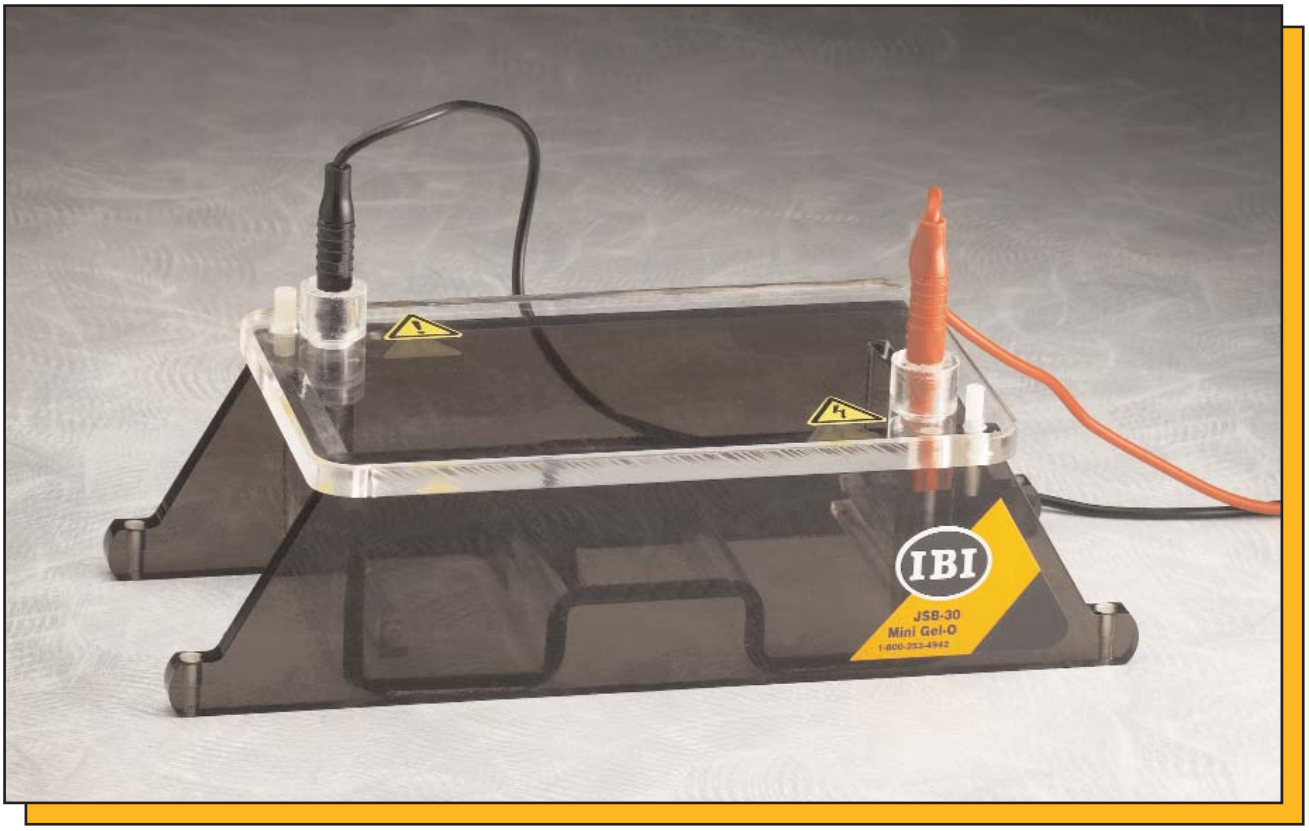
Operator's Manual

JSB-30 - Quick Screen Submarine

Classic Jordan Horizontal Quick Screen Mini Gel-O-Submarine Electrophoresis Unit

Gel Size: 7.5cm x 10cm



IBI Catalog Number: **JSB-30**

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A. Safety Information

Important Safety Information!

- Please read this manual carefully before operating your new Classic Jordan JSB-30 unit.
- This manual contains important operating and safety information.
- To best use the product, please read the entire manual carefully prior to use.
- To avoid possible injury, this product should only be used for its intended purpose.

B. Package Contents

Upon receiving this product, please verify all of the noted parts and accessories are contained in this package.

- Model JSB-30 Buffer Tank
- Model JSB-30 Lid w/Power Cords (Red and Black)
- UV Transmittant Gel Bed,, 10cm
- Casting Fixture, 10cm
- Comb Holder
- One 1.5mm x 13 Tooth Comb
- One Set of Leveling Feet (4ea.)
- Bubble Level
- Operation Manual

NOTE: Carefully inspect all items in the package to insure no items are broken or missing. If there are items broken, please inspect the package carefully for signs of shipping damage. If there is ANY sign of shipping damage, please contact the carrier and file a claim with them immediately. Contact the distributor from which you purchased the item or IBI Scientific for assistance at (800) 253-4942 or (563) 690-0484.

