

ELECTRIC STEERER (Continued)

CONSISTS OF:

1. Remote control handle with 50 feet of cord (longer on special order).
2. Relay Unit.
3. Limit Switch Unit (limits wheel travel by breaking circuit to electric motor whenever wheel is turned nearly hard over. Works both with manual and automatic steering).
4. Solenoid course changer (holds compass stationary while wheel turns to effect change of course).

OPERATION:

The remote control handle has a selector switch with these positions: MANUAL, AUTOMATIC and CHANGE COURSE.

MANUAL:

Temporary course changes, circling and maneuvering without changing permanent course—performed by turning steering switch with selector in manual position.

AUTOMATIC:

Vessel remains on automatic course. Turning steering switch gives dodger control.

CHANGE COURSE:

Vessel remains on automatic course until steering switch is turned to left or right position. Vessel then turns in direction selected and alters automatic course in that direction, the amount of course change being dependent upon length of time steering switch is turned. Course changes of more than 45 degrees should be made in 2 or more steps with vessel allowed to steady on course momentarily between changes. The Model 63 can take over control of the steering wheel at any time, even with the automatic circuit disconnected or turned off.

INSTALLATION:

This unit is easily installed as an accessory to any METAL MARINE PILOT. Necessary cables are furnished and all electrical connections are plug-in type. Complete installation instructions are furnished with each unit.

*When ordering, specify voltage and wheel turns from Hard over to Hard over.

*If you do not now have a METAL MARINE PILOT, it will be necessary to order one when ordering the Model 63 Electric Steerer.

ACCESSORIES (Continued)

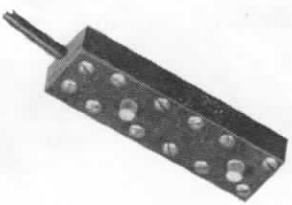
REMOTE CONTROL HANDLE

For Model 63 Electric Steerers and Model 42 Metal Marine Pilots. A waterproof switch unit furnished with 50-ft. rubber-covered cord and 6-pin plug. (Other lengths optional on special order.)



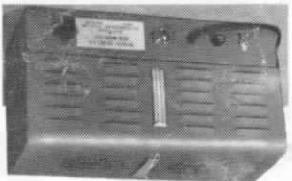
DODGER

2-button waterproof switch unit with 40 ft. of rubber-covered cord. Fits all Model 11, 15 and previous Pilots. Does not fit Model 42 Pilot. Depressing one button gives right wheel rotation. Other button gives left wheel rotation. When buttons are released, vessel returns to original course.



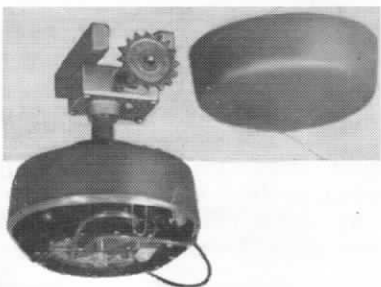
RECTIFIER — MODEL 33

A 3-amp. 115 volt D.C. output mercury vapor rectifier for using 110 volt D.C. Metal Marine Pilots on 115 volt A.C. systems. Designed for pilot service, it is not recommended for other uses.



COMPASS BOWL COVER

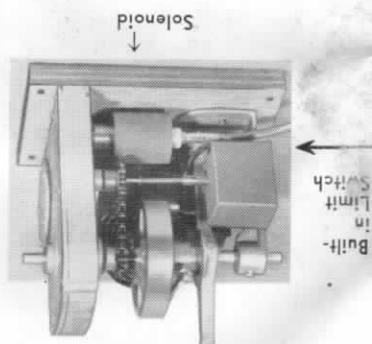
Designed to protect compass from moisture and harmful radiation such as sunlight and radio transmitters — can be fitted to earlier Metal Marine Pilot installations as well as the Model 11 Pilot.



