

***KE-4a***

***KE-5***

***KE-6***

***ENGINE SYNCHRONIZATION***

***INSTRUCTIONAL MANUAL***

## INTRODUCTION

This manual has been prepared to ensure your correct operation of the KE-4,KE-5 or KE-6 engine synchronization. Be sure to read through this manual to understand the content thoroughly with care to prevent injury or damage to the property through abuse. Always keep the manual within your reach during operation.

This kit is to add the KE-4,KE-5 or KE-6 twin engine control system engine synchronization.

It is recommended therefore to read the manual of KE-4,KE-5 or KE-6 Electronic Control System.

The specifications may be subject to change without notice in view of improvement,resulting in more or less difference between the content of the manual and the product. In case of ambiguity or questions concerning the product or the manual,consult with your dealer.

---

## APPLICABLE CONTROL UNIT

---

The control units for engine synchronization must be selected from the list below.

NM0453-00,	NM0477-00	(KE-4 12V model)
NM0454-00,	NM0478-00	(KE-4 24V model)
NM0492-00		(KE-5)
NM1401-00		(KE-6 12V model)
NM1402-00		(KE-6 24V model)

---

## PARTS REQUIRED

---

No.	Name	Part No.	Required					
			Two engines					
			Single	2	3	4	5 (only KE-5)	
①	Sync Master Harness	NM0605-01					1	
②	Sync Slave Harness	NM0605-02					1	
③	Sync Switch	NJ0524-00					1	
④	Switch Harness	5m	NM0617-05					
		10m	NM0617-10					
		15m	NM0617-15					
		20m	NM0617-20					
		25m	NM0617-25					1
		30m	NM0617-30					
		35m	NM0617-35					
		40m	NM0617-40					
	45m	NM0617-45						
	50m	NM0617-50						

Note:Refer to the page2,3,4 "NAME OF EACH PART "

---

## HOW TO OPERATE

---

1. Set both hand levers in the NEUTRAL position.
2. Turn the Sync Switch "ON "
3. Once the Sync Switch is tuned "ON ",the synchronization is fully automatic. When both engines are in forward throttle range and the port and starboard hand levers are within 10° of alignment,the system works to synchronize.

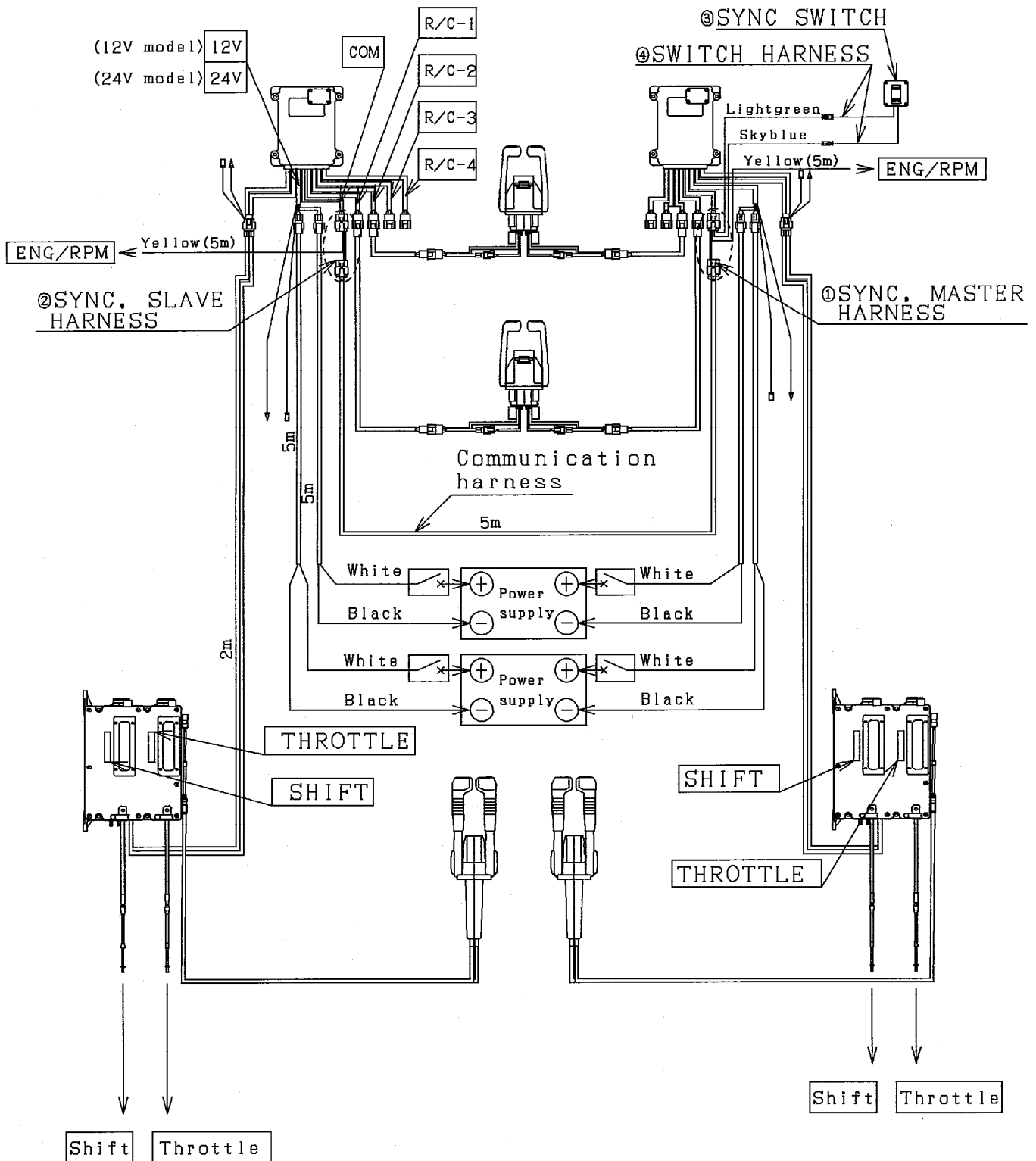
Moving either hand lever beyond 10° of alignment will inactivate synchronization.

