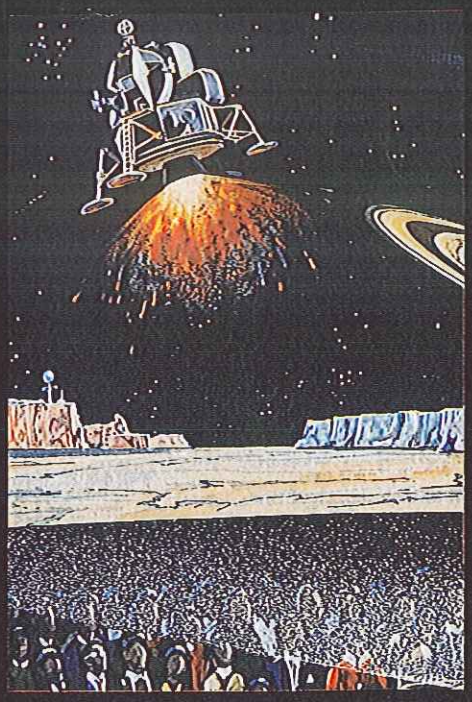
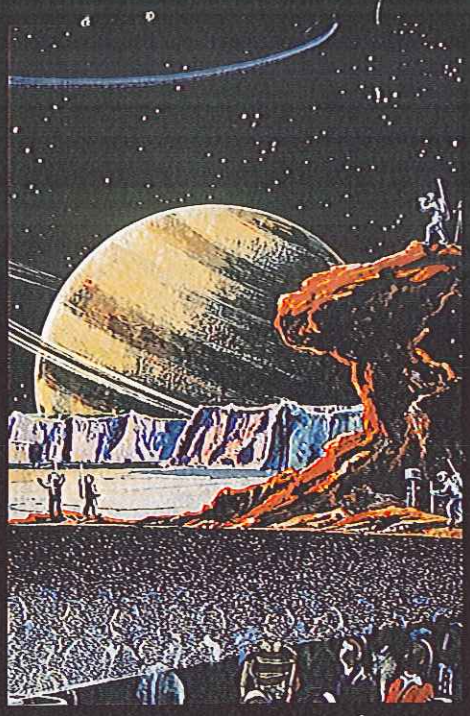
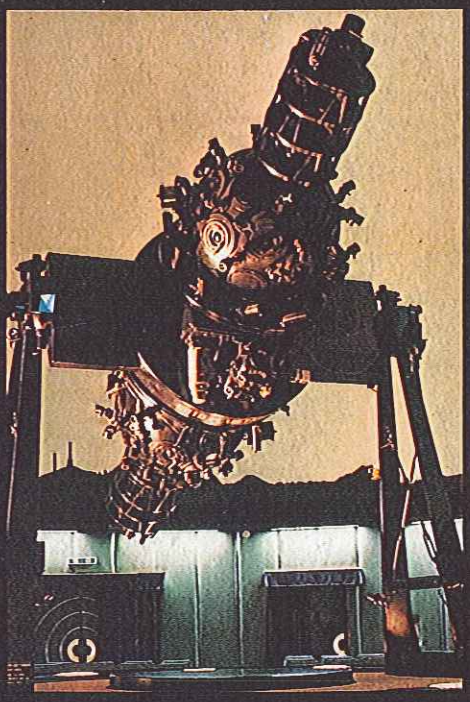
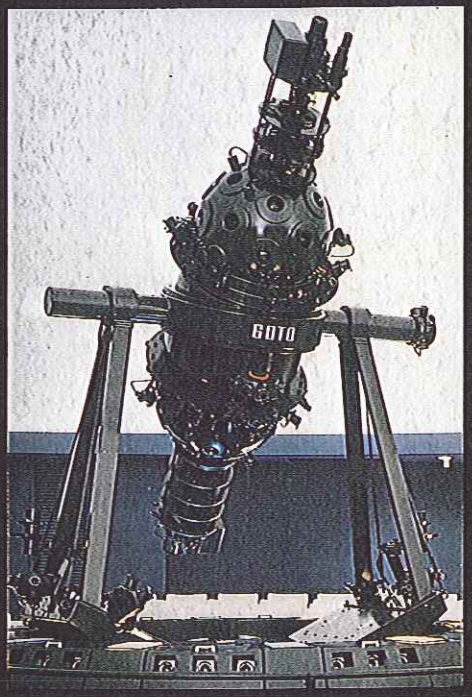
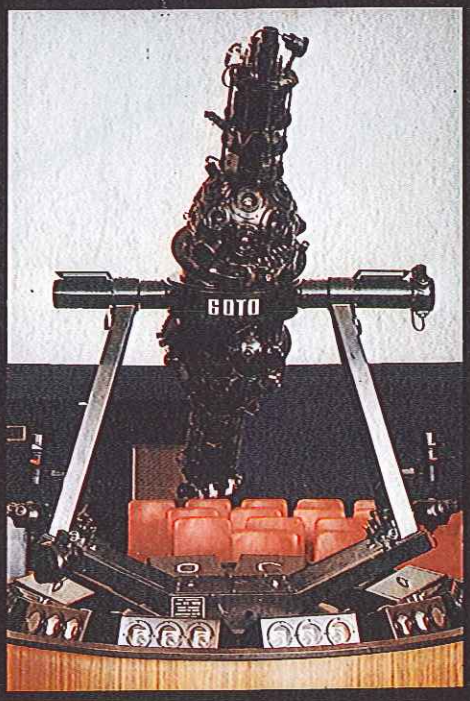
GOTO PLANETARIUM & OPTICAL EQUIPMENTS

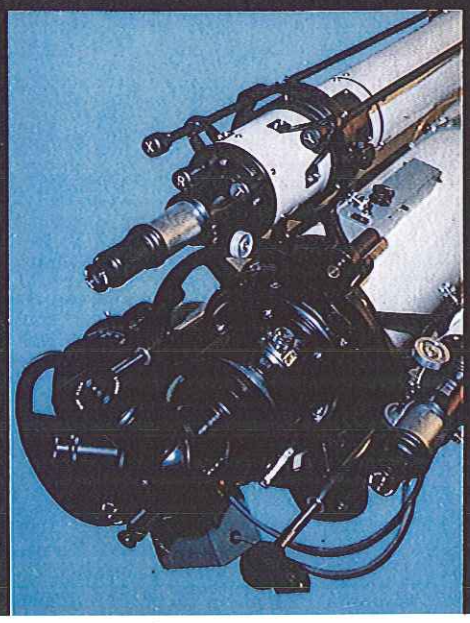




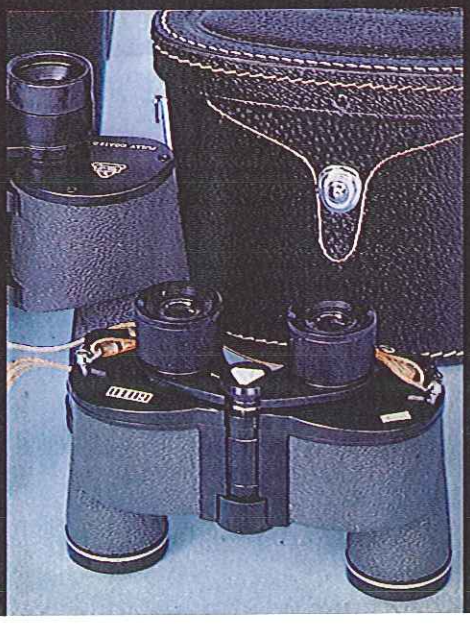


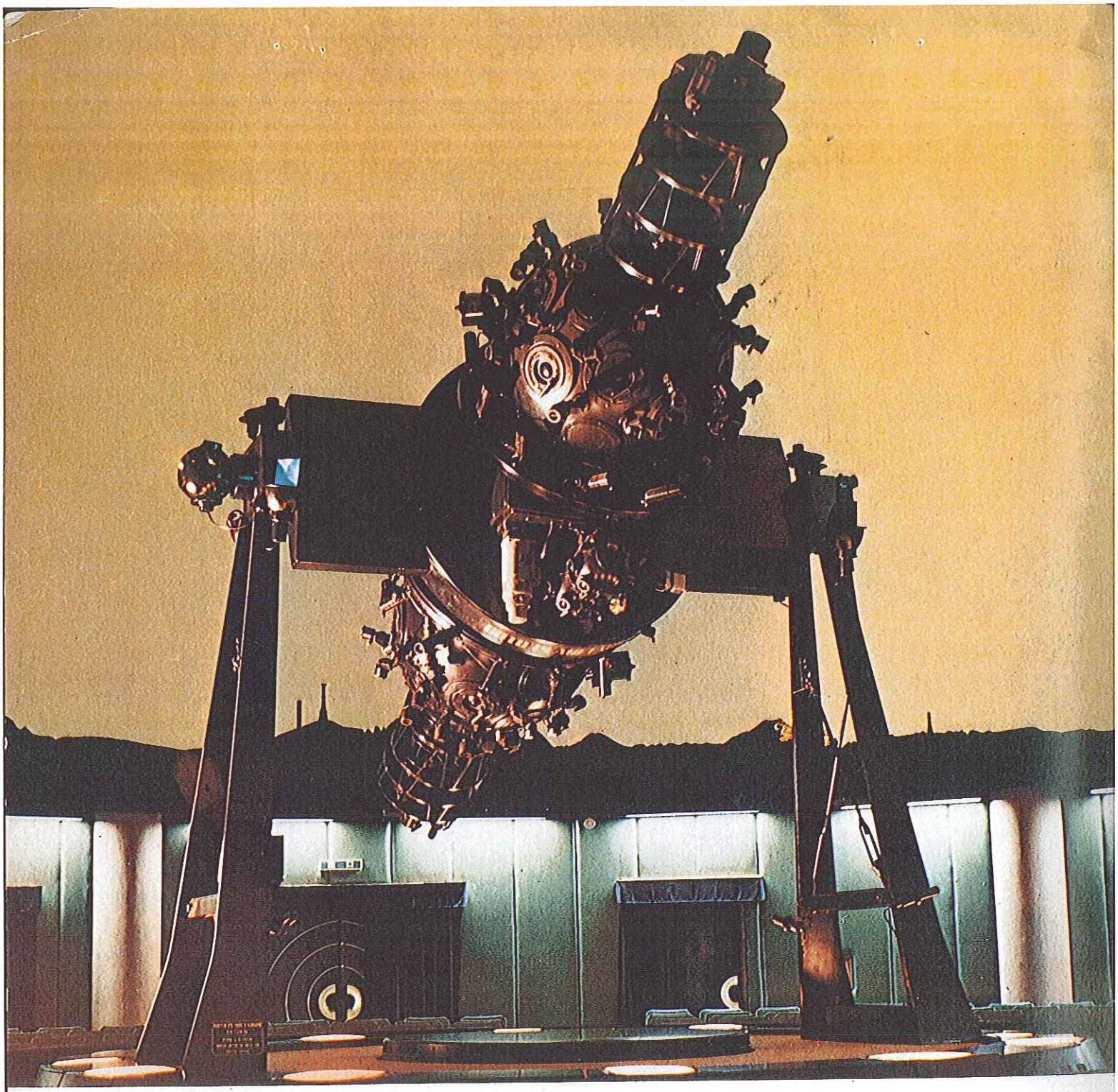






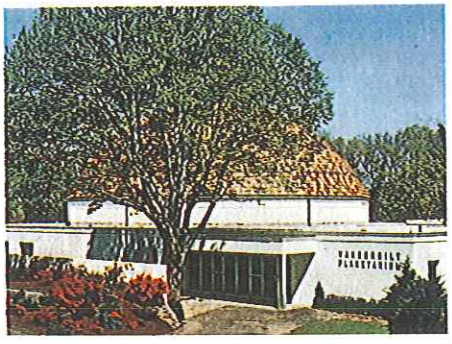






#2330 GOTO PLANETARIUM MODEL GL-20

This instrument incorporates all of the scientific, technical and artistic talent of the Goto planetarium systems. In the spring of 1971 this instrument was installed in the Vanderbilt Museum located in New York State in the U.S.A. It is