C. Product Specifications

	Height	Width	Length
Unit Dimensions	7.5cm	10.0cm	28.0cm
Gel Dimensions		7.5cm	10.0cm

Maximum Sample Capacity: 18 Samples - 1 Comb
Buffer Capacity: 375ml
Distance Between Electrodes: 16.0cm

D. Operating Instructions

Your new Classsic Jordan JSB-30 Quick Screen Horizontal Unit is cleaned and wiped prior to packaging; however, components should be washed in warm soapy water prior to use in the laboratory. A mild dish washing liquid, like Joy, works well.

Gently wash the tank, lid, UVT casting tray, and casting fixture in warm soapy water, taking care not to scratch any of the acrylic components such as the tank and UVT tray. Do NOT wash Power Cords.

NOTE: It is also recommended that the UVT casting tray be cleaned with alcohol prior to use. Be certain the entire unit is dry prior to use.

Preparation Of the Agarose Gel - DNA

1.) Select the percentage gel necessary to effectively resolve your sample, use Table 1 as a guide.

Table 1 Gel Concentrations and Resolving Ranges

Concentration of Agarose in Gel (% w/V)	Efficient Range of Separation of Linear DNA (Kb)
0.3%	5 - 60
0.6%	1 - 20
0.7%	0.8 - 10
0.9%	0.5 - 7
1.2%	0.4 - 6
1.5%	0.2 - 3
2.0%	0.1 - 2

* Table taken from Sambrook, J., Fritsch, E.F., & Maniatis, T. (1989) Molecular Cloning, A Laboratory Manual, 1, 6. 8, 613.

2.) Weigh an appropriate quantity of agarose (0.3% means 0.3gm of agarose per 100ml of gel volume) and place it into a 250ml flask.

3.) Make up 500ml of either 1X TAE or 1X TBE electrophoresis buffer. See below:

Electrophoresis Buffers

The two most commonly used buffers for horizontal electrophoresis of double stranded DNA in agarose gels are Tris-Acetate-EDTA (TAE) [IB70160] and Tris-Borate-EDTA (TBE) [IB70150]. While the resolving powers of these buffers are very similar, the relative buffer capacities are very different, conferring different run attributes which are summarized below:

TAE (IB70160): Tris-acetate has traditionally been the more commonly used buffer. However, its relatively low buffer capacity will become exhausted during extended electrophoresis, making buffer recirculation necessary in runs exceeding 140 mA-hours. Potential advantages of using TAE buffer over TBE buffer include superior resolution of supercoiled DNA and approximately 10 % faster migration of double-stranded linear DNA fragments.

TBE (IB70150): Tris-borate's significantly greater buffering capacity and its relatively low current draw eliminates the need for recirculation in all but the most extended runs (> 300 mA-hours). TBE buffer systems are not recommended when fragments are to be recovered from the gel after electrophoresis.

4.) Add ethidium bromide (IB40075) to the diluted electrophoresis buffer to a final concentration of 0.5µg/ml.

NOTE: The addition of ethidium bromide to both the gel and the running buffer will result in maximum detection levels by providing high levels of sample fluorescence with an evenly low level of background.

5.) Add 6.6ml of the 1X electrophoresis buffer containing ethidium bromide made in step 4 per millimeter of gel thickness desired, up to a maximum of 50ml, to the flask containing the agarose (IB70035-40-42-45). A 50ml gel solution will make a 7.6mm thick gel. Thinner gels may be made, however care must be taken that the wells are deep enough to accommodate the desired sample volume.

Catalog #	Comb Description	Well Width	Sample Volume Per mm Gel
CSM-0808	0.8mm, 8 tooth	5.82mm	4.66ul
CSM-0813	0.8mm, 13 tooth	3.99mm	3.19ul
CSM-0818	0.8mm, 18 tooth	2.31mm	1.85ul
CSM-1508	1.5mm, 8 tooth	5.82mm	8.73ul
CSM-1513	1.5mm, 13 tooth	3.99mm	5.99ul
CSM-1518	1.5mm, 18 tooth	2.31mm	3.47ul

6.) Make note of the total solution volume so that a degree of evaporation can be determined and corrected for.

7.) Heat the agarose slurry in a microwave oven for 90 seconds. Swirl the flask to make sure any grains sticking to the walls enter into the solution, undissolved agarose appears as small "lenses" floating in the solution. Heat the solution for an additional 30-60 seconds. Re-examine the solution and repeat the heating process until the agarose completely dissolves.

8.) Add deionized water to replace any volume lost through evaporation during the heating process.

Proceed to "Casting the Gel" on page 6.

PREPARATION OF THE AGAROSE GEL - RNA

RNA molecules are separated by electrophoresis through denaturing gels prior to analysis by northern hybridization. Agarose gels containing formaldehyde are commonly used for RNA electrophoresis. Presented below is a general protocol for electrophoresis of RNA using formaldehyde gels.