# NAME OF EACH PART (for KE-4)

The figure below shows an example of two engines/  
two control station system

▢ : Indicates identification

□ ← : Indicates the destination of connection

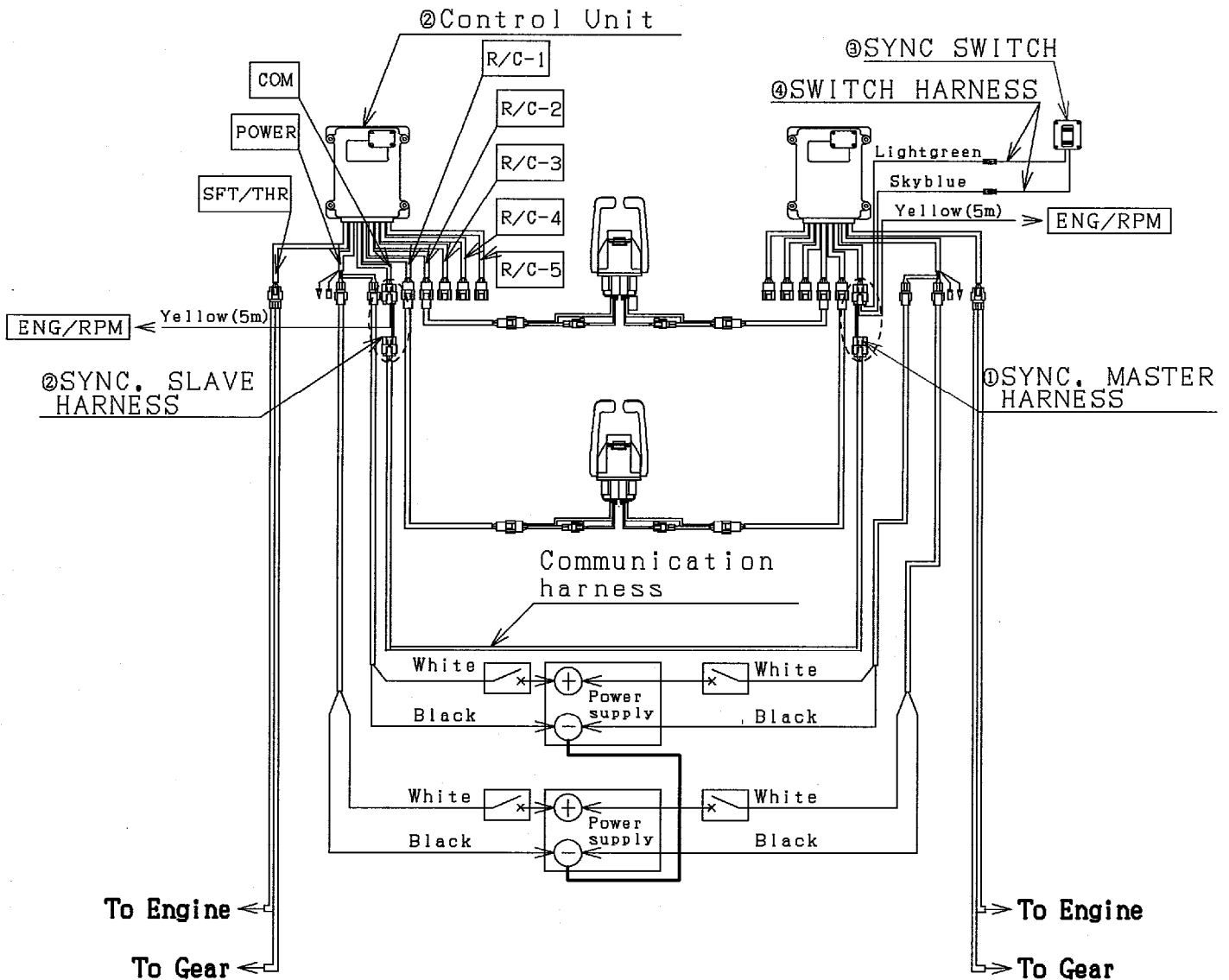