introduced in the August 1972 edition of Sky and Telescope magazine, with its functions and accuracy being highly praised. There are 12,000 stars projected with a high degree of accuracy. Further the planet motion accuracy is said to be high. The planet cage functions include solar and lunar eclipses including provision for partial eclipse. Jupiter and Saturn are projected through 1:6 zoom lenses. By means of a unique equation-of-center mechanism, the moon can simulate a major perturbation. The moon phasic system (cusps inclination) can be adjusted by remote control in reference to its solar angle. As far as optics are concerned no instrument has finer optics than is to be found in this planetarium.

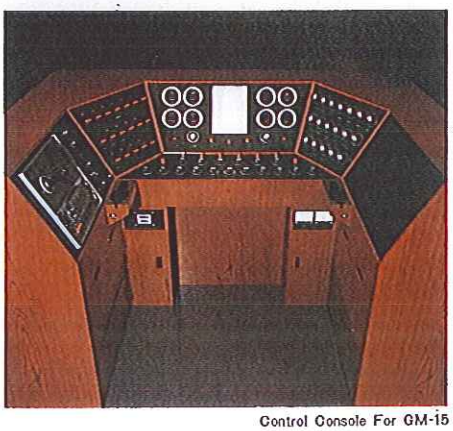
This same instrument is installed in the planetarium facility of the City of St. Louis (60 ft. dome). It is also the instru-

Dome Size : 18 ~ 20m (60' ~ 66')
Accommodation : 400 ~ 450 persons
Stars : 12,000 stars up to 6.75th mag. with 38 Bright stars, Milky-ways, 22 Nebulae & Clusters, 3 Variable stars, 3 Super Novas, 3 Radio stars, a Comet, Sirius parallax, 18 Constellation pictures projs.
Solar System : Sun with Corona & Auleole & Gegenshein, Moon, Mercury, Venus, Mars, Jupiter, Saturn (Each has 2 projs.)
Both Sun and Moon have Eclipse, Moon phases cusps inclination adjustable, Both Jupiter and Saturn have 1;6 zooming effect
Coordinates : Meridian, Equator (Coordinates system), Ecliptic, Precessional-scales (include Ecliptic poles), Polar points, Zenith, Galactic poles.
Motions : Diurnal, Annual (Keplerian motion), Latitudinal (Automatic home latitude reset), Precessional (Automatic reset),(Diurnal-Annual & Annual-Precessional coupling.)
Lightings : Daylights, Moonlights, Morning and evening Glow/twilights (Glows direction adjustable), Mounting illuminations
Control : Remote control console (Sidereal-time indicator, Year indicator, Latitude indicator, Precession indicator, Sun position indicator (include Sunrise preannouncement pilot lamp), Moon phase indicator, Glows direction indicator, 2 Pointers are equipped)
Others : Can be optionally equipped Sky-line projs. and etc.

#2250 GOTO PLANETARIUM MODEL GM-15

The M – 2 (Jupiter) model planetarium has been completely redesigned into a high performance instrument for middle size city planetarium installations. This instrument provides all the functions of the larger planetariums thus it has a greater variety and effectiveness of projection functions providing for a sharp and beautiful sky image on the dome. Using improved star plates the star images are projected within accurate positions and magnitude limitations. Besides ordinary coordinates system, it has a azimuth-circle and a altitude projectors. Included with this instrument are many other auxiliary projectors, functions and many versatile indicators making it ideal for demonstration, educational and theatrical purposes.

Dome Size : 15 ~ 16 m (49' ~ 52.5')
Accommodation : 230 ~ 260 persons
Stars : 8,500 stars up to 6.5th mag. with 17 Bright stars, Milky-ways, 10 Nebulae & Clusters, 2 Variable stars, 3 Super Novas, a Radio star, a Comet, 12 Constellation picture projs.
Solar System : Sun with Aureole & Gegen-shein, Moon, Mercury, Venus, Mars, Jupiter, Saturn (Each has 2 projs. except Moon which has dual image projection)
Coordinates : Meridian, Equator, Ecliptic, Precessional scales (include Ecliptic poles), Zenith, Galactic poles, Polar points, Azimuth-circle, Altitude projs.
Motions : Diurnal, Annual (Keplerian motion), Latitudinal (Automatic home latitude reset), Precessional, (Diurnal-Annual coupling)
Lightings : Daylights, Moonlights, Morning and evening glow/twilights (Glows directions adjustable), Mounting illuminations
Control : Remote control console (Sidereal-time indicator, Year indicator, Latitude indicator, Precession indicator, Sun position indicator (include Sunrise preannouncement pilot lamp), Moon phase indicator, Glows direction indicator, 2 Pointers are equipped)
Others : Can be optionally equipped Sky-line projs. and etc.
Projection : Precision optical lens system