ACCESSORIES (Continued)

SOLENOID COURSE CHANGER

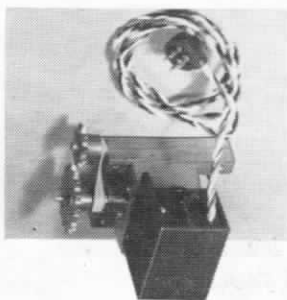
Model 63-15 Solenoid for Flexdrive Models shown installed on Motor Unit at flexdrive fitting. Fits Pilot Models 15 and 42.



Chain Drive solenoid for Model 11 and previous Metal Marine Pilots is shown on Model 63 installation picture, page 12.

LIMIT SWITCH

Built-in Model — for Pilot Models 11, 15, 42. (See on Motor Unit above.)

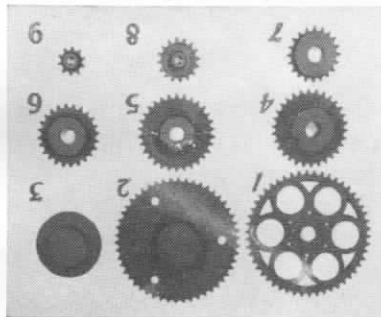


Steering Chain Model — For all other Metal Marine Pilots.

ACCESSORIES (Continued)

SPROCKETS AND HUBS

1. 8 in. 50-tooth flat hub cast.
2. 8 in. 50-tooth solid with hub cast.
3. Hub, un bored, unmachined.
4. 5 in. 30-tooth solid with hub.
5. 5 in. 30-tooth split with hub.
6. 3.85 in. 24-tooth with hub.



1 in. bore standard for all steering sprockets

7. 3.2 in. 20-tooth with hub.
8. 16-tooth Diecast Bronze, $\frac{1}{2}$ in. hole $\frac{1}{4}$ x 20 HH Set Screw.
9. 10-tooth Diecast Bronze, $\frac{1}{2}$ in. hole $\frac{1}{4}$ x 20 HH Set Screw.

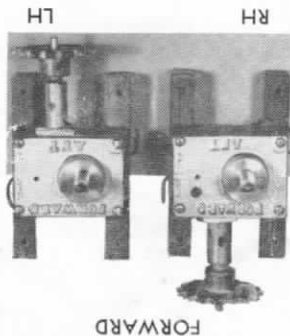
COMPASS BASES

Brass gear boxes, interchangeable as units to provide for number of wheel turns hard-over to hard-over on a given vessel.

"Right Hand" gear box mounts sprocket forward.

"Left Hand" gear box mounts sprocket aft.

Ratios available in either RH or LH: 10:1, 20:1, 30:1, 40:1, and 60:1.



METAL MOTOR UNIT BASES

(Not shown)

Cast bronze base for Motor Unit. Available at time Motor Unit. Recommended for severe tropical duty or whenever vessels steering wheel requires considerable turning effort.

FLEXIBLE SHAFTING — FOR MODELS 15 and 42

.150 Shafting	Standard length 6 ft.
.480 Housing	with fittings, longer
.104 Square Tips	on special order.
	$\frac{7}{8}$ in. 18-thread couplings

41 Blued Steel Roller.
 # 41 Stainless Steel Roller. (Limited supply available.)

CHAIN

ACCESSORIES (Continued)