# NAME OF EACH PART (for KE-5)

The figure below shows an example of two engines/  
two control station system

☐ : Indicates identification

☐ ← : Indicates the destination of connection

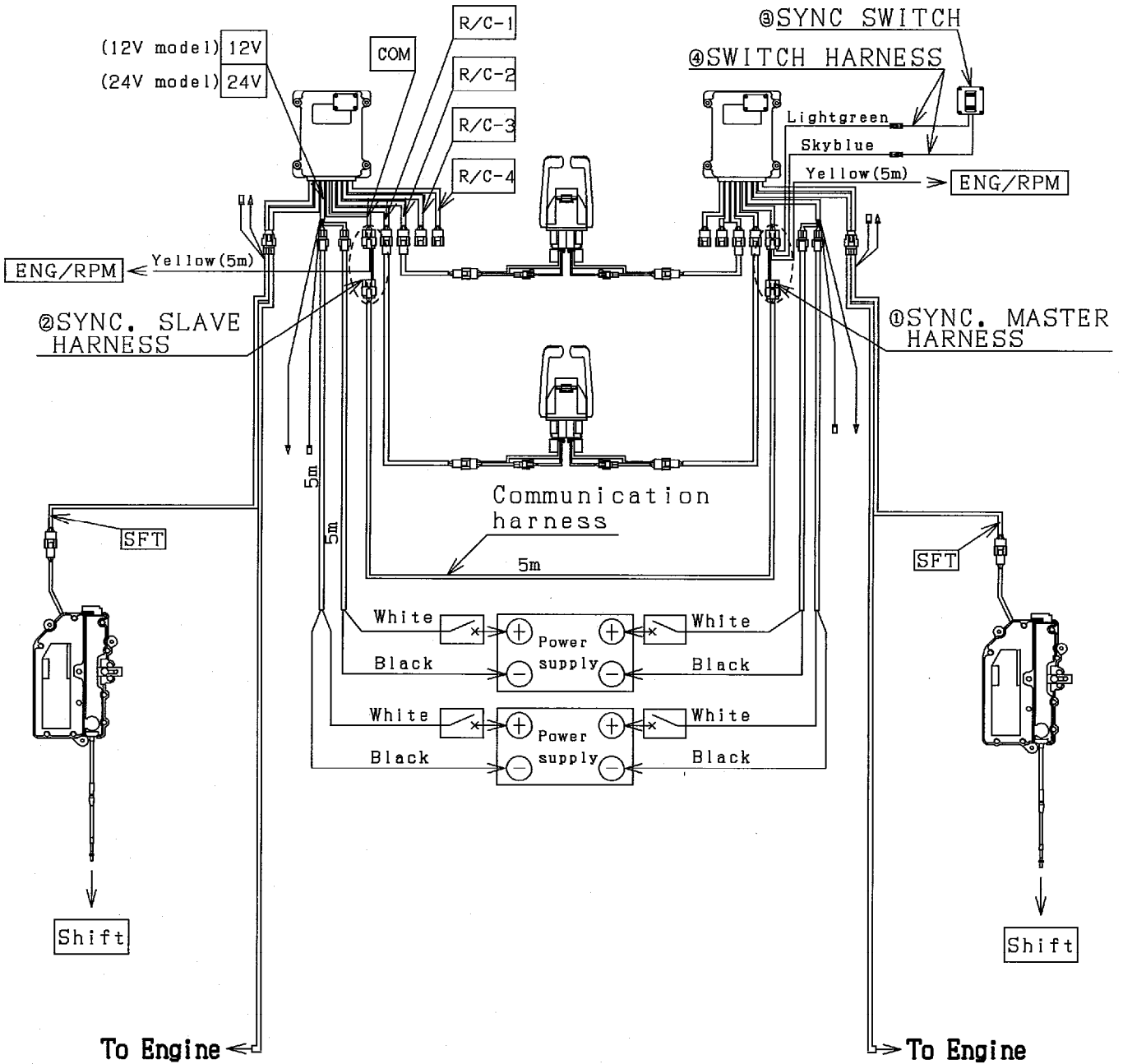