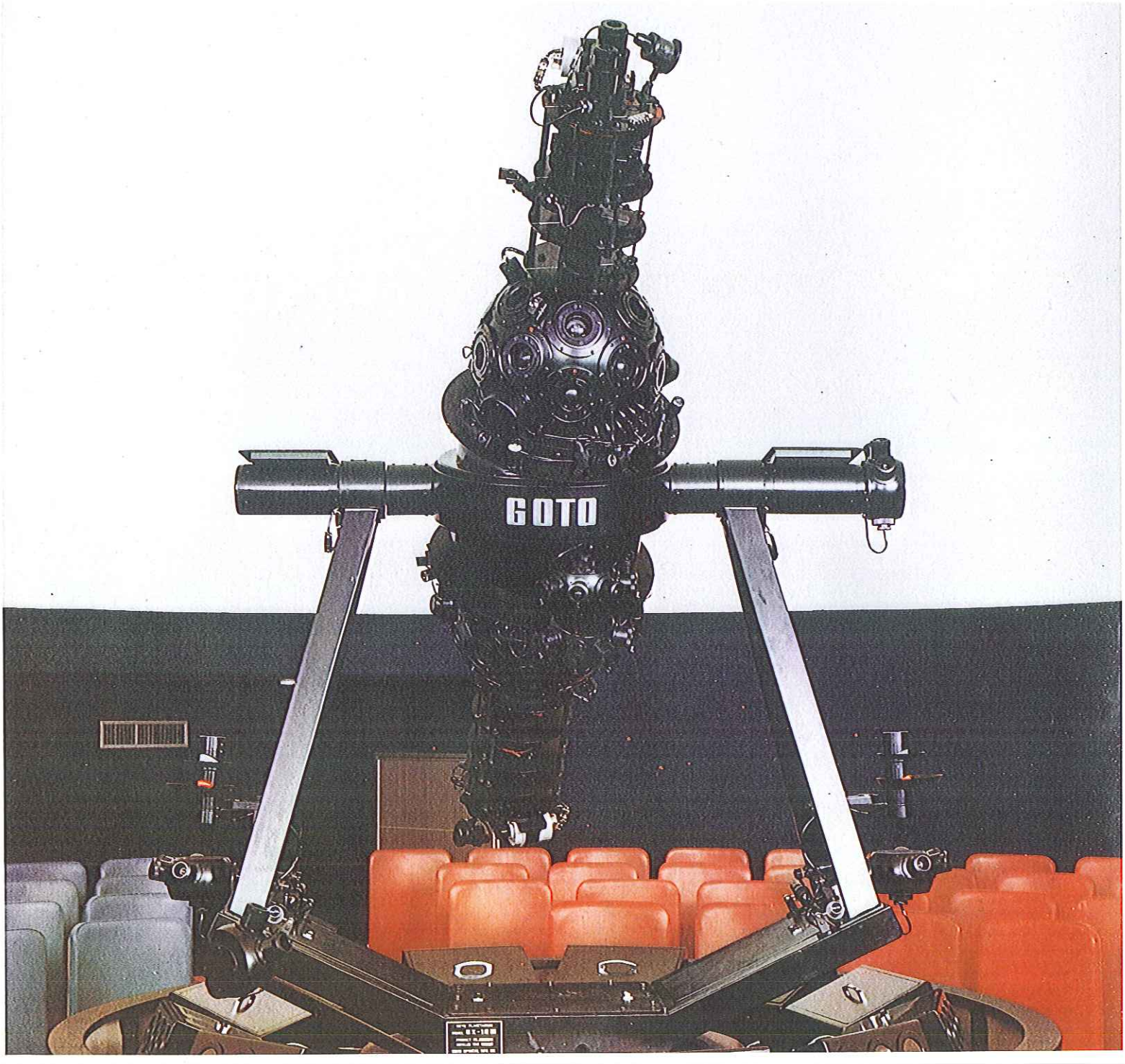


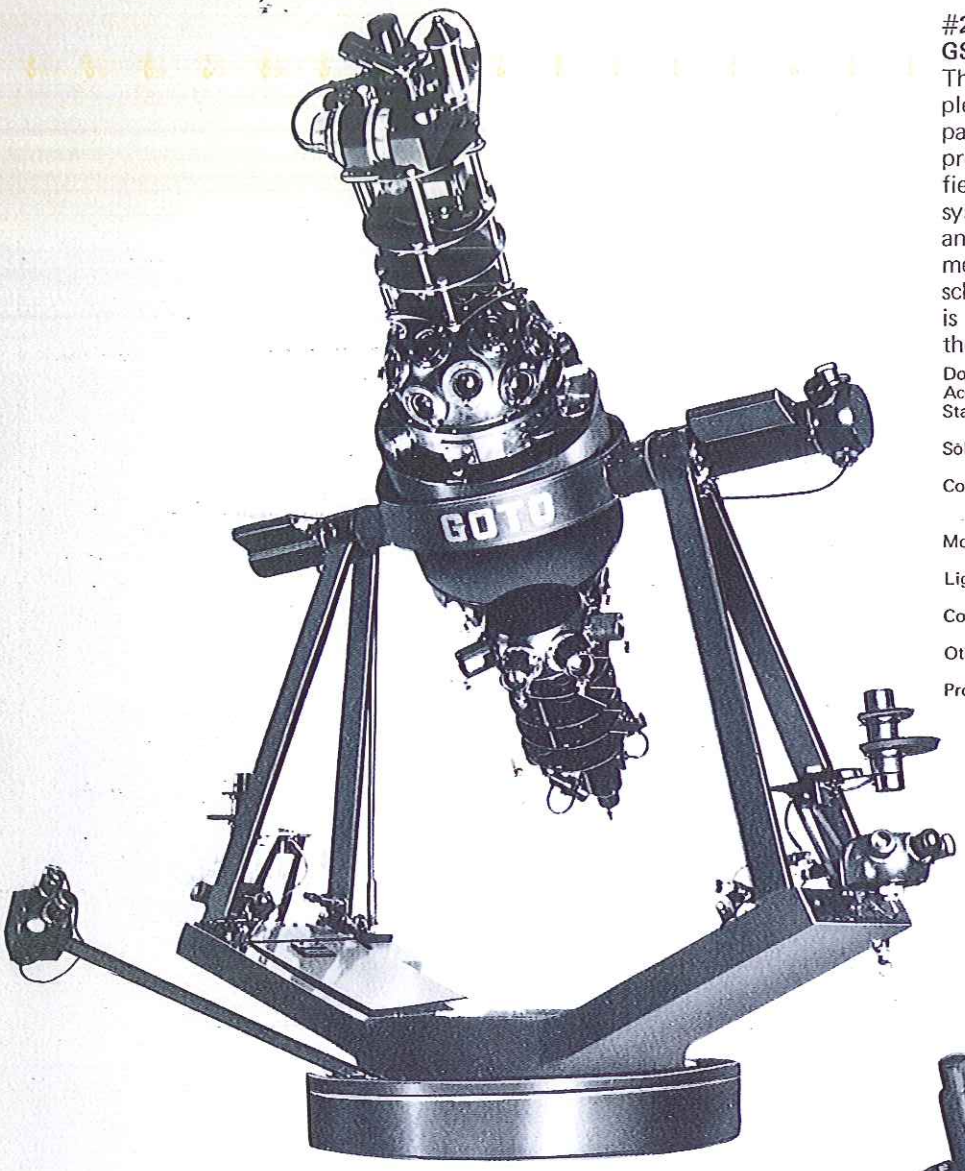
Control Console For GM-15

#2230 GOTO PLANETARIUM MODEL GX-10

This instrument is built for a star theater large enough to seat about 100 people. In terms of its mechanics and its compactness, it is a representative Goto planetarium. This is a remodeled version of the M – 1 (Mars) instrument which is now in operation in over a 100 cities throughout the world. The functions and accuracy of this planetarium are those of the Goto large size planetarium with all motions and functions controlled from a remote console. This instrument performs very smoothly and correctly, and the sharpness of the stars is great. There are many auxiliary projectors and functions plus a variety of alternate parts to increase the capabilities of this planetarium.

Dome Size : 10 or 12 m (33' or 40')
Accommodation : 100 ~ 150 persons
Stars : 6,500 stars up to 6.25th mag. with 17 Bright stars, Milky-ways, 10 Nebulae & Clusters, 2 Variable stars
Solar System : Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn (Each has 2 projs. except Moon which has dual image projection)
Coordinates : Meridian, Equator, Ecliptic, Precessional-scale (include Ecliptic pole), Polar-points, Zenith, Azimuth-circle (option), Altitude (option)
Motions : Diurnal, Annual (Keplerian motion), Latitudinal, Precessional, (Dirunal-Annual coupling)
Lightings : Daylights, Moonlights, Morning and evening glow/twilights (Glows directions manually adjustable)
Control : Remote control console (Sidereal-time indicator, Year indicator, Latitude indicator, 2 Pointers are equipped)
Others : Can be optionally equipped Sky-line projs. and etc.
Projection : Precision optical lens system





#2150 GOTO PLANETARIUM MODEL GS-8

The S – 3 (Venus) model has been completely redesigned into a high performance package of smaller dimensions. Lens projection is employed for the entire sky field and a Kepler motion planet projector system has been incorporated with diurnal and annual motion coupling. This instrument is suitable for small museums and schools. This model is a best seller and is exported to many countries around the world.

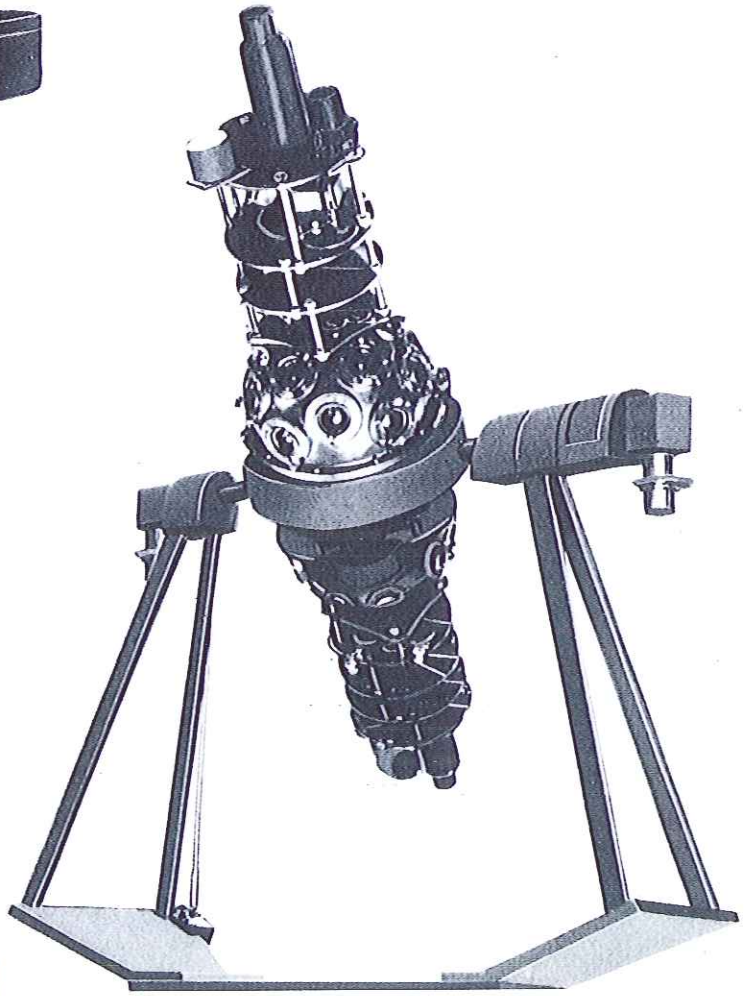
Dome Size : 7.5 ~ 8.5 m (24' ~ 28')
Accommodation : 60 ~ 70 persons
Stars : 3,500 stars up to 5.75th mag. with 7 Bright stars, Milky-ways
Solar System : Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn (Sun has 2 projs.)
Coordinates : Meridian, Equator & Ecliptic, Precessional-scale (include Ecliptic pole), Polar-points, Zenith, Azimuth-circle (option), Altitude (option)
Motions : Diurnal, Annual (Keplerian Motion), Latitudinal, Precessional, (Diurnal-Annual coupling)
Lightings : Daylights, Moonlights, Morning and evening glow/twilights
Control : Remote control console (Year indicator, 2 Pointers are equipped)
Others : Can be optionally equipped Sky-line projs. and etc.
Projection : Precision optical lens system

#2060 GOTO PLANETARIUM MODEL GE-6

As a small planetarium this is a very unique instrument. Diurnal, annual, latitudinal and precessional movements are all electrical as are the celestial coordinates and all of these projections are remote controlled to provide for complete freedom in operation.
The stars are projected through lens systems and are therefore very sharp. We have a great deal of pride in this instrument especially from the standpoint of ease and accuracy of operation. No other maker can boast such a small planetarium instrument with such a wide variety of functions.

Dome Size : 6 ~ 6.5 m (19' ~ 21')
Accommodation : 30 ~ 50 persons
Stars : 2,800 stars up to 5.5th mag. with Milky-ways
Solar System : Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn
Coordinates : Meridian, Equator & Ecliptic, Precessional-scale, Polar point
Motions : Diurnal, Annual, Latitudinal, Precessional
Lightings : Daylights, Moonlights, Morning and evening glow/twilights
Control : Remote control console (2 Pointers are equipped)
Projection : Precision optical lens system except coordinates