QUESTIONS AND ANSWERS

1. Q.—What type of boat will the METAL MARINE PILOT steer? A.—Every type that can be steered satisfactorily by hand.
2. Q.—Does the Pilot give me any extra man-power on the boat? A.—Yes. The Pilot will hold the wheel and course 24 hours per day, 7 days per week. Figured on the basis of an 8-hour day, this equals 21 man days per week.
3. Q.—Do I save any fuel by the use of a METAL MARINE PILOT? A.—Yes. Vessels equipped with the METAL MARINE PILOT report saving of from 5 to 15% of fuel, due to a better course steered.
4. Q.—What is the current consumption of the Pilot? A.—That depends on the voltage. The 6-volt Pilot draws about 10 amperes; 12-volt, 5 amperes; 32-volt, 3 amperes; and 110-volt, about 1 ampere.
5. Q.—Is the Pilot made to work without a "B" battery? A.—Yes. Only the vessels power supply is used. There is no "B" battery, Dynamotor or vibrator required on Models 11, 15 and 42.
6. Q.—Can I get a Pilot to work on 110 volts A.C.? A.—Yes, by placing one of our A.C. Rectifier Units ahead of the Pilot. This Rectifier Unit is sold separately. (See list of accessories.)
7. Q.—Can I install the Pilot myself? A.—Yes, in most cases. Mounting the 8-inch sprocket on the steering wheel or shaft usually represents the greatest amount of work required.
8. Q.—Do I have to purchase extra chain and sprockets necessary for installing the Pilot? A.—No, except in special cases.

15. Q.—If I locate the compass at some other part of the boat, how will I connect the compass to the motor unit? A.—By means of extra intermediate shaft or shafts, and sprockets and chain (Model 11), or Flexshaft up to 10 ft. long (Models 15 or 42).

14. Q.—I wish to locate the compass for the Pilot in some part of the boat other than the pilothouse. Can this be done satisfactorily? A.—Yes. The compass may be located wherever desired, provided due consideration is given to keeping the compass dry and away from interfering iron or electrical apparatus.

13. Q.—How is the compass connected to the motor unit? A.—By means of sprockets and chain on Model 11. By means of Flexshaft drive on Models 15 and 42.

12. Q.—Does it require an expert to compensate the Pilot compass? A.—No. The Pilot compass may be compensated by anyone who can read and follow the simple directions which we furnish.

11. Q.—Is it necessary to have the Pilot compass compensated as accurately as the steering compass? A.—No. But the Pilot compass should be compensated, under normal conditions, to within 5 degrees of correct on the principal headings. However, there are cases wherein the Pilot compass does not need any compensation.

10. Q.—Can I use the Pilot compass in place of a steering compass to steer the boat? A.—While this is possible, we do not recommend it. A boat should have its own steering compass, properly compensated.

9. Q.—Do I have to buy an extra compass for the Pilot? A.—No. The Pilot comes furnished with its own special compass.

*This would be "north", if the vessel were south of the equator.

cate the Pilot in some part of the boat where there

MARINE PILOT. What do you suggest? A.—Lo-

22. Q.—I don't have room in the pilot-house for a METAL

able protection from the weather.

rain, and the motor unit also must have reason-

box must be covered to protect from spray and

A.—This may be done, but the compass and relay

21. Q.—Can the Pilot be installed on the flying bridge?

compass.

magnetic force of the rod will greatly offset the

seriously. But if it ends close to the compass, the

past the compass without bothering the compass

probably can. Normally, an iron rod can extend

stands, and get rid of this difficulty? A.—Yes, you

20. Q.—Can I move the compass upward from where it

location, or raise it 12 inches or more vertically.

compass at least 8 inches away from its present

19. Q.—How can I overcome this? A.—Either move the

the pilot-house close to the compass.

a vertical steel holding-down rod in the wall of

head. What is the reason? A.—You probably have

compass always points south* toward that bulk-

house close to the forward bulkhead, and the

18. Q.—I put my Pilot compass on the floor of the pilot-

from horizontal bulkheads or plates.

compass at least 30 in. from vertical and 24 in.

PILOT work on this? A.—Yes. But be sure to keep

17. Q.—I have an all-steel boat. Will the METAL MARINE

may be turned in any desired direction.

compass base"—Models 15 and 42 compass bases

pointing aft, which we designate as the "left hand

Order the special base with the sprocket shaft

A.—No. Do not turn the compass base around.

base around and have the sprocket pointing aft?

the sprocket forward. Can I turn the compass

16. Q.—I don't have room to install the compass base with

is room, and use intermediate shafts between the motor unit and the steering wheel.