CAUTION! All equipment and solutions used in the following protocol should be treated with DEPC (diethyl pyrocarbonate) or acetic anhydride prior to use to inhibit RNase activity. It is recommended that dedicated solutions be made solely for RNA work to minimize the risk of sample degradation due to RNase activity.

NOTE: Staining RNA samples with ethidium bromide has been reported to reduce sample blotting efficiency. Therefore, if samples are to be analyzed by northern hybridization after electrophoresis, run a duplicate lane(s) for staining, or minimize the exposure of RNA samples to ethidium bromide by following the post-electrophoresis staining protocol on page 10.

The following protocol will make 50ml of a 1.5% agarose gel containing 1X MOPS [3-(N-Morpholino)-Propanesulfonic Acid]-Acetate-EDTA (MAE) buffer and 2.2M formaldehyde, resulting in a 7.5mm thick gel:

1.) Weigh out 0.5gm of agarose, and place into a 125ml flask.
2.) Add 43.5ml of DEPC (or acetic anhydride) treated water.
3.) Make note of the total solution volume so that degree of evaporation can be determined and corrected for.
4.) Heat the agarose slurry in a microwave oven for 60 seconds. Swirl the flask to make sure any grains sticking to the walls enter into the solution. Undissolved agarose appears as small "lenses" floating in the solution. Heat for an additional 30-60 seconds. Re-examine the solution and repeat the heating process until the agarose completely dissolves.
5.) Add deionized water to replace any volume lost through evaporation during the heating process.
6.) Allow the solution to cool to 60^{o}C. Place the flask in a hood and add 5ml of 10X MAE buffer, and 1.5ml of 37% formaldehyde.

CAUTION: Formaldehyde vapors are toxic. Gel preparation should take place in a hood and solutions and gels containing formaldehyde should be kept covered when possible.

Casting the Gel

1.) Place the gel bed and casting fixture on a lab bench. Check to see that it is level by placing the supplied leveling bubble in the center of the casting fixture. The bubble should appear within the center circle.

CAUTION! Cast agarose gels containing formaldehyde in a hood.

2.) Place the desired comb flat onto the face of the comb holder, and using the supplied thumbscrews tighten the comb to the comb holder. Keep the comb as straight and level as possible (see Photo 1).
3.) Insert the gel bed into the casting fixture by pressing one end of the tray against the thick foam backed casting pad. While compressing the foam pad with the casting tray, move the other end of the tray down into the casting fixture (see Photo 2).
4.) When the gel solution has cooled to approximately 55^{o}C, slowly pour it into the gel bed. If hotter gel solutions are routinely poured, the gel bed may warp over time.
5.) If bubbles form on the surface of the gel upon pouring, use the comb to either pop them or brush them to the sides of the gel. If large bubbles are allowed to harden within the gel, they may cause artifacts to occur during electrophoresis.

NOTE: There are several sizes of gel beds and casting fixtures available, please see page 11 for details.

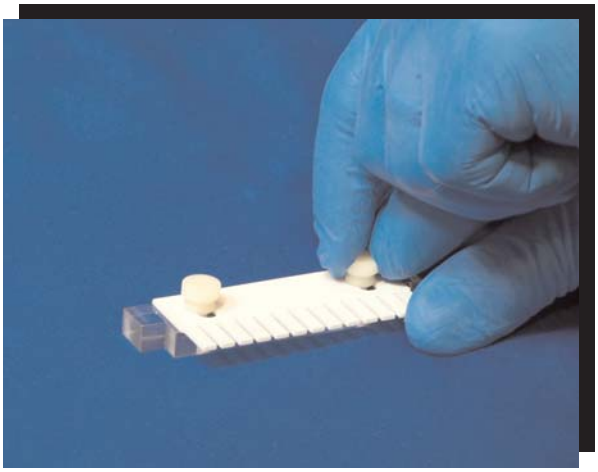

Photo 1

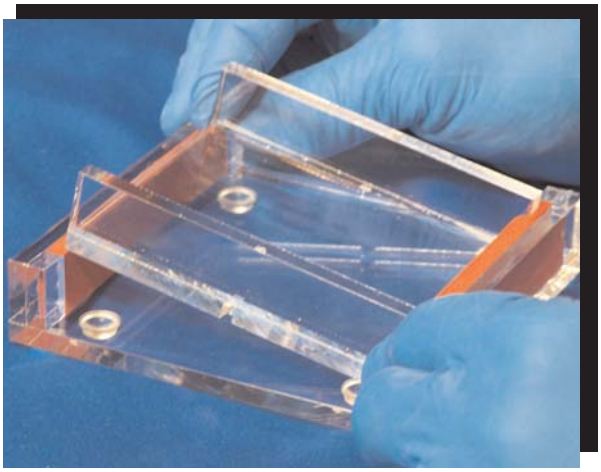

Photo 2

6.) Place one or more combs/comb holders onto the top of the gel bed in the desired location. For best results, place the comb near the end of the casting fixture. If two combs are desired, place the second near the center of the gel bed (see Photo 3).