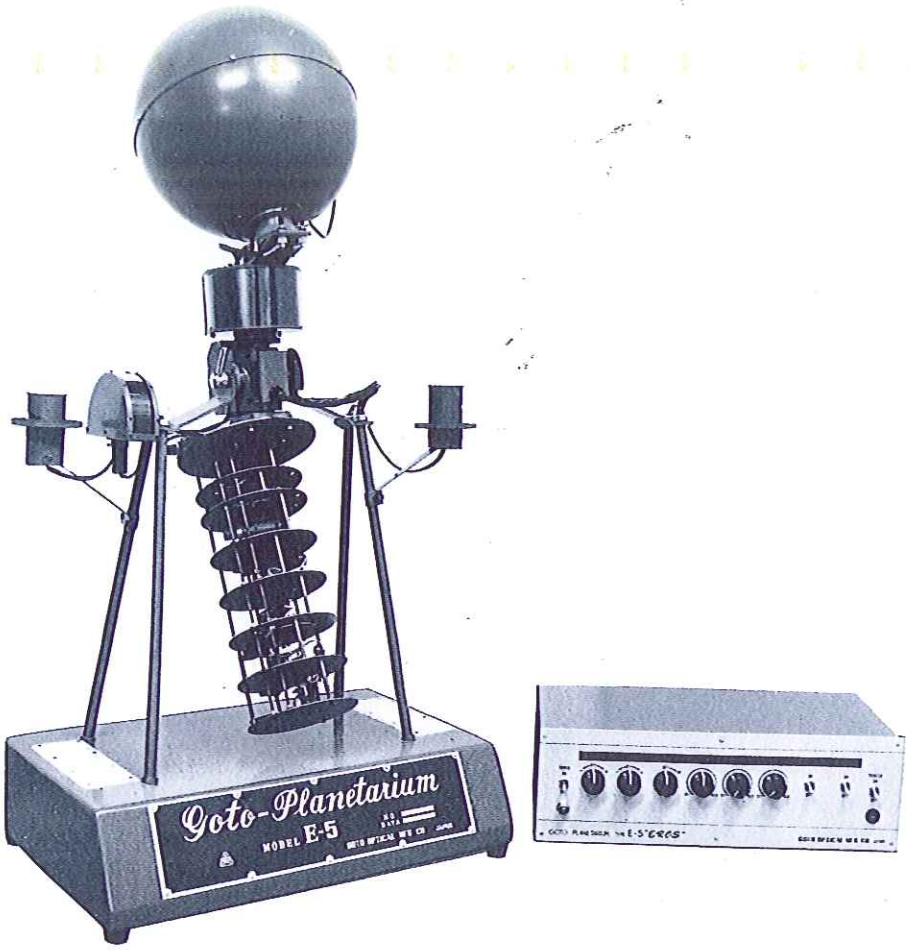
★ Upon customers request we can



#2030 GOTO PLANETARIUM MODEL E-5

This instrument is used in schools all over the world and it incorporates a planetary motion system. Except for latitudes below south 70°, this instrument will project all stars using a pin hole projection system. The solar system, including the Sun, the Moon, Mercury, Venus, Mars, Jupiter and Saturn, is projected through optical systems. The system incorporates very accurate diurnal and annual motions driven by electric motors with manual latitudinal and precessional movement making it a genuine planetarium. The operation of the instrument is through a remote control system except for the latitudinal and precessional movement.

Dome Size : 4～5 m (12'～16')
Accommodation : 30～40 persons
Stars : 650 stars up to 4 mag. with Milky-way
Solar System : Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn
Coordinates : Meridian, Equator & Ecliptic
Motions : Diurnal, Annual, Latitudinal (Manual), Precessional (Manual)
Lightings : Daylights, Morning and evening glows
Control : Remote control console with a Pointer
Projection : Pin-hole system except Solar system which has lens system

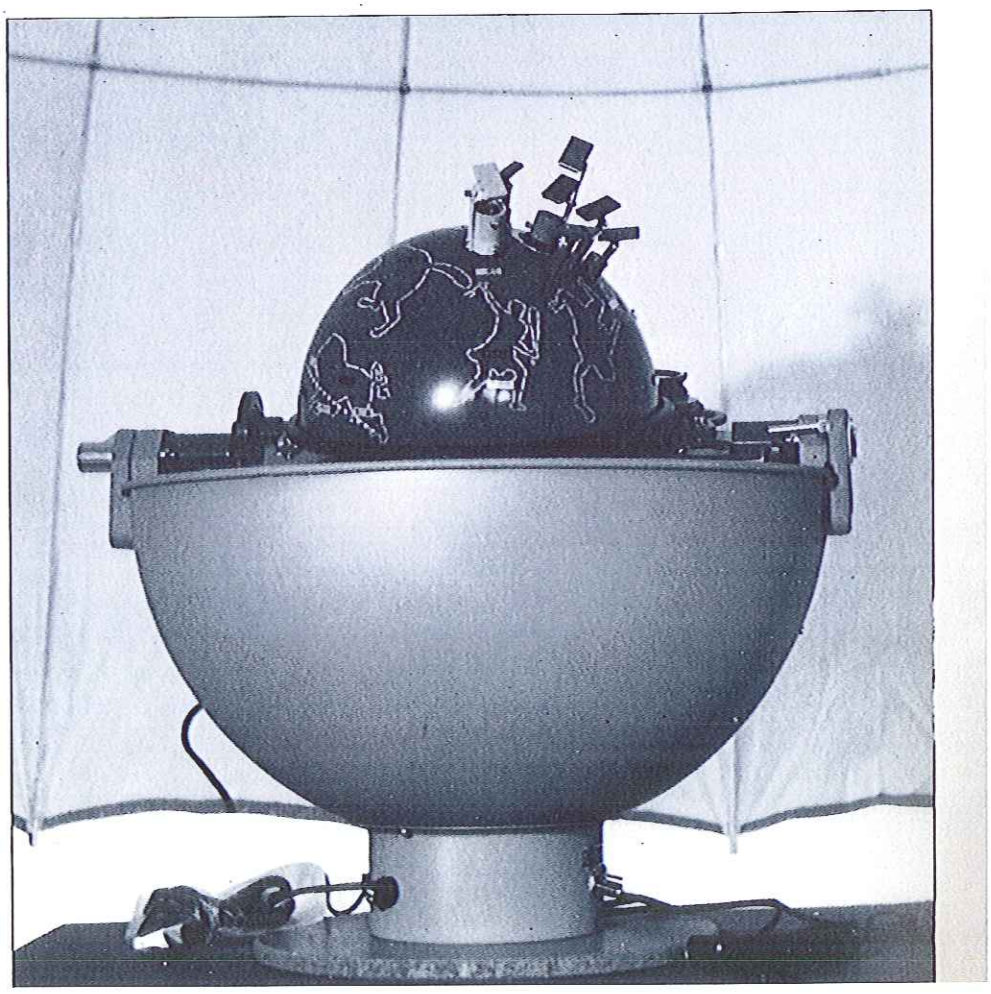


#2023 GOTO PLANETARIUM MODEL EX-3

In about 50,000 Japanese elementary and middle schools this planetarium is an essential part of the teaching materials. With this school planetarium the stars as seen in any season or as seen from any position on earth, can be projected easily. This instrument is capable of projecting the entire star field and its diurnal motion device is motor driven. It also has provision for projecting the equator, the meridian and the ecliptic coordinates. The constellation figure pictures are projected as superimposed over their appropriate stars making the study of the constellations interesting and fun. With this instrument comes a three meter diameter screen made of vinyl to be suspended from the ceiling.

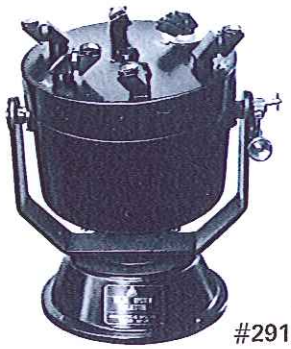
Dome Size : 3 m (9.8')
Accommodation : 20～30 persons
Stars : 500 stars up to 4 mag. with Milky-way
Solar System : Sun, Moon (Manually phase change), Mercury, Venus, Mars, Jupiter Saturn
Coordinates : Meridian, Equator & Ecliptic
Motions : Diurnal (Electric), Latitudinal change (Manual)
Projection : Pin-hole system except Solar system which has lens system
3 meter Diameter Parasol type PVC Dome Screen, Constellation picture proj. (include 14 pictures), a Pointer are equipped



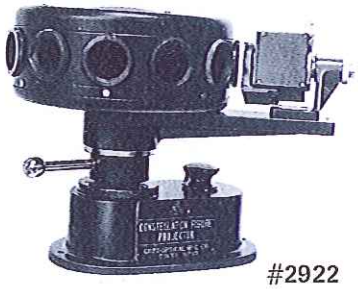


GOTO PLANETARIUM ACCESSORIES

For Goto planetariums there are many supplementary accessories that are made to be either attached directly to the instrument or placed separately. Among these is the skyline projector which is a large scale supplementary projection system. The following is a listing of the planetarium accessories divided into two categories, that is those to be attached to the main body of the instrument and those that are placed separately.



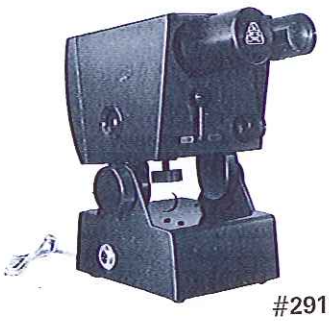
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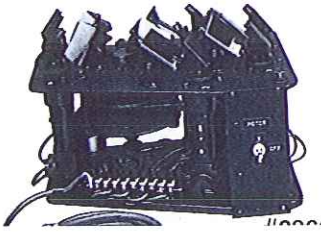
#2922



#2934



#2918



(TO BE ASSEMBLED INTO THE MAIN UNIT OR CONSOLE)

OPTION

Model Nos.	Description	Remarks
2807	Automatic Home Latitude Reset Mecha.	Planetarium instrument stops automatically at the home latitude
2836	Auxiliary Sun Projectors (2)	Projecting the Sun at the position of summer solstice and winter solstice
2854	Morning & Evening Glows Control Mecha.	Controlling of direction of Morning & Evening Glow Projectors
2857	Zodiacal Light Projectors (2)	Projecting of weak light of zodiacal light
2864	Altitude Projector	Projecting of angle scale of altitude (movable any directions of 360°)
2865	Azimuth-circle Projector	Projecting of angle scale of azimuth-circle
2868	Constellation Picture Projector	Projecting of a constellation picture or a name, moving together with star field
2869	Comet Projector	Projecting the position of the comet in the star field (preset specified comet)
2875	Nova Projector	Projecting of nova recorded in history
2876	Urnus Neptune Pluto Projectors (1 set 3 projectors)	Projecting Urnus, Neptune, Pluto preset position on calender
2879	Radio Star Projector	Projecting of Radio Star
2884	Precessional Indicator	Indicating number of years of precessional motion (attached to console panel)
2885	Moon Phase Indicator	Indicating the Moon phases under annual motion (attached to console panel)
2886	Sun Position Indicator	Indicating the Sun position under annual motion (attached to console panel)
2888	Sunrise preannouncement Pilot Lamp	Preannouncing the Sun-rise under diurnal motion by lamp (attached to console panel)
2858	Cardinal Projectors (4)	Projecting N S E W to Dome (changed automatic)
28582	Middle Cardinal Projectors (4)	Projecting middle point of standard cardinal

(TO BE PLACED ON THE PEDESTAL OR NEAR THE CONTROL CONSOLE)