# NAME OF EACH PART (for KE-6)

The figure below shows an example of two engines/  
two control station system

☐ : Indicates identification

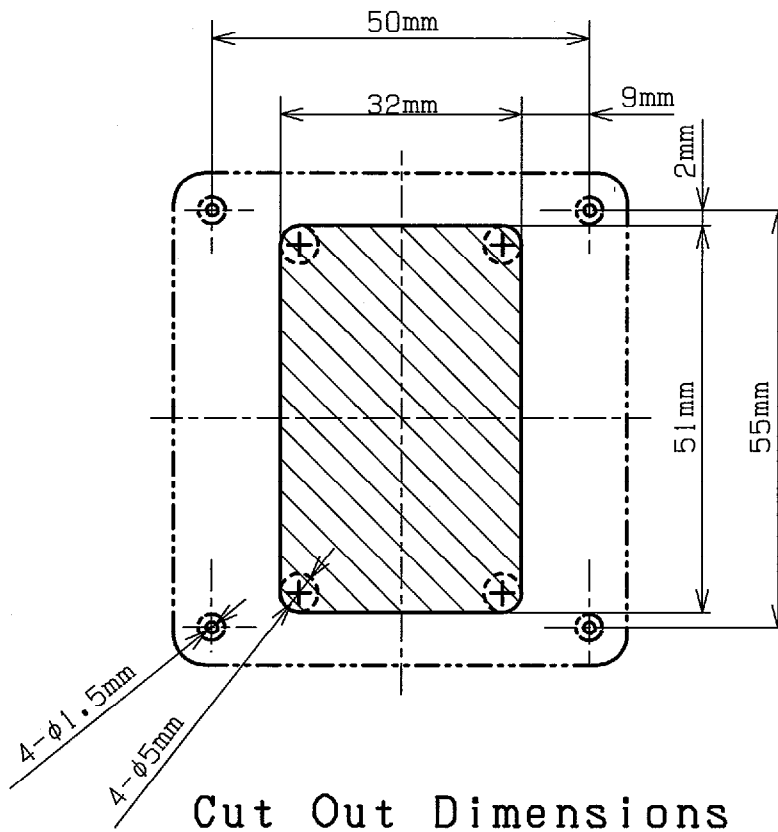
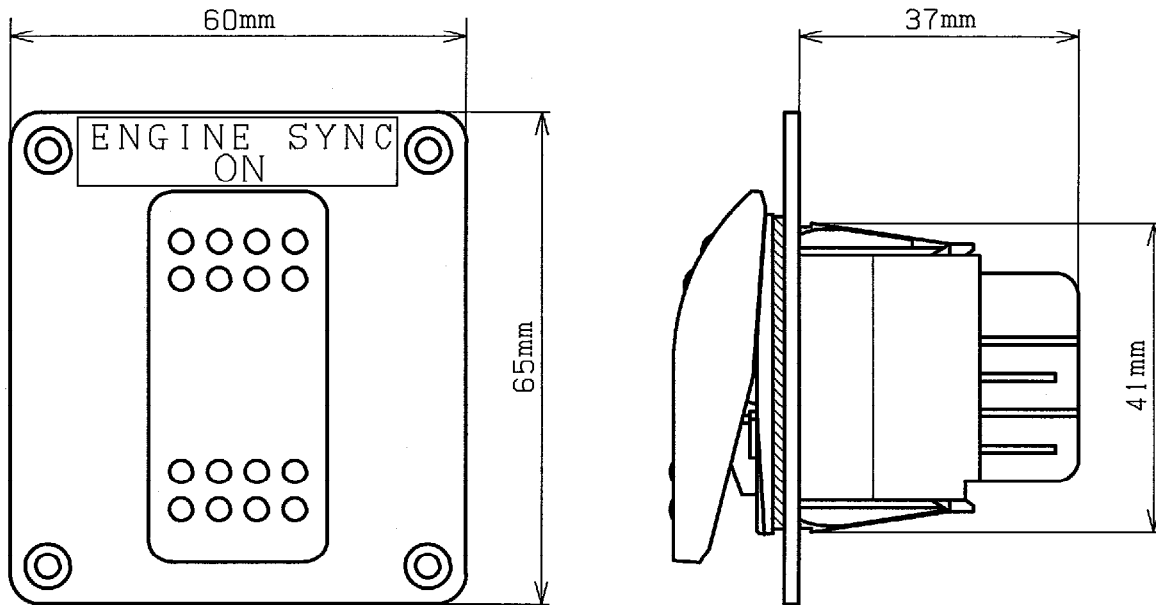
☐ ← : Indicates the destination of connection