7.) Allow the gel to harden undisturbed for at least 30 minutes.

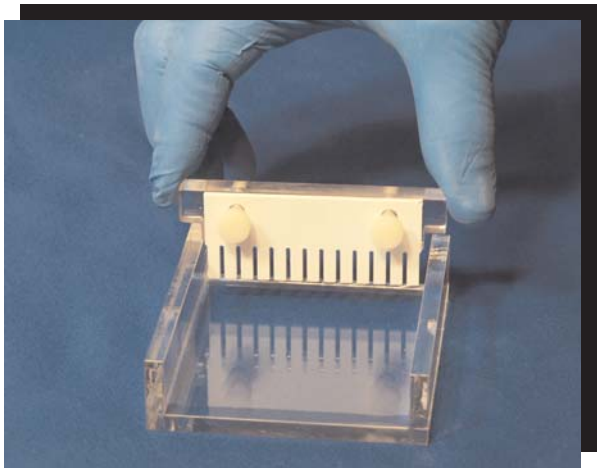

Photo 3

Removing the Comb

1.) When the gel is solidified and fully opaque, carefully remove the comb with a gentle wiggling, upward motion. If the comb is difficult to remove or if a low percentage gel is being used, overlay the comb area with a small volume of 1X electrophoresis buffer to preserve the integrity of the wells. Check the wells to ensure their bases are intact.

CAUTION: Prolonged exposure of the Delrin combs to gels containing formaldehyde will cause them to degrade. Be sure to remove the comb(s) from formaldehyde gels as soon as gel hardening is complete and rinse them well prior to storage.

If a gel is not to be used immediately after preparation, remove it from the casting fixture and place it in a plastic bag or container submerged in 1X electrophoresis buffer containing 1mMNaN3. Store at +4^{o}C.

Loading the Samples into the Gel

1.) Remove the casting tray containing the hardened agarose gel from the casting fixture by pressing the casting tray against the foam pad and lifting at the thin pad end. Place the tray and gel into the main unit assembly such that the samples wells are on the same end as the negative (black) electrode. (see Photo 4)

2.) Fill the unit with the remaining 1X electrophoresis buffer containing ethidium bromide made previously (or 1X MAE buffer for RNA gels), covering the gel to a depth of 1-5mm. Approximately 250ml of buffer will be required.

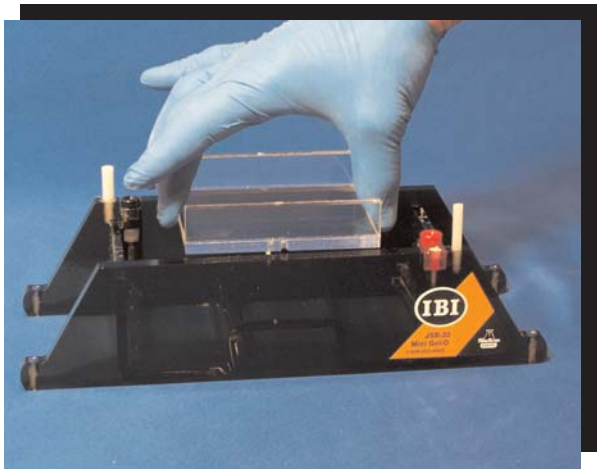

Photo 4

NOTE: Use of the same batch of electrophoresis buffer for both the gel and the running buffer is very important. Slight variations in buffer composition between gel and running buffer may result in ionic or pH gradients that can significantly impact the mobility of the samples.

3.) Pre-run RNA gels at 100V for five minutes prior to loading the samples.

4.) Load the samples into the wells with a micropipette or similar device taking care not to puncture the bottom of the wells or load the sample onto the top of the gel. For improved well visualization during sample loading, be sure that the wells are positioned over the contrasting stripes located on the bottom of the buffer tanks.

Electrical Connections to the Safety Lid

CAUTION: This unit is intended to be used with a power supply which detects a no current condition and prevents a current flow unless there is a completed circuit path. Use of other power supplies may compromise the safety of this unit.

The JSB-30 can only be operated with the safety lid in place. The power cords simply press into the electrode assemblies when the lid is placed onto the buffer tank.

CAUTION: Do not jar or bump the gel box once the lid is place. The electrical connection is made by gravity once the lid is in position. While this design helps to minimize sample disturbance during lid placement, it also may result in a disruption of power to the unit if the lid or unit are disturbed during the run.