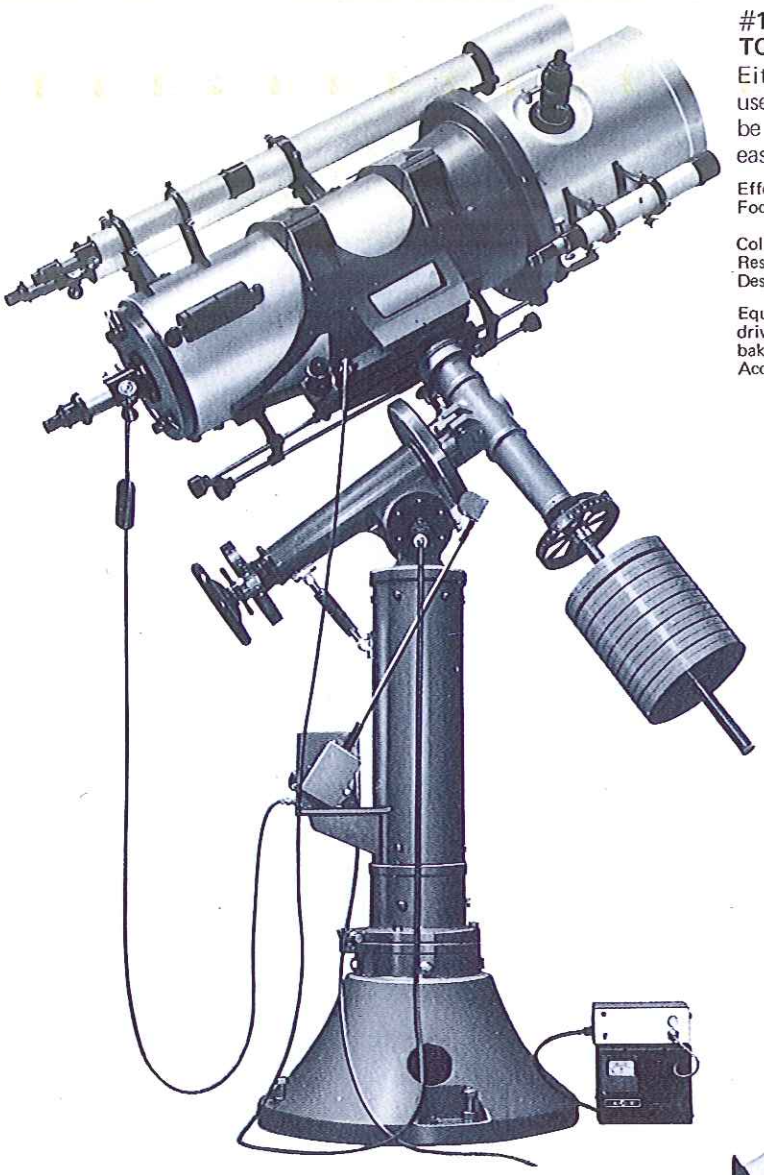
Model Nos.	Description	Remarks
2910	Solar System Projector A	Projecting of motions of planets around Sun
2913	Solar System Projector B	Projecting of motions of planets around Sun
2916	Solar & Lunar Eclipse Projector A	Projecting of solar and lunar eclipse
2918	Solar & Lunar Eclipse Projector B	Projecting of solar and lunar eclipse
2922	Constellation Picture Projector	Projecting of constellation picture (w/25 pictures)
2923	Revolving Constellation Projector	Projecting of constellation picture set to rotary 12 holders (w/42 pictures)
2931	Artificial Satellite Projector A	Projecting of flying locus of A.S.
2934	Artificial Satellite Projector B	Projecting of flying locus of A.S.
2933	Space Ship Projector	Projecting of image of space ship or vehycle
2936	Comet Projector	Projecting of moving comet on it's orbit
2941	Meteors Projector	Projecting of shooting scene of meteors
2945	Aurora Projector A	Projecting of beautiful moving light of aurora
2947	Aurora Projector B	Projecting of beautiful moving light of aurora
2952	Flash & Lightning Projector	Representing of the light and sound of thunder
2956	Rainbow Projector	Projecting of beautiful colour of rainbow
2960	Cloud Projector	Projecting of passing cloud
2966	Projector of proper motion of Big Dipper	Projecting of proper motion of Big Dipper
2971	Nautical Triangle Projector	To use for explaining of nautical triangle
2975	Geocentric Projector	To use for explaining the standard time and local time
2977	Earth Projector	Movie projector of zooming effect of earth
2980	Zoom-Slide Projector (Ratio 1:6)	Projecting zoom effect of any colour slide
2982	Slide Projector A	Projecting of any colour slide
2985	Slide Projector B	Projecting of any colour slide

(TO BE SET INTO THE MAIN UNIT)

Model Nos.	Description	Remarks
2802	Skyline Projectors (2 scenses)	Projecting of periphery scene on the horizontal line of dome screen (w/2 set of pictures)
28081	Skyline Projectors (3 scenses)	Same as above (but w/3 set of pictures)
28082	Skyline Projectors (4 scenses)	Same as above (but w/4 set of pictures)

(TO BE SET INTO CONTROL CONSOLE)

Model Nos.	Description	Remarks
2621	Remote Control System for student participation A	Can be equipped 10 student controlers
2622	Remote Control System for student participation B	Can be equipped 20 student controlers
2631	Student Controler	Can be remote controled by student (Diurnal, Annual, Latitude, Precession)
2641	Side table (1)	
2682	Sound System A	1 tape recorder, 1 mixing amp. 1 main amp. 2 speakers, 1 microphone
2684	Sound System B	Same as above but 4 speakers & 1 record player



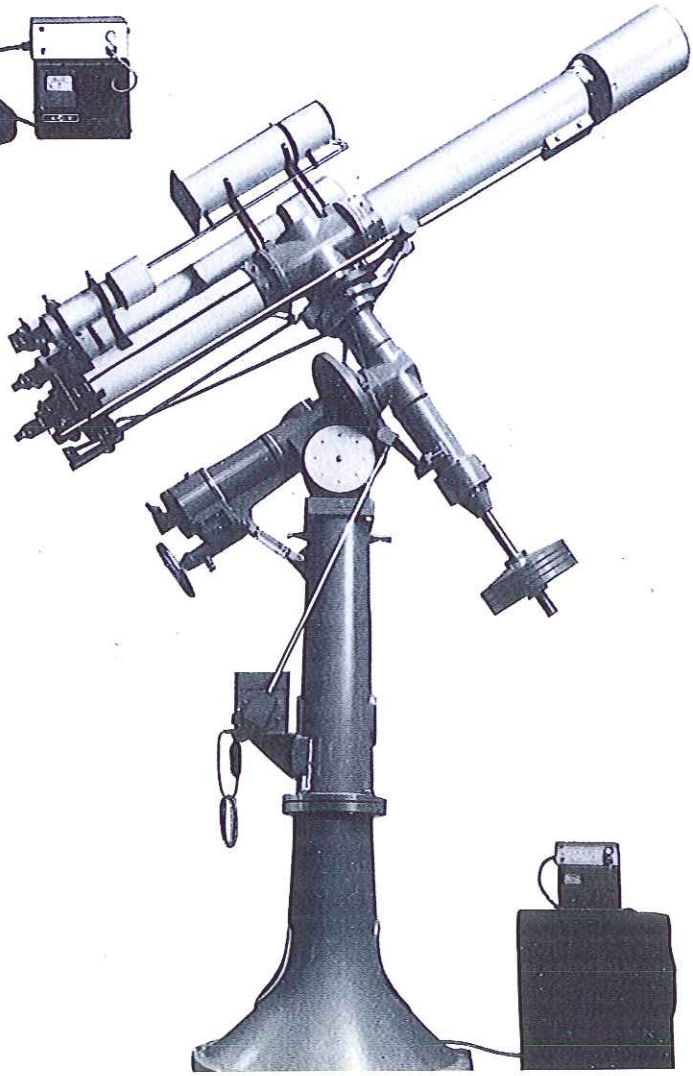
#1165 GOTO TELESCOPE 30CM EQUATORIAL REFLECTOR

Either Cassegranian or Newtonian be used. Since the Newtonian eyeend can be revolved, the observations can be made easily.

Effective Aperture: 300mm
Focal Length: 1,500mm for Newtonian
5,000mm for Cassegranian
Collecting Power: 1,840X for naked eye
Resolving Power: 0" .38
Descernible Star: 14.m2

Equatorial mounting driven by precise synchronous driven motor controlled by X-tal oscillator unit, baked enamel paint.

Accessories: Eyepieces Or. 6mm, 9mm, MH 12.5mm, 18mm, 25mm and K40mm
Guiding-telescope 100mm Ap., 37.5X, 60X, 120X, 250X
Finder-telescope 50mm Ap., 12.5X
Herschel Prism
Star Diagonal Prism
Sunglass (2 pcs.) Case for Optical Parts
Moonglass Vinyl Instrument Cover
Star Spectroscope Tools



#1150 GOTO TELESCOPE 25CM EQUATORIAL REFRACTOR

As a refractor telescope this belongs to the large professional class with a very fine mounting system. As a system telescope it can be used in a large variety of situations. For regular observation this instrument is especially stable in operation.

Effective Aperture: 250mm
Focal Length: 3,750mm
Collecting Power: 1,300X for naked eye
Resolving Power: 0".47
Descernible Star: 13.m8

Equatorial mounting driven by precise synchronous motor controlled by X-tal oscillator unit, baked enamel paint.

Accessories: Eyepieces Or.4mm, 6mm, 9mm, MH 12.5mm, 18mm, 25mm and K40mm, 60mm
Guiding-telescope 100mm Ap., 37.5X, 60X, 120X, 250X
Finder-telescope 50mm Ap., 12.5X
Herschel Prism
Star Diagonal Prism
Sunglass (4 pcs.)
Moonglass (2 pcs.)
Star Spectroscope
Sun Projection Screen
Camera Adaptor
Solar Prominence Telescope (80mm)
Triple Turret Eyepiece Holder
Case for Optical Parts

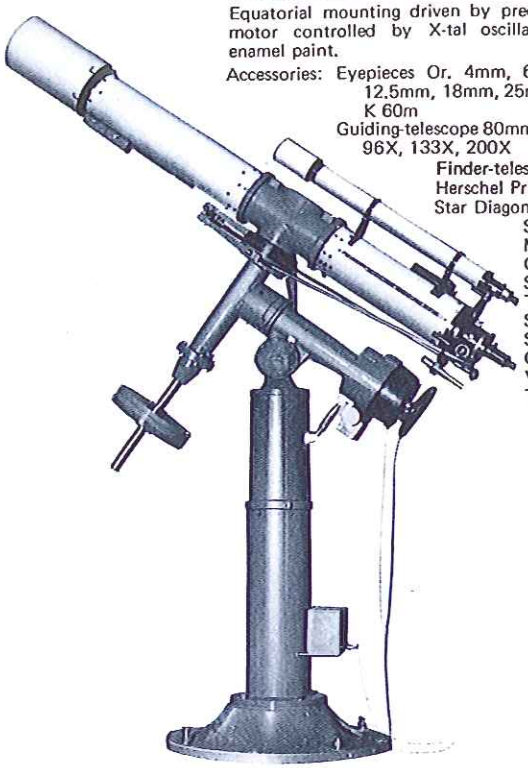
#1130 GOTO TELESCOPE 20CM EQUATORIAL REFRACTOR

The mounting high-efficiently designed makes complete follow owing to the electromotive oscillator clock, and the object is caught without fail.