23. Q.—I don't have room to mount an 8 in. sprocket on the steering shaft. Can I use a smaller sprocket?
A.—Yes. We manufacture a 5 in., $3\frac{3}{4}$ in., and 3 in. sprocket for use in just such cases.

24. Q.—Does the 8 in. sprocket have a hub? A.—No. But hubbed sprockets are available. The standard 8 in. sprocket is flat, bored for 1 in. shaft. It can easily be mounted by means of spacers and bolts either to the wheel or to the sprocket already on the steering shaft. Sprockets with hubs are carried in stock. These may be bored, mounted and keyed on order.

25. Q.—Why must I designate the number of wheel turns in ordering a Pilot? A.—Because the rudder must be turned to a definite angle to correct for any given number of degrees which the boat gets off course. If a boat has two turns from hard over to hard over, the rudder will normally move 45 degrees for every turn of the wheel; whereas if the boat has 10 turns, the rudder will move 9 degrees per turn. Since the compass must make the necessary correction through the rudder to bring the boat back on course, the ratio between the motor unit and the compass must be so balanced that the compass will always give the correct amount of movement to the rudder.

26. Q.—Must I carry any spare parts for my Pilot? A.—Many Pilots run for years without needing any replacements. However, it is prudent to carry an extra radio tube and mercury contactor.

27. Q.—What is necessary to start the Pilot in operation? A.—Flip the relay box switch to the "On" position.

If the Pilot is not equipped with one of these Dodgers, it is necessary to disengage the clutch,

on course.

leased the Pilot automatically brings the boat back temporarily. Then when the push-button is re-means of a push-button the course can be changed an accessory called the "Dodger", so that by path? A.—For Models 11 and 15 we manufacture

32. Q.—How can I steer around an object in the vessel's

the position to hold that course.
words, the rudder is magnetically controlled into quired to bring the boat back on course. In other causes the rudder to turn in the direction re-pass, working through the relay and motor units, and the instant the boat turns off course, the com-are locked mechanically into one integral unit, the clutch is engaged, the compass and the rudder

31. Q.—How does the Pilot hold the course? A.—When

lever on the Pilot.
the boat on course by hand, then engage the clutch

30. Q.—How do I set the Pilot on the course? A.—Bring

is engaged, that course will be held.
course by hand, and the clutch lever of the Pilot
course. When the boat is steadied on any given
Model 42 stops oscillating when ready to hold the
lating is always ready for a given course. The
indicated course? A.—No. The Pilot when oscil-

29. Q.—Is it necessary to set the Pilot compass for an

hold the course.
seconds. The Pilot is then ready to engage to
hold course.) This usually takes from 30 to 60
forth. (The Model 42 stops when it is ready to
settles down to making short swings back and
You must wait until the Pilot warms up and

28. Q.—Is the Pilot ready then to hold the course? A.—No.

steer around the object by hand, then re-engage the clutch after bringing the vessel back to the desired course.

33. Q.—Can I make permanent course changes by remote control? A.—The Model 42 (Non-Hunting Pilot) is equipped for full remote control. Also we make an accessory known as the Model 63 Electric Steerer which may be used on Models 11 and 15. This easily installed unit allows dodging, maneuvering, circling and either permanent or temporary course changes from one or more remote control stations. A 50 foot extension cord is supplied with the remote control handle which permits a portable control station.

WHEN ORDERING YOUR METAL MARINE PILOT,

be sure to specify:

- A. Model of Pilot desired.
- B. Voltage of the vessel's electrical system.
- C. Number of turns of steering wheel from hard over port to hard over starboard.
- D. Name of vessel, when possible.
- E. Desired accessories.

The entire Pilot is packed for shipment in a wooden box measuring 20x22x10 inches, with convenient handles for carrying. Average shipping weight is 95 pounds. (Model 42 packed in 2 boxes above size; shipping weight 137 pounds.)

Unless otherwise arranged, shipments from factory usually go via Railway Express C.O.D., shipping charges collect. We frequently ship by air freight to distant points, when so requested.

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WOOD FREEMAN, President