Sample Electrophoresis

1.) The JSB-30 is designed for quick screen electrophoresis. The maximum suggested applied voltage for the electrophoresis of DNA in agarose gels using the JSB-30 is 150V. In a 1% TBE gel, this translates into a run time of approximately 1/2 hour. Lower voltages may be used, of course, and as a general rule, a 50V run will take twice as long as a 100V run. Higher voltages may be used to decrease run time, however, if the unit is being operated at higher voltages than 100V, the heat generated during electrophoresis may decrease sample resolution. Such artifacts may be avoided by running the unit in a cold room or adding 1X electrophoresis buffer "ice cubes" to keep the unit properly cooled.

CAUTION: DO NOT EXCEED THE MAXIMUM OPERATING VOLTAGE OF 175 VOLTS.

The suggested run parameters for the electrophoresis of RNA in agarose gels containing formaldehyde is 60-80V. Since the JSB-30 has no capacity for buffer recirculation, the buffer from each reservoir should be collected after 1.5 hours of electrophoresis and properly disgarded.

CAUTION: Formaldehyde vapors are toxic. Electrophoresis of RNA in gels containing formaldehyde should take place within a fume hood.

2.) Follow the sample migration into the gel using the loading dye as an indicator. (See “Choice of Buffer” for the Sample Loading Buffer recipe) Allow the samples to migrate until the fragments have separated, normally until the bromophenol blue dye front has migrated 3/4 of the way down the gel.

NOTE: If the gel contains ethidium bromide, the progress of electrophoresis may be monitored during the run by turning off the power supply, removing the lid, and shining a medium-wave UV light onto the gel. The resolved bands will appear as orange bands against a dark purple background.

Detection and Documentation of Separated Fragments

1.) At the completion of the run, turn off the power supply and disconnect the leads. Remove the lid (it is not necessary to remove the power leads from the lid) and remove the gel tray.
2.) To stain RNA gels containing formaldehyde post electrophoresis, soak the gel in 1L of DEPC-treated water overnight at room temperature. Transfer the gel to a solution of 20X SSC containing 0.5µg/ml of ethidium bromide, stain for 5 -10 minutes.

3.) Ethidium bromide stained samples are visualized by exposing them to medium wavelength (312nm) UV light. Because the gel casting tray is UV transmittant, the gel does not need to be removed from the tray before viewing. Place the gel casting tray containing the gel on the filter surface of a UV transilluminator for convenient viewing.
4.) Sample banding patterns may be documented by autoradiography.

Choice of Buffer

NOTE: Tris-borate buffer allows faster sample migration than tris-acetate buffers with no apparent loss of resolution. A tris-borate buffer is usually the choice for quick-screening. Phosphate buffers are used with glyoxal or formaldehyde gels.

The two most commonly used buffers for horizontal electrophoresis of double stranded DNA in agarose gels are Tris-Acetate-EDTA (TAE) and Tris-Borate-EDTA (TBE). While the resolving powers of these buffers are similar, the relative buffer capacities are very different, conferring different run attributes which are summarized below:

- **Tris-Acetate** has traditionally been the more commonly used buffer. However, its relativity low buffer capacity will become exhausted during extended electrophoresis, making buffer recirculation necessary in runs exceeding 140mA-hours. Potential advantages of using TAE buffer over TBE buffer include superior resolution of supercoiled DNA and approximately 10% faster migration of the double-stranded linear DNA fragments.
- **Tris-Borate** has a significantly greater buffering capacity and its relativity low current draw eliminates the need for recirculation in all but the most extended runs (>300mA-hours). TBE buffer systems are not recommended when fragments are to be recovered from the gel after electrophoresis.

TRIS ACETATE EDTA BUFFER (TAE) - IB70160:

1X Working Concentration:	10X Stock Solution:
40 mM Tris base	48.4 g Tris Base
20 mM Glacial Acetic Acid (NaOAc)	16.4 g or 11.42ml NaOAc
2.0 mM EDTA	7.4 g EDTA or 20ml 0.5M EDTA (pH 8.0)
pH 8.3	H_2O to 1L

TRIS BORATE EDTA BUFFER (TBE) - IB70150:

1X Working Concentration:	10X Stock Solution:
89 mM Tris Base	108g Tris Base
89 mM Boric Acid	55g Boric Acid
2.0 mM EDTA	6.72g EDTA or 40ml 0.5M EDTA (pH 8.0)
pH 8.0	H_2O to 1 liter

MOPS ACETATE EDTA (MAE) - IB70175:

Solutions containing MOPS should be wrapped in aluminum foil and stored at room temperature. The buffer tends to yellow with age. Light yellow buffer may be used, however, dark yellow solutions should be discarded.

1X Working Concentration:	10X Stock Solution:
20 mM MOPS (pH 7.0)	41.8g MOPS
8 mM NaOAc	800 ml DEPC treated H_2O
1 mM EDTA (pH 8.0)	adjust pH to 7.0 with NAOH and add:
	16.6ml 3M DEPC-treated NaOAc
	20.0ml 0.5 M DEPC-treated EDTA, pH 8.0
	bring to 1.0 liter and filter

Solutions containing MOPS should be wrapped in aluminum foil and stored at room temperature. The buffer tends to yellow with age. Light yellow buffer may be used, however, dark yellow solutions should be discarded.