Effective Aperture	200mm
Focal Length:	3,000mm
Collecting Power:	875X for naked eye
Resolving Power:	0".58
Descernible Star:	13.m3

Equatorial mounting driven by precise synchronous motor controlled by X-tal oscillator unit, baked enamel paint.

Accessories: Eyepieces Or. 4mm, 6mm, 9mm, MH 12.5mm, 18mm, 25mm and K 40mm K 60m
Guiding-telescope 80mm Ap., 30X, 48X 96X, 133X, 200X
Finder-telescope 50mm Ap., 12.5X
Herschel Prism
Star Diagonal Prism
Sunglass (4 pcs.)
Moonglass (2 pcs.)
Camera Adaptor
Sun Projection Screen
Triple Turret Eyepiece Holder
Solar Prominence Adaptor
Star Spectroscope
Case for Optical Parts
Vinyl Instrument Cover
Tools



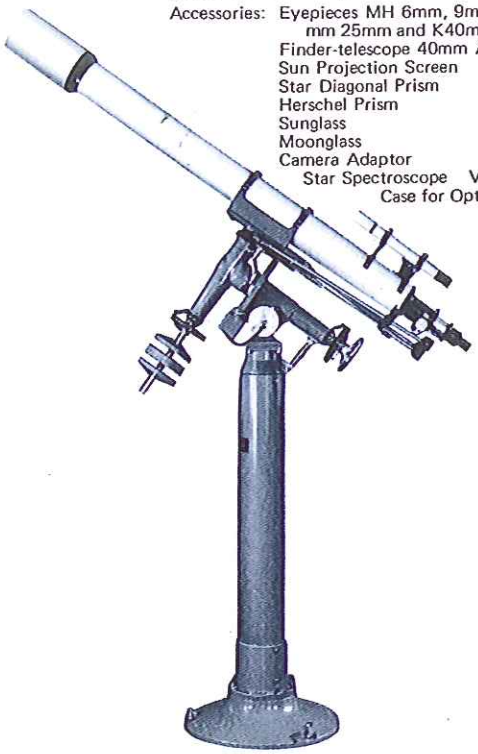
#1110 GOTO TELESCOPE 12.5CM EQUATORIAL REFRACTOR

Comparing to 15cm or larger telescopes, it is compactly designed so that the students can use it easily.

Effective Aperture:	125mm
Focal Length:	1,800mm
Collecting Power:	319X for naked eye
Resolving Power:	0".93
Descernible Star:	12.m3

Equatorial mounting driven by precise synchronous motor, baked enamel paint.

Accessories: Eyepieces MH 6mm, 9mm, 12.5mm, 18 mm 25mm and K40mm
Finder-telescope 40mm Ap., 12.3X
Sun Projection Screen
Star Diagonal Prism
Herschel Prism
Sunglass
Moonglass
Camera Adaptor
Star Spectroscope Vinyl Instrument
Case for Optical Parts Cover
Tools



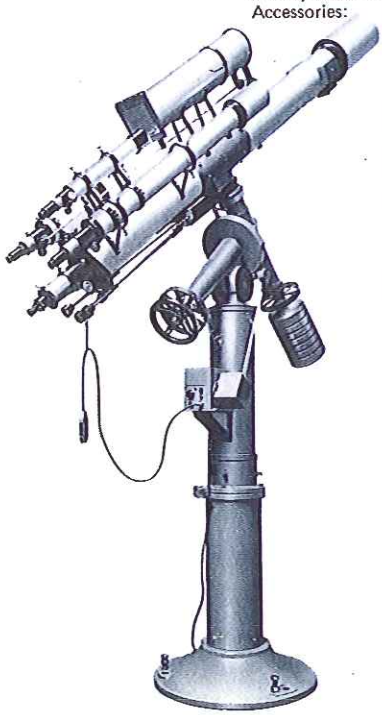
#1120 GOTO TELESCOPE 15CM EQUATORIAL REFRACTOR

It is widely installed for 150 places such as junior high schools, senior high schools, Scientific Institutes, etc.

Effective Aperture	150mm
Focal Length:	2,250mm
Collecting Power:	470X for naked eye
Resolving Power:	0".77
Descernible Star:	12.m7

Equatorial mounting driven by precise synchronous motor, baked enamel paint.

Accessories: Eyepieces Or. 4mm, 6mm, 9mm, MH 12.5mm, 18mm, 25mm and K40mm
Guiding-telescope 80mm Ap., 30X, 48X, 96X, 133X, 200X
Finder-telescope 50mm Ap., 12.5X
Herschel Prism
Star Diagonal Prism
Sunglass (4 pcs.)
Moonglass
Camera Adaptor
Sun Projection Screen
Star Spectroscope
Triple Turret Eyepiece Holder
Case for Optical Parts
Vinyl Instrument Cover
Tools



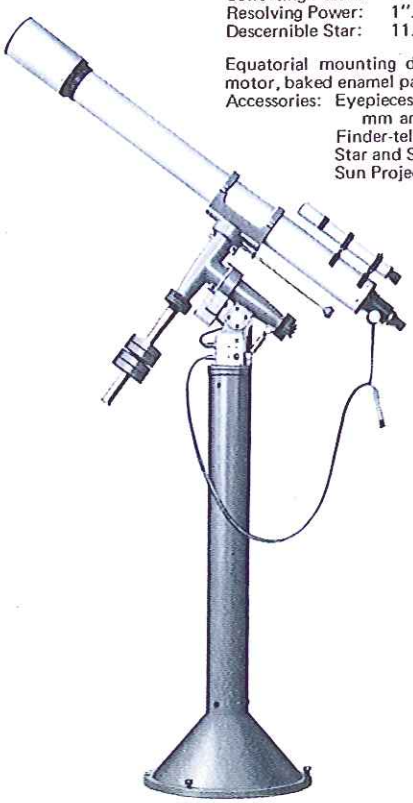
#1062 GOTO TELESCOPE 10CM EQUATORIAL REFRACTOR

Since the leg is made of iron pillar, it is more durable. It is economical since it can be installed in 3M dome.

Effective Aperture:	102mm
Focal Length:	1,500mm
Collecting Power:	212X for naked eye
Resolving Power:	1".16
Descernible Star:	11.m8

Equatorial mounting driven by precise synchronous motor, baked enamel paint.

Accessories: Eyepieces MH 6mm, 9mm, 12.5mm, 25 mm and K40mm
Finder-telescope 40mm Ap., 12.3X
Star and Solar Diagonal Prism
Sun Projection Screen
Sunglass
Moonglass
Star Spectroscope
Camera Adaptor
Case for Optical Parts
Vinyle Instrument Cover.
Tools

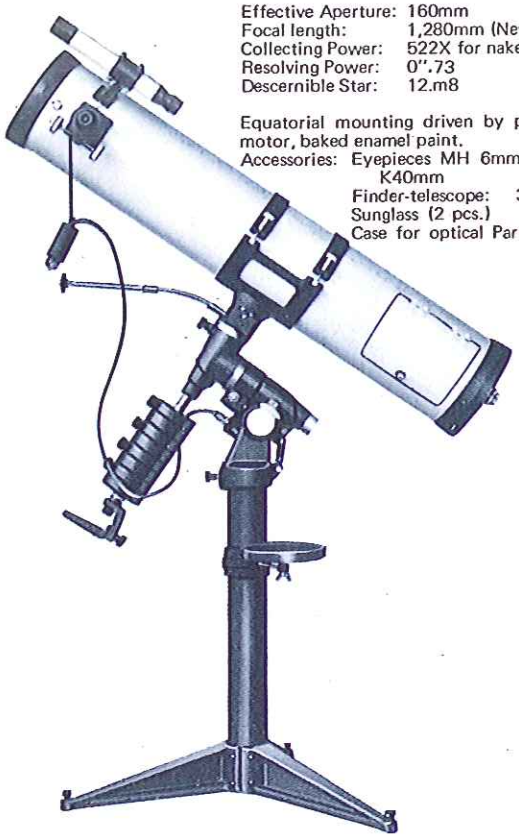


#1070 GOTO TELESCOPE 16CM EQUATORIAL REFLECTOR

This is a newly designed low cost model of the Newtonian Equatorial Reflector type. A driving motor is included allowing for first class ease of operation and observation.

Effective Aperture: 160mm
Focal length: 1,280mm (Newtonian)
Collecting Power: 522X for naked eye
Resolving Power: 0".73
Descernible Star: 12.m8

Equatorial mounting driven by precise synchronous motor, baked enamel paint.
Accessories: Eyepieces MH 6mm, 9mm, 18mm and K40mm
Finder-telescope: 30mm Ap., 9X
Sunglass (2 pcs.)
Case for optical Parts



#1051 GOTO TELESCOPE 8CM EQUATORIAL REFRACTOR

It is best suitable for astronomical education for junior and senior high schools. It has been newly designed so as to be used more easily and durable.

Effective Aperture: 80mm
Focal Length: 1,200mm
Collecting Power: 131X for naked eye
Resolving Power: 1".45
Descernible Star: 11.m3

Equatorial mounting with slow motion controls and reading circles for R.A. and D.C., baked enamel paint.
Accessories: Eyepieces MH 6mm, 12.5mm, 25mm and K40mm
Finder-telescope 30mm Ap., 9X
Star and Solar Diagonal Prism
Sunglass
Camera Swivel Holder
Sun Projection Screen
Objective Stop for Solar Observation
Case for Optical Parts
Vinyl Instrument Cover



#1175 GOTO TELESCOPE 10CM MAKSUTOV CASSEGRANIAN EQUATORIAL

The companies patents are presently pending on this new optical system. By placing a meniscus lens in front of the reflecting mirror surface, the problems of spherical abberation on a spherical main mirror are resolved. Further various other abberation problems are also corrected through this method so that the best points of both the reflector telescope and the refractor telescope are combined in one instrument and at the same time the main tube length is shortened. Further the mount is also made on a smaller scale allowing for great ease of handling.