# INSTALLING THE SYNC SWITCH

Select a flat convenient place for operation and installation.

- (1) Drill mount holes by using an attached template.
- (2) Install the sync switch with attached tapping screw.



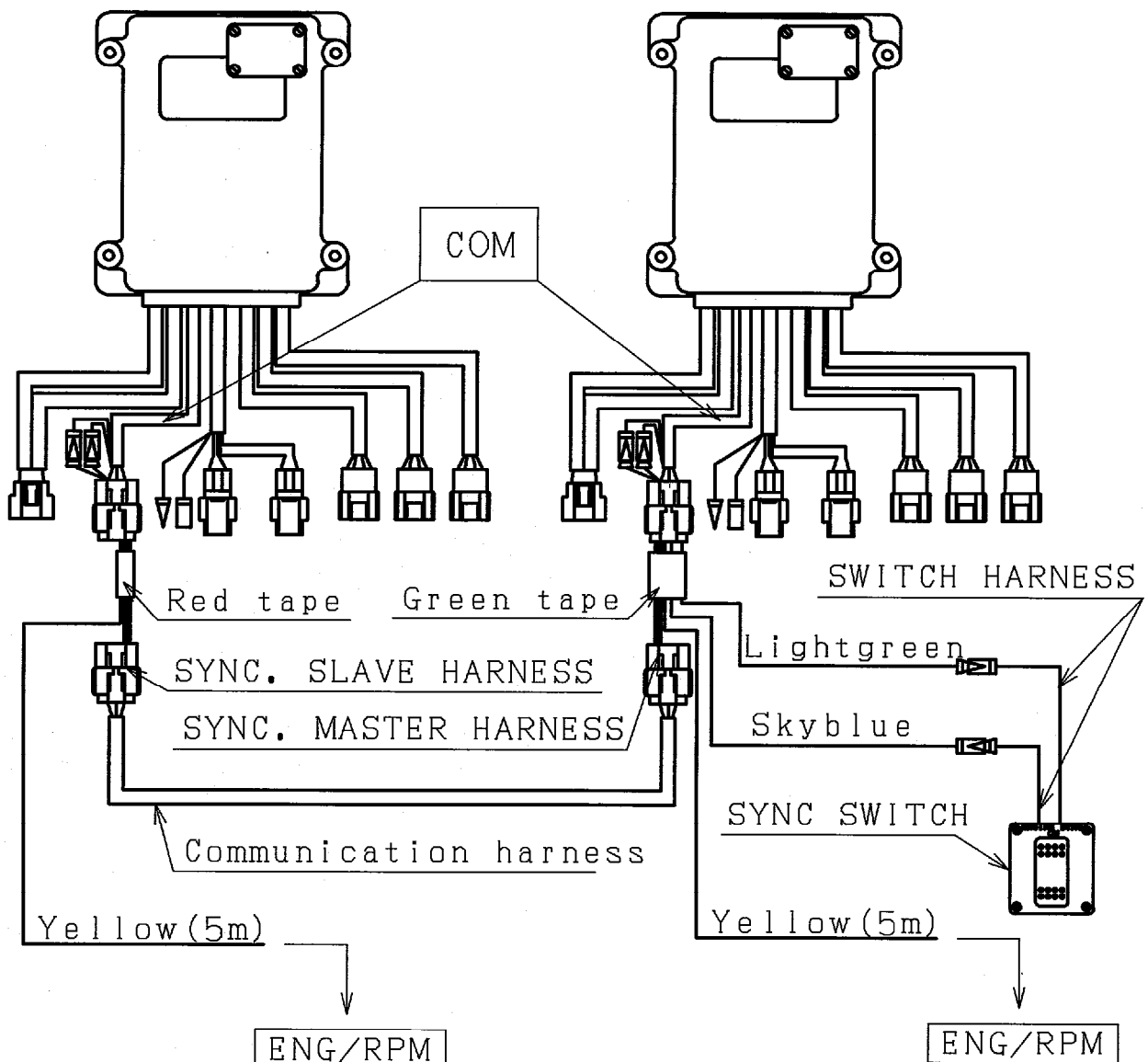
# CONNECTING HARNESS

- (1) Connect the Sync Master Harness between the starboard control unit and the Communication Harness.
- (2) Connect the Sync Slave Harness between the port control unit and the Communication Harness.
- (3) Connect the Switch Harness between the Sync Master Harness and the Sync Switch.

