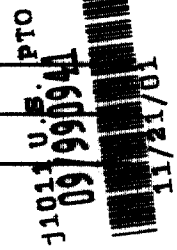


**RECORDATION FORM COVER SHEET
PATENTS ONLY**U.S. DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office**1. Name of conveying party(ies):**Ray M. NuberFritz B. Mezger

Additional name(s) of conveying party(ies) attached?

☐ Yes ☒ No**2. Name and address of receiving party(ies)**

Name: _____

Internal Address: _____

Street Address: _____

City: _____ State: _____ ZIP: _____

Name and address of receiving party(ies)

Name: _____

Internal Address: _____

Street Address: _____

City: _____ State: _____ ZIP: _____

Additional name(s) & address(es) attached?

☐ Yes ☒ No**4. Application number(s) or patent number(s):**If this document is being filed together with a new application, the execution date of the application is: See Attachment

A. Patent Application No.(s)

B. Patent No.(s)

Additional numbers attached?

☐ Yes ☒ No

ASSIGNMENT

For valuable consideration, the adequacy and receipt of which are hereby acknowledged, we Steven L. Branscombe, William F. Courtney, Michael S. Munoz, Ray M. Nuber, and Fritz B. Mezger respectively, of Westminster, California; Long Beach California; Redondo Beach, California; Rancho Palos Verdes, California; and Philadelphia, Pennsylvania do hereby sell and assign to TRW Inc., One Space Park, Redondo Beach, California, an Ohio corporation, its successors and assigns, the entire right, title and interest in and to the improvements in METHOD OF CONFIGURING SATELLITE CONSTELLATION DESIGN USING MULTIPLE DISCRETE SWITCHABLE SPOT BEAMS which has been invented by us, as described in the application for United States Patent which we executed respectively, on Nov. 19, 2001, Nov. 19, 2001, Nov. 19, 2001, Nov. 19, 2001, and Nov. 19, 2001, and any and all applications for patent and patents therefor in any and all countries, including all divisions, reissues, continuations, and extensions thereof, and the right to claim the priority date of the first filed application in the United States, and authorize and request any official whose duty it is to issue patents, to issue any patent on said improvements or resulting therefrom to said TRW Inc., or its successors or assigns, and agree that on request and without further consideration, but at the expense of TRW Inc., we will communicate to TRW Inc. or its representatives or nominees any facts known to us respecting said improvements and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, and reissue applications, make all rightful oaths, and generally do everything possible to aid TRW Inc., its successors, assigns and nominees to obtain and enforce proper patent protection for said invention in all countries.

Nov. 19, 2001

Inventor:

Steven L. Branscombe
Steven L. Branscombe

Nov 19, 2001

Inventor:

William F. Courtney
William F. Courtney

Nov. 19, 2001

Inventor:

Michael S. Munoz
Michael S. Munoz

Nov, 19, 2001

Inventor:

Ray M. Nuber
Ray M. Nuber

_____, 2001

Inventor:

Fritz B. Mezger
Fritz B. Mezger

ASSIGNMENT

For valuable consideration, the adequacy and receipt of which are hereby acknowledged, we Steven L. Branscombe, William F. Courtney, Michael S. Munoz, Ray M. Nuber, and Fritz B. Mezger respectively, of Westminster, California; Long Beach California; Redondo Beach, California; Rancho Palos Verdes, California; and Redondo Beach, California do hereby sell and assign to TRW Inc., One Space Park, Redondo Beach, California, an Ohio corporation, its successors and assigns, the entire right, title and interest in and to the improvements in METHOD OF CONFIGURING SATELLITE CONSTELLATION DESIGN USING MULTIPLE DISCRETE SWITCHABLE SPOT BEAMS which has been invented by us, as described in the application for United States Patent which we executed respectively, on _____,

Nov. 19, 2001, _____, and _____, and any and all applications for patent and patents therefor in any and all countries, including all divisions, reissues, continuations, and extensions thereof, and the right to claim the priority date of the first filed application in the United States, and authorize and request any official whose duty it is to issue patents, to issue any patent on said improvements or resulting therefrom to said TRW Inc., or its successors or assigns, and agree that on request and without further consideration, but at the expense of TRW Inc., we will communicate to TRW Inc. or its representatives or nominees any facts known to us respecting said improvements and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuing, and reissue applications, make all rightful oaths, and generally do everything possible to aid TRW Inc., its successors, assigns and nominees to obtain and enforce proper patent protection for said invention in all countries.