Effective Aperture 100mm
Focal length 1,450mm
Collecting Power 204X for naked eye
Resolving Power 1.16"
Descernible Star 11.m8

Equatorial mounting with slow motion controls and reading circles both R.A. and D.E., baked enamel paint.
Accessories: Eyepieces MH 9mm, 12.5mm, K25mm and 40mm
Finder-telescope: 30mm Ap., 9X
Star diagonal prism
Sunglass
Monglass
Camera adaptor
Case for optical parts
Vinyl cover



#1031 GOTO TELESCOPE 6.5CM EQUATORIAL REFRACTOR

It has been newly designed in place of the conventional 6cm equatorial refractor. Each structure such as mounting, finder, tripod, etc. has been made up rather solid.

Effective Aperture: 65mm
Focal Length: 1,000mm
Collecting Power: 86X for naked eye
Resolving Power: 1".78
Descernible Star: 10.m8

Equatorial mounting with slow motion controls and reading circles for R.A. and D.C., baked enamel paint.
Accessories: Eyepieces MH 6mm, 12,5mm and 25mm
Finder-telescope 18mm Ap., 6X
Sunglass
Diagonal Prism
Camera Swivel Holder
Sun Projection Screen
Objective Stop for Solar Observation
Case for Optical Parts
Vinyl Instrument Cover





These telescope are made for ease of operation so that anyone can use it to measure the positions of the stars. It uses the alt-azimuth method showing in fixed quantities the azimuth and the altitude angles.

With the moving of the main tube it is possible to read the horizontal coordinates of the star. Within the context of telescope usage these instruments have a very wide adaptability.

#1013 GOTO TELESCOPE 5CM ALT-AZIMUTH REFRACTOR

Effective Aperture: 50mm
Focal length: 800mm
Collecting Power: 51X for naked eye
Resolving Power 2".28
Descernible Star 10.m3

Alt-Azimuth type mounting with fine adjustments and freely clamping systems, baked enamel paint.

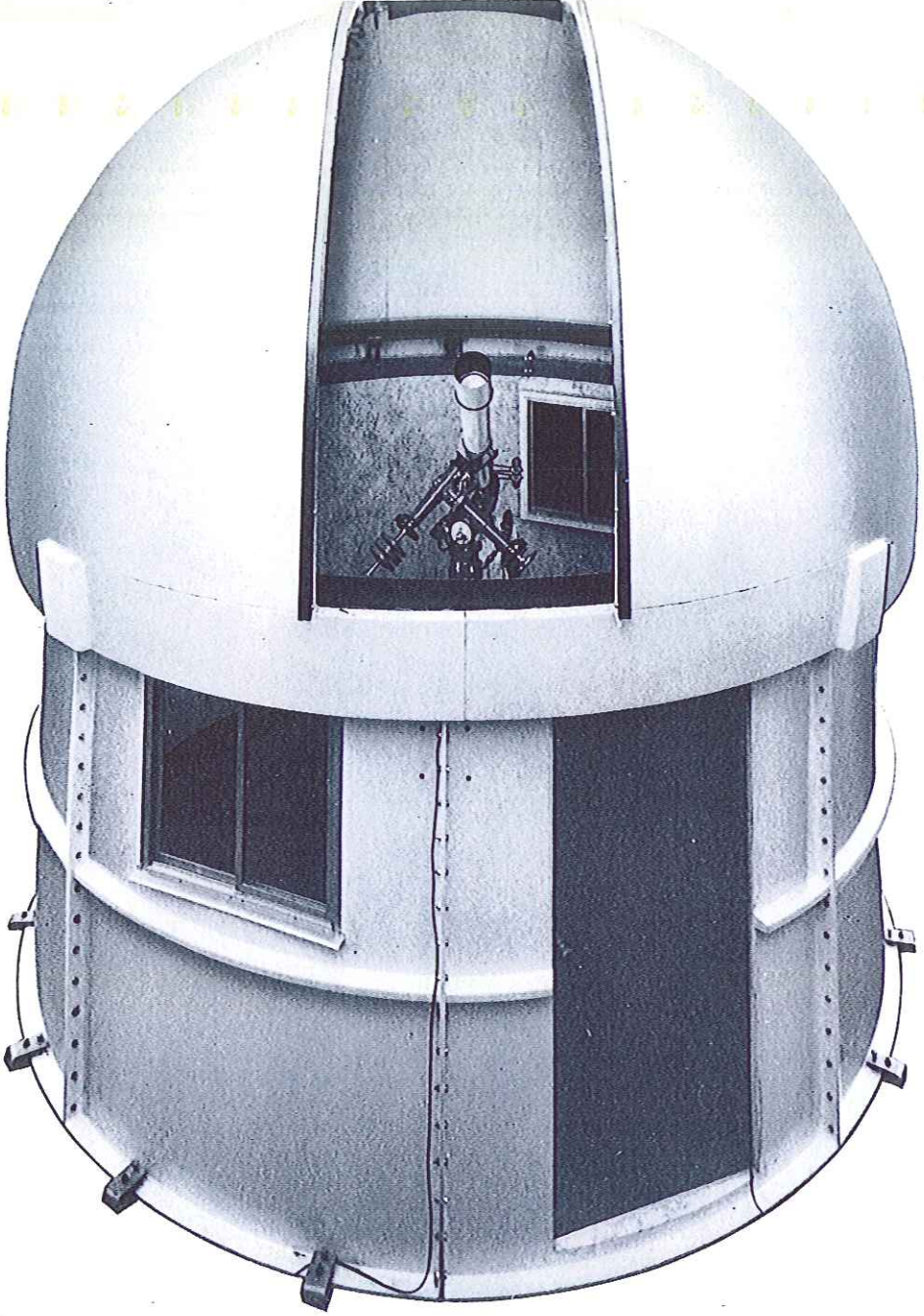
Accessories:
- Eyepieces H 7mm and 16mm
- Finder-telescope 18mm Ap., 6X
- Diagonal Prism
- Sunglass
- Sun Projection Screen
- Azimuth scale
- Altitude scale
- Magnetic needle
- Level

#1018 GOTO TELESCOPE 6CM ALT-AZIMUTH REFRACTOR

Effective Aperture: 60mm
Focal length: 900mm
Collecting Power: 69X for naked eye
Resolving Power: 1".97
Descernible Star: 10.m6

Alt-Azimuth type mounting with fine adjustments and freely clamping systems, baked enamel paint.

Accessories:
- Eyepieces H 7mm, 12.5mm, and 25mm
- Finder-telescope 18mm Ap., 6X
- Diagonal Prism
- Sunglass
- Sun Projection Screen
- Azimuth scale
- Altitude scale
- Magnetic needle
- Level



#8352 GOTO ASTRONOMICAL OBSERVATION DOME

The dome size is four meters in diameter. Until recently domes have been made of metal but today a new fiber reinforced plastic has come into use making for a finer up-to-date dome. It is light, and has strong elasticity which gives it a longer use life than those made of metal. Color can be freely choiced and it can be easily attached to today's modern structures giving it a wide variety of uses.

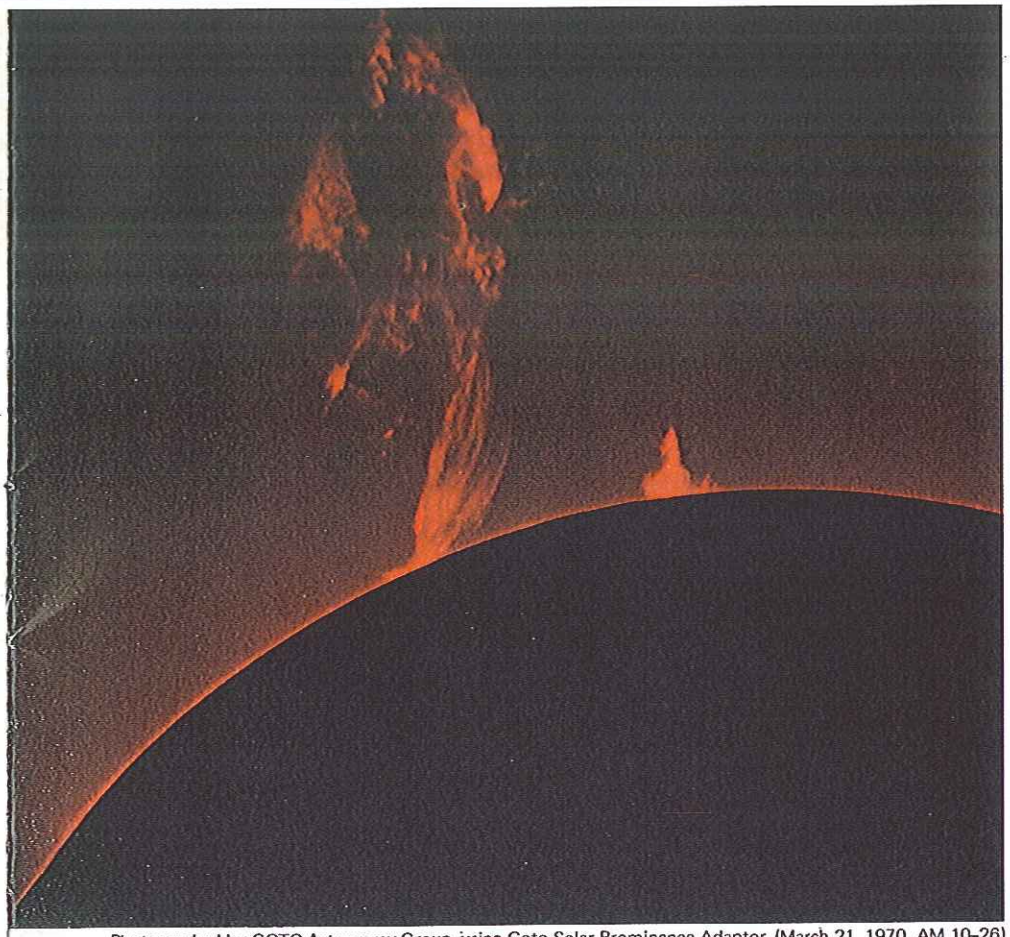
Weight of Dome: 900kg
Dome Slit: Electrically Driven
Dome Revolution: Electrically Driven

#1950 #1955 GOTO BINOCULARS MODEL GB-30, GB-50

Here we would like to introduce these binoculars which represent a new product line of the Goto Optical Mfg. Co. They have been produced with special care for increased brightness. Model GB–30 is very light in weight and smart in design while model GB – 50 has a high degree of brightness. The body is made of a very light metal and is packed in a fine case.