Sample Loading Buffer - DNA

10X Stock Solution:

50 % Glycerol
100mM Na_3EDTA
1% SDS
0.1% Bromophenol Blue
pH 8.0

Sample Loading Buffer - RNA

5X Stock Solution:

1 mM EDTA, pH 8.0
0.25 % Bromophenol Blue
0.25 % Xylene Cyanol
50 % Glycerol

VOLTAGE

The JSB-30 is designed for rapid electrophoresis with moderate resolution. Suggested voltage is 100V for a 30 to 60 minute run. Higher voltages may be used to decrease run time, however, the volt-hours should remain constant. One should not exceed 200 volt-hours without changing the buffer in the unit. If the unit begins to operate at voltages higher than 150V we recommend adding 1X electrophoresis buffer ice cubes to keep the unit properly cooled.

STAINING SOLUTION

The simplest staining procedure is to add 1-5g Ethidium Bromide per ml of gel solution just prior to casting the gel. Alternatively, the gel can be stained in a solution of 5uG ethidium bromide/ml of 1X gel buffer for 15 minutes. Destain in deionized water or 1mM $MgSO_4$ for two minutes.

E. MAINTENANCE OF UNIT

Care must be observed in the handling of this unit.

DO NOT expose the unit to temperatures above 60°C

DO NOT expose the unit to organic solvents
DO NOT clean the unit with abrasive cleaners or cleaning aids.

Use mild cleaning solution (dish soap recommended) for routine cleaning. For heavier dirt, hand wash with soft cloth. In most cases, a rinse in deionized water is sufficient to clean the unit. To remove residual Ethidium Bromide from the gel unit, soak occasionally in 1% commercial bleach solution for 16 hours, and rinse well.

NOTE: The degradation of acrylic by solvents may result in substantial discoloration, cracking, warpage or etching of the electrophoresis unit. DO NOT apply any of the following solvents to the unit: benzene, xylene, toluene, chloroform, carbon tetrachloride, alcohol, phenol, ketones, or esters. Do not use the Delrin combs supplied with this unit in formaldehyde for long periods of time. The formaldehyde damages these combs with long exposures.

If an electrode breaks, contact Technical Support and Information Services at (800) 253-4942 for an electrode replacement.

Elimination of RNase Contamination

Should treatment of the unit to eliminate RNase contamination be desired, clean the unit with a mild detergent as described above, followed by soaking for 10 minutes in a solution of 3% hydrogen peroxide and then 1 hour in 0.1% DEPC (diethyl pyrocarbonate). Pour out final rinse and air dry.

CAUTION: DEPC is a suspected carcinogen, handle with care.

Alternatively, soak the unit and accessories in freshly made 2.2mM acetic anhydride treated water (200ul/liter) for at least five minutes. Solutions for RNA work (electrophoresis buffers, etc.) may be made from the same acetic anhydride treated water as well.

F. Replacement Parts & Accessories

JSB-30 Accessory Items and Replacement Parts:

Catalog #	Description
CS-3010	JSB-30 Casting Fixture, 10.0cm
GB-3010	JSB-30 UVT Gel Bed, 10.0cm
CS-3005	JSB-30 Casting Fixture, 5.0cm
GB-3005	JSB-30 UVT Gel Bed, 5.0cm
CS-3075	JSB-30 Casting Fixture, 7.5cm
GB-3075	JSB-30 UVT Gel Bed, 7.5cm
CH-30	JSB-30 Comb Holder
HA-30-B	Replacement JSB-30 Electrode Assembly, Black
HA-30-R	Replacement JSB-30 Electrode Assembly, Red
JSB-30-C	Replacement Lid, w/Power Cords
SPC-M4	Replacement Power Cords

JSB-30 Combs

Catalog #	Description	Well Width	Sample Volume per mmGel
CSM-0808	Analytical Comb, 0.8mm x 8 tooth	5.82mm	4.66ul
CSM-0813	Analytical Comb, 0.8mm x 13 tooth	3.99mm	3.19ul
CSM-0818	Analytical Comb, 0.8mm x 18 tooth	2.31mm	1.85ul
CSM-1508	Analytical Comb, 1.5mm x 8 tooth	5.82mm	8.73ul
CSM-1513	Analytical Comb, 1.5mm x 13 tooth	3.99mm	5.99ul
CSM-1518	Analytical Comb, 1.5mm x 18 tooth	2.31mm	3.47ul