_____, 2001

Inventor: _____
Steven L. Branscombe

_____, 2001

Inventor: _____
William F. Courtney

_____, 2001

Inventor: _____
Michael S. Munoz

_____, 2001

Inventor: _____
Ray M. Nuber

Nov. 19, 2001

Inventor:  _____
Fritz B. Mezger

STATE OF CALIFORNIA

)
) ss
)

COUNTY OF LOS ANGELES

On Nov. 19, 2001 before me, Michelle Christopher
personally appeared Steven L. Branscombe
X personally known to me - ~~or~~ ~~proved to me on the basis of~~
~~satisfactory evidence~~ to be the person whose name is subscribed to the
within instrument and acknowledged to me that he/~~she~~ executed the same in
his/~~her~~ authorized capacity, and that by his/~~her~~ signature on the
instrument the person, or the entity upon behalf of which the person acted,
executed the instrument.

WITNESS my hand and official seal.



(SEAL)

Michelle Christopher
Notary Public

STATE OF CALIFORNIA

)
) ss
)

COUNTY OF LOS ANGELES

On Nov 19, 2001 before me, Michelle Christopher
personally appeared William F. Courtney
X personally known to me - ~~or~~ ~~proved to me on the basis of~~
~~satisfactory evidence~~ to be the person whose name is subscribed to the
within instrument and acknowledged to me that he/~~she~~ executed the same in
his/~~her~~ authorized capacity, and that by his/~~her~~ signature on the
instrument the person, or the entity upon behalf of which the person acted,
executed the instrument.

WITNESS my hand and official seal.



(SEAL)

Michelle Christopher
Notary Public

STATE OF CALIFORNIA

)

) ss

COUNTY OF LOS ANGELES

)

On Nov 19, 2001 before me, Michelle Christopher
personally appeared Michael S. Munoz
X personally known to me ~~-or-~~ ~~proved to me on the basis of~~
~~satisfactory evidence~~ to be the person whose name is subscribed to the
within instrument and acknowledged to me that he/~~she~~ executed the same in
his/~~her~~ authorized capacity, and that by his/~~her~~ signature on the
instrument the person, or the entity upon behalf of which the person acted,
executed the instrument.

WITNESS my hand and official seal.



(SEAL)

Michelle Christopher
Notary Public

STATE OF CALIFORNIA

)

) ss

COUNTY OF LOS ANGELES

)

On Nov 19, 2001 before me, Michelle Christopher
personally appeared Ray M. Nuber
X personally known to me ~~-or-~~ ~~proved to me on the basis of~~
~~satisfactory evidence~~ to be the person whose name is subscribed to the
within instrument and acknowledged to me that he/she executed the same in
his/her authorized capacity, and that by his/her signature on the
instrument the person, or the entity upon behalf of which the person acted,
executed the instrument.

WITNESS my hand and official seal.



(SEAL)

Michelle Christopher
Notary Public

STATE OF CALIFORNIA

COUNTY OF LOS ANGELES

)
) ss
)

On 11/19/01 before me, Dennis McCarthy
personally appeared Fritz B. Mezger

_____ personally known to me -or- X proved to me on the basis of
satisfactory evidence to be the person whose name is subscribed to the
within instrument and acknowledged to me that he/she executed the same in
his/her authorized capacity, and that by his/her signature on the
instrument the person, or the entity upon behalf of which the person acted,
executed the instrument.

WITNESS my hand and official seal.

Dennis McCarthy
Notary Public

(SEAL)