**Note:**The lightgreen lead wire may be connected to the skyblue lead wire directly, if automatic synchronization is desired at all times.

- (4) Connect the yellow lead wire from the Sync Master Harness to the starboard engine RPM output and the yellow lead wire from the Sync Slave Harness to the port engine RPM output.

**Note:**Either engine can be "master engine". The above setting is to make the starboard engine "master" and the port engine "slave".



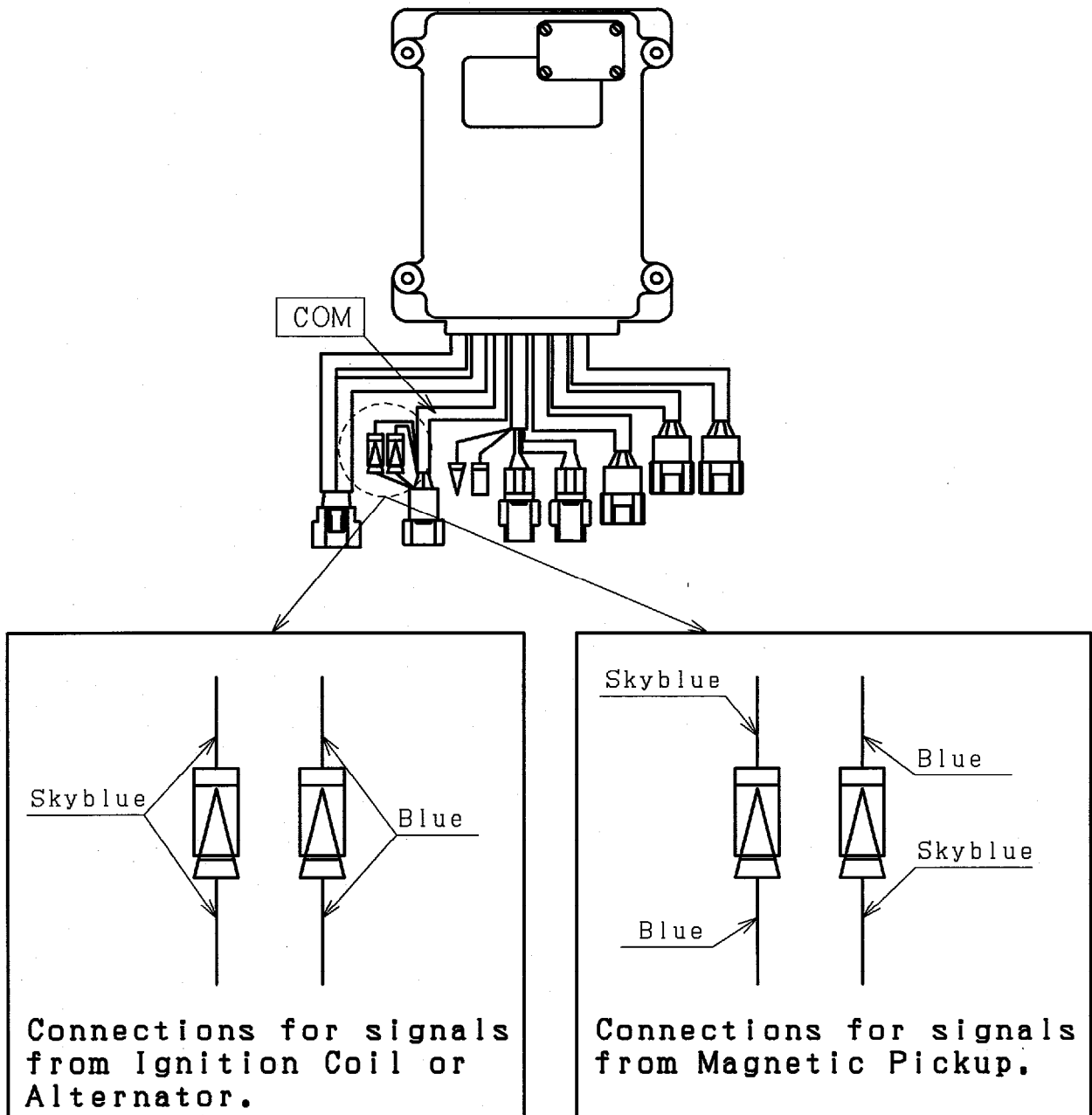
**Note:** The above figure shows "KE-4" CONTROL SYSTEM.