G. Related Classic Jordan Products

JSB-302	Classic Jordan JSB-302 (15 X 10cm Double-Wide Horizontal Electrophoresis Unit) Comes complete with buffer tank, lid w/power cords, casting fixture 10cm, UVT gel bed 10cm, 1.5mm by 27-tooth comb, comb holder, leveling bubble and manual.
JSB-96	Classic Jordan JSB-96 (23.5 X 15cm Ultra-Wide Horizontal Electrophoresis Unit) Comes complete with buffer tank, lid w/power cords, casting fixture 15cm, UVT gel bed 15cm, two 1.5mm by 25-tooth combs, two 1.5mm by 50tooth combs, two comb holders, leveling bubble and manual.
JVD-80	Classic Jordan JVD-80 (16 X 18cm Dual Slab Vertical Electrophoresis Unit) Comes complete with upper and lower buffer chambers, two pairs of glass plates (inner & outer), two 1.5mm by 18-tooth combs, 1.5mm spacer set, power cords (red & black), eight sandwich clips, and manual.
SH-300	IBI 300V Power Supply (300V / 400mA / 120W) The SH-300 has constant voltageor constant current capability, memory settings, and a LED display. Comes complete with power supply, 120V grounded power cord, and manual.
SH-500	IBI 500V Power Supply (500V / 300mA / 150W) The SH-500 has constant voltage or constant current capability, memory settings, gel saver feature, and a LED display. Comes complete with power supply, 120V grounded power cord, and manual.

H. Related IBI Certified Reagents

IB01010	6X Loading Dye	5ml
IB01015	5X RNA Gel Loading Dye Kit	100RxN
IB01020	10X TBE Pouch	1 Pouch
IB01030	25X Tris-Acetate EDTA Buffer Pouch	1 Pouch
IB74020	Acridine Orange	25gm
IB70016	Acrylamide:Bisacrylamide, 29:1	40gm
IB70017	Acrylamide:Bisacrylamide, 29:1	200gm
IB70020	Acrylamide	100gm
IB70022	Acrylamide:Bisacrylamide, 19:1	40gm
IB70023	Acrylamide:Bisacrylamide, 19:1	200gm
IB70024	Acrylamide	500gm
IB70026	Acrylamide	1.5kg
IB70028	Acrylamide	3kg
IB70018	Acrylamide:Bisacrylamide, 37.5:1	40gm
IB70019	Acrylamide:Bisacrylamide, 37.5:1	200gm
IB70010	Acryliqud-40 (40% (w/v) Acrylamide solution)	500ml
IB70035	Agarose	25gm
IB70040	Agarose	100gm
IB70041	Agarose	250gm
IB70042	Agarose	500gm
IB70045	Agarose	1kg
IB70050	Agarose, Low Melting Point	50gm
IB70051	Agarose, Low Melting Point	25gm
IB70056	Agarose, Low Melting Point	100gm
IB70057	Agarose, Low Melting Point	250gm
IB70058	Agarose, Low Melting Point	500gm
IB70059	Agarose, Low Melting Point	1Kg
IB70052	3:1 Super Sieve Agarose	50gm
IB70053	3:1 Super Sieve Agarose	250gm

IB70054	Ultra Sieve Agarose	25gm
IB70055	Ultra Sieve Agarose	250gm
IB70060	Agarose, PFGE	25gm
IB70061	Agarose, PFGE	50gm
IB70062	Agarose, PFGE	100gm
IB70063	Agarose, PFGE	250gm
IB70064	Agarose, PFGE	500gm
IB70065	Agarose, PFGE	1Kg
IB15720	Alcohol-Anhydrous (Ethanol)	500ml
IB15721	Alcohol-Anhydrous (Ethanol)	1L
IB15724	Alcohol-Anhydrous (Ethanol)	4L
IB15620	Ammonium Acetate	500gm
IB70080	Ammonium Persulfate	100gm
IB02040	Ampicillin, Sodium Salt	25gm
IB70100	Bisacrylamide	25gm
IB70102	Bisacrylamide	100gm
IB70096	Boric Acid	2.5kg
IB74040	Bromophenol Blue	25gm
IB02010	Carbenicillin	1gm
IB02020	Carbenicillin	5gm
IB37060	Cesium Chloride, Optical Grade	100gm
IB37062	Cesium Chloride, Optical Grade	1kg
IB37042	Cesium Chloride, Technical Grade	1kg
IB02080	Chloramphenicol	25gm
IB05040	Chloroform	500ml
IB21040	Dithiothreitol (DTT)	5gm
IB21045	Dithiothreitol (DTT)	25gm
IB70180	EDTA, disodium salt	100gm
IB70182	EDTA, disodium salt	500gm
IB70184	EDTA Solution (0.5M), pH 8	100ml
IB70185	EDTA Solution (0.5M), pH 8	4x100ml
IB40060	Ethidium Bromide	5gm
IB40075	Ethidium Bromide Solution, 10mg/mL	10ml
IB72028	Formamide, ACS Grade	500ml
IB72020	Formamide, Spectral Grade	100ml
IB72024	Formamide, Spectral Grade	500ml
IB02030	Gentamycin Solution	20ml
IB15760	Glycerol	500ml
IB15762	Glycerol	1L
IB70194	Glycine	2.5kg
IB05080	Guanidine Hydrochloride	500gm
IB05085	Guanidine Hydrochloride Solution (6M)	500ml
IB05100	Guanidine Thiocyanate	500gm
IB01120	HEPES, Sodium Salt	100gm
IB01130	HEPES, Free Acid	50gm
IB01131	HEPES, Free Acid	250gm
IB01132	HEPES, Free Acid	500gm
IB01133	HEPES, Free Acid	1Kg
IB70012	InstaBIS-(2% (w/v) Bisacrylamide solution)	500ml
IB70000	InstaPAGE-(30% sol., 19:1 Acrylamide:Bisacrylamide)	500ml
IB70001	InstaPAGE-(30% sol., 19:1 Acrylamide:Bisacrylamide)	1L
IB70002	InstaPAGE-(30% sol., 29:1 Acrylamide:Bisacrylamide)	500ml
IB70003	InstaPAGE-(30% sol., 29:1 Acrylamide:Bisacrylamide)	1L
IB70004	InstaPAGE-(30% sol., 37.5:1 Acrylamide:Bisacrylamide)	500ml
IB70005	InstaPAGE-(30% sol., 37.5:1 Acrylamide:Bisacrylamide)	1L