Specifications		GB – 30	GB – 50
Magnification		8X	7X
Aperture		30mm	50mm
Relative Brightness		14.1	50.7
Field of View	Real	7°.5	7°.1
	Apparent	60°	50°
Field of View at 1,000m		131.7m	125.7m

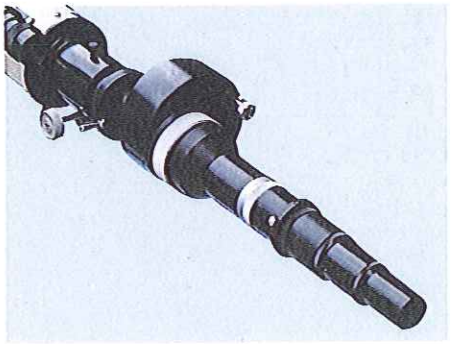




Photographed by GOTO Astronomy Group, using Goto Solar Prominence Adaptor (March 21, 1970, AM 10-26)

The solar prominence is a grand and beautiful phenomenon but unless there is a solar eclipse or a special observation instrument, this phenomenon cannot be observed. The Goto Solar Prominence Adaptor has made possible this observation even with a small 8cm telescope. The adaptor is very compact, the operation of it is very simple and it produces a very vivid and clear image. With the addition of a 35mm camera fine photographs of the solar prominence can be made.

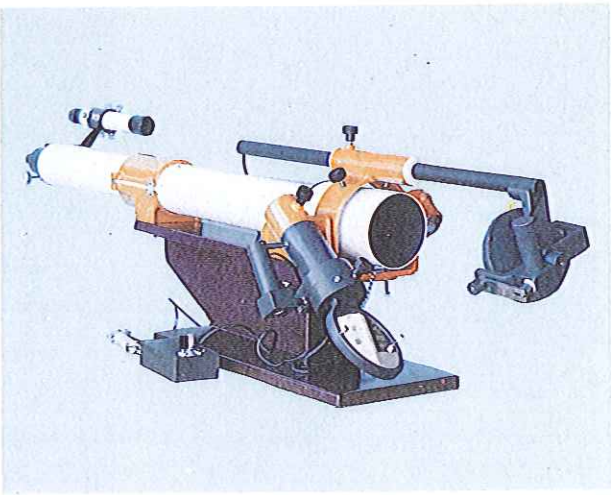
Observation Wave Length: 6563 Å
Half Wave Length Band Path: 4 Å
Applicable Objective Lens Aperture: 80 to 100mm

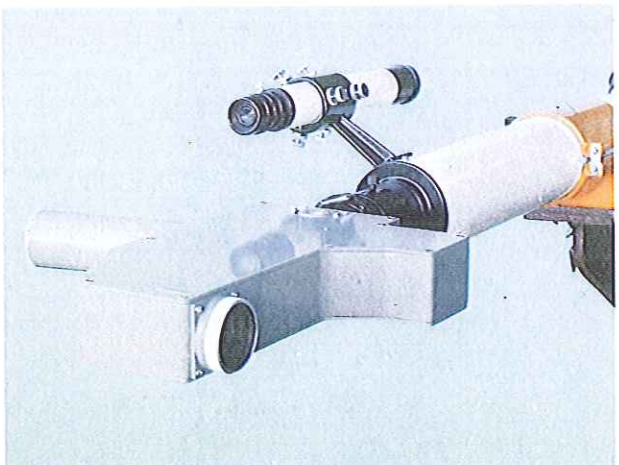


#1690 GOTO COELOSTAT MODEL 120

This is a small coelostat, can be easily set inside of the southern exposure window, and produced horizontal ray of the Sun image so as to lead it into attached horizontal telescope placed in the room. The main mirror and the secondary mirror are both motor driven. This instrument is used together with the attached horizontal telescope.

Main Mirror : Effective Aperture 120mm
Secondary Mirror : Effective Aperture 115mm
Attached Horizontal Telescope :
Effective Aperture 80mm
Focal Length 1,200mm
Eyepieces MH 6mm, 12.5mm, 25mm and K 40mm.





#1630 GOTO SOLAR SPECTRO-PROJECTOR

This instrument is used with the Goto Coelostat 120 and projects the solar spectrum to a length of 50cm in a partially darkened room. From red to deep purple close to one hundred Fraunhofer lines can be projected onto the spectrum. For the purposes of projecting this large a spectrum usually a rather large instrument is needed but the Goto Solar Spectro-Projector is rather compact because the light waves have been bent and folded through many sequences, and is much usable for the class room experiment. By replacing the projection lens with a camera it becomes possible to photograph the solar spectrum.



#1751 GOTO CELESTIAL CLOCK

This clock was made to create a visual representation of the relationship between time and the motions of the sun and stars (diurnal and annual motion of the sun etc.), becoming a combination of a clock and a star chart. That is to say, it can be seen at a glance the presently visible stars the position of the sun in the heavens and the necessary local sidereal-time for the observation.

There are several transparent sheets provided with this instrument and depending on the way in which they are put on this clock the changes in the stars which can be seen with a change in the latitude are shown, with the altitude and meridian being shown. The positions of the planets etc. can be also written on these sheets. The clock used in this instrument is battery operated and will run for more than a year without changing battery.



#6101 GOTO PYRHELIOMETER

It is well known that the direct rays of the sun develops calory at the rate of 1.98 cal/cm^2 every minute, but there are very few instruments that can measure this directly. The Abbot method of pyrheliometer which uses the professional silver plate is a very expensive measurement system. Thus the Goto Company has produced a light weight and inexpensive unit for amature use. This instrument is suitable for school classes and amature observation. Through long term use and observation this instrument can be used to detect air pollution and long range climatic change.



GOTO TELESCOPE ACCESSORIES

The Goto Optical Company produces all kinds of astronomical accessories from various eyepieces to fine astro-cameras. Especially the Goto 4mm eyepiece of the orthoscopic is famous for their high resolution, sharpness and magnification.

Diagonal Prism
Star and Solar Diagonal Prism
Solar Herschel Prism
View Finder
Comet Finder
Guiding Telescope
Sunglass
Moonglass
Objective Lens
Eyepiece
Star Spectroscope
Sun Projecting Screen
Triple Turret Eyepiece Holder
Solar Prominence Adaptor
Solar Prominence Telescope
Camera Adaptor
Position Filer Micrometer
Star Camera
Sun and Moon Camera
etc.

#3101

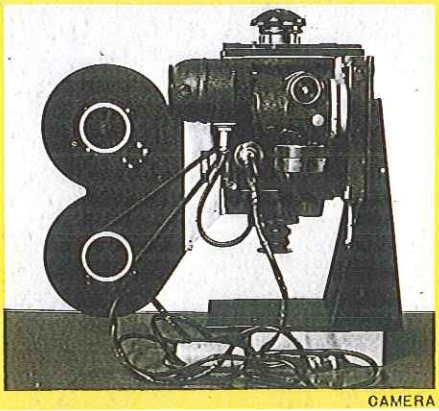
ONE LENS SYSTEM CAME FINALY TO TERMINAL POINT: TRULY MARVELLOUS

PANO-HEMISPHERIC MOTION PICTURE

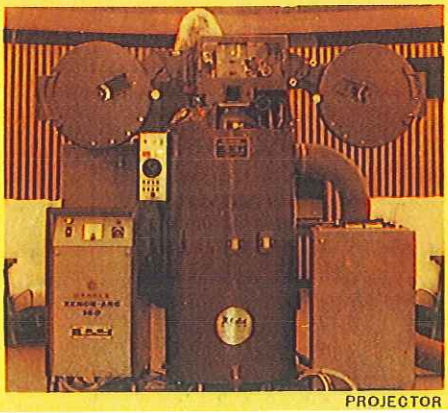
《NEW MOVIE TECHNIQUE SEAMLESS》

From the top of the sky to the tips of your feet, movement of the ground is projected all over not to speak of the surrounding area. This is a true Pano-Hemisphere.

The first one lens system ever produced in the world, Pano-Hemispheric Motion Picture, different from division system Pano-Hemispheric machine enables entirely seamless projection, the highest and absolute site sensation and succeeded in powerful and appealing picture projection. It can give a picture of 10 ~ 15 meter diameter on the dome. Now is born a big picture ever dreamed of.



CAMERA



PROJECTOR

In the year 1926 the Goto Optical Manufacturing Company was established by the present president Mr. Seizo Goto in order to do research in design and manufacture of astronomical optical equipment for educational purposes, and has been continuing in this endeavor to this day. In Japan this company has been the only one to concentrate on the manufacture, exclusively, of astronomical equipment.

Ninety percent of the market in Japan for astronomical educational equipment, telescopes and planetariums, has been supplied by the products of this company.

Research into the design and production of planetariums was started in 1955 and at the present time there are eight types of planetariums that this company manufactures including the large and medium professional sizes and the small sizes for schools with these instruments being presently installed in schools and museums all over the world.

In 1961, this company installed a large size instrument in the new planetarium facility at the City of St. Louis in the United States of America. As a result of that event, the Goto Optical Company became well known throughout the entire world as a planetarium manufacturer. The small, medium and large instruments, being so designated according to dome size, have all been vastly improved since their introduction. In the year 1972 in particular, all models in the entire Goto line were completely redesigned into the present entirely new "G" series.

In the August 1972 issue of the American professional astronomical magazine "Sky and Telescope" the large size Goto Planetarium that has been installed in the Vanderbilt Planetarium (Long Island, New York), was introduced as one of the most accurate instruments ever to be produced to this day.

A year ago, that is in the year 1970, a similar large size sophisticated planetarium instrument was installed in a museum in Northern Kyushu City, Japan. Since their introduction the medium size planetariums (GM – 15, GX – 10 and GS – 8) have been installed in more than 150 locations in Japan and throughout the world.

From the large size down to the smallest models improved all mechanical electrical optical functions has been made so that all of the possibilities that have come to be associated with the planetarium as a fine instrument, have been greatly enlarged and expanded. Especially, there has been great improvement in the position, size, brightness and magnitude of the fixed stars as they are projected on the dome screen. This brings the projected star field much closer in appearence to the natural sky and as such represents a departure from past thinking in the planetarium world in relation to this matter. Moreover, it has been repeated again and again that the complicated planetary motions have become accurate beyond all previous expectations.

Ever since the production of planetariums in 1955, the Goto Optical Company's main instruments have been a creative combination of the lively arts of electronics, mechanics and optics.

Further, making use of the special features of the planetarium dome this company produced the 360° Pano-Hemispheric motion picture system and this system was introduced to the world in 1970 at the Japan World Exposition, "Expo 70". It was through this new introduction that a new take off point was established in the world of motion picture technology. increasing expectation and excitement in this field. Depending on the diameter of the dome, the Pano-Hemispheric motion picture system can be created around a single ultra-wide angle projector or through the use of multiple projections to fill the entire dome screen with coordinated images. For the purposes of education and entertainment these installations have become the center of attention.

The Goto Optical Manufacturing Company produces also optical measuring devices, professional astronomical telescopes and weather instruments.

Contact to:
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