# SETTING FOR ENGINE SYNC SIGNALS

**Note:** This setting is required only for use of the engine sync function.

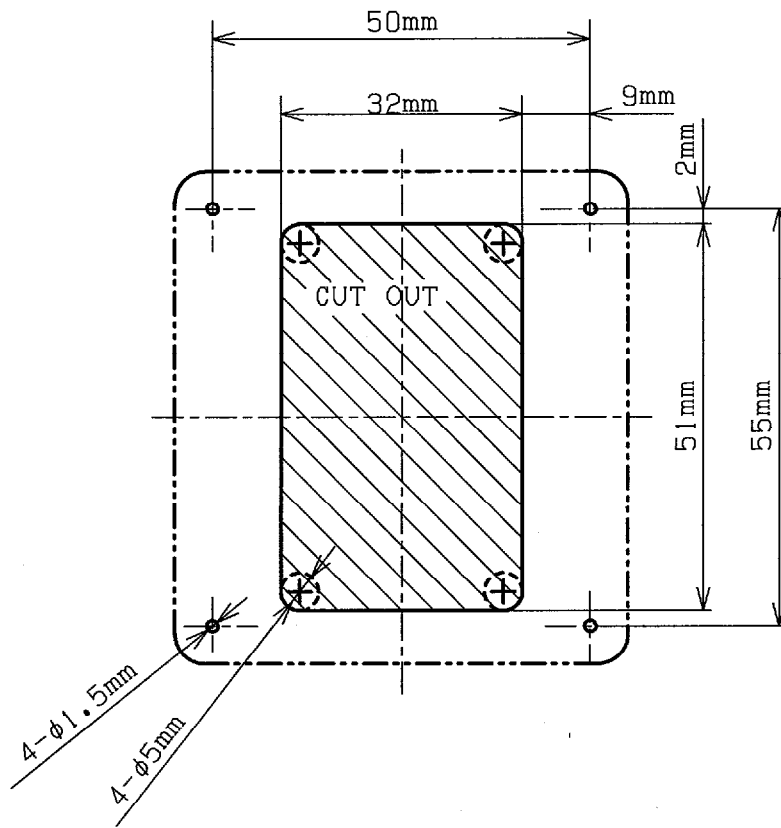
Connect the Blue and Skyblue lead wires in the wire-harness marked "COM" from the control unit as follows to read engine sync signals properly.

- (1) Connect the same colored lead wires each other ("Blue" with "Blue" and "Skyblue" with "Skyblue") for signals from a Ignition Coil or a Alternator. (as shipping from factory)
- (2) Connect the different colored lead wires each other ("Blue" with "Skyblue" and "Skyblue" with "Blue") for signals from a Magnetic Pickup.



**Note:** The above figure shows "KE-4" CONTROL SYSTEM.

# SYNC SWITCH TEMPLATE



# **NHK TELEFLEX MORSE CO., LTD.**

**3-21-10, SHIN-YOKOHAMA, KOHOKU-KU, YOKOHAMA,  
222-0033, JAPAN**

**PHONE:(045)475-8905 FAX:(045)475-8908**