IB70006	InstaPAGE-(40% sol., 29:1 Acrylamide:Bisacrylamide)	500ml
IB70007	InstaPAGE-(40% sol., 29:1 Acrylamide:Bisacrylamide)	1L
IB70008	InstaPAGE-(40% sol., 37.5:1 Acrylamide:Bisacrylamide)	500ml
IB70009	InstaPAGE-(40% sol., 37.5:1 Acrylamide:Bisacrylamide)	1L
IB70014	InstaPAGE-(40% sol., 19:1 Acrylamide:Bisacrylamide)	500ml
IB70015	InstaPAGE-(40% sol., 19:1 Acrylamide:Bisacrylamide)	1L
IB02100	IPTG	1gm
IB02105	IPTG	5gm
IB02125	IPTG	25gm
IB05120	Isobutanol	500ml
IB15730	Isopropanol	500ml
IB15735	Isopropanol	1L
IB02120	Kanamycin Sulfate	25gm
IB15750	Methanol - HPLC Grade	1L
IB15755	Methanol - Ultra Pure Grade	500ml
IB15756	Methanol - Ultra Pure Grade	1L
IB15757	Methanol - Ultra Pure Grade	4L
IB74050	Methylene Blue, Chloride, trihydrate	25gm
IB70170	MOPS	100gm
IB70175	MOPS Decp, 10X	100ml
IB05160	Phenol - Crystalline	100gm
IB05164	Phenol - Crystalline	500gm
IB05174	Phenol Chloroform Solution	400ml
IB05182	Phenol, Buffer Saturated, pH 6.6-8.0	100ml
IB05184	Phenol, Buffer Saturated, pH 4.3	100ml
IB05400	Proteinase K	100mg
IB05406	Proteinase K Solution (20mg/mL)	5ml
IB07080	Sarkosyl	100gm
IB07060	Sodium Dodecyl Sulfate (SDS)	100gm
IB07062	Sodium Dodecyl Sulfate (SDS)	500gm
IB07064	Sodium Dodecyl Sulfate (SDS) Solution, 20%	100ml
IB72010	SSC (20X)-Nucleid Acid Prep and Blotting Solution	1L
IB72015	SSPE (20X) - Nucleid Hybridization Solution	1L
IB02180	Streptomycin Sulfate	25gm
IB37160	Sucrose	1kg
IB70120	TEMED	50gm
IB02200	Tetracycline Hydrochloride	25gm
IB70142	Tris	500gm
IB70144	Tris	1kg
IB70145	Tris	5kg
IB70150	Tris Borate EDTA (10X TBE Buffer)	1L
IB70153	Tris Borate EDTA (10X TBE Buffer)	4L
IB70154	Tris Borate EDTA (10X TBE Buffer)	10L
IB70155	Tris Borate EDTA (20X Modified TBE Buffer)	1L
IB70160	Tris Acetate EDTA (10X TAE) Buffer	1L
IB70162	Tris-Hydrochloride	500gm
IB07100	Triton X-100	100ml
IB72060	Urea	500gm
IB72064	Urea	2.5kg
IB02260	X-GAL	1gm
IB02264	X-GAL	100mg
IB72120	Xylene Cyanol FF	25gm

I. References

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2.) Sambrook, J., Fritsch, E.F., and Maniatis, T., (1989). Molecular Cloning, A Laboratory Manual, volume 1. Cold Spring Harbor Press, New York.

3.) Selden, R.F. (1988) Analysis of RNA by Northern Hybridization," in Current Protocols in Molecular Biology, F.M. Ausubel, et. al, editors, volume 1, p.4.9.1. Green Publishing Associates and Wiley-Interscience.